The Style of Video Games Graphics:

Analyzing the Functions of Visual Styles in Storytelling and Gameplay in Video Games

by

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Abstract

Every video game has a distinct visual style however the functions of visual style in game graphics have rarely been investigated in terms of medium-specific design decisions. This thesis suggests that visual style in a video game shapes players' gaming experience in terms of three salient dimensions: narrative pleasure, ludic challenge, and aesthetic reward. The thesis first develops a context based on the fields of aesthetics, art history, visual psychology, narrative studies and new media studies. Next it builds an analytical framework with two visual styles categories containing six separate modes. This research uses examples drawn from 29 games to illustrate and to instantiate the categories and the modes. The application of this analytical framework against the games reveals a series of design heuristics. Finally, the thesis findings, framework, and heuristics are tested in the detailed close reading and analysis of visual style in two representative video games.

Keywords: visual style; visual design; gameplay; narrative; aesthetics; believability

Dedication

This thesis is dedicated to my family, especially… to my wife Jing who shows great understanding and supports me each step of the way; to my grandma who encourages and enlightens me with her lifetime of wisdom; to my late grandpa who instilled me the importance of diligence and endurance; to my mom and dad who give unconditional love and support; to all of my close ones who bring me cheers and joys during my graduate years.

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1. Introduction

Many academic studies examine video games with a focus on their gameplay and interactive storytelling components. Admittedly, those areas are fundamental to video game design. Meanwhile, the medium of video game has a salient visual component. It relies heavily on graphic presentation to communicate to players. Nowadays the studies of visual design in video games mostly are found in industry-based researches, concerning with the development of graphic engines and rendering techniques. Those industrial researches are proved to have great value for video game as a commercial product. As for any art medium, the development of the practical techniques often runs in a parallel and a complementary fashion with the researches of the aesthetics of the medium. For example, in cinema, there are studies in the technical aspects of filmmaking, such as the study of camera operating and film editing techniques; at the same time, there are studies in its aesthetics, such as the theory of montage. Why video game should be any different from those artistic media? However at this moment, there are few in-depth and systematic approaches in the academics which revolve around the visual aesthetics of a video game.

1.1. Research Question

What are the functions of visual styles in video game ? More specifically, how to accurately describe various qualities of a visual style in term of their game design functionalities? In addition, how do those different qualities in visual style affect other game design components? I believe those are useful questions for evaluating the success of visual design in video game. in art history and art criticism, style is considered to have great significance in the understanding of artists' intentions and the value of an artwork. In a video game, the artist's intention should always run parallel with the primary design goal in games which is to create immersive and engaging gaming experience for players. Researchers and scholars in literary studies and new media

studies have proposed their theories on the contributing factors to the experience of immersion. As early as 18th century, British poet and literary critic Samuel Coleridge coined the term “suspension of disbelief” in the essay *Biographia Literaria* that describes the phenomenon where readers of novel willingly suspend their doubts on the fictional narrative and choose to immerse themselves in the story world(Coleridge, 1905). That is one of earliest attempt to understand the experience of narrative-based immersion. In contemporary context, many new media scholar explores the idea of immersion in the context of interactive media and they have added new components to the definitions. Janet Murray discusses the immersion as one important aesthetic experience of digital environment. Such experience is intensified though two essential properties of the medium, participatory and encyclopaedic. Agency is a unique aesthetic experience that is created through the process of interaction; it is strongly associated with the experience of immersion (Murray, 1997). Laura Ermi and Frans Mayra expands on the ideas of immersions and proposed three types of immersive experiences as subcategories of Murray’s general concept of immersion. They are sensory immersion, challenged-based immersion, and imaginative immersion. Sensory immersion refers to the intense perceptual rewards produced by audiovisual stimuli. Challenged-based immersion refers to the state of mind where the player begins to ignore things external to the gameplay as his/her skill level reaching a dynamic balance with the challenges in the game. This level of immersion is supported by Mihaly Csikszentmihalyi’s theory of flow. Imaginative-immersion can be understood as a reiteration of Coleridge’s suspension of disbelief where the storytelling provide the player with a chance to escape into his/her own fantasy supported by the game world. To sum up the theories of those modern experts and pioneers, there are three modes of immersive experience – the narrative-based immersion, the challenge-based immersion and the sensory-based immersion. The three modes of immersion provide us with a critical direction to approach the understanding of visual styles in video game. That is, supporting the establishment of the three types of immersion should be the primary concern in the design of a game’s visual style.

Additionally, in the current state of game researches, there is a lacking of specific terminologies while describing the visual style of a video game, which could be detrimental to the understanding its effects. When it comes to visual style, it is common

to think of those two words, abstract and realistic. However, in practical situation, the visual appearance of a game can never be simply classified as either one of them. There are always different levels of abstraction and concreteness in the game graphics. Even for two games that both feature abstract graphics, the visual qualities in each of the game could be completely different to produce two distinctive looks. One might say that the visual design of the game *Call of Duty 3* and the game *Gears of War 3* are equally realistic, but they have drastically different visual look in almost every detail. Therefore, specific and accurate definitions on the aesthetic qualities in visual style are needed for a better understanding in visual design of games.

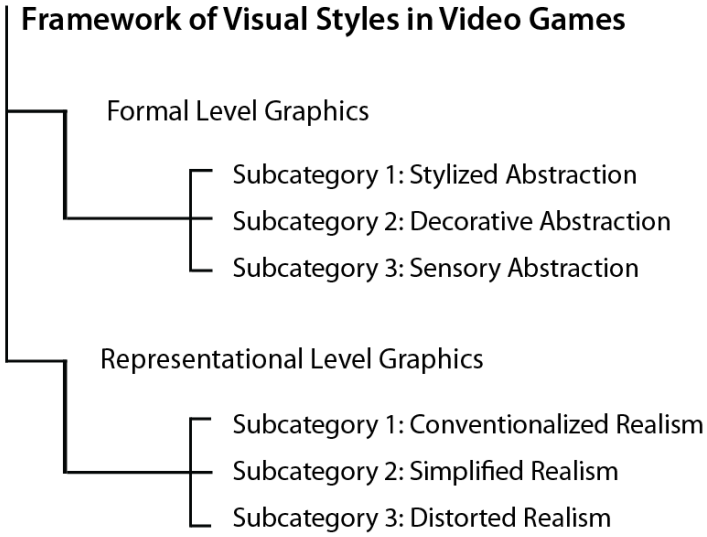
When it comes to studies of specific aesthetic qualities in visual styles, Rudolf Arnheim's *Gestalt Psychology of Expression* is particularly influential and inspirational. His three dimensions of expression - the holistic nature, structural similarity, and generality – helps to explain the psychological reactions to stylistic elements in visual art that makes expression possible. Also, his Gestalt theory of visual expression discusses various formal qualities under two major categories - surface level and illusionist level. Those discussion are useful in defining and describing stylistic attribute in the graphics of a video game. In addition, there are modern day artists and scholars who embrace Arnheim's view in visual aesthetics. Particularly Scott McCloud's iconography which carries the heritage of Arnheim's analysis of expressivity in visual art. Will Eisner's description of symbolism also resonances with the concept of structural similarity and generality in Arnheim's Gestalt framework.

In sum, this thesis aims at systematically exploring the functions of various qualities of visual styles in the video game through understanding their support of the three type of immersions. There are other topics that are also important for a complete understanding of the role of visual design in video game experience. These include important considerations such as kinesthetic reactions to visual styles, relationship to interactive design, or the role of motion as a visual expression and experience. These and other visual variables capable of shaping a player's game experience are worthy of their own exploration. I recognize the significance of those variables and topics, but in order to maintain a reasonable scope for my research, I have confined my work to a consideration of the design and the effects of visual style.

1.2. Research Method and Outcomes

The thesis draws contexts from the field of aesthetics, psychology, storytelling, and new media studies. It incorporates analytical tools from Rudolf Arnheim's gestalt theory of expression, Jim Bizzocchi's narrative framework in game, Eric Zimmerman's analytical concepts in game, and among others. This thesis goes on to construct a framework of visual styles that consist of two major categories of visual style and six subcategories of expressive qualities (fig1.1). The wide-range of literature review provides the thesis with theoretical foundations in defining and defending two categories and six subcategories of analytical modes of visual styles in the framework. That is the first major outcome of our research. It is worth to note, the categories and subcategories in the framework describe different aspects of visual styles and each item has its own definition, including a degree of distinction between the subcategories. However they are not meant to be mutually exclusive. A video game can have a combination of several subcategories of visual styles in its visual design. In addition, although each subcategory has its own core traits, there are some visual qualities that a few subcategories share. That means the boundaries between them are soft and sometime overlapping.

Figure 1.1 the Framework of Visual Styles in Video Games, chart by author



The second major outcome is a set of six design heuristics (fig 1.2) which derived from the application of my framework in the analysis of items in the research domain.

Figure 1.2 Design Heuristics, chart by author

Design Heuristics	Supporting Case Studies
Gameplay Utility	Design Driven by Gameplay Utility - *Fallout 3*
Narrative Utility	
Story Requirement	Design Driven by Story Requirement - *Nier Gestalt*
Plausibility	Design Driven by Engineering Plausibility - *Halo Wars* Design Lack of Logic Plausibility - *Magna Carta 2*
Reference	Design Driven by Sign-level Reference - *Valkyrie Profile* Design Driven by Symbol-level Reference - *Bayonetta*
Aesthetic Effect	
Consistency	Consistency between Visual Salience and Gaming Tension - *Super Street Fighter 4* Lack of consistency between Visual Style and Narrative Genre - *Valkyria Chronicles* Lack of consistency of Visual Faithfulness across all of a game's graphic - *Eternal Poison*
Identifiability	Using Visual Motif to Promote Identifiability – *Little Big Planet* Using Visual Language to Promote Identifiability – *Odin Sphere*

The research method includes focused case studies on a wide-ranging set of case examples (drawn from 29 video games) to provide breadth and two focused close reading to provide depth of the analysis.

The review of case examples was conducted with two purposes in mind. First, they instantiate and illustrate the categories of my research domain[1] as well as the six analytical modes under two categories in the framework (fig 1.1). Secondly, they become the basis for my argument regarding the validity and utility of the two major outcomes – the analytical framework and the design heuristics.

Two extensive and in-depth close readings are conducted after the limited case studies to validate all the design heuristics and all items in the framework. The procedure of carrying out the close reading takes the following steps:

1) Description of game mechanics
2) Description of story setting in the game
3) Close observation on official concept artworks, screen captures and video records of gameplay in each game.
4) Parsing visual components found in the screen capture and video footages with items in both the framework and the design heuristics.

The close readings provide a final measure of the utility and validation on the design heuristics. In addition, they also give the opportunity to understand the relationships and synergies found in the combination of separate heuristics since each close reading would contain the validation of several design heuristics.

For better understanding of our methodology, we can view the research domain as being represented by the set of objects being studied. The framework is the set of analytical modes against which the domain categories are tested. The heuristics is the set of findings derived from the application of the framework against the domain.

[1] the research domain is subdivided into four categories - character design, prop design, environment design, and visual effect

1.3. Research Data

Since the set of case studies plays a critical role in my argument and in my methodology, a brief explanation is necessary for defending my choice of those games. In figure 1.3, the sample set chart includes game developer, game genre, story genre, primary rating, alternative rating and sales figure for each game in the sample set. To certain extent, those attributes forms the basis of our selection. As you can see, most of the game developers are well-established and reputable companies. That ensures the relative high level of production quality for the selected games. The gameplay genre shows a great variety and diversity which suggests that the game set is a representative sample for the analysis. Furthermore, I use IGN.com rating as the primary rating source considering its popularity and influence among gamers. The alternative rating is meant to offer a degree of fairness in judgment to games received vastly different rating across many sources. The two rating columns and the sale figure column are intended to demonstrate that the design quality of games from the set are relatively good, hence they are worthy of analyzing.

Game	Developer	Gameplay Genre	Primary Rating (IGN)	Alt. Rating	Sales Figure
Call of Duty 3	Treyarch	First-person shooter	8.8	n/a	7.18m
Gears of War 2	Epic Games	Third-person shooter	9.5	n/a	6.52m
Gears of War 3	Epic Games	Third-person shooter	9	n/a	5.50m
Nier Gestalt	Cavia/Square Enix	Action RPG	7	34/40 - Famitsu	0.49m
Blazblue Continuum Shift	Arc System Works	Fighting	8.5	n/a	0.29m
Ninja Gaiden 2	Team Ninja	Action advanture	8.7	n/a	0.97m
Soul Calibur 4	Namco Bandai	Fighting	8.7	n/a	n/a
Muramasa the Demon Blade	Vanillaware	Action RPG	8.9	n/a	0.54m
Valkyria Chronicles	Sega	Tactical RPG	9	n/a	1.06m
Super Stardust HD	Housemarque/SCEA	Top-down shooter	8.7	n/a	n/a
Child of Eden	Ubisoft	Rail Shooter	8.5	n/a	0.35m
Shin Megami Tensei: Nocturne	Atlus	Turn-based RPG	8.6	n/a	0.38m
God of War 3	SCE Santa Monica	Action advanture	9.3	n/a	4.43m
Uncharted 3	Naughty Dog	Action advanture	10	n/a	4.5m
Fat Princess	Titan/SCEA	Action real-time strategy	9	n/a	n/a
Katamari Forever	Namco Bandai	Third-person action puzzle	7	n/a	0.3m
Alice: Madness Returns	Spicy Horse/EA	Action advanture	6.5	n/a	0.33m
Fallout 3	Bethesda	Action RPG	9.6	n/a	3.77m
Halo Wars	Ensemble Studios	Real-time strategy	8.4	82/100 - Metacritic	2.15m
Magna Carta 2	Softmax	Turn-based RPG	6.8	69/100 - Metacritic	0.26m
Valkyrie Profile	Square-Enix	Turn-based RPG	9.1	35/40 - Famitsu	0.81m
Bayonetta	Sega	Action advanture	9.5	n/a	1.04m
Super Street Fighter 4	Capcom	Fighting	9	n/a	1.26m
Eternal Poison	FlightPlan/Banpresto	Tactical RPG	3.5	65/100 - Metacritic	0.14m
Little Big Planet	Media Molecule/SCEU	Platformer	9.5	n/a	4.95m
Odin Sphere	Vanillaware	Action RPG	8.8	n/a	0.56m
Halo Reach	Bungie	First-person shooter	9.5	n/a	9.1m
Quantum Theory	Koei Tecmo	Third-person shooter	2.5	n/a	0.14m
Final Fantasy 13	Square-Enix	Action RPG	8.9	n/a	4.85m

Figure 1.3 Research Data - Sample Sets Overview, chart by author

1.4. Thesis Reading Guideline

- **Chapter 1: Introduction** - This chapter provides an overview to the thesis. It includes brief summaries on research questions, research context, methodology, and research outcomes.

- **Chapter 2: Literature Review** - This chapter presents reviews on literatures in visual aesthetics & expressivity, narrative studies, and new media studies. In addition, I build intellectual connections between those works with my research.

- **Chapter 3: Research Domain** - There are specific components in the visual design of games, such as, character design, environment design and interface design. This chapter itemises and defines those visual design components.

- **Chapter 4: Framework of Visual Styles in Video Games** - This chapter identifies and defines formal properties in both traditional art and visual game graphics. Based on the definitions, it constructs a framework that breaks down the vague concept of visual style into six more specific and more manageable categories in the context of video game study.

- **Chapter 5: Visual Design Strategies and Case Studies** - This chapter presents the analysis and outcomes of case studies through applying the framework of visual styles to the research domain in each case. Six major design strategies are identified.

- **Chapter 6: Close Readings** - This chapter conducts in-depth close reading on two video games that tests the validity of every design heuristic against all components identified by the research domain.

- **Chapter 7: Conclusion**

- **Appendix A: Case Example Matrix** – It organizes all the games analyzed in my thesis in relation to my research domain, framework and design heuristics. The objective of creating this data matrix is to show the specific components of visual designs in each game I have investigated and therefore it provides an overview on how I arrive at my research outcomes.

- **Appendix B: Video Game Terminologies** – It provides definitions on terms that are used and mentioned in this thesis. I classify them in three

categories which corresponding with three critical aspects of game studies, visual components, narrative components, and ludic components &dynamics

2. Literature Review

In this chapter, I start my intellectual pursuit by investigating the roots of visual style in art history, aesthetics, and visual psychology. Then I look at classic narratology in order to understand the relationship between visual design and storytelling. Last I review literature in new media and game studies, which provides understanding on the structure and dynamics within video games, the fundamentals of game design and the medium specific characteristics of the video games.

2.1. Existing Analytical Lenses

2.1.1. Jim Bizzochi's Narrative Framework

Jim Bizzochi's research in video game narrative proposed a solution to reconcile the confliction between author-dictated classic narrative structure and the user-controlled interactive video game medium. He suggested that since not all video games tell stories therefore there is no need to be fixated on the debate over whether video game should be a narrative medium or as a ludic medium. The concern should focus on creating a better overall gaming experience of the players. His narrative framework for video game integrates both interactive gameplay components and static narrative components. He admitted that in an interactive environment, while users are given controls over the story development, it is almost impossible to maintain the classic paradigm of storytelling. That is the storytellers would have complete control over the narrative experience. Therefore discussions on how games can tell stories in the classic perspective is futile because games are essentially a different medium with its own media specificities. However, storytelling techniques in video games largely derive from the classic narrative. It is useful for us to understand those commonalities in term of their functions in supporting the players' engagement with the game world. He proposed a narrative framework that consists of the following five parts:

- **Story world** - what is the environment within which the game unfolds
- **Character** - who are the beings that populate this game world
- **Emotion** - both the emotions shown by the games characters and those elicited in the player
- **Narrative interface** - how are narrative sensibilities instantiated in the appearance and the functionality of the interface design
- **Micro-narrative** - smaller moments of narrative flow and coherence that occur within a broader context of game play (Bizzocchi, 2007)

Bizzochi's framework breaks down the compound and complicated gaming experience into more manageable categories. This can be useful in determination of crucial design components in video games. Using the five narrative parameters as a guide, We are able to identify the corresponding parts in the graphic department of game design.

2.1.2. Owen Demers' Six Visual Genres in Digital Painting

Owen Demers is an award-wining art director with a strong industry-based background. Based on years of experiences in 3D computer imaging, digital illustration and art direction, he developed categories of painting styles in digital environment in the book *Digital Texturing and Painting*. The set of categories becomes a great inspiration for me to construct an analytical framework of visual styles in video game of our own.

Demers defined six visual genres of digital painting based on their characteristic differences.

- **Realistic** – the art style that imitates the real world as a photograph does
- **Hyper-Real** – the fidelity of the artwork goes deeper than reality; it represents the world in near-microscopic details.
- **Stylized** – the art style is created through a consistent personal interpretative journey; formal qualities such as brush strokes are highly personalized and expressive.
- **Simplified** – the art style reduces all the unnecessary formal qualities and only communicates the most quintessential trait of the objects
- **Graphic** – the art style features a stark, bold style void of shadows and details

- **Fantastic** – the art style depicts subjects in ways diverging from reality and boldly going to any otherworldly place the imagination can take you (Demers, 2002)

As a computer graphics veteran, Demers suggested a digital painting can include traits of more than one visual genre from the list above. Each visual genre has its own characteristics and it relies on those unique expressive means to affect the viewers in different ways. The choice of which style to use is utterly depending on the design goal and the emotional context in a digital environment.

2.1.3. Rudolf Arnheim's Gestalt Psychology of Visual Expression

Film scholar and perceptual psychologist Rudolf Arnheim came from the school of Gestalt Psychology. In the book *Art and Visual Perception (1997)* and in the essay *The Gestalt Theory of Expression (1949)*[2] by him, he dissected the aesthetic experience in fine art as part of our psychological responses to various modes of visual expressions. A particular mode of visual expression is often recognized as a type of visual style. In addition, formal structures we recognize as traits of visual styles are essential to creation of visual expression.(Arnheim, 1949) His theory on visual expression forms the foundation for defining the specific modes of visual styles in my framework.

Arnheim developed his theory of expression through applying principles of Gestalt psychology in the analysis of different artworks. The theory includes three critical dimensions of visual expression, the holistic nature, structural similarity and generality.

2.1.3.1. Definition of Expression and Traditional Theories

Before explaining the three dimensions of visual expression, here is Arnheim's own definition of expression and the historical accounts of the same subjects for the better understanding of his framework.

[2] Published in Psychological Review, vol.56, No.3 on May 1949, page 156 to 171

> "We define expression as modes of organic or inorganic behaviour displayed in the dynamic appearance of perceptual objects or events. The structural properties of these modes are not limited to what is grasped by the external senses; they are conspicuously active in the behaviour of human mind, and they are used metaphorically to characterize infinity of non-sensory phenomena" (Arnheim, 1997)

The problem of expression has a long history in the art discourse and it is a topic with tremendous difficulty due to the elusive nature of expressivity in visual art. Arnheim's investigation starts by revisiting some of traditional views on expression in art. In the traditional view, "expression is said to be exist only where there is a mind to be expressed".(Arnheim, 1997) This view suggests that expression is an exclusive ability to human and other highly intelligent animals. For example, when someone is in pain, his facial muscle contracted accordingly. That produces a unique expression that enables other people to recognize his agony and suffering. However this claim quickly runs into a problem. That is many artworks without human or intellectual animals can still produce expressivity. For examples, visual depictions of nature sceneries often express emotions such as power and strength. To answer why inanimate object such as rock and waterfalls can also display expressive traits, the traditional theory argues that those traits are perceived by the viewer in a figurative sense. Simply put, the appearance of inanimate objects resembles expressions and behaviors of human. Hence we react to them in similar manners with when we see the expression in the people and animal they resemble. The recent developments of traditional theory expanded on that idea and suggested that the judgement of expression depends on stereotypes or archetypes that existing from particular social groups. However this view cannot adequately explain the problematic origin of those stereotypical conventions in expressions. Arnheim found that German philosopher Theodor Lipps attempted to resolve the problem by using the concept of empathy. In Arnheim's own words, how empathy could work is explained thoroughly in the following quote.

> "When I look at the columns I know from past experience the kind of mechanical pressure, I know how should I feel myself if I were in the place of the columns and if those physical forces acted upon and within my own body. I project my own kinaesthetic feeling onto the columns. Furthermore, the pressures and pulls called up from the stores of memory by the sight tend also to provoke responses in other areas of mind" (Arnheim, 1997)

2.1.3.2. Dimension One – The Holistic Nature of Expression

One of the central ideas in Gestalt psychology is that human mind tends to make sense of ambiguous situations by imposing structure, causality and order. That is used to explain how abstract visuals can convey meaning and evoke feelings to viewers. Arnheim argued that expression produces a wholesome mental experience from the various formal elements in the appearance of an object or scenery. To give a simple illustration, when we see a drawing of an apple, we do not see redness, roundness and volume at first, we see all those formal qualities work together and present an impression of an apple that is tasty and fresh.

This is also the reason that Arnheim remained critical toward the traditional fine art practice which prioritizes anatomical accuracy and perspective over the wholesome aesthetics. He suggested that the practice has an unreasonable demand for mathematic correctness for rendering individual formal elements such as shapes and perspective. Since we humans do not recognize each individual element through our visual perception, rather we perceive the whole composition as one integrated experience. Excessive focus on perfection of representation can even distract the artist from communicating emotions and ideas effectively through the synergy of visual elements.

> "If expression is the primary content of vision in daily life, the same should be all the more true of the way the artist looks at the world. The expressive qualities are his means of communication. They capture his attention, they enable him to understand and interpret his experiences, and they determine form patterns he creates." (Arnheim, 1997)

Precisely because of the holistic nature of expression, the expressive qualities become vital for artists to communicate and to express their thoughts and ideas through forms in their art. In the design of video game graphics, high fidelity and reality-perfect become ever easy to achieve thank to modern technology, however just that because we have the technology does not mean we should always use it. Technologies and techniques should only be used while it works well with other visual components. All visuals within a game should work together to communicate the necessary ideas, feelings and emotions for the support of storytelling and gameplay.

2.1.3.3. Dimension Two – Structural Similarity in Expression

Isomorphism or structural similarity is a key dynamic in Arnheim's Gestalt theory of expression. This viewpoint suggested there are similarity between formal qualities found in art and emotional qualities found in our mind in term of their structures. That is the reason why an artwork can trigger emotions and ideas beyond its mere appearance. It is the fundamental way that expression works. As Arnheim explaining this dynamic based on Wertheimer's observation on a dance of sad theme,

> "… In the representation of sadness the movement was slow and confined to a narrow range. It was mostly curved shape and showed little tension…it will be admitted that the psychical mood of sadness has a similar pattern. In a depressed person the mental processes are slow and rarely go beyond matters closely related to immediate experiences and momentary interests. All his thinking and striving displays softness and lack of energy…" (Arnheim, 1997)

The dance and the mental state of sadness share the structural qualities of softness and slowness despite of one being material and the other being spiritual. Such structural similarities enable artistic expressions of the very idea of sadness.

In fact, such dynamics is not exclusively found in fine art and theatrical art. In poetry, analogies such as comparing the tension between nations to the tension in the sky are often used. In daily life, the trend to use non-human things/inanimate objects to describe/express human qualities and animate objects are very common.

This dynamic might offer us a practical guide for analyzing the graphic design in video game. By looking at the structural aspect of formal qualities in visual design, we could estimate their expressive capacity in the context of the gameplay.

2.1.3.4. Dimension Three – Generality in Expression

In his framework of expression, Arnheim argued that all perceptual qualities have generality. Visual expression relies on generality produced by formal qualities to evoke abstract ideas.

> "⋯to some extent we see redness in every red spot or speed in every fast movement. The same is true for expression. When Picasso conveys to us in a painting the gentle ways in which a mother guides the first steps of

her unsteadily walking child, we see gentleness as a general quality exemplified in a particular case" (Arnheim, 1997)

Figure 2.1 First Steps, Pablo Picasso, 1943, Oil on canvas

Retrieved from
http://artgallery.yale.edu/pages/collection/popups/images/modern/enlarge480/02.jpg

Here Arnheim described to us of a case how expression can produce generality. The idea of the gentleness is abstract and it is rather impossible to be represented with concrete visual description. Through the expression of gestures and various other formal qualities that Picasso used to portray the subject, the viewers are able to feel the universal idea of gentleness. We can also imagine the opposite situation, when we find an artwork to be dull and lack of emotional impact; it might be because the concrete representational forms in the material surface of the artwork fail to evoke the necessary generality. In Picasso's painting *First Steps*(fig. 2.1), the distorted expressions and gestures from the mother figure evoke ideas of gentleness and worrying. The deformed forms used in the daughter figure produces senses of clumsiness and innocence. Those are universal ideas that taps into audiences' mind and they add tremendous emotional

weight into the narrative moment depicted in the painting. Generality in expression allow an artwork to communicate ideas beyond its physical content and descriptive narrative. Arnheim claimed that, to some extent, generality is responsible for bringing symbolic power into artworks.

The idea of generality in expression in practical situation can have profound implications. As suggested by classic theories of expression, conventions and stereotypes play an important role in expression; while perceptual stimuli remains unchanged, different expectations towards to a particular expression can influence the viewer's final aesthetic experience. Those expectations are strongly influenced by conventions of a given cultural and social context. Through mixing and matching different subject matters and generalities of expression, various emotion effects can be achieved. For example, in political cartoon, important political figure are often paired with body shapes that evokes the idea of childishness, the overall result could be a sense of incompetence and stupidity.

Ultimately, while approaching visual design in video games, perhaps the Gestalt tradition of focusing on the overall experience is something the designer should be constantly reminded of. One should always examine individual graphic element in relation to the communicative purpose of the entire work. One must analyze the visual appearance in relation with its subject matter; nothing in a design should be arbitrarily placed. As Arnheim put:

> "The visual form of a work of art is neither arbitrary nor a mere play of shapes and colors. It is indispensable as a precise interpreter of the idea of work is meant to express. Similarly, the subject matter is neither arbitrary nor unimportant. It is exactly correlated with the formal pattern to supply a concrete embodiment of an abstract theme. " (Arnheim, 1997)

2.1.4. Eric Zimmerman's Aesthetic Parameters: Narrative, Interactivity, Play and Game

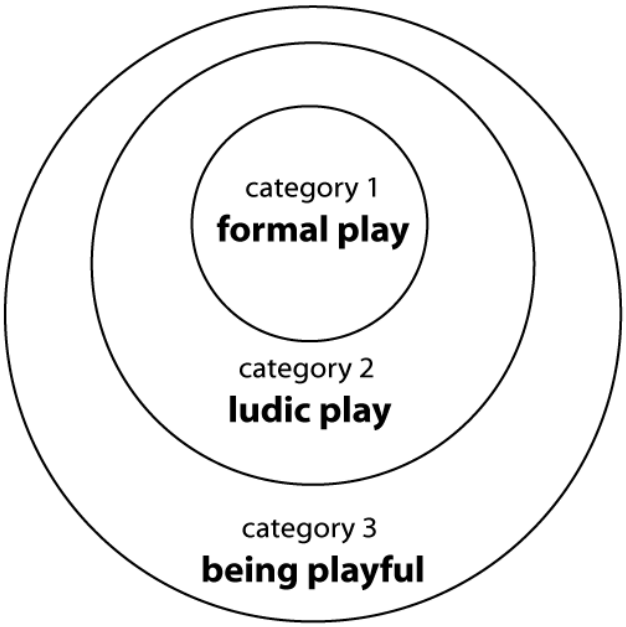
In the essay *Narrative, Interactivity, Play, and Games: Four naughty concepts in need of discipline*, Eric Zimmerman laid the foundation for us to examine video games through four well-defined conceptual parameters. The significance of his definitions is that he identifies the different layers of meaning that can be found within the four

commonly used concepts in video game related discussion, narrative, interactivity, play and game.

Zimmerman's definitions of game states "Game is a voluntary, interactive activity where there are pre-designed artificial rules and challenges for players to overcome, through players' progress, the conflict will be inevitably occurred and the outcome from the conflict should be quantifiable outcome." (Zimmerman, 2004) There are six important concepts can be extracted from this definition which are essential properties of a game. Games are voluntary, interactive, behaviour constraining rules, artificiality, conflict and quantifiable outcome. One can directly parse the six concepts into the analysis of gameplay. Those concepts are observable in different aspects of a typical gameplay sequence in a game. Voluntary imply willingness to participant the gameplay. Interactivity, behaviour constraining rules, artificiality and conflict lead to the encounter of in-game challenges. Finally, quantifiable outcomes correlate with in-game achievements and score.

Zimmerman's four levels of interactivity is useful analytical tool for investigating and dissecting the compound and complex gameplay experience. The first level is cognitive interactivity. This level is "the psychological, emotional, hermeneutic, semiotic, reader-response, rashomon-effect-ish, etc. kind of interactions…" (Zimmerman, 2004). In video game, players' enjoyment on the story elements such as concept art, cutscenes and dialogues is a well-fit for this category. The second level functional interactivity refers to the direct interfacing with a medium. In video game, such interactivity is found during navigating menus, browsing inventories, and dialogue selections. The third level is explicit interactivity; this refers to interactivity in the most obvious sense. Audiences are required to have procedural participations that would generate series reciprocal actions. The gameplay in a game refers mostly this level of interactivity. Activities such as solving puzzle, traversing platform, combat and looting are all typical explicit interaction. The last level is meta-interactivity or cultural participation with a text, such interactivity exists "outside of the experience of a single text." In gaming culture, the interaction among fans that inspires and motivates creation of online gaming forum, fan-art, fan-fiction, mods, and unofficial-remake, etc. could be consider as the meta-interactivity.

Figure 2.2 Zimmerman's three levels of play, chart by author



Zimmerman's definition of play has some notable overlaps with his definitions on interactivity and game. "Play is the free space of movement within a more rigid structure. Play exists both because of and also despite the more rigid structures of a system." (Zimmerman, 2004) Play and interactivity both shares the characteristic that they both exist within a system of structure. However, play differs from interactivity because it does not always require a reaction from the system. In addition, game is just one type of play. Specifically, play a video game mostly refers to the first category(fig 2.2) of play, the formal play. Formal play is play in the narrowest sense and formal play can also lead to the creation of the second and the third category of play, which are ludic play and state of playfulness. Ludic play "includes all of those non-game behaviours"(Zimmerman, 2004) and it discards the rigid structures. For instance, gamers sometimes refer to the enjoyment of games that pose few challenges but produce lots of sensory rewards and quantifiable outcomes as "mindless fun". This mindless fun is an excellent example of ludic play. The third category state of playfulness can be understood as a spirit or an attitude. It does not necessitate participations or actions. To certain degree, those three

categories show a relation of inclusion. In conclusion, formal play is a type of ludic play, and ludic play is a type of being playful.

According to Zimmerman, video games are also narrative devices. Even for games with minimal storytelling, the interactive nature of gameplay always produces states changes. Those state changes are essentially narrative. On the other hand, the traditional sense of narrative such as dramas and stories in cinema and literature exists in game as storyline and world setting. As a narrative device, the game is unique because not only game can "can signify in ways that other narrative forms have already established" it also uses "explicitly interactive narrative systems of formal play" (Zimmerman, 2004) to establish an immersive narrative experience.

2.2. Visual Aesthetics and Expressivity

2.2.1. Forms and Beauty in Art History

To study visual style in video game, we must not forget that the root of all modern visual art – traditional fine art. The different styles of graphics we see in video game media are hugely influenced by various movements and genres in fine art. There has been a long history of discussions on how to evaluate the aesthetic significance of a visual work in term of its formal qualities. Such discourses are often closely associated with the discussion on the idea of beauty. The experience of beauty is sometimes regarded as the ideal use of formal design in a visual work. The objective of my research is to find a set of heuristics to better guide the visual design in games. More specifically, I aim at finding out the ideal way of deciding visual styles video game based on the effect of formal qualities; hence it is beneficial to review relevant theories on forms and beauty in art history.

So what is form? And how they are different from the content of a painting? According to Janson's *History of Art*, "form is what we see in a work of art, what is visible… what we interpret from the form is called content – the message or meaning of the work". (Janson, 2001) Typically in the language of visual art, the formal qualities include shapes, color, texture, and any physical and visible visual qualities. The earliest attempts of connecting formal qualities with the aesthetic appreciation can be found in

Plato's Symposium. In that text, his mentor Diotima stated that "Beauty in every form is one and the same." (Pappas, 2012) It implies that there are certain universal qualities in the forms that producing Beauty. However it is unlikely every artwork that capable of creating beauty has the same formal composition and arrangement. Therefore, the universality of beauty might suggest that beauty is something coming from the experience of observers. This statement is significant in two aspects. First, it tries to form an in-depth and philosophical understanding of beauty beyond our ambiguous common sense view on beauty. Second, this way of thinking that treats beauty as parts of perceptual experience towards the formal qualities rather than the formal qualities themselves.

Sentimentalist philosopher David Hume shared the similar view with Plato. He wrote in his essay *of the Standard of Taste* "Beauty is not a quality in things themselves, it exists merely in the mind that contemplates them" (Hume, 1874). The judgement of beauty comes from the sentiments of the viewers. Those sentiments are reflective in nature and they happen in both perceptual and cognitive levels. In a way, the Humean concept of sentiments can be interpreted as emotional responses to the formal qualities. Because the judgement of beauty is based on commonality in emotions evoked by formal qualities, Hume stated that the study of aesthetic experience is essentially a matter of psychological research. This view also resonates with theories of a few modern scholars of the same field, such as Arnhem and Collingwood.

Continuing the line of thinking from Hume, Immanuel Kant has offered a set of inspiring criteria on achieving the aesthetic experience of beauty through his four moments of aesthetic judgement. The first moment *disinterestedness* implies that a purely aesthetic experience should not be evoked by the lower kind of pleasure that based on our biological contentment and utilitarian requirements. For example, pleasures evoked by graphics that is erotic in nature are not truly the pleasure of aesthetic appreciation. The second moment *universal validity* states that the genuine aesthetic experience is universally communicable. This resonates with the Humean concept of commonality in emotions in the judgement of beauty. The third and the fourth - *necessity* and *purposiveness* – suggest that there is a necessary relation between the formal qualities of beauty and the aesthetic experience of those formal qualities. In my

view, those two moments can help to explain why there is universality in aesthetic pleasures.

Ultimately, the Humean-Kanitan approach to beauty paved the way for the supporter of abstract art in modern time. Their theories suggest the value of an artwork should be independent from its subject matters and contents. In modern video games, abstract graphics are commonly used and found in various components. As a result, a brief understanding of their philosophy of beauty can provide us with better judgement in analyzing and evaluating the functions of the abstract graphics as well as adding intellectual depth to my research.

William Hogarth, a master draftsmanship, has taken a very technical approach to understand visual aesthetics and forms in his book *the Analysis of Beauty*. I found his theory is significant because it could serve as a theoretical bridge between the humean-kantian philosophical discourses regarding the problem of beauty to the practical application of those theories in visual design. Following along the line of thinking that beauty existing in the perceptual realm, Hogarth suggests that the beautiful things are beautiful is due to that they possess the formal qualities satisfying human perceptual requirements. He proposed a set of principles that defines the necessary conditions to produce beauty in fine art practice. It contains two categories and six principles.

The first category is *fitness*. It implies a sense of consistency between forms and its purposes. For example, the shape and forms of muscles on one's legs should show sign of support in enabling various leg movements. That is why one can experience aesthetic pleasure while viewing pictures of athletic human figures, because he/she can sense the usefulness from the form of muscles in an athletic figure. Within the first categories, there are two significant modifiers or design principles – *uniformity* and *regularity* which can be used to achieve and maintain fitness.

The second category is *variety*. It refers to variations in formal qualities, such as the variation of lines, shapes, textures and colors. This category contains four modifiers – *simplicity*, *distinctness*, *intricacy* and *quantity*. The application of simplicity in visual design enables the content to be clearly communicated. Distinctness in forms can reduce the boredom and dullness. Intricacy in formal qualities provides the work with

centers of interests and draws our attentions. Quantity can produce a shock value for an artwork. It evokes a sense of admiration and awe. (Hogarth, 1997)

This section of literature reviews intends to provide my research with a foundation that firmly roots in the discourse of art history and philosophy. Despite their different intellectual background, all authors review above shared a certain way of thinking regarding beauty. That is the formal qualities of a visual work are of great importance in artistic appreciation regardless of the extrinsic factors such as subject matter and narrative setting. Meanwhile, I must acknowledge that many of the philosophical theories have far deeper implications and more profound intentions beyond mere visual aesthetics in fine art. Primarily, many of those theories are as extension of the system of their moral philosophy. However those aspects are less relevant to the core of my thesis. Therefore they are excluded to keep my research scope more manageable.

2.2.2. Artistic Expression, Symbolism and Visual Rhetoric

R. G. Collingwood – Two Modes of Expressions

For Collingwood, the artistic expression is the most essential characteristic of art. It is what separates art from craft. He suggested that the significance of an artwork comes from the expression of emotions through evoking imaginative experience. Also, he advocated that to evaluate the value of an artwork should base on its capability of expressing emotions instead of the representational technique of the artist. In the end, Collingwood argued that that the essence of artwork is an imaginative experience. That might sound lucid and spiritual. However he did not mean that every proper work of art can exist only in the imagination. As he put “perhaps no one can do that (possess himself of the music) unless he does hear the noises” (Collingwood, 1938). Although the aesthetic experience depends on our imagination; imagination along is weak to sustain or to manifest the aesthetic experience. Therefore, a proper work of art must be “bodily”

to stimulate our senses. As SEP[3] editor Kemp put - "The total imaginative experience that constitutes the proper work of art must be conceived as only contingently related to the bodily work". (Kemp, 2009)

Collingwood's framework of artistic expression is primarily consisted of two modes - *projecting emotion* and *arousing emotion*. This theory also proposes that how emotions should be created in works of proper art.

The first mode *projecting emotion* refers to the activity of simply letting out one's emotions. Those emotions are projected to audiences through bodily symptoms of emotions expressed by the artist. Through the process, the artists/expressers often can consciously feel the emotions expressed. The audience on the other hand might or might not be able to experience the same effect. For example, when one is angry, he/she might express my emotion by yelling. I feel the emotion of angriness and my audience will understand the emotion but not necessarily feel the same degree of anger.

The second mode is *arousing emotion*. It refers to the way of using subtle stimulus through formal elements in artwork to evoke emotional responses. For example, a dancer can make people feel sad with his bodily gestures and movements. When one produces a particular emotional response from viewers through this method, he or she does not have to be in the mental state of that specific emotion. For example, a dancer is performing a sad dancing sequence, but he might not feel sad himself. According to Collingwood, in order to properly arouse emotion, the artist "must know the audience he is addressing. He must know what type of stimulus will produce the desired kind of reaction in people of that particular sort; and he must adapt his language to his audience in the sense of making sure that it contains stimuli appropriate to their peculiarities." (Collingwood, 1938) When a proper artist tries to express emotion, he or she should methodically perform a series of actions. Those actions are guided by "means of a system of expressions, language, composed partly of speech and party of gesture, to explore his own emotions; to discover emotions in himself of which he was

[3] Stanford Encyclopedia of Philosophy

unaware, and, by permitting the audience to witness the discovery, enable them to make a similar discovery about themselves" (Collingwood, 1938). The subtleness of expression is critical to a work of proper art and it is made possible through highly organized formal elements. If one exhibits external symptoms of emotions as in the first mode of expression and indulges themselves in the expression without subtle considerations, he/she does not deserve to be regarded as a proper artist. As Collingwood nicely put "the artist never rants". In conclusion, the latter mode of expression is considered of a better mean of expression because the emotion expressed is meaningful and intelligent rather than vulgar and instinctive. In many current generation games, their visual design shows the sign of favoring the first mode of expression over the second. Beyond the flashy visual façade, often there are little considerations on how those graphic components truly affect the players. This situation might be caused by the lack of understanding on the significance of artistic expression as well as the willingness to treat game as a serious art medium. As a result, some visual designs express emotions in improper modes. That might eventually disengage players from the immersive experience. Collingwood's aesthetics which place great emphasis on the subtleness of artistic expression could serve as a beacon in our search for proper approaches of visual expression in video game.

Ernst H. Gombrich – Expressivity and Expressionism

In Ernst Gombrich's celebrated work – *the Story of Art*, he spent a considerable amount of efforts on the topic of expressivity throughout the history of fine art. Particularly in chapter 27- Experimental Art, while discussing works in the expressionism movement sprung in Germany at early 20th century, he raised several salient points regarding relationships among forms, expressivity and subject matters.

Gombrich discussed artworks of the post-impressionist era featuring visual distortion in the representation of objects and subjects. Those drawings are traditionally considered as bad due their incorrect proportions and unrealistic textures. Particularly in *Cockerel* (fig. 2.3) by Picasso, a rooster is rendered with rough lines and distorted physique.

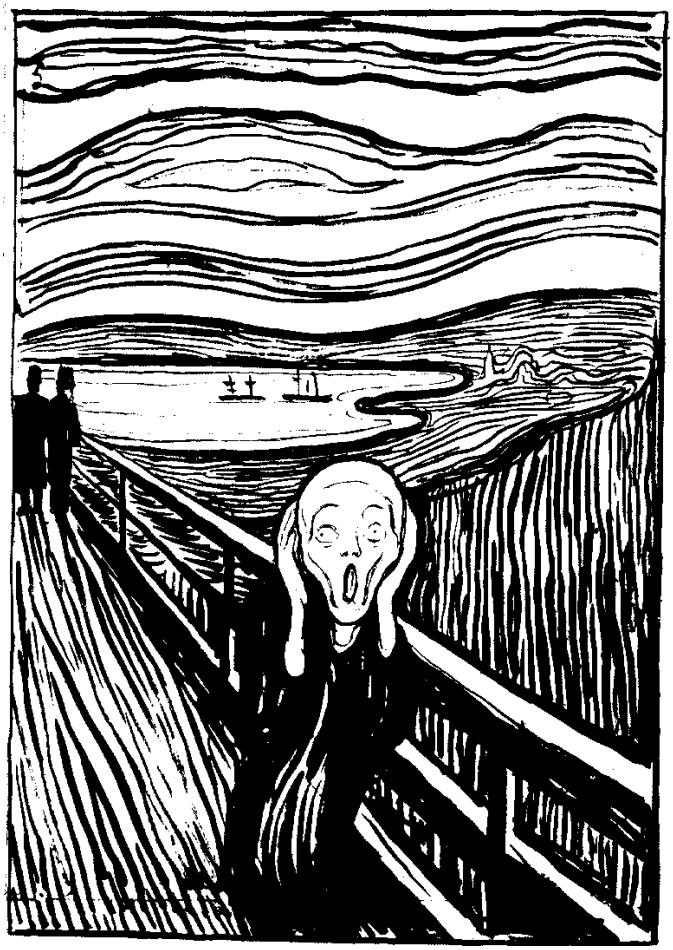
Figure 2.3 Cockerel, Pablo Picasso, 1938, charcoal on paper, private collection

Retrieved from http://ppicasso.tumblr.com/post/29736814115/ronulicny-cockerel-1938-by-pablo-picasso

Comparing with the drawing of accurately rendered animals in classic paintings, any adult observer would point out the seemingly blatant technical errors in this Picasso's drawing, such as the inaccurate placement of the eyes. However, realism and the correctness are intentionally ignored. Picasso intended to bring out the bird's aggressiveness and stupidity with this work. The stylized approach might be more effective in expressing those emotions and ideas than a realistic rendered piece. The distortion and exaggeration are purposefully done. According to Gombrich, that very intention is what separates it from valid artistic expressions from technical error. Furthermore, one might even argue Picasso resorted to caricature for artistic expression here. Caricature is commonly associated with the concept of humour. The advantage is "humorous art was a field in which everything was permitted, because people did not approach it with the prejudices they reserved for Art with a capital A." (Gombrich, 1995) In the end, the audience would be more tolerant with both the formal distortion and the sometimes unconventional subject matters.

However humor is not the only effect that distortions and alterations can produce in artistic expression. For example, under the influence of the Realism movement in 19th century France, the zeitgeist of the visual art started to pursue the authentic reflection of real human problems and emotions in the social environment of that era. Instead of striving for visual idealization to produce a sense of nobility and superiority like the religious paintings in the medieval time, distortion and exaggeration of forms in visual art were widely used by the expressionists to express the more common emotions of that time, such as despair and agony. Gombrich wrote “Expressionists felt so strongly about human suffering, poverty, violence, and passion, that they were inclined to think that the insistence on harmony and beauty in art was only born out of a refusal to be honest.” (Gombrich, 1995) The most famous example would be Edvard Munch’s iconic work - *The Scream* (fig 2.4). The surreal appearance here is intended to accurately portray the emotions rather than to realistically document a scene. The distortion of forms and stylization of lines in both the figure and the background function as visual stimuli to produce a sense of intensive despair. To certain degree, one might claim it depicts the inner reality of a miserable individual. Because under the influence of personal emotions, one’s mental reality might just render the perception of his/her surrounding in the same way that the painting did to the distorted scene. As Gombrich wrote “It is the sober truth that our feelings about things do colour the way in which we see them and, even more, the forms which we remember. Everyone must have experienced how different the same place may look when we are happy and when we are sad.” (Gombrich, 1995)

Figure 2.4 The Scream, Edvard Munch, 1895, lithograph



Retrieved from https://zariski.files.wordpress.com/2012/05/edvard-munch-the-scream-lithograph-1895.jpg

In video game, the visual design plays a critical role in communicating the necessary emotions to support the game's narrative. Since distortions has such a strong expressive potential, it is no surprise that many visual artists of video games consciously or subconsciously utilize them in visual design. Gombrich's view encourages us to bypass the doctrine of judging an artwork by its mathematic correctness. Instead of focusing on the details and the fidelity of a visual design in a video game, the designer should look at what they can expression in the design in relation with the gameplay context and emotional requirements. Perhaps in certain situations, the use of distorted

and stylized visual can convey emotions to players more much more accurate and intense than realism.

Scott McCloud –Visual Iconography and Symbolism in Comic

In the book *Understanding Comic*, McCloud raised discussions on the expressive potential the iconic abstraction, symbolism and synaesthetics in comic. While he used the media of comic as the primary subject of analysis, certainly there are concepts we can translate into the visual design in video game. In fact, comparing to paintings and sculpturing in fine art, comic is easily a visual media that shares more commonalities with the game media. Many of the visual design elements in comic can be found in video games, such as visual character design and visual world design. Therefore, it makes the understanding of expressive means in comic useful for my research.

McCloud coined the concept of *amplification through simplification* in his discussion on the visual iconography in comic. He suggested that ideas in our visual memory are not specific and detailed. When we think of the idea of face, the mental image of a face is a face stripped of all personal and characteristic details. The iconic drawing of a face that is quite abstract is more akin to our mental images of a face than a realistic rendering of a particular person's face. Hence through the process of making something less realistic and more iconic, we recognize it as something more universal. For instance, the realistic drawing of a face can only represent one particular person but an iconic face can represent almost any person. Therefore the representative power of an iconic face is greatly amplified through the process of abstraction. "Storytellers in all media know that a sure indicator of audience involvement is the degree to which the audience identifies with a story's characters". (McCloud, 1993) The capacity of iconic features to promote character identification is a powerful tool to keep viewer engages for storytellers. If the design of a character features iconic traits that found in many people, then this is a character that many people can identify with. When using in the design of the main protagonist in game, the iconic traits help players to assume the protagonist role by recognizing the universal traits in the design.

Symbolism is another topic that McCloud spent a great deal of efforts on. He argued that our senses response to certain visual arrangements because such

arrangement reminds us of certain symbols in our collective culture. Through the evolutionary process of our language, certain meanings have been repeatedly imbedded into certain symbols. Since those symbols have been regularly used in our daily communication, they become universally communicable for everyone. Or at least they are recognizable within a particular culture group. Hence, proper use of symbolism in visual design is essential for evoking the intended emotional responses from general viewers. To certain degree, visual symbolism offers a degree of control to the game designer on the narrative experience of the player.

McCloud also discussed another useful concept called *synaesthetics* that commonly found in the visual expression of comic art. Synaesthetics refers to that the certain arrangements of formal elements such as lines, color and textures can produce the mental responses of other senses beside visual perception. For example, bold and highly contrasted brushstrokes are often used to represent the loudness of sound in comic. Synaesthetics extends the effect of visual expression to other senses and it remedies the limitations of the comic media, such as lack of sound and motion. In digital environment, the sound and motion limitation for traditional comic format do not exist anymore. The use of synaesthetics in video game graphics might take a supporting role in comparison with its comic counterpart. Instead of relying on it to produce a sensory effect, it can be used to accentuate an existing effect. Also, it is important for us to notice the drawback of excessive use of synaesthetics visual design. That is the problem of clarity. “Expressionism and synaesthetics are distortive by their nature, if strong enough, their effects can obscure their subjects… creators who use these effects may need to clarify what is being shown.” (McCloud, 1993) The understanding of a game’s narrative and a game’s mechanics is vital to players and it relies largely on the communicative clarity of game graphics.

Will Eisner – Stereotypes and Symbolic Elements in Character and Object Design

Eisner is an influential comic artist and a pioneer in theorizing the techniques of comic-making and in discovering the unique features of the comic medium. Specifically

in the field of character and object design, his analyzed the use of stereotypes and symbolism for the practical purpose of making comic. He suggested that stereotype has a negative denotation that refers to the description of things in an overly simplified and inaccurate fashion. However Eisner believed that the proper use of stereotype or archetype can effectively convey narrative information of a character such as personality, preference and personal history. Characters are complex entities. Due to the constraints of the comic format where audio and motion are lacking, usually the comic artist could not afford huge amount of drawing time and page limits to fully establish every character.

"Comic book art deals with recognizable reproductions of human conduct. Its drawings are a mirror reflection, and depend on the reader's stored memory of experience to visualize an idea or process quickly. This makes necessary the simplification of images into repeatable symbols. Ergo, stereotypes" (Eisner, 1996)

When explaining the way visual stereotype communicates, Eisner shared the same thinking with McCloud's iconography; that is visual designs in narrative setting often rely on collective experience and past memories to communicate complicate and abstract ideas. In addition, Eisner suggested that such collective memories come from the retained "instincts developed as primordial creatures" (Eisner, 1996) during our evolutionary history. By embedding character design with traits of various animals, the design can evoke our emotional residues towards to those animals in nature environment that get passed down through our genes. For example, a man with facial features resembles that of a lion and gestures resembles that of a bear could produce the idea that he is character with brute strength and aggressive instinct. Eisner also extends the same reasoning into visual design of objects. He argued that the way a subject portrayed with different stylistic vocabularies can change the viewer's perceptions to it. He wrote "There are some objects which have instant significance in graphic storytelling. When they are employed as modifying adjectives or adverbs, they provide the storyteller with an economical narrative device" (Eisner, 1996) For example, a sword is a neural item, different way of drawing a sword, such as adding angular and spiky shape as the ornament can make it to be perceived as having idiosyncratic quality, in this case, the sword would create a sense of evilness.

Indeed, Eisner has a valid point on the positive use of stereotype in visual design. It is particularly useful when quickness of communication is at stake. In video game, the use of simple stereotype can find its usage mostly in supporting character design where complicated character developments are not required. The stereotypical depiction allows players to easily grasp the personality of a character. Also, Eisner reminded us that visual symbolism can provide a neutral design with idiosyncratic traits by evoking collective memories and associative imaginations. Any use of decorative shapes and forms are not random, one must take the emotional effect of those shapes and forms into consideration in the context of the storytelling in a game.

Marguerite Helmers – Framing the Fine Arts through Rhetoric

Helmers analyzed visual images from fine arts in term of their rhetorical potentials. In literary study, the rhetoric of a text often means its ability to persuade. Human perceive visual images in a very directly way. We tend to think in pictures rather than writings. Therefore, images can directly produce the appearance of things which can be immediately recognized by one's visual perception. More importantly, the way an image is presented could greatly alter its meaning based on one's interpretation. Such as placement, context, cropping and captioning could change our understanding of the very same picture. It is evidently that Helmers shared a similar concept with McCloud and Eisner that visual images can communicate ideas beyond the mere representational contents through tapping into people's shared experience and collective memory. "Looking is always framed by past experiences and learned ideas about how and what to see. " Just looking" is never innocent, nor is it ever final."(Helmers, 2004)

Audience's previous knowledge and experience could play a large role in interpreting the message and narrative behind an artwork. If an artwork presents us something that is familiar to most people, it is likely it will evoke unilateral responses. If it is something strange, then it will produce different interpretations. In the analysis of people's collective memory, Helmers brought up a few interesting points from other authors.

> Such "shared consciousness" as visual memory has been termed "collective memory" by the French sociologist Maurice Halbwachs. … memory thus operates at the cultural rather than the personal level.

> ‘Unlike personal memory, whose authority fades with time,’ writes Barbie Zelizer, interpreting Halbwachs’ work, ‘The authority of collective memories increases as time passes, taking on new complications, nuances, and interests. Collective memories allow for the fabrication, rearrangement, elaboration, and omission of details about the past, often pushing aside accuracy and authenticity so as to accommodate broader issues of identity formation, power and authority, and political affiliation …. We find memories in objects, narratives about the past, even the routines by which we structure our day. (Helmers, 2004)

The personal memory fades with time and they have little persuasive power. However, collective memories come with strong authority. The authority gets stronger as time passed. In addition, collective memories are prone to fabrication and alterations. As a visual image referencing things we are familiar with, not only our collective memories are evoked, but our collective memories could be altered by the information in this very visual image. Our mind could associate new meaning to an existing collective idea. Let us take something less-serious and light-hearted for instance, the character design Zangief(fig 2.5) from the popular fighting franchise *Street Fighter* series, is an extremely big, strong and muscular professional wrestler from Russia. He is the largest character in the game. I first encountered this game when I was very young and since then I have played it for thousands of hours. Every time I think of men from Russia, the image of Zangief pops into my mind. Among thousands of players who played the game, it is likely there are large amount of population in that group would have similar collective impression regarding men from Russia to resemble the characteristics of Zangief. In reality, men from Russia are very unlikely to be larger than men from other countries. That visual image fabricated new and inaccurate ideas to our collective memories.

Figure 2.5 Zangief from Street Fighter 2

Book scan from *SF20: The Art of Street Fighter*, Udon Entertainment, 2009, pp.16

The benefit of Helmers' visual rhetoric to my thesis is that she explains in detail how collective memory works in the context of visual images for persuasion. Visual design in games is often created with the purpose of imposing certain views from the designers and the writers; her theory enables us to recognize that when we see it. Then we can evaluate the appropriateness and effectiveness of visual rhetoric in visual design of a game.

Rudolf Arnheim – Pictures, Symbols and Signs

In chapter eight of the book *Visual Thinking*, Arnheim theorized the fundamentals of the visual rhetoric – the three functions of images, *pictures*, *symbols* and *signs*. An image can serve multiple purposes in different context. He explained "A triangle may be a sign of danger or a picture of a mountain or a symbol of hierarchy" (Arnheim, 1997)

In his definition, *sign* refers to "an image serves merely as a sign to the extent which it stands for a particular content without reflecting its characteristics visually." (Arnheim, 1997) They do not resemble the signified things in term of representation.

For example, the word “cat” is a sign for a mental image of an actual cat; however the letter does not resemble the visual form of a cat in any way.

Arnheim defined *picture* as “images are pictures to the extent to which they portray things located at a lower level of abstractness than they are themselves.” (Arnheim, 1997) It portrays the subject and mimics its form through representational and illusionistic means. In addition, the use of abstraction in representational images can be used to provoke different interpretations from viewers. As Arnheim put “Abstractness is a means by which the picture interprets what it portrays…when the picture is incomplete, imprecise, or ambiguous with regard to these abstract qualities, the observer is called upon to make his own decisions about what he sees” (Arnheim, 1997)

Finally, *symbol* is “an image acts as a symbol to the extent which it portrays things are at higher level of abstractness than is the symbol itself.” (Arnheim, 1997) The symbol is an iconized and highly-abstracted representation of the subject matters. The major benefit of using symbolic mean is that the picture can communicate ideas and information beyond the mere concrete appearance. For example, the popular image of Che Guevara’s face we see on T-shirts and mugs is a symbol. It certainly represents the historical figure Guevara; moreover it represents the ideas that associated with him, the rebellion against oppression and control by authorities and corporations.

2.2.3. Realism and Abstraction

Roland Barthes - Reality Effect

Barthes coined the term *reality effect* in his analysis on a section in the novel *Flaubert’s Parrot* by Julian Barnes. In that particular section, Barnes described the appearance of a barometer on the parlor wall in painstakingly details. Barthes suggested although that piece of description has very little narrative function in the context of the novel, it is very critical in the attempt to establish a vision or worldview of the author. In other words, although the laborious description of the barometer has nothing to do with the advancement of the plot and the portrayal of the characters, that section presented an unmediated and seemingly objectified reality for the readers. “This is real” as Barthes referred to the message that that text carries. Because of that, the reader might take the fictional world in the novel as one and the same as their current

reality. However, Barthes warned us that such worldview; despite that it is incredibly believable because of the reality effect, with or without the audience's awareness is tainted with the author's bourgeoisie standing.

Many modern video games featuring exquisite photorealism and high-level of graphic fidelity use their computer-generated reality effect to promote the believability of the game world. Such reality effect is so powerful; every so often players would have the illusion that the game world exists as a continuation of their current reality.

Ernst Gombrich -Impressionism - In Search of New Standards

In the chapter 26 – *In Search of New Standards*, Ernst Gombrich discussed a major paradigm shift in the history of fine arts. It happened in the late 19th century where the dramatic social and technological advancement were also taking place.

> "The art world faced a problem that brought huge changes to the style and the value of art, people were growing tired of the machined made look which are made possible through the industrial revolution. "Men like John Ruskin and William Morris dreamt of a thorough reform of the arts and crafts and the replacement of cheap mass-production by conscientious and meaningful handiwork." (Gombrich, 1995)

With the aid of technology, achieving perfect representation becomes easier in comparison for 19th century painters than their predecessors in the medieval time. Since perfect representation did not hold as much value as before, artists and intellectuals started to seek new approaches to art. To certain extent, the impressionism movement symbolizes the beginning that very paradigm shift between representation and expression. The impressionists painted things in way as they believed how people would actually experience them. Instead of presenting a perfect replica of the reality, they valued more on the personal impression of their reality.

> "Their exploration of colour reflexes, their experiments with the effects of loose brushwork, aimed at creating an even more perfect replica of the visual impression" (Gombrich, 1995)

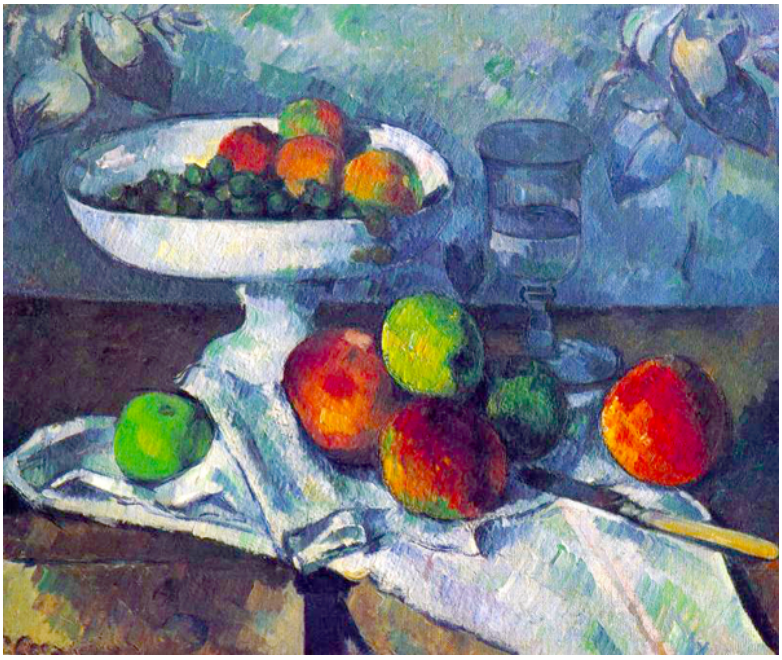
However the impressionist approach presented a serious conflict between communication and expression – the clarity of the message. Indeed, "The dissolution of

firm outlines in flickering light and the discovery of coloured shadows by the impressionists" (Gombrich, 1995) often make the depicted objects hard to identify.

Many impressionists acknowledged this problem. While some of them made effort to strike a balance, others believed they found something else more important than clarity through the stylized realism. The intricate play of lucid forms and vibrant colors in impressionism brought a great triumph in promoting another kind of pleasure, the purely aesthetic and sensory pleasure. That is something which high fidelity realism in the past could rarely offer.

For example, in figure 2.6 *Still Life* by Cezanne, there are numerous amateurish technical errors such as the stand of the bowl is not even centered. Gombrich suggested that Cezanne was very well aware of this problem, but he stretched the left part of the bowl intentionally to form a more compositionally pleasing work. In other words, Cezanne was aiming at producing the aesthetic pleasure instead of reproducing reality.

Figure 2.6 Paul Cezanne, Still life, C. 1879-82, Oil on canvas, private collection



Book scan from *The Story of Art*, E.H. Gombrich, Phaidon, 1995, pp.543

Nowadays, although the gritty realism still dominates the mainstream video game graphics, there are many games with stylized realism and even abstract visuals emerging. While people still celebrate the fidelity that the advancement of technology brings, there are signs of video game developers are growing weary of the conventionalized realism rendered by the similar graphic engines. This phenomenon bears similarities to the paradigm shift in fine arts described by Gombrich. Revisiting that particular era in the history of art not only allows us to recognize problem of clarity in stylized video game graphics in modern time, but also helps us to understand how expressive touches that brought out by stylized graphics can support the gaming experience in term of their aesthetic significances.

Andre Bazin – Two Approaches to Realism: Artifice and Doumentary

Influential film theorist Andre Bazin made an important contribution to the study of realism in film in the book *What Is Cinema*. He discussed two distinctive and sometime contradicting approaches to realism in films of the 1920s and 1930s – the approach of documentary and the approach of artifice.

The first approach which are found in neo-realist documentary film like Farrebique, the director, Georges Rouquier, insisted on using non-staged footage which including real people in real setting to emphasize on the reality aspect of the film. However Bazin suggested that such approach does not necessarily portray a more objective and authentic depiction of the reality in comparison with artificially manipulated realism film such as Orson Welles' Citizen Kane. However, even with unedited footage and real people in nature environment, not all aspect of reality is showed in the film. Not to mention that is almost technically impossible. In addition, the lack of polishing in the film with documentary realism often proved to be difficult for the artists to communicate effectively. As a result, Bazin suggested that representing reality in film is hard to avoid artificial involvements. In addition to the problem of clarity, a work of art always comes with a specific message from by the artist. To express a message, one must select the

appropriate material to show to the audiences in order to accentuate his/her view. That is even true for documentary films.

> "… realism in art can only be achieved in one way – through artifice. Every form of aesthetic must necessarily choose between what is worth preserving and what should be discarded, and what should not even be considered. But when this aesthetic aims in essence at creating the illusion of reality, as does the cinema, this choice sets up a fundamental contradiction which is at once unacceptable and necessary: necessary because art can only exist when such choice is mad. Without it, supposing total cinema was here and now technically possible, we should go back to purely reality." (Bazin, 1972)

The significance of Bazin's theory on realism is to make me realizing the necessity of artificial construction and selection in artwork. It inspires me to find the trace of design decisions and intentions in the seemingly objective presentation of realism in video games.

Bordwell & Thompson - Realism and Style in Mise-en-scene

In chapter six of the book *Film Art: An Introduction*, Bordwell and Thompson discussed realism and style in cinema. They suggested that the sense of realism in films is achieved primarily through the use of mise-en-scene. Mise-en-scene refers to "the director's control over what appears in the film frame". (Bordwell& Thompson, 2001) It includes the artificial staging of the theatrical elements such as setting, lighting, costume, and actors. The term realism implies the compliance to a standard of value. To create realism in film boils down to comply with the convention of how people perceive reality. But people's perception on the convention can vary under the influence of external factors such as time, culture and personal history. Realism found in film of one era might not be recognized as realism in another era.

> "Marlon Brando's acclaimed "realist" performance in the 1954 film On the Waterfront looks stylized today. American critics of the 1910s praised William S.Hart's Westerns for being realistic, but equally enthusiastic French critics of the 1920s considered the same films to be as artificial as a medieval epic." (Bordwell & Thompson, 2001)

In addition, if we restrict the visual style of a film to realism based on conventions, it limits the potential of creativity and the variety of approaches to mise-en-scene. On

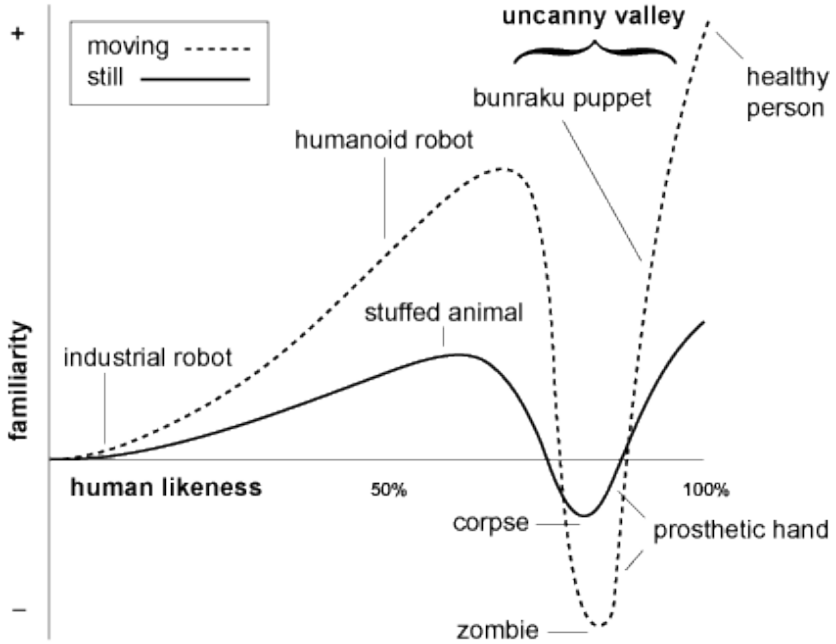
the other hand, using stylized visuals can provide supports to the narrative development in ways that realism cannot offer. Bordwell and Thompson used the German expressionist film The Cabinet of Dr. Caligari to illustrate this view: "Such a scene certainly does not accord with our conception of normal reality. Yet to condemn the film for lacking realism would be inappropriate, because the film uses stylization to present a madman's fantasy." (Bordwell& Thompson, 2001) Here the stylized visuals are used to reflect the inner world and the personal experience of a madman.

In film, the narrative/storytelling requirements are crucial variables in determining the visual style. The same thing can be said about the visual style of video games. Perhaps, there are visual elements clearly contradicting with our perception of reality in some video game. But if those stylized visual can enhance the storytelling experience, those visual elements might be valid even in games that intend to establish realism. Realism is always subjective to its context.

Lev Manovich - Problem of Synthetic Realism

In the book *The Language of New Media*, Manovich suggested that the development of computer graphics technology carries the long-existed aesthetic pursuit of striking for perfect illusion in the history of western art. The trend started at the late 1970s with the breakthrough in computer imaging technology. He referred that the digitalized and computer generated images (CGI) as synthetic image. Hence the realism found in synthetic images is synthetic realism. (Manovich, 2001) Video game graphics and CGI has improved tremendously over the past a few decades. The visual details in CGI are already way beyond the flawed human perception. The earliest realization of this phenomenon can be traced back in a study of robotic in the 1970s. Japanese roboticist Masahiro Mori coined the term *uncanny valley.* He suggested that as the look of a robot becoming more human like, a human observer's emotional response to the robot would naturally become more positive and empathic until the resemblance went pass beyond a point. After that point, the observer would find the look of robot to be utterly repulsive. (Mori, 1970)

Figure 2.7 Visual Illustration of the Uncanny Valley phenomenon



Retrieved from

http://www.androidscience.com/theuncannyvalley/proceedings2005/Images/moriuncannyvalley.gif

According to that hypothesis, Manovich suggested that the problem of synthetic realism is not that an image is not real enough rather it is too real. The synthetic realism produces “a realistic representation of human vision in the future when it will be augmented by computer graphics and cleansed of noise”.(Manovich, 2001)

The problem that Manovich pointed out is extremely insightful. With so many games and digital videos blindly pursuing the cause of perfection in realism and fidelity, their negligence on what human can perceive ultimately has brought many failures among them. One notable case that represents this kind of failure is the full CG movie – *Final Fantasy Spirit Within*. In recent year, the emerging and prevailing of gritty realism found in games such as *Gears of War* and *Killzone* franchises has suggested that graphic designers of modern games begin to understand the problem. The intentional inclusion of grainy visual filter might be an attempt to simulate the flaws in human perception.

In conclusion, the computer graphic technology not only takes visual representation into a whole new level of fidelity that was difficult to achieve with mere draftsmanship in the past. Meanwhile it comes with the problem of too real for human perception. By recognizing the advantages and disadvantages of synthetic realism, it allows me to better understand the effect of realism in games.

2.3. Narrative Studies

2.3.1. Classic Narratology

Storytelling is an indispensable part of human experience. How we make sense of the world is through constructing narrative and stories in our mind. Not only the content of the story is important but the way a story is presented can greatly affect our experience of the narrative. Thus it is crucial to understand what the building blocks of a narrative are; and how they can be constructed. In the following segment, I will look at theories of traditional narrative by comic artist Will Eisner, film theorists Bordwell& Thompson and new media scholar Jim Bizzocchi.

Will Eisner – What is a Story?

Eisner suggested that “The story form is a vehicle for conveying information in an easily absorbed manner. It can relate very abstract ideas, science, or unfamiliar concepts by the analogous use of familiar forms or phenomena.”(Eisner, 1996) What makes a story very effective in communication is that it has a structure. Without structure, there are just bits of memories and abstract ideas which are difficult to make sense of. In a well-constructed story, all events are purposefully connected in a specific order. Ultimately, the structure of a story enables the storyteller to maintain control of various narrative variables to maximize its communicative clarity.

Jim Bizzocchi - The Traditional Narrative Arc

Bizzocchi explained the traditional narrative structure in details in the paper *Games and Narrative: An Analytical Framework*. Based on the work of Kristen Thompson, he discussed the specific functions of the five core narrative components, setup, complication, development, resolution and denouement.

1> the *setup* introduces the characters and the storyworld they inhabit
2> the *complication* introduces a challenge to be overcome
3> the *development* is the long phase that dominates the bulk of the storytelling, as the protagonist works towards her goal
4> the *resolution* or climax is the culmination of the struggles of the development phase,often resulting in some form of victory or defeat
5> the *denouement* or falling action ties up the stories loose ends, and allows the narrative experience to gracefully end (Bizzocchi, 2007)

Bizzocchi argued that this narrative structure can enable storytellers in some media a tight control over the narrative (which resonates with Eisner's definition of story). He suggested that in a well-told piece of narrative in media forms such as cinema or the novel, all parts are carefully put together by the author, like "a clock that sings".(Bizzocchi, 2007)

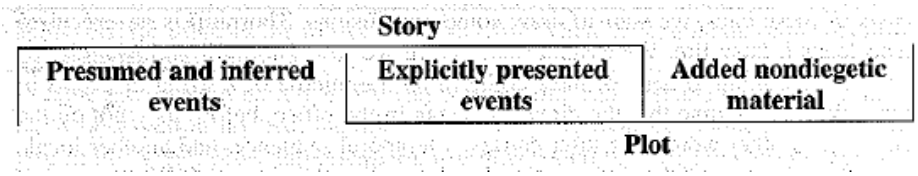
Bordwell & Thompson – Narrative as a Formal System

Bordwell & Thompson shares some common ground with Eisner and Bizzocchi on author control in classic storytelling. The significance of their analysis lies in the emphasis on the three key components in a narrative - *causality*, *space* and *time*. They defined narrative as "a chain of events in cause-effect relationship occurring in space and time." (Bordwell&Thompson, 2001)

They suggested that storytelling relies heavily on the cause and effect relationship among events in the narrative arc. Time and space provided the storyteller with the framework to place the events. What narrative elements could initiate the cause? They argued that character's actions and their roles are vital to causality because they can react to a current situation and trigger new developments. The personal history, personality and behavior traits of a character are especially important to determine his/her actions. In addition, they believed the difference between story and plot from the viewer's perspective is critical in storytelling since the distinction plays a vital role in producing different modes of narrations in film. For storytellers, the line between story and plot are blurry, because they have total knowledge of their stories and they determine what to be presented for the audiences. However for audiences, as showed in figure 2.8, the distinction is significant. The story experienced by audiences is

based on how they make sense of the non-diegetic material visually showed in scenes and environments of narrative events.

Figure 2.8 difference between story & plot



Book scan from *Film Art: An Introduction*, D.Bordwell & K. Thompson, McGraw-Hill, 1997

Based on how much knowledge in each category above is provided to the audience, the mode of narration can change. Different modes could set up different expectations for the audience. That could greatly influence their experience of the storytelling. Bordwell& Thompson described three commonly used narrative modes. They are “change in knowledge”, “goal-oriented”, and “here we go again”.

- *Change in knowledge* - “a character learns something in the course of the action, with the most crucial knowledge coming at the final turning point of the plot”. (Bordwell & Thompson, 2001) For example, in the film *The Usual Suspects (1995)*, in the very final scene, they showed that Kevin Spacey is not really a cripple which revealed the huge suspense the narration has built up throughout the whole movie.

- *Goal-oriented* - “character seek to achieve certain goals in a series of events” (Bordwell & Thompson, 2001) Films like *Indiana Jones the Raider of the Lost Ark(1981)*, are good example of this mode.

- *Here we go again* - “same story are presented several times and each time only reveal partial information regarding the whole story” (Bordwell & Thompson, 2001) For example, Citizen Kane(1941) and Hero(2002) both have different people retelling the same stories in their own perspective, only to reveal incomplete, fragmented and often distorted narrative information to the audience.

Each mode of narrative development could train the audience to have a corresponding and a precise expectation to a story. Depending on what the storyteller want the audiences to expect, he/she can select the corresponding narrative modes or any combinations of modes for the benefit of promoting the emotional impact of his story.

Storytelling and plot development is an essential part of most games nowadays. Also visual design is always closely connected with storytelling in games. A solid review on the fundamentals of classic narrative study in this chapter is necessary and useful.

2.3.2. Visual Storytelling

Will Eisner – Style Requirements for Storytelling Genres

Eisner suggested that there is a reciprocal relationship between the storytelling genres and the visual styles. For a narrative genre, there might be one or several particular visual styles that can better support the storytelling than others. Although the strength and exclusivity of relationship is arguable, he suggested that when a style is properly chosen for a genre, the mood of the stories become easily absorbed by the audience and the visual style can communicate to the reader beyond the mere representation in the content. As Eisner put,

> "The reader absorbs mood and other abstracts through the artwork. Style of art not only connects the reader with the artist but it sets ambiance and has language value." (Eisner, 1996)

Building on years of experience as a veteran in comic making, Eisner proposed a few sets of storytelling genre and its respective visual style. It is worth noting that Eisner's storytelling genres are not the narrative genres in our conventional sense but they are constructed based on their utilities and storytelling methods.

Table 2.1 Eisner's Storytelling Genres and Corresponding Visual Style

Storytelling Genres	Characteristics of Corresponding Visual Style
Descriptive Story Instructional Story	• Clear visual representation of actual scenes/actions/objects • Minimum ornamental and expressive elements • Realism is optional as long as the communication goal can be achieved
Experimental Story	• Expressive visual effects and brushstrokes • Exaggerated and violent actions • The art becomes the story

	• All visual elements are used to sustain the viewer's interests
Sophisticated and Mature Story	• Excellency in artist's techniques • Sophisticated visual matched the complexity of the story • Aesthetically focused art design
Action-oriented Story Character-focused Story	• Demand for fidelity and details in actions and characters
Narrative-driven Story "Slice of Life" Story Autobiographical Story	• Establishing the intimacy with readers through the simplicity and directness of the drawing • Demand for subtle depiction of gestures and facial expression of characters

When it comes to visual storytelling, many techniques found in comic book can be translated into video games. With the development of computer graphic technology in video games, creating various visual styles becomes easy. However that does not mean that a style should be applied without good reasons. Eisner's theory of visual requirements for story genres that connects visual styles with storytelling presents a useful guideline to the selection of visual styles in games.

2.4. New Media Studies

2.4.1. Interactivity in Digital Environment

Katie Salen & Eric Zimmerman – Four Modes of Interactivities

Interaction and interactivity is at the core of the gameplay experience. Salen&Zimmerman suggested that the common definitions of the word interaction are too vague to be useful in the analysis on interaction in digital environment. Therefore, they examined the meaning of interaction in different contexts. Based on those different

contexts of the word used, they developed a framework of interactivity that has four modes.

1) Cognitive Interactivity/ Interpretive Participation: “This is the psychological, emotional, and intellectual participation between a person and a system.” (Salen& Zimmerman, 2004) For example, the cognitive reflection one has regards a story he read.

2) Functional interactivity/ Utilitarian Participation: “Functional, structural interaction with the material components of the system.” (Salen& Zimmerman, 2004) For example, the press of a button, the turn of knob on an interface.

3) Explicit interactivity/ Participation with Designed Choices and Procedures: “This is “interaction” in the obvious sense of the word – overt participation like clicking the non-linear links of a hypertext novel, following the rules of a board game, rearranging the clothing on a set of paper dolls, using the joystick to maneuver Ms. Pac-Man…”(Salen& Zimmerman, 2004)

4) Beyond the Object Interactivity/ Participation within the Culture of the Object: “This is interaction outside the experience of a single designed system.” (Salen& Zimmerman, 2004) Such as contributing to the creation of fan culture

The interaction in gameplay refers to mostly the second and the third modes. Those two types of interactivity can be directly affected by the visual design of a game. Salen&Zimmerman’s definitions allow us to analyze visual elements in games in term of their specific utilities in different modes of interaction.

2.4.2. Immersion and Engagement

Mihály Csíkszentmihályi – Flow: The Optimal Experience

In positive psychology, Mihály Csíkszentmihályi proposed the concept of flow. It refers to an optimal mental state that occurs when people are deeply engaging in an activity. According to him, flow is a state of mind where the individual in an activity is fully-immersed in and hyper-concentrated on the given tasks. He/she would automatically ignore external distractions and lose the track of time. The flow state produces experiences that are so gratifying that people are willing to perform the task or the activity just for its own right, often with little concern over if it is dangerous. Such mental state is achieved through a dynamic balance between the performer’s skill for the

given task and the challenge level of the task.(Csíkszentmihályi, 1990) By dynamic, I mean that depending on different people and skill level, the difficulty would be different accordingly. For example, person A could enter the mental state of flow while performing Task A, but person B might not be able to enter the state of flow while performing the same task due to the lack of skill level. If the dynamic balance is upset, the individual would either feel frustration as his/her skill level is unable to cope with the difficulty of the task, or experience boredom as his/her skill level far exceeds the difficulty of the task.

Figure 2.9 The Visualization of the "flow" Model

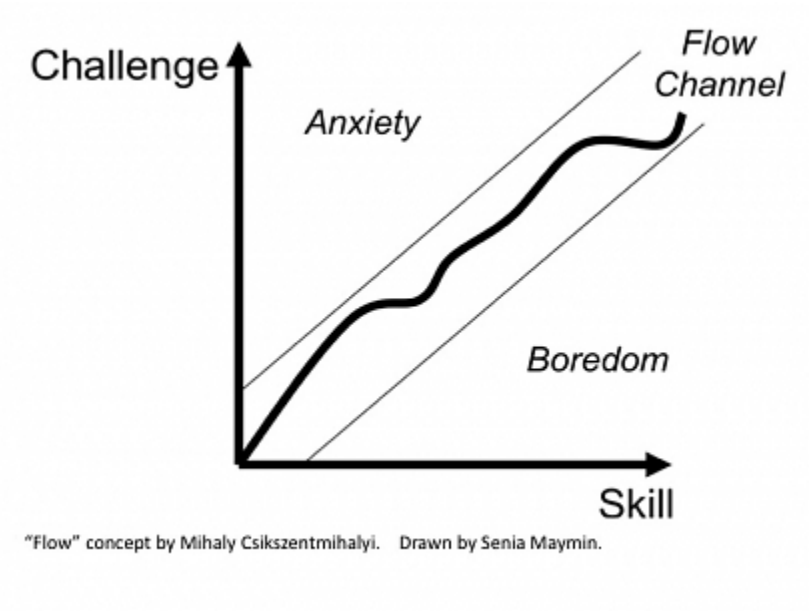


Chart by Senia Maymin, retrieved from http://www.pbs.org/thisemotionallife/blogs/flow, on April 26th, 2012

In addition to the dynamic balance, Csíkszentmihályi suggested that in order to maintain the state of flow, the task or the activity must be constantly providing the participant with immediate feedback to inform his/her on successes and failures of his/her performance. (Csíkszentmihályi, 2002)

The significance of this theory is that the principles of flow can be easily translated into the design terms in video games. During a gameplay, the players are constantly given tasks and the difficulty of the tasks varies among each other. The

interaction with the game provides the players with various audiovisual stimuli. The difficulty of the tasks and the skill level of the players can be observed and measured. Hence the occurrence of flow is a good indicator for the player's engagement in a game. That implies we can evaluate the visual design in games in term of their utilities in facilitating and sustaining the flow experience.

Janet Murray – Immersion and Agency

Immersion and agency are two key experiences in digital environments. Janet Murray regarded *immersion* as the core aesthetic of digital environment. The experience of immersion is intensified though two dynamics of the medium - participatory and encyclopaedic. She defined immersion as "the experience of being transported to an elaborately simulated place is pleasurable in itself, regardless of the fantasy content." (Murray, 1997) She used the *visit model* to describe immersion. While immersion happens, the users would largely exclude the experience of their external reality. Instead they focus on their presence in the virtual space. When the immersion ends, he exits the previous mindset and resumes the full awareness of his real-life surrounding. Just like a visit to an actual place, an immersive environment has "explicit limits on both time and space" for the user. It is worth to note that immersion is not an experience that is exclusively found in digital environment; one can be immersive during a film or the process of reading a book. However, the immersion is particularly strong because the participatory/interactive nature of digital environment intensifies the immersive experience by a great degree. In digital environment, the interactive nature of the medium expands the effects of immersion from the suspension of disbelief to the active creation of belief. As Murray put "The great advantage of participatory environments in creating immersion is their capacity to elicit behaviour that endows the imaginary objects with life…" (Murray, 1997)

Moreover, Murray suggested that the seamless transitions between interactive sessions and consistent stimulations in a virtual environment are critical in retaining the participant's immersion. "Such immersive stories invite our participation by offering us many things to keep track of and by rewarding our attentions with a consistency of imagination…" (Murray, 1997) On the contrary, elements that create overwhelming sensory arousals during the interactive sessions could break people's immersive

experience. The strong reaction from such arousal could easily push people out of the flow. "If certain horror movie scene is too scary, some audience might cover their eyes therefore breaking the continuous experience of immersing in the film." (Murray, 1997) This is also a problem found in the visual design of some games. For example, during the gameplay of a typical action game, players are constantly required to be in full control of their characters/avatars in order to overcome the game's challenges. If some gratuitous graphic elements appear on the screen suddenly and present players with overwhelming visual effects, the players are almost certain to be distracted and resulted in losing grip of their performance and losing track of the plot progressions. That moment of interruption creates an inconsistency in the gaming experience which would ultimately take the players out of their immersion.

Murray defined the other key experience– *agency* - as "the satisfying power to take meaningful action and see the results of our decisions and choices". (Murray, 1997) For a player to experience agency in game, their actions in the game world need to have impacts on the game's narrative or the game's environment. Different from the definition of interactivity, which merely refers to a two way process between a player and a computer world, the signs of agency are only found in more *meaningful* and *purposeful* interactive experiences. In other words, the agency is a higher level of interactive experience. It is what drives players to continuously engage with the game world.

Alison McMahan - Three Conditions for Creating Immersion

In the paper *Immersion, Engagement, and Presence – A Method for Analyzing 3-D Video Games*, Alison McMahan distinguished between two types of immersions. One she called the diegetic level of immersion and this immersion is created through players' psychological involvement with the story in a game. The other type of immersion, which she called non-diegetic immersion, refers to players' obsessive engagement with the gameplay itself. Based on the two types of immersion, she proposed three conditions for creating a sense of immersion in a virtual reality or 3D game worlds:

1) The user's expectations of the game or environment must match the environment's conventions fairly closely;

2) The user's actions must have a non-trivial impact on the environment;
3) The conventions of the world must be consistent, even if they don't match those of "meat-space"(McMahan, 2003)

The first condition contributes greatly to the diegetic level of immersion. Narrative variables such as story genre are mostly responsible for setting up a player's expectation. The second condition is closely connected with both types of immersion. It is a directly expansion on Murray's conception of meaningful and purposeful interactions. If players can feel the significance of their actions; they would understand how important is to have them in both gameplay and narrative. In narrative, such significance enables them to be deeply involved in the story world. In gameplay, such significance provides players with a sense of achievement and control which reduce frustration and provide psychological reward. For example, imagining two scenarios; in the first one, the player engages a firearm combat with an enemy in distance. After fanatic firing section, the player kills the enemy. The screen simply tells the player the enemy is down and the graphic of the enemy disappears on the screen. In second scenario, every scene is exactly the same as the first scenario till the player defeats the enemy. But instead of informed by text on the screen, the game gives the enemy solider a smoothly animated and dramatic death sequence through a close-up shot. Most players would find the later scenario more emotionally appealing because it showcases a strong reaction caused by his actions. Finally, the last condition brings up a design variable which is crucial in both narrative and gameplay - consistency. Consistency retains and prolongs the experience of immersion. It helps to create an un-interrupted and deeply mediated experience. Inconsistency causes players to be aware of artificiality of the game world.

Laura Ermi & Frans Mayra – Three Dimensions of Immersion

In the research paper *Fundamental Components of the Gameplay Experience: Analysing Immersion*, Ermi& Mayra proposed an analytical model that describing three different types of immersions. They believe the three types of immersions rewards the players in different ways.

The first type of reward comes from *sensory immersion*. Sensory immersion is a directly result of audio-visual stimulations. This aesthetic experience is purely

perceptual and players' reactions are nearly subconscious and instinctive. This type of immersion resonates with concept of "the cinema of attractions" coined by Tom Gunning. " The phrase 'the cinema of attractions'… characterized the earliest phase of cinema as dedicated to presenting discontinuous visual attractions, moments of spectacle rather than narrative. " (Gunning, 2005) In today's video games, the newly developed graphic technology would shock players in the same manner that the moving picture of locomotive shocked audiences in film theaters of the early day of cinema. As they wrote in the paper:

> "Digital games have evolved into audiovisually impressive, three-dimensional and stereophonic worlds that surround their players in a very comprehensive manner. Large screens close to player's face and powerful sounds easily overpower the sensory information coming from the real world, and the player becomes entirely focused on the game world and its stimuli." (Ermi&Mayra, 2005)

The second dimension is *challenge-based immersion*. Players are rewarded with a strong sense of gratification through performing and completing tasks that matching up to players' skill levels. Ermi&Mayra suggested that this dimension is "particularly central for games, as they are fundamentally based on interaction." (Ermi&Mayra, 2005) Here, the balance between challenges and players' abilities is essentially the same as the dynamic balance of flow state proposed by Csíkszentmihályi.

The third dimension is *imaginative immersion*. This type of immersion is created through players' involvement with the world setting, the story and the characters in a video game. As a player "becomes absorbed with the stories and the world, or begins to feel for or identify with a game character"(Ermi&Mayra, 2005), those narrative elements provide players with an opportunity to create their own narrative and to express aspect of themselves that they could never express in real life. Essentially, the reward that imaginative immersion provides is a sense of escapism.

Jay David Bolter & Richard Grusin – Remediation, Immediacy and Hypermediacy

In the book *Understanding New Media*, Bolter & Grusin described three defining properties of digital media. They are remediation, immediacy and hypermediacy.

Remediation is the process where the digital media such as video game and visual reality re-appropriates traditional media such as painting, photography and cinema in the digital environment. Remediation creates an opportunity for the refashioned works of traditional media to become more immediate and immersive for the audiences.

Immediacy refers to the state where the audience of a media become completely unaware of the difference between the represented reality and the actual reality. "…style of visual representation whose goal is to make the viewer forget the presence of the medium (canvas, photographic film, cinema, and so on) and believe that he is in the presence of the objects of representation." explained by Bolter & Grusin.

Hypermediacy refers the state that the audiences are aware of the medium itself they are currently experiencing. However hypermediacy poses a threat to the pursuit of immediacy. The oscillation between the state of hypermediacy and immediacy would interrupt the immersive experience of that the digital media could offer.

Video game is a compound media in the sense that older media remediate in its digital environment, such as visual art, music and motion pictures. Bolter& Grusin's three properties validate the approach of using theories in traditional to analyze video game graphics. In addition, their discussion on the oscillation between immediacy and hypermediacy is inspiring. It suggests a new way that visual elements in games can help to sustain immersion. That is whether they can help to reduce the effect of the oscillation between the two states.

3. Research Domain – Visual Design Categories in Game

3.1. Character Design

Character is an essential component in a narrative. It could be a human, an animal and even an object depending on the setting. The advance of a story is typically motivated by characters actions and interactions. In video games, not only are the characters a significant part of the storytelling but they can also be the agent of players. Through controlling characters to interact with the virtual environment in a game, the players would project themselves in the game world. As a result, among all the visual design components in a video game, the character design plays a more critical role in creating engaging gaming experience. In this chapter, I will break down the character design into four specific but interrelated subcategories, face, physique/body type, pose/gesture and costume.

In the book *on Game Design*, Rollings and Adams wrote “Characters that are developed from a purely artistic source tend to be far more superficial and one-dimensional than those sourced from a story-based design.” (Rollings&Adams, 2003) In the study of comic art, Scott McCloud suggested that there are three important aspects needed to be addressed through the visual design of characters, “an inner life, visual distinctions and expressive traits.” (McCloud, 2006) Artistic excellence alone is not enough to create a good character design. A good design should all the visual elements working together to establish the believable and relatable character identity. An inner life of a character can create a sense of personal history and provide a background context for the personality of a character. The visual design of a character’s body languages and physiques should provide information that is consistent with his/her personality and behavioral traits exhibited in the game’s story.

3.1.1. Face

Face is an important part of character design because it is how we differentiate one character from another. Also face is one of the primary channels characters express themselves. In fact, face is often the center of interest in a visual composition featuring human figures. As one gazing on a character design, he/she will be likely to focus their attentions on the faces.

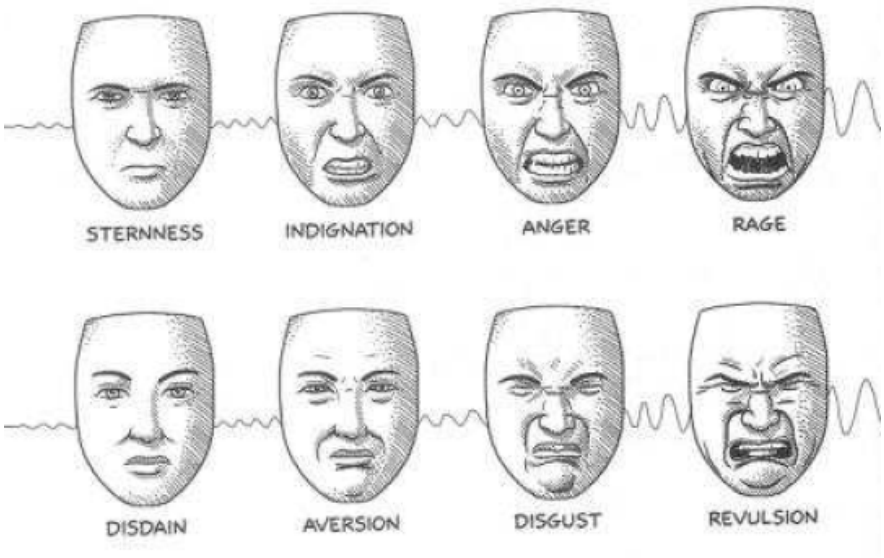
Media scholar and comic artist McCloud said “deep difference in face and body type helps the reader to keep track of your cast and give them unique reminders of character’s different personality.” (McCloud, *2006)* A unique face design can provide players with a memorable and recognizable character identity. In addition, subtle visual details on the face of a character can be used to embed relevant narrative details about him/her/it. Those visual details would trigger the audience to read into the character design and have them implied and questioned about the character’s past. If it is properly used, those visual details can help to add dimensionality and believability in the character. For example, the protagonist (fig 3.1) from *Nier:Gestalt* is war veteran. He is in the mood of perpetual misery because he constantly worries for his dying-sick daughter. His face design directly addresses that narrative setting by giving him a rough skin and a frown expression. Furthermore, facial expression is a powerful tool in reflecting the emotional world/inner world of a character. During the intense moment of gameplay and storytelling, facial expression of characters could be an effective mean to project the emotions and feelings required by the storytelling to the player.

Figure 3.1 Nier's facial expression

Screen capture*, Nier Gestalt* (© Square Enix, 2010)
Retrieved from http://nier.wikia.com/wiki/Nier_(Character)?file=Gestalt_Nier.jpg

On the technical aspect, designing a face for characters in video games is also not an easy task. A game artist needs to have a comprehensive understanding of the facial muscles and the forms of facial components; so the artist can accurately depict a character's facial features and expressions in ways he/she desires. Considering the complexity of facial muscles, as showed in figure 3.2, subtle differences in a face could provoke entirely different interpretations for viewers. In the end, this research recognizes the importance of technical capacity in facial design. At the same time, I maintain that any facial design should exhibit two main narrative utilities, establishing character identity and provoking relevant emotions.

Figure 3.2 Various comic expressions drawn by McCloud, S.



Book scans from *Making Comics: Storytelling Secrets of Comics, Manga and Graphic Novels*, Avon, 2006, pp. 84

3.1.2. Physique/Body Type

Physique or body type design refers to the design of the general form, size and proportion of a character's body, whether they are humanoid or not. It is important to have variations in character's body type. Imaging if all characters have similar physiques in a game, not only it is repetitive for the eyes and it also means that distinguishing one character from another would be difficult. Hence designing different body types among characters can facilitate the recognisability of characters for the audience. In addition, depending on the gameplay and the narrative requirement of a game, the visual style of the game could range from realistic to cartoony. The less realism a game requires, more artistic freedom an artist would have while designing the characters' body shapes. Through distortion in a character's physique, certain features can be intentionally exaggerated to amplify the emotional and sensory effect that associated with those body types. For example, Rollings and Adams note that the breast size and leg length of Lara Croft from *Tomb Raider* has been intentionally increased to attract male audience through the intensified sexual desirability. (Rollings & Adams, 2003) Also, distortions in body types and character physiques can be used to

remind us of pre-defined character archetypes in our culture and society. For example, a character with body proportions and physiques resembling that of a baby provokes a sense of innocence and cuteness. An old man character with long white beard, bold head and a scholarly gown might imply that he possesses great knowledge and wisdom. The archetypal images allow the audience to have a quick grasp of a character's personality which could be an economic tool for storytelling. In practice, it is easy to develop a character based on an archetype. However that approach is not without its drawback. When archetypal characters are overused and abused, it could make a character design generic.

While making decisions about the body type of characters for video games, there are several aspects that are worthy of thorough considerations. Similar to the facial feature of a character, the body type of a character is a channel for conveying narrative information such as the personal history of a character. The kind of life style a person lived before could have great influences on the way his/her body is shaped. For example, if a character is a veteran of hand-to-hand battles and he is a good at using heavy weapon. It would be no surprise his limps are muscular. In addition, elements in the gameplay, such as the movements and the animations of a character sometimes are affected by a character's body type. Especially in the world setting of a game where realism and accuracy is at stake, the body type of a character should match up with his ability in movement. For example, an agile character usually would have a slender physique so body weight would become an obstacle for his/her/its movement.

3.1.3. Gesture/Pose

Gesture is another important component of character design. It has the ability to convey abstract information such as feelings and emotions. While facial design is better at conveying subtle and sophisticated aspects of emotions through facial expression; gesture and pose is more suitable for amplifying emotions. Face design and gesture are often connected and consistent with each other, for example, when a character is scared, not only his face gets cringed but also his body will be trembling.

Poses and gestures are building blocks of our body language and they are used to express our personal traits and emotions. There are common meaning expressed

through gestures that are recognizable universally or within a specific society. Eisner wrote “all physical action is accompanied by emotion. Grief, elation, joy, envy, shame, relief, anger, rage and happiness are human feelings that can be demonstrated by universal postures and gestures.” (Eisner, 1996) In addition, the poses and gestures of a character can provide the viewers with explicit information such as age, gender, and strength and the implicit ones such as tempers, past experiences, hobbies and skills. Eisner suggested “The muscular responses ordered by the brain involve the entire body in concert and are influenced by such diverse elements as the environment or external setting as well as the age, sex and the anatomy of the actor. The personality, physique and even the occupation of the actor are also part of the chemistry of a character that determines the rage of expression possible in a given situation.” (Eisner, 1996) In the character design of a video game, the full-body illustration of a character often features him/her in an unique pose. The choice of pose becomes very important because it is the very first impression that the character makes on the audience. Good character design would take this to accentuate key traits of a character that are important for a game’s narrative and gameplay. For example, in figure 3.3, the pose of the character Iron Tager (left) strikes the viewer with ideas of strength, power and weight whereas that of Taokaka (right) provokes impressions of playfulness, lightness and agility. Those ideas produced by the two character designs are consistent with their respective gameplay styles. Iron Tager is slow but capable of big damage and Taokaka has unpredictable movement pattern and is incredibly agile.

Figure 3.3 Iron Tager(left) & Taokaka (right)

Book scan from *Blazblue Continuum Shift Setting Documents Collection*, Softbank Creative, 2011 (© Arc System Works, 2010)

3.1.4. Costume

In real life, people wear costumes for many purposes. One of the most common purposes is for protection against various external hazards. In order to survival against with various harzards such as harsh weather, predators in the woods and enemies in the battlefield, costumes are designed in specific ways to cope with different hazardous situations. Another important utility of costumes is to indicate one's social status as civilizations evolving into maturity. For example, high ranking military officers dress in different uniforms than regular soldiers; the distinct uniforms of the officers allow other members of the military to recognize their status and position. Those practical utilities shape appearance of costumes. But costume design is not always about practical utilities. Taste-based decisions including personal taste, aesthetic taste and cultural taste play a vital role in the design of a costume. The modern fashion world is a prime example that cultures and aesthetics triumphed over practical utilities in costume design.

In the setting of a video game, costume usually means clothing and equipment pieces that characters possess. From the storytelling perspective, costume designs in video game characters can be used to reflect their practical utilities in the game world. Also, the visual details on a costume can be an important channel for communicating

critical narrative information that is not diegetically provided. The design of a costume can reflect a character's past, their upbringing and the cultural environment they lived in.

Costume design can benefit gameplay. In a game, the main characters are usually dressed in more visually significant and interesting costume than minor characters. The more visually sophisticated a costume design is; the more attention it will attract from the player. Through a visual hierarchy of costume design, it visually drives players focus on important characters during gameplay. Furthermore, the different visual styles used in costume design can be used to produce visual distinctions between enemies and players' characters during gameplay.

Like the real world, costume design in games is often influenced by the personal aesthetic taste of visual artists and marketing strategies of the publishers. However, the costume design in video game is not a standalone design component, fulfilling its narrative and gameplay requirements should be considered as its primary design goals.

3.2. Props Design

In the gameplay of a video game, characters interact with various non-sentient objects. I define those objects as props. Based on their different usages, they can be organized into the following three types: weapon, vehicle and item.

3.2.1. Weapon

Weapon refers to instruments and equipment that are designed to enhance the effectiveness of combat activities. Weapons are often operated by a character or several characters collectively. They often bring their own interactive properties into the standard gameplay mechanic. For example, in the game *Ninja Gaiden 2*[4], the game mechanics features third-person perspective melee combat. There are several weapons

[4] Developed by Team Ninja and Published by Microsoft in 2008, platform XBOX 360

for the protagonist Ryu to choose during any moment of the gameplay. The standard weapon is the Dragon Sword which is a long sword allowing Ryu to perform slashing and slicing. While the player switches Ryu's weapon to other ones such as the Lunar Staff, the control will change slightly while the general mechanics remains mostly the same. Specifically, the set of moves that the player can execute is different from while he is using the Dragon Sword. The animations of using the Lunar Staff become different from that of the Dragon Sword.

The visual designs of weapon could be limited by several variables. First, the specific technology setting of the game world would influence the weapon design greatly. For games that set in medieval era where warfare is fought with cold weapons, it would be inconsistent and unbelievable to have a weapon that resembles the exterior and the functions of modern day weapon such as cruise missiles. Secondly, as mentioned above, game mechanics could determine the design direction for the weapons. Shooter requires weapons that can fire projectiles, such as rifles, machineguns, and bows. Third, the requirements in storytelling could influence weapon design. In figure 3.4, the giant sword called Soul Edge from the game *Soul Calibur V* is decorated with demonic and skeletal ornaments. In the story of the game, Soul Edge is the sword that the heroes seek to destroy and the villains strike to obtain because of its evil and destructive power. The sword is a significant prop that drives the plot development in the game. The visual appearance of the sword resembles forms of gores, skulls and bones. Those are elements that typically associated with pain, illness and death. Such visual design turns the weapon into a symbol of the evil power. That is exactly what the story of *Soul Calibur V* wants to convey – Soul Edge is the root of all evil.

Figure 3.4 Soul Edge from Soul Calibur V

Official concept art, *Soul Calibur V* (© Namco Bandai, 2008)
Retrieved from http://soulcalibur.wikia.com/wiki/File:Soul_Edge_(SC5).jpg

3.2.2. Vehicle

Vehicles refer to transportation devices that significantly changes the way that a character navigating through environments and terrains in a video game. The term vehicle in modern context suggests that it is engineered and manufactured, such as cars, tanks, exoskeleton suits, and aircrafts. In games that the technological settings are inadequate for producing machinery work, animals and animal-powered devices can be used to alter the transportation mode of characters. For example, in Gears *of War 2*, riding a flying creature named Reaver would greatly enhance the mobility of the characters. While mounted on a Reaver, the character will not be able to shoot with his weapons. In this case, the creature Reaver is considered as a vehicle because it changes the mode of mobility of a character. The main reasons to use a vehicle in a video game include quicker transporting, better protection and more advanced combat abilities. Vehicles can be found in both gameplay and cutscenes in a game. During the

vehicle sequence of a game, it is common that the standard control scheme will be replaced with a new set of controls. This change is typically driven by two reasons - the change of transportation mode and the availability of new operable apparatus. Taking the stage of tank battle in *Call of Duty 3*[5], when player is piloting a tank; in comparison with the standard first-person-shooter mechanic; rifle fire are replaced with the turret of a tank. Turning left and right is replaced with the turning of the gun turret. Basic movements in walking mode are changed to drive, break and reverse.

The visual design of vehicles in games often draws reference heavily from existing vehicles and machinery. In real life, vehicles are designed to meet certain practical demands. The looks of real vehicles are shaped by engineering process and practical utilities. Through borrowing visual elements from real vehicle, one can remember similar designs in real life and assume the vehicles in the game world really work. That produces a sense of believability for the viewers. That is why Alex Jaeger, a renowned art director from Hollywood, said in *Vehicle Design with Alex Jaeger Volume 1* "(the vehicle) needs to look like it works". (Jaeger, 2012)

3.2.3. Item

The common use of item in video game refers to that any other props can be collected or obtained by characters – playable or not. In order to have clarity among the categories in my domain, I exclude to refer costume, weapon and vehicle as part of item. Typically an item possesses the capacity of altering player's attributes and resources. The changes can be either advantageous or detrimental. The visual design of an item can be used to evoke the aesthetic reactions that are consistent with the actual effect of the item in the game. For example, a sword with fire element usually uses the warm color scheme to hint its fiery nature. The level of aesthetic complexity in the visual design of an item often is correlated with its in-game effect, rarity and value. The items

[5] Game developed by Treyarch and published by Activision in 2006, platform Xbox 360, the standard gameplay

are designed to assist players tend to have benevolent appearances and the item that are harmful to players tend to have malevolent appearances.

3.3. Environment Design

The storytelling and the gameplay take place in a series of virtual landscapes in games. In this thesis, I refer the visual design of those virtual landscapes as environment design. Environment design in video games typically goes through three stages; the first one is concept sketches with highly rendered details, functions much like the establishing shot from a movie, to present an overview and to generate a first impression for both game designers and audiences. The second stage involves rough sketches with multiple angles that show the structure of the landscapes. This is used almost exclusively during the production stage for the modellers in a game's development team to create the environments in the game. The third stage is the environments seen in the game and rendered by the game's graphic engine.

Environments in video games help to communicate the story setting and establish a sense of presence. Environments design can address to issues that are critical for promoting the believability of game world. The importance of environment design has been examined and discussed by many media scholars. Jenkins said in the paper *Game Design as Narrative Architecture*:

> "Environmental storytelling creates the preconditions for an immersive narrative experience in at least one of four ways: spatial stories can evoke pre-existing narrative associations; they can provide a staging ground where narrative events are enacted; they may embed narrative information within their mise-en-scene; or they provide resources for emergent narratives. (Jenkins, 2004)

Environments are part of the *story world* defined by Bizzocchi in his narrative framework of game[6]. He suggested that they can be used to provoke tensions and to set the emotional tone of a game's narrative. In film, the environment design is part of the mise-en-scene; Andre Bazin once commented on the dramatic significance of environment design in film, he wrote "The drama on the screen can exist without actors. A banging door, a leaf in the wind, waves beating on the shore can heighten the dramatic effect. Some cinematic masterpieces use man only as an accessory, like an extra or in counterpoint to nature, which is the true leading character" (Bazin, 1972). The environments alone tend to have the ability to significantly shape our understanding of the story in a game.

From the practical side of environment design, graphic design principles such as visual hierarchy, foreground and background relation, center of interests and visual clarity are particularly important because audiences are prone to experience environment design as a holistic experience.

From the viewpoint of gameplay, environment design functions as a visual manifestation of the game's structure. On one hand, it provides narrative meanings to players' interactions with the game's system. For example, the action of pressing the jump button can be given the meaning of leaping over a gulf in a platformer. On the other hand, environment design can be used to facilitate interactions between players and a game. For example, many environment designs in video games deliberately include visual highlighting to facilitate better path-finding for players.

Based on their distinctive visual appearance, environments in game can be broke into two main categories – artificial environment and natural scenery. Artificial environment refers to a landscape where man-made structures and architectures such as houses, chapels and factories populating most of the space. Natural scenery refers to a landscape featuring mostly structures created by the force of nature such as mountains, grass field and valleys. In term of their visual distinction, artificial

[6] *Games and Narrative: An Analytical Framework*, Bizzochi, J, 2007

environments usually feature mostly symmetrical and geometrical shapes whereas natural sceneries are often rendered irregular shapes. Certainly an environment design is possible to have visual languages features elements from both categories. However the reason for having this distinction in environment design is each category has different narrative roles. Artificial environments are more useful in establishing the cultural and social background of characters and natural scenery are better at describing the condition of the nature environments.

3.4. Visual Effect

Visual effect in video game refers to the type of visual elements that are non-representative and it functions solely as sensory stimuli in the screen space of a game. They are the counterpart of the special effect or sometimes VFX in the film media. Nowadays, most of the visual effects are done digitally which means they are generated in computer graphics software. On the basis of their different visual dimensions[7] as defined by Zettl, most visual effects found in video games can be organized into the following three types.

- **Lens effect** - Visual effect resembles the appearance produced by the interaction between various camera lens setting and light, such as distortion of perspective, blurry background, out of focus.
- **Timeline effect** - It concerns with effects that creates through the manipulation of time, such as slow motion, fast-forward and reverse-play.
- **Screen effect** - It refers to the addition of visual elements on top of current screen space, such as color filter and screen texture.

In practice, they can are often used in a mixing and matching fashion to produce a wide array of complicated visual effects.

[7] Zettl H. coined three dimensions of visual effects, the three dimensional fields, motion and screen space in the book *Sight Sound Motion* (2005). They correspond with the three terms used in this section

4. Framework – Aesthetics of Visual Styles in Video Games

4.1. Chapter Overview

Visual style has a long history in academic discourses and art studies. It is a topic that is often associated with the discussion of aesthetics and expressivity. Visual style also plays a significant role in defining art movements and art genres. Influential art historian H.W. Janson once wrote about the significance of art style in an artwork:

> To art historians the study of style is of central importance. It not only enables them to find out, by means of careful analysis and comparison, when, where, and often by whom a given work was produced. But it also leads them to understand the artist's intention as expressed through the style of the work (Janson, 2001)

Visual style is not merely a dispensable addition and ornament for visual art. It is an important channel for the artist to subtly communicate meanings and intentions beyond the content and subject matter of an artwork. Through analyzing visual style in the visual design of video games, it allows us to investigate the design purposes and intentions behind various graphic elements in a game. The understanding of those intentions enables us to better understand the utilities of visual design in gameplay and storytelling.

In this chapter, I would like to begin my understanding of styles by looking at some "common-sense" notions in this domain. Then I will provide definitions of style in the light of art criticism and visual psychology. Next I will integrate and translate those definitions of visual styles into the context of video game design. By critically examining the roles of visual styles in various components and dynamics of video game that defined in the previous chapter and appendix B, I will construct a framework of visual styles in video game. This framework will provides specific definitions on six different

visual style modes (the subcategories) under two major categories, using terminologies primarily from Arnheim's Gestalt psychology.

4.2. What is Style?

To study the aesthetics of visual styles, it is necessary to have a well-rounded understanding on the word *style*. Perhaps Winston Churchill's famous line regarding hairstyle can enlighten us on the everyday meaning of style. While he was asked by a barber regarding what hairstyle he wanted, Churchill replied "a man of my limited resources cannot presume to have a hair style – get on and cut it." (Preziosi, 1998) One critical aspect of style can be extrapolated from this micro-story is that style exists only in contrast with a normative mode of conducts and performances. In other words, for a style to be established, a standard context or commonly accepted mode must be provided.

Art historian Ernst Gombrich defined art style as "any distinctive and therefore recognizable way in which an act is performed or an artifact made or ought to be performed and made" in his 1960 essay *Style*. This definition furthers our understanding by pointing out that in order for a mode of performance to be recognized as a style, there must be a set of distinctive qualities that the mode displays consistently. One might question what those distinctive qualities that enable us to see styles in artworks are? In the same essay, Gombrich suggested that "there can be no question of style unless the speaker or writer has the possibility of choosing between alternative forms of expression." (Gombrich, 1960) *Forms of expression* in artworks enable audiences to see styles.

To answer the question of what style is; here is a list regarding three basic properties of style in art I identified through my understanding of relevant literatures:

1) Existing only in contrast with a normative context
2) Forms of expression allow a style to be distinctive
3) For a style to be established, it require a consistent visual language

4.3. Medium Specificity and Visual Design Objective in Video Game

Before applying those various theories from my literature review to the analysis of visual styles in video games, it should not be ignored that the newly emerging video game technology has its own medium specificity. Unlike those traditional art media, video games are interactive and they are designed primarily for the objective of providing entertaining for players.

Salen & Zimmerman defines a game as "a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome." (Salen& Zimmerman, 2004) They arrived at this definition after reviewing eight significant authors[8] who all have their own distinctive understandings on the concept of game. They argued "The key elements of this definition are the fact that a game is a system, players interact with the system, a game is an instance of conflict, the conflict in games is artificial, rules limit player behavior and define the game, and every game has a quantifiable outcome or goal." (Salen&Zimmerman, 2004) Video game is a sub-genre of game hence it too carries all those essential features from the definition. Meanwhile, Salen&Zimmerman argued that with the following four distinctive traits:

1> immediate but narrow interactivity,
2> manipulation of information,
3> automated complex systems
4> networked communication (Salen& Zimmerman, 2004)

Those traits are found only in video games, video game has robustly elevated those basic properties of games through players' explicit interactions with video games.

On the other hand, in spite of gameplay rules and structures which are different one from another, they all share one common design objective - to produce a fun and

[8] David Parlett, Clark C. Abt, Johan Huizinga, Roger Caillois, Bernard Suits, Chris Crawford, Greg Costikyan, and Elliot Avedon& Brian Sutton-Smith

engaging gaming experience. In fact, many game designers and scholars view player engagement in a video game as a significant indicator for the successfulness of a game's design. Based my literature review on game studies, particularly the works of Ermi & Mayra, there are three types of player engagements - narrative, ludic and sensory. The concept of narrative-based engagement concerns with narrative elements such as characters, world settings, plots, role-play and more in a video game. The interactive nature of video games allows players to involve and to experience with storytelling in ways that traditional static narrative media are unable to provide. Often players are drawn to a game because its interactive storytelling allows players to participate and to alter the storyline, to assume a role that can express aspects of themselves in a given game world and to live out a fantasy that was not possible in real life. As Ermi & Mayra puts in their essay *Fundamental Components of the Gameplay Experience: Analysing Immersion*: "the game offers the player a chance to use her imagination, empathise with the characters, or just enjoy the fantasy of the game." (Ermi & Mayra)

The second type of engagement is the ludic engagement. That concept is best illustrated by Csikszentmihalyi's psychological concept of *flow*. It suggests that while the difficulty of a challenge and the skill level of a player achieve a state of dynamics balance, the player becomes fully immersed in the gameplay and would ignore all external distractions. This exhilarating and rewarding mental state is considered to be one of the main reasons that players are addicted drawn to games.

The third type of engagement is sensory engagement. It refers to the phenomenon that a video game stimulates the senses of players through impressive audio and visual display. This tradition of creating pure sensory arousal can be traced back even to the early years of cinema. In Gunning's essay *Cinema of Attraction*, he discussed different kinds of cinematic techniques with no narrative purposes but are used only to create attractions in their own right.(Gunning,2005) In video games, flashy explosions, dramatic camera work and vibrant color palettes are common techniques used to create the sensory rewards for the players.

4.4. The Framework of Visual Styles in Video Games

So far I have established an well-grounded understanding on style and the medium specificity of video games. In the rest of the chapter, I will construct an analytical framework to describe and to analyze the aesthetics of visual styles in video games. The primary design utility of visual styles in a video game is to reinforce players' engagement. With the three levels of player engagement in mind, Arnheim's *Gestalt psychology of visual art* might provide the much needed theoretical lens to link the visual style and expression with players' experiences; since his theory investigates the perceptual and cognitive reaction to visual compositions and expression in artworks.

Arnheim explored visual art with a primary focus on the complementary relationships between the representation of subject matter and visual forms. In Cupchik's interpretation of Arnheim's theory, Arnheim's Gestalt approach to visual art is explained in term of 2-D surface level and 3-D illusionist level (Cupchik, 2007). Those two levels of visual qualities later become the inspiration for the two main categories in my framework - formal level and representational level.

4.4.1. Definitions of Formal Level and Representational Level

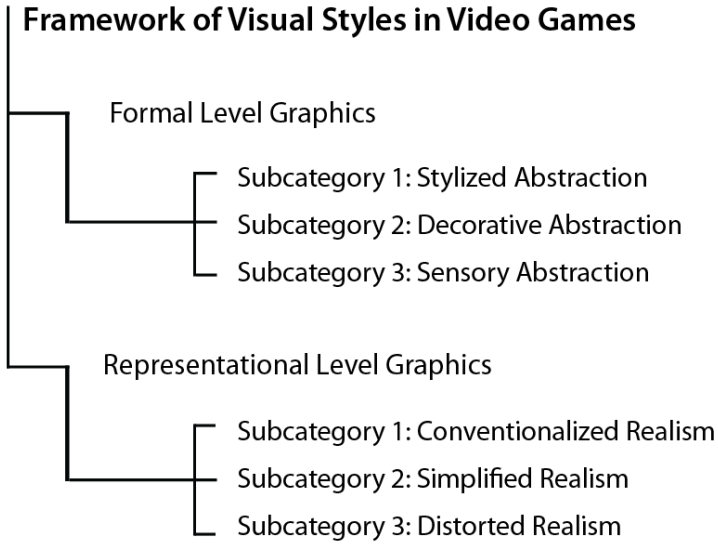
The *formal level* in my category runs in parallel with surface qualities (Cupchik, 2007) in Arnheim's Gestalt psychology of visual expression. The naming of the surface level comes from the idea that the surface of a canvas where pure visual elements being put together to form the appearance of a visual artwork. The surface qualities are essentially formal qualities in visual work such as line, shape, form, texture, pattern, color, tone, and spatial composition. When an artwork makes an impression on its audiences, before their minds can cognitively process its content and subject matter, those graphic elements have already engaged their senses through a purely aesthetic experience. Those formal qualities stimulate us at the perceptual/sensory level and the nature of those stimuli is abstract and non-referential. Cupchik further suggested "The stylistic structure of surface space provides a framework for expression… Nonreferential or nonillusionist color relations provide a means of integrating the canvas as a unified field. It is within these relations that the forces so important to Gestalt psychology can

be manifested." (Cupchik, 2007) In short, it is the surface level qualities that enable artistic expression and create a unifying effect for a visual artwork.

The *representational level* corresponds with the illusionist qualities (Cupchik, 2007) in Arnheim's theory. The word illusionist here means that the representational graphics creates the illusion of concrete and realistic objects originally existing in a three-dimensional space on the two-dimensional flat canvas. The audience interacts with those qualities on a semantic level through the narrative meaning they produce. The efficiency of the communicating semantic information relies on the artists' ability to mimic the appearance of real-life conditions and real-life objects. The most important skill for artists to produce good illusionist level qualities is the ability to translate the 3D objects and environments onto the 2D plane of canvas using the knowledge of perspective.

The formal level and the representational level are two major categories in the framework. Within each category, there are three sub-categories which describe different qualities and functions of different modes of visual styles (figure 4.1). While the distinctions between the subcategories are valid and real, they are not meant to be mutually exclusive in the analysis of video games. A game that found using one visual style mode in its visual design does not prevent us from found other visual style modes in it. Similarly, the modes may act in concert with each other. Any specific creative decision on game visuals may reflect the operation of two or more modes of visual style.

Figure 4.1 Outline for the framework of visual styles in video games, chart by author



4.4.2. The Formal Level Graphics in Video Game

In video game, the formal level qualities of visual design can be found mostly in visual components such as texture, line, shapes and spatial composition. Formal level qualities are expressive and aesthetic in nature. Besides the theory of Arnheim, modern era scholars and authors also tacked the discussion of formal qualities in visual art. McCloud's visual iconology speaks of the intricate relationships among the three vertices of styles, realism, abstraction and iconic. Demer's categorization of visual styles also offered some insight regarding the characteristics of different abstract qualities in digital paintings. Drawing theories from those intellectual giants, I extrapolated three important channels for formal level graphics to communicate:

1) Gestalt isomorphism[9] – There are structural similarities between visual forms and inner state of mind.

2) Synaesthetics[10] – Expressive and stylistic qualities in visual work can evoke other senses or emotions beyond visual perception.

3) Symbolism[11] – Abstract graphics can suggest ideas that are deeply embedded in our past experience and collective culture.

In addition, there are two main advantages of using formal qualities to communicate in video games. First, formal qualities are able to convey abstract ideas and emotions that at times are difficult to express with concrete and representational graphics. Second, the interaction takes place at the perceptual level which is very immediate. It occurs before the audiences can cognitively absorb all the narrative information and far before they can suspend their disbelief to the fantasy world through imaginations.

In the following sections I will describe three subcategories or modes of the formal graphics – *stylized abstraction, decorative* abstraction and *sensory abstraction* in the context of game design.

4.4.2.1. Subcategory One: Stylized Abstraction

The first subcategory of formal level is the graphics of stylized abstraction. This mode of visual expression gives the digital graphics of video game a painterly appearance. They can be found in both 2D and 3D games. Computer graphics (CG) software such as Photoshop are commonly used to produce such expressive qualities in game graphics. Those digital drawing tools enable graphic artists to put their own

[9] The term Gestalt isomorphism has a critical importance in Arnheim's psychology of visual perception as showed in his book *Art and Visual Perception.* If needed, please refer to chapter 2.13 for detail descriptions on his theory

[10] McCloud coined the term in *Understanding Comic*, it also has been explored in the literature review

[11] McCloud borrowed Arnheim's idea of symbol in his book understanding comic, this description is a summary based on the overlaps of their views on the term.

personal touch in their art in a very classic fashion. For example, the PS2 side-scrolling RPG game, *Muramasa the Demon Blade* (fig 4.2) features watercolor style 2D sprites. They are mostly hand-drawn by the art director George Kamitani of the development team.

Figure 4.2 gameplay of Muramasa: The Demon Blade

Screen capture, *Muramasa: The Demon Blade* (© Ignition Entertainment, 2009) Retrieved from http://www.rpgfan.com/pics/Muramasa_The_Demon_Blade/ss-018.jpg

In 3D games, specific rendering technologies are used to mimic the look of painterly surfaces. For example, *Valkyria Chronicles* (fig 4.3), a PS3 game with 3D polygonal graphics uses a graphic engine called CANVAS to produce the distinctive lines and textures qualities resembling that of Japanese manga. In an interview with renowned animation director Mamoru Oshii regarding the visual design of this game, Oshii commented that it has a look of *Nausicaä* manga[12].

[12] "Mamoru Oshii Speaks: Centering on the World View of Valkyria Chronicles" retreived from http://valkyria.jp/pia03.html, 2011, originally written in Japanese

Figure 4.3 gameplay of Valkyria Chronicles

Screen capture, *Valkyria Chronicles* (© Sega, 2007, permission pending)

What are the defining traits of stylized graphics? Inspired by an insightful observation by Demers while analyzing stylized graphics "this kind of expression deals more with a heartfelt passionate approach to painting as opposed to the more analytical approach used by the realistic or hyper-realistic genres." (Demers, 2002) I suggested the following characteristics are the defining traits of stylized graphics:

1) De-emphasis of photorealism and accurate 3D perspective.
2) Expressive use of formal qualities – particularly on textures, lines, edges and tone.
3) A touch of personal interpretations by the artist showing through the expressive formal qualities.

Looking back at the two cases of stylized graphics I have investigated; it is not hard to see the visuals of each game have their own distinctive and identifiable look. Perhaps the painterly qualities in them produce unique and consistent visual languages that unify the gameplay and storytelling experience in each game.

4.4.2.2. Subcategory Two: Decorative Abstraction

The second category of the formal level is the graphics of decorative abstraction. This mode of visual expression refers to graphic elements such as patterns and textures that are ornamental and decorative in nature. In video game, the decorative graphic

elements are often found in costume design of characters and architecture design of environments. This visual style mode features repeated use of a particular set of lines and shapes that produces graphic patterns. For example, in figure 4.4, the double-headed dragon has Baroque style ornamental patterns on its necks. That makes it an extremely stylistic monster design in comparison with a generic dragon design with the typical reptilian skin texture.

Figure 4.4 gameplay of Bayonetta

Screen capture*, Bayonetta* (© Sega, 2009, permission pending)

Historically the style of ornaments is idiosyncratic to a specific culture and art movement. Through the use of decorative elements in video game, the designer could potentially embed cultural and aesthetic connotations into the visual design in game. Ultimately those implied meaning can be used to reinforce the storytelling in video games.

In addition, comparing with a plain surface without patterns and textures, a surface with elegant and sophisticated decorative graphics is more interesting to look at. For that reason, the decorative graphics could also serve as a pictorial highlighter that places emphasis on important objects during gameplay.

4.4.2.3. Subcategory Three: Sensory Abstraction

The third category of the formal level is the graphics of sensory abstraction. This mode of visual expression features purely abstract visual elements that aiming at stimulating the sensory reactions from players. One defining characteristics of sensory abstraction in video games is the integration of motion. Special effects such as firework, explosion, light-work, and particles splattering are common manifestation of sensory abstraction. The sensory graphics attract the viewers on a very immediate and perceptual level. The ability to grab attentions with motions and changes is a defining characteristic of sensory graphics. The sensory reward occurs before all the diegetic and analytic process in viewers' mind, they are engaged with a game purely through visual spectacles. To better illustrate my definition, the concept of *Cinema of Attractions* coined by Tom Gunning is comparable to sensory abstraction. Gunning studied extensively on these phenomena in theaters of early cinema. He maintained that the magic of cinema does not only come from the imaginative and escapist narrative provided by a film; but also it owes contributions from on-screen visual spectacle of motion pictures (Gunning, 2005). He made an analogy between the viewers' experience of early films to people's experience in an amusement park. Audiences are drawn to moving pictures not entirely of their storytelling, but they just like the rollercoaster ride of senses. In video games, I believe that the same can said. For games that heavily utilize sensory graphics, it is not farfetched to suggest that the player engagement come largely from an "exhibitionist confrontation rather than diegetic absorption". (Gunning, 2005)

From a game design perspective, the thrill and visceral sensations produced by the sensory graphics could be used to strengthen the emotion engagement at critical gameplay moments. In addition, the impressive display of sensory graphics can be used to reward us while players achieved gameplay objectives. In fact, in many side-scrolling and top-down space shooters, it is a common design choice to have the destruction of a

stage boss[13] rendered with exquisite and prolonged motion graphics of firework and light-work.

To help with illustrating and understanding the idea of the sensory graphic, let us look at an example from my data set. In the top-down view space shooter *Super Stardust HD* (fig 4.5), the gameplay features spectacular fireworks and vibrant lighting effects. Admittedly, those visual elements are there to represent the laser weapons and explosions which are narrative in nature; however that does not prevent those visual effects to be considered as sensory abstraction. As you can see, the appearances of those graphics are almost entire abstract and they hardly resemble their real-life counterparts. The representational aspect of those special effects is rather insignificant comparing with the sensory stimulations. The sensory excitements produced by those visual effects are far greater than any narrative pleasures they can produce. At this moment, it is safe to say that the gameplay relies almost exclusively on the sensory abstraction to support player's engagement.

[13] "the boss enemy is generally far stronger than the opponents the player has faced up to that point (the end of a stage)" – Thompson, C., Who's the Boss?, Wired.com, retrieved from http://www.wired.com/gaming/gamingreviews/commentary/games/2006/05/70832 on Jan. 2012

Figure 4.5 Explosion and fireworks in Super Stardust HD

Screen capture, *Super Stardust HD* (© Sony Computer Entertainment, 2007, permission pending)

For games that do not focus on storytelling and realistic representation, like *Super Stardust HD*, it is natural that the game would feature substantial amounts of sensory graphics for retaining players' interests. But this is not to suggest that a game that focusing on narrative and representation could not utilize the sensory graphics to promote player engagement. It is just that use of sensory graphic are generally more subtle so they do not interfere with the clarity needed for visual storytelling. For example, in this particular screen capture (fig. 4.6) of the fighting game *Blazblue Continuum Shift*, as one character on the left punching the other on the right, to visually dramatize and accentuate the force of impact, the golden radiant lines appears briefly during that moment. The animation of those radiant lines is an example of sensory abstraction used in combination with storytelling.

In addition, during the fast-pace gameplay of the game, the demand for quick reactions requires players to be able to recognize the current situation of gameplay quickly. The radiant lines create a highlight for the punching. That works as a visual cue to alert players about the current danger.

Figure 4.6 Gold radiant lines effect occurs at moment of punching

Screen capture, *BlazBlue: Continuum Shift* (© Aksys Games, 2009)
Retrieved from http://static3.thcdn.com/productimg/0/600/600/68/10240268-1291051180-27000.jpg

4.4.2.4. Summary and Discussion

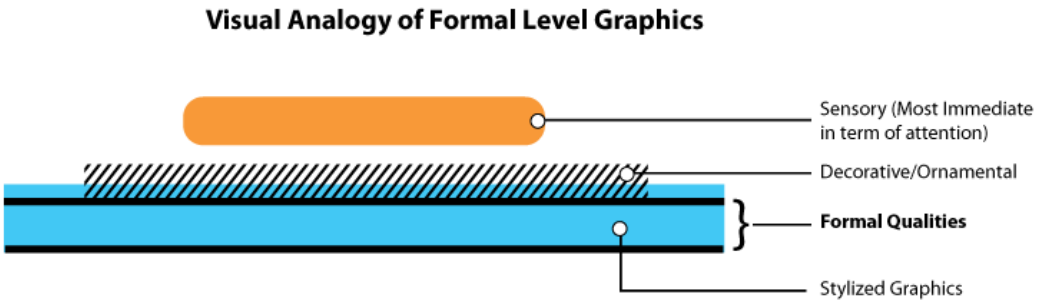
Due to the somewhat elusive nature of the abstract formal qualities, I want to anticipate potential questions and clarify possible confusions regarding the three subcategories. This segment serves as a summary and a clarification to the category of formal graphics.

To look back at my definitions on the three subcategories of the formal graphics - stylized, decorative and sensory, the first and the second categories are easily differentiated due to their distinctive characteristics. The sensory graphics, on the other hand, might be a bit more ambiguous comparing to the previous two because of the potential wide interpretations on the word *sensory*. After all, it is not unreasonable to claim that all of our aesthetic experiences are sensory to certain extent.

In my framework, the category of sensory graphics refers to a very specific set of visual elements. Those abstract visual elements do not rely on the beauty of sophisticated lines like the decorative graphics neither they are embedded into the visual forms of an artwork which eventually change the style of the work. They are created solely for the purpose of sensory stimulation through the integration between abstract

visuals and motions. To facilitate our understanding of this puzzling concept, I want to present a visual analogy (fig4.7) in the hope of illustrating the differences and interrelationships of the three types of abstractions under the category of formal qualities.

Figure 4.7 Interrelationship of the three subcategories of formal level, chart by author

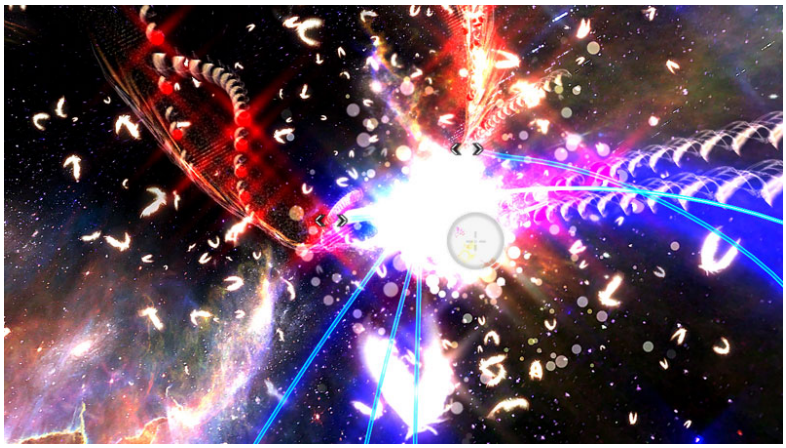


If you imagine the formal qualities being a sheet of water-absorbing cloth, *the stylized abstraction* would be the water (blue) you can soak the cloth in. The stylized graphics will permeate the fabric of the cloth and change the way it looks. Meanwhile, *the decorative abstraction* would be akin to an adhesive patch you can apply to parts of the content on the surface of the forms. Finally, *the sensory abstraction* is like loose objects you can place on the cloth; they are standalone objects floating on top of both the patches and the surface. In this model, the sensory graphics are the most immediate level of expression among all three categories of formal graphics.

Finally, I must make it clear that although the diagram separates the subcategories into clearly divided groups and each one of the three subcategories indeed has its indeed own distinctive traits, the boundaries between the subcategories are soft and they are not meant to be mutually exclusive. For example, it is possible to have visual designs that could possess traits from a combination of any numbers of the subcategories. In fact, it is extremely rare to have games that solely dedicate to one type of the abstract graphics. A close candidate to that extremity would be *Child of Eden* (fig 4.8). That game is a motion-controlled musical shooter on the Xbox 360 featuring primarily sensory abstractions in its visual design. It would have players to shoot various abstract objects; upon their destruction, the game would manifest lavish animated light-

work. Here sensory graphics become the most dominating visual elements. Nevertheless, although the narrative component in the game has a very minor role in the gameplay, but it is needed for maintaining structures for the gameplay and giving meaning to players' interactions. For example, the action of shooting at an object during the gameplay implies those are obstacles and the players need to overcome it.

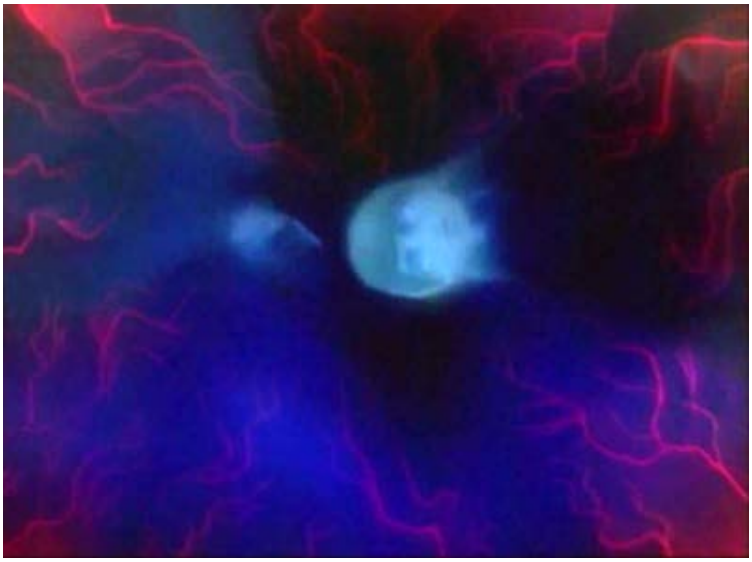
Figure 4.8 gameplay of Child of Eden



Screen capture, *Child of Eden* (© Ubisoft, 2011)
Retrieved from http://newbreview.com/wp-content/uploads/2011/06/CoE-002.jpg

I have discussed how various non-representational graphics in the formal level can evoke emotions. At the same time, people can experience emotions and feelings from looking at representational artworks. One might question how those two levels of graphics are different in term of evoking emotions. I will use another game from my data to attempt to answer that question. In this particular scene from *Shin Megami Tensei: Nocturne* (fig4.9), the visual storytelling communicates a strong emotion of painfulness. The protagonist was forced to swallow a demonic worm which caused the protagonist to transform from a human to a demon. The excruciating pain during the metamorphic process is visualized through the graduate accentuation of the vein-like pattern, the highly-contrasted color scheme and the on-screen blurry effect. The crawling red veins remind us of the tensed human muscles struggling violently against constraints. The dark blue symbolizes a cold environment. The blurry effect suggests a losing of consciousness. The painfulness felt by an audience is produced through the mixing effect of synaesthetics, symbolism and the Gestalt isomorphism in the abstract visual elements.

Figure 4.9 cutscene of Shin Megami Tensei: Nocture



Screen capture, *Shin Megami Tensei: Nocturne* (© ATLUS, 2006, permission pending)

On the other hand, the representational graphics can evoke emotions through describing a narrative moment. In figure 4.10, the excruciating expression of Apollo depicted in the *God of War 3* tells us that this character is in pain. This example leads us to the other category of my framework – the representational level.

Figure 4.10 gameplay of God of War 3

Screen capture, *God of War 3* (© Sony Computer Entertainment, 2010, permission pending)

4.4.3. Representational Level Graphics in Video Game

The definition of representational level graphics is inspired Arnheim's idea of illusionist qualities in visual art. Commonly referred as realism, representational level graphics are intended to portray concrete objects and sceneries through forms and textures resembling the materiality and physical conditions in real life. This level primarily uses the narrative capacity and the semantic capacity in representational graphics to communicate.

The term illusionist is derived from the story of the competition for realism between two Greek painters Zeuxis and Parrhasius. In that story, Parrasius demonstrated his superior painting skill by tricking Zeuxis into thinking Parrasisus' artwork is actually the curtain that covering his canvas. Parrasisus created the *illusion* of a real curtain through his mastery in painting. In video game of current generation, 3D graphics is the main technology to create representational visuals. The advancement of computer graphic technology greatly increases the efficiency in producing some of the most mathematically correct and purposefully deformed representational graphics in

video game. On the other hand, it is also common to have representational 2D graphics. Game developers often use perspective technique to create a sense of depth and three-dimensionality in 2D graphics. In fact, all representational level graphics - 3D or not - are essentially geometric forms which are mathematically projected to a *Cartesian plane*.(Arnheim, 1997) In modern context, the Cartesian plane here refers to various display device for video games. Although 3D display technology is becoming more common nowadays, most visual media are still display in 2D flat screen-space. To avoid confusions and limit the scope, the discussion on 3D graphics here excludes those emerging 3D display technologies. In the following paragraphs, I will break down the representational level into three more specific subcategories or modes – *conventionalized realism*, *simplified realism* and *distorted realism* – based on their visual characteristics.

4.4.3.1. Subcategory One: Conventionalized Realism

The first category of representational graphics is *conventionalized realism*. This mode of visual expression depicts subjects and objects as if they were viewed in ordinary and real-life situation. The common and technical term to describe this visual style is photorealism. The way photorealism works in video game is similar to Barthes' description of *reality effect*, a textual device that helps to establish a sense of reality and believability in a fictional world (Barthes, 1986). In games that featuring conventionalized realism, painstakingly crafted details and realistic textures in objects and environments are used to establish a fictional game world as a reality in audiences' perceptions.

Uncharted 3 would be an excellent example of reality effect in its visual design. The character design of the protagonist, Nathan Drake (fig. 4.11), is realistically rendered with incredible details. Computer graphics technologies used in the game generate skin textures mimic the real human skin to the extent that they even have imperfections like blemishes and scars. Drake's beard is unevenly shaved and his clothing shows signs of wearing off. All those seemingly unnecessary details contribute greatly to illusion that the character Nathan Drake is not a computer character. He is just as real as you and me.

Figure 4.11 Character Design - Nathan Drake

Official character art, *Uncharted 3* (© Sony Computer Entertainment, 2011)
Retrieved from
http://images3.wikia.nocookie.net/__cb20100309205211/uncharted/images/f/ff/Nathan_Drake_Uncharted_2_render.jpg

In the real-time rendered gameplay sequences, the visual team at Naughty Dogs[14] has done an equally good job in maintaining the illusions. As you can see in figure 4.12, the in-game environment features almost excessive details on every object, from the sunlight shining through layers of leaves and leaving dotted shadow pattern on the ground to the lavish wooden textures. Although due to the limitation of processing power of the game platform PlayStation 3, the quality and the resolutions of the texture could not match the fidelity of pre-rendered character design art showed above. But

[14] the development studio of *Uncharted 3*

during the fast-pace gameplay, the real-time rendered visuals are more than enough to maintain the consistency and eventually promote the game's narrative believability.

Figure 4.12 Gameplay of Uncharted 3

Screen capture, *Uncharted 3* (© Sony Computer Entertainment, 2011, permission pending)

4.4.3.2. Subcategory Two: Simplified Realism

Among the three modes of representational graphics, certainly not all modes of representational visuals are aimed at promoting engagement through reality effect. The second subcategory *simplified realism* retains a limited amount of descriptive power and representational qualities. However the act of moving away from high-fidelity photorealism does not necessarily mean the loss of its communicative efficiency. Quite the contrary, the simplified realism allows the depicted subjects to become symbolic and iconic. That opens up new channels for communication. This mode of visual expression depicts objects and environments in a manner that is referential and representational in the core but with certain degrees of abstraction and simplification on the details. Texture, color, lighting and shapes are often simplified to create an iconic appearance. The objects rendered with simplified realism can still have the most idiosyncratic components so audiences can easily recognize what they are. Meanwhile the iconic look can express ideas that beyond the visible information – "amplification through

simplification" (McCloud, 1993). In term of narrative, the universality found in symbolic visuals enables better player identification. Players are much easier to be identified with an iconic character than a fully-defined and idiosyncratic character. In addition, the simplified realism allows for a more flexible expectation and higher tolerability on the plausibility of various setting. That could give the designers and programmers more liberties to integrate uncanny gameplays and narrative elements. In term of gameplay, iconic character design allows players to easily recognize and distinguish one character from another.

Figure 4.13 gameplay of Fat Princess

Screen capture, *Fat Princess* (©Sony Computer Entertainment, 2009)
Retrieved from http://www.ps3informer.com/Fat-Princess_screenshot.jpg

For example, in *Fat Princess*(fig. 4.13), the game adopts the narrative archytype - a brave hero goes a quest to save his damsel in distress. The game would have players choosing any units/characters, and journeying on a mission to prevent their own princess from being taken. Meanwhile, goal of wining is to sussessfully kidnap the princess from the enemy's castle. There are a few ludirous and edgy settings in both gameplay and plots. As an important part of gameplay, the players need to constantly feed the princess various food they found on the map so she will be too fat to be easily carried away by enemy soliders. Also, the game features considerable amount of gores

and violences. The simplified visuals supports those gameplay and story premises on multiple fronts. Due to the high number of animated units that could be co-existing on one screen and the fast pace nature of gameplay, the player needs to easily distinguish between various of units and factions. The iconic visuals and simple colors allow players to have a quick grasp on the gameplay situation. In addtion, the cartoony visuals lessen the repulsive reactions to the ludicrous setting. If the game were featuring realistic graphics, it might cause huge moral disgust. Because photorealism sets a expectation of something that would actually happen and something that is logically plausible. In real life, no nation would commence warfare in such absurd fashion . The non-realistic and simplified graphics suggest to audiences that the storysetting is not meant to be taken seriously. The inconsistency in the logic and the plausibility of game setting becomes an non-issue here. Quite the contrary, this non-serious inconsistency in our expectaction creates a sense of satire. That is ultimately responsible for producing all the humors in the game.

In some ocasion, certain representational details are selectively ignored based on the design requirements of the gameplay. That means some objects/characters in the game will receive more simplification than others. *Katamari Forever*, an unconventional and unique third-person action game, is an excellent example of that. Players would assume the role of the prince from a magic galatical race. The gameplay merchanics would have players using a round magnetic ball to roll up various of items in the stage into a clump. The objective is to reach a certain size for the clump that players rolled up. As the clump growing larger, more items on the stage will become attractiable to the magnetic power of the clump. The gameplay takes place initailly in a house or a room, as the size of the clump increasing, the game world expands to a galatical level. Eventually players will be able to roll up planets and stars in the cosmos. Taking look at the king character (fig 4.14), certainly his visual design is cartoony and many visual details such as texture of the fabric are simplified. However, while comparing his design with the visual design of ordinary town folks (fig 4.15) in the stage, the king has significantly more representational details on his face and body shapes. The visual design of the folks are almost turned into LEGO-like objects.

Through selective simplifications, those minor town people character are stripped away the liveliness of human being. That makes them all object-like. This creates a

perceptual and cognitive separation between main characters and other minor human characters. That reinforces the game world setting where the conventional human world is just a playground for those magical galatic beings that likes to roll up things.

Figure 4.14 Character Design - the King

Official character art, *Katamari Forever* (© Sony Computer Entertainment, 2009) Retrieved from http://image.gamespotcdn.net/gamespot/images/2009/118/959073_20090429_screen019.jpg

Figure 4.15 a group of elderlies in Katamari Forever

Screen capture, *Katamari Forever* (© Sony Computer Entertainment, 2009) Retrieved from http://www.siliconera.com/postgallery/?p_gal=33037|5

In additional, this graphic style plays a vital role in creating a unique identity for this video game. The name Katamari roughly translated to “clump soul” which is the motif for the gameplay and the narrative. On one hand, selective simplification makes

objects in this game looking blocky and clumpy. That gives this game a recognizable visual identity that supports the narrative motif of the game. On the other hand, the less simplified background and environment retain its representational clarity. That allows players to recognize the gameplay environments.

4.4.3.3. Subcategory Three: Distorted Realism

The third sub-category is *distorted realism*. It refers to the mode of representational graphics featuring distortion of visual components such as perspective, proportions, size and shapes in order to support specific subject matters and narrative themes. The defining techniques in this mode include deformation, exaggeration, foreshortening and contraction of various formal components. Among all the objects being distorted, the most common and noticeable distortion are found in character designs. This might be due to that people are extremely familiar with the correct proportion of human body because they see it everywhere in daily activities. It is easier for us to spot the unusual and incorrect anatomical proportion of a human body. The distortions of the objects sometimes make them implausible and impractical in real-life situation. As a result, this type of visuals is more often found in games featuring fantasy world setting and convention-defying gameplay than games striving for realism.

There are two primary channels that distorted realism can communicate to audiences. The first one is through associative thinking. Subjects and objects with distorted formal qualities often evoke memories of things with similar shapes in reality. This makes it possible for players to feel the emotions associated with the things that distorted graphics remind them of. For example, in figure 4.16, the boss character from *Muramasa the Demon Blade* features body and facial proportions drastically distorted. Such corporal distortion strikes fear in the players' perception by reminding them of the malformed humanoid monsters in our visual culture. On the other hand, the very same psychological deformation also produces a degree of similarity to that of a toddler. Through the same associative thinking process, players' perception of a toddler is projected to the boss. In the end, the distorted visual design produces both the emotions of fear and the sense of humor. While the fear intensifies the gameplay moment and keeps players emotionally engaged, the comical image that resembles a

clumsy toddler hints the slow mobility aspect of the monster. That potentially gives gameplay tips to help players understand the boss' movement patterns.

Figure 4.16 Boss fight in Muramasa - the Demon Blade

Screen caputre, *Muramasa - the Demon Blade* (© Ignition Entertainment, 2009) Retrieved from http://assets1.ignimgs.com/2009/02/06/muramasa-the-demon-blade-20090206101044567-2742219.jpg

The second way that distorted realism can communicate is through provoking corresponding kinesthetic experience which could cause the distortion and deformity in reality. Arnheim explored on the topic of expressivity and deformity in great depth. He argue that artistic expression is often made possible through "perceiving with imagination". (Arnheim, 1949) For instance, when we see distortion happens in a building, we imagine the force that might cause such deformity over time. Furthermore, not only we tend to imagine the force being applied to the objects, we are also subconsciously putting ourselves in the situation of the objects. Therefore, through viewing deformity in a visual representation of a pillar under a hefty roof, the viewer might experience the sense of strength because he/she has secretly imagined how strong the pillar must be in order to take the tremendous pressure from above. This is ultimately what Arnheim meant by"expressivity derives from deformity". (Arnheim, 1949) In practical, many video games' visual designs make use of this particular perceptual process to embed emotions through distorted realism. The distorted buildings and streets in the concept artworks (fig. 4.17) of *Alice: Madness Returns* reflects the senses

of insanity and vertigo which is consistent the narrative theme and emotion of the game world.

Figure 4.17 Concept artwork of Alice: Madness Returns

Book scan from *The Art of Alice: Madness Returns*, R.J.Berg, Dark Horse, 2011, pp.14

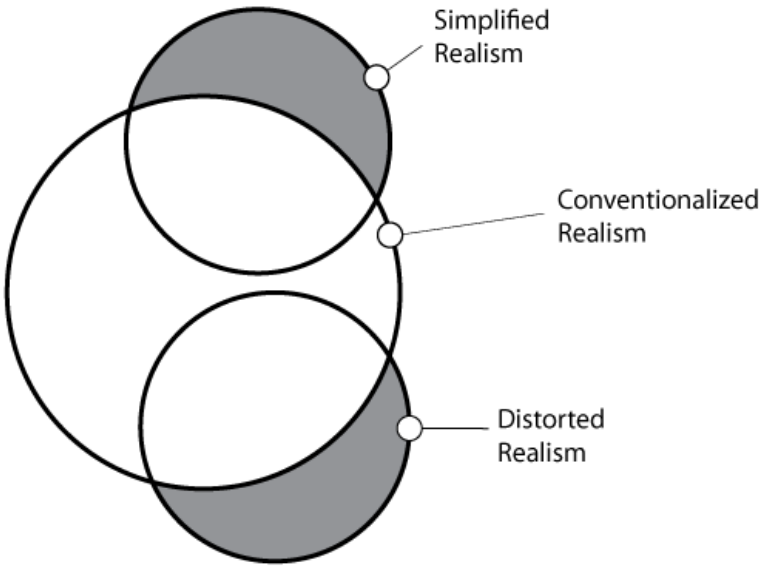
4.4.3.4. Summary and Discussions

Representational graphics are indispensable to video games with focus on storytelling; because they are efficient at communicating the appearance of characters, objects and environment which are the essential components of a visual narrative. The better illusion of reality that the representational graphics can produce; the better they can enhance the level of suspension of disbelief among players.

On the other hand, video game worlds are famous for their imaginative and fantasy visual designs. The reason we can recognize the variety of fantasy and fictional designs which do not exist in reality is because they combine parts that referencing things that existed in reality.

To put the three subcategories of representational graphics in context with each other, I design a diagram (fig. 4.18) explaining their inter-relationships. Conventional realism is representational and illusionistic in the most direct sense. Simplified realism and distorted realism are also primarily representational; however they also have incorporated systems of aesthetic interventions to produce their unique effect.

Figure 4.18 sub-categories of representational graphics, chart by author



With this chart illustrating their difference, here I provide a summary of the main communication channels of the three sub-categories in my framework of visual styles:

1) **Conventionalized realism** - it relies on the reality effect to promote believability of the game world

2) **Simplified realism** - it relies on the symbolic power of images; it amplifies the expressive range of representational graphic through simplification of graphic details.
3) **Distorted Realism** - the visual design can embed emotions through deformity; however the expressivity might come at the expense of clarity.

As stated about the three type of abstraction in the formal level, that all those three type of realism are also not mutually exclusive. They are too different modes of visual styles. In practice, it is likely the visual design of a given game will employ a combination of those subcategories with an inclination to one specific subcategory in the overall visual design.

Visual style is significant because it reflect the artist's intentions (Janson, 2001). In a video game, those intentions of visual style should support the design goals of the game with through its gameplay and narrative utilities. Subject matters/story/gameplay often does not have a one-to-one relationship with specific visual styles. The game setting could be realistic[15], fictional[16], fantastic/imaginative[17], but the visual style could go in different directions. In the case study of *Fat Princess*, the excessive brutality in gameplay coupled with cartoony design provokes a sense of edgy humor and sarcasm. On the other hand, having visual styles that are consistent with gameplay and narrative can be considerably advantageous at times. Since visual style are very capable of evoking emotions, and that emotion can give audiences corresponding expectations towards to the video game. The game developer needs to thoroughly consider the potential expressivity of various visual styles and to make sure there is no unintended expectation that could interrupt with flow of gaming experiences. In the next chapter, I will describe several visual design heuristics that resulting from the application of the framework in the analysis of various visual components on games in my data set.

[15] Meaning they are based on real life people, event, objects
[16] Meaning objects and people with reference to real-life people, event, objects
[17] Referring to things are otherworldly, many objects are based on "what-if" assumptions

5. Visual Design Heuristics and Case Studies

5.1. Overview

In order to instantiate and to test the utility of my framework, I conducted a wide range of focused cade studies over 29 games of different narrative genres, gameplay genres and visual styles. In the process, I systematically parse items in my research domain against categories in my framework. Through analysis and examinations, I identify several design approaches consistently emerging in visual components of various games on the basis of their utilities and effects in a video game. I believe that these are significant design strategies that could potentially function as heuristics to assist game developers and game researchers. In this chapter, I organize my findings under three critical dimensions[18] of game studies: gameplay, narrative and aesthetics (table 5.1). Those three dimensions also run parallel with the structure of my literature reviews. Hopefully, this organization would facilitate better understanding of the design heuristics. Some of the design heuristics have several subcategories that demonstrate distinctive aspects of the same strategy. As for each category and subcategory, this chapter will present them with correlated case study to exemplify and support my claims.

[18] The first dimension gameplay utility is significantly shorter than the other two dimensions. The reason is that the focus of this thesis is on the aesthetic style and visual designs of objects in a video game. Specifically, the descriptive capacity of an image provides a strong support for the storytelling. The abstract visual works well as an emotion stimulator to provide necessary feelings at dramatic moments. On the other hand, the study on the role of visual elements in game mechanics can be extremely technical. It often requires the collaboration of software engineers and the validation of user studies. That is not the direction of this research.

Table 5.1 Overview on the Writing Structure of Design Heuristics, chart by author

Design Heuristics	Supporting Case Studies
Gameplay Utility	Design Driven by Gameplay Utility - *Fallout 3*
Narrative Utility	
Story Requirement	Design Driven by Story Requirement - *Nier Gestalt*
Plausibility	Design Driven by Engineering Plausibility - *Halo Wars* Design Lack of Logic Plausibility - *Magna Carta 2*
Reference	Design Driven by Sign-level Reference - *Valkyrie Profile* Design Driven by Symbol-level Reference - *Bayonetta*
Aesthetic Effect	
Consistency	Consistency between Visual Salience and Gaming Tension - *Super Street Fighter 4* Lack of consistency between Visual Style and Narrative Genre - *Valkyria Chronicles* Lack of consistency of Visual Faithfulness across all of a game's graphic - *Eternal Poison*
Identifiability	Using Visual Motif to Promote Identifiability – *Little Big Planet* Using Visual Language to Promote Identifiability – *Odin Sphere*

5.2. Gameplay Utility

Gameplay utility in visual design refers that a visual element actively participate the interaction between players and the game world and it plays a role in facilitating such interaction. There are several benefits of visual design elements having gameplay utility. First the utility-driven visual design approach can give purposes and directions to visual designers on the basis of gameplay requirements. Second, the utility-driven design element can communicate to the players in a subtle manner without breaking the flow of the overall gaming experience. Thirdly, a utility-driven design element could effectively reduce the false expectations on the interactive potential of objects and characters during the gameplay. In the following section, I will describe the application of this design strategy in practical gaming situations.

5.2.1. Case Study: Design Driven by Gameplay Utility - *Fallout 3*

In the role-playing game *Fallout 3*, the protagonist is permanently attached with a piece of equipment called Pipboy 3000A (fig. 5.1) on his left arm. This device essentially functions as an integrated in-game UI (user interface) that displays the player's status, equipment, skills, item inventory and more. During any moment of the gameplay, the player can press a specific button to lift the left arm of the protagonist close to the face level. That positions the Pipboy's interface in the center of the screen. The player then can navigate the interface of the device for various purposes such as equipping weapons and set directional beacon. The visual design of the Pipboy interface mimics the low-resolution and primitive computer screen that found in the 1960s. The retro look made possible by conventional realism helps to integrate the in-game menu into the narrative setting of the game. Unlike many role-playing games which uses standard interface elements in their in-game menu with unfitting visual style that could easily break the flow of the gameplay, the utility-driven retro visual style of the Pipboy 3000A enables the in-game menu to be seamlessly integrated into the interactive storytelling experience.

Figure 5.1 Pipboy 3000A in Fallout3

Screen capture, *Fallout3* (© Bethesda Softworks, 2008, permission pending)

5.3. Narrative Utility

Narrative utility means that the visual design is a critical piece in advancing the story and portraying the game world and the characters. On the representational level, the visual depictions of objects and environments can provide players with information that are crucial for establishing the presence of the game world and characters. On the abstract level, visual elements can be used to evoke emotions that support the storytelling. Without narrative utility, the visual design of an object might be experienced as irrelevant, extraneous and gratuitous by players.

The sample study suggests that the different modes of the representational dimension in my framework play a prominent role in the following visual design components: characters, props, vehicles, architectures and even sceneries. Concrete and representational visual style allows players to recognize the objects that the game

designer tries to describe. The study also discovers that the visual design can be guided by the story setting of a game. However it is not the only determining parameter for this design approach. The relative plausibility[19] of objects and environments is another critical parameter in shaping the final outcome of a visual design. Furthermore, the study finds that high-fidelity representation is not always necessary and optimal for this design approach. In certain scenarios, simplified and symbolic visuals are more effective because they can tap into the player's imagination and experience in ways that high-fidelity graphics are incapable to do.

In the following sections, I will present specific case examples for the three parameters of narrative design: design driven by *story requirement*, design driven by *plausibility* and design driven by *reference*.

5.3.1. Story-requirement-driven Design

This approach refers to that visual designs and visual styles of objects and environments provide direct support to the story setting in a game. Story setting is the narrative information often explicitly provided by a game's plot. Through analyzing the design components including characters, props and environments of games in my data set, I identified a few design details that play a salient role in communicating the story requirements.

5.3.1.1. Case Study: Design Driven by Story Requirement - *Nier Gestalt*

In the video game *Nier Gestalt*, the design of the main character Kainé (fig. 5.2) depicts her as a sword fighter dressed in revealing lingerie. To people who has little knowledge regarding the story of the game, this might seems to be just another case of the game company trying to capitalize on the objectification of woman as sexual objects. However, to people who have played through the game, they would know this character design is driven by critical information in the story setting.

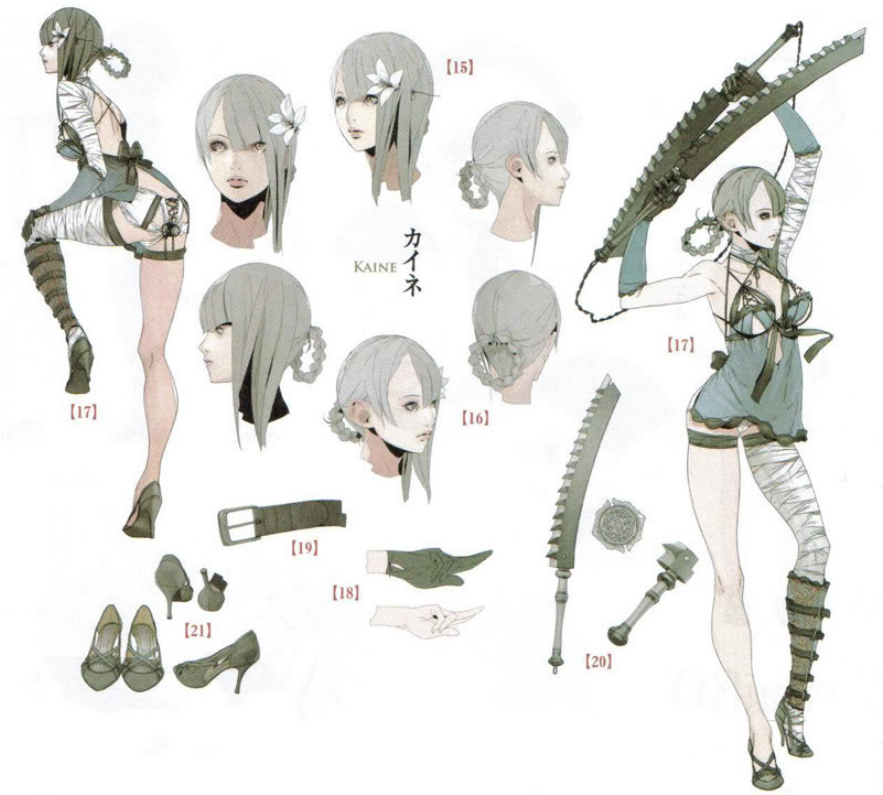
[19] The reason for using the word relative is to prevent the over-implication of the plausibility, I do not want designers to scrutinize the plausibility of their design to extremity.

In the story setting, Kainé was outcast by people around her because she is a hermaphrodite. Constantly harassing by the villagers during her growing up, she eventually decided to assume the role of female gender. To show her fearless attitude of rebelling against all the discriminations and conventions, she chooses to dress in highly revealing lingerie in order to emphasize her femininity. The suggestive costume design is intentional. It does not only support with her backstory, but also provides a new channel in understanding her character. Her conscious choice of clothing suggested that she is not afraid confronting the tremendous hardship caused by her troubling sexual identity.

In fact, almost every detail of her character design has hinted her setting in one way or another. The acute observers among the readers of our analysis might also notice the black bands wrapping around her left arm and leg. They might seem to be just random decorations. But as the story unfolds, it is made clear that Kainé has been possessed by an evil spirit named Shade. That gives her superhuman strength despite of her frail body. Those wraps are used to hide the non-human parts in her left arm and leg which only to be revealed later.

Kainé is regarded as one of the more successful and dimensional character designs by game reviewers and aged RPG lovers. Almost every aspect of her design is subtly connected with the narrative elements that are crucial for the depth and the engagement of storytelling. McCloud suggests that in order to establish a strong emotional connection with readers, three vectors need to be seriously considered. They are an inner life, visual distinction and expressive traits (McCloud, 2006). They can provide the audience with a unique history, a distinct body and behavior traits (McCloud, 2006) of a character which are critical to the portrayal of the character. The visual design of Kainé – from her costume design, her body type and her gesture – addresses respectively to the three vectors in McCloud's framework. It is no surprise that the headstrong and foul-mouthed Kainé become such a memorable and loved character for people who played the game.

Figure 5.2 Kainé in Nier Gestalt



Book scan from *GRIMOIRE NieR: Project Gestalt & Replicant System*, Square Enix, 2011

5.3.2. Plausibility-driven Design

Plausibility-driven design means the visual depiction of an object is possible or likely to exist in the game world in term of their structures and purposes. This category is critical for games intending to establish realism. The plausibility of a design taps into the logical and analytical ability of the mind. It is a crucial variable in creating the reality effect in a video game. To better explain this, let us imagine a fictional scenario. Supposedly we are designing a raining street scene sets in a city of a technologically sophisticated society for a video game; following the plausibility-driven design approach, it is ideal to incorporate visual elements that indicating a functional sewage system. Those design details such as sewage pumps and pipes helps to create the illusion that this depicted scene is not just a cardboard background. The detailed depiction of a

sewage system here functions very much the same way as the barometer in *Flaubert's Parrot* described by Roland Barthes.

There are two level of plausibility. The first level is *engineering plausibility*. To illustrate this concept, let us think about this question: if we were to make that design with materials from the game world in reality, can it really be done? In other words, the visual design should depict the structural properties in an object from an engineering perspective. The second level is *logic plausibility*. It refers to whether the visual design of the object fits with its function described in the story. The fictional scenario I gave above would fit into this subcategory. Ultimately, I must admit that the plausibility-driven design approach largely depends on the narrative setting of a game. For example, if a game world features highly futuristic setting, then there could be more room for the imagination and fabrication on the design its technologies. In the rest of this section, I will provide two examples from my data set to illustrate the two types of plausibility.

5.3.2.1. Case Study: Design Driven by Engineering Plausibility - *Halo Wars*

The vehicle design in *Halo Wars* is a good example of visual design driven by engineering plausibility. Taking the concept art of the artillery vehicle Cobra as an example (fig. 5.3), the design of the vehicle is showed from multiple angles with different scales. The design illustrates how parts of vehicles are connected in laborious details. Specifically, on the bottom left of figure 5.3, the illustration shows the vehicle in lockdown mode. The stabilization arms extend to the ground and hold the vehicle still against the recoil of artillery shell. On the side of the vehicle where the folded stabilization arms used to be, we can see a small cylindrical clipper for locking the arms in place while in mobilization mode. By showing their mechanic structures and functions, those design details demonstrate the engineering plausibility. The vehicle design concept art does not only benefit the animators and modellers of the game, but also it provides a great support for establishing realism and believability through using the reality effect.

Figure 5.3 Cobra in Halo Wars

Official concept art, *Halo Wars* (© Microsoft Game Studios, 2009)
Retrieved from
http://media.photobucket.com/image/recent/benstreeper/halo/halo%2520wars/11_COBRA.jpg

5.3.2.2. Case Study: Design Lack of Logic Plausibility - *Magna Carta 2*

In 5.3.2, I have provided an example[20] to explain logic plausibility. In this section, I will examine a counter example where the visual design falls short in supporting believability due to the lack of logic plausibility. In the game *Magna Carta 2*, before I can criticize the drawback of its design, I must admit the character designs are more than excellent in term of its drawing quality. The concept arts of character design are rendered with a unique and highly-recognizable visual style. The costume designs are exquisite in term of their complexity and ornamentation. However, excellent artwork does not always guarantee good design. In figure 5.4, it shows a compilation of the character design of four female protagonists from the game. The game sets in a

[20] the fictional design scenario of a sewage system

medieval phantasy world mixing with steam-punk style technologies. The protagonists are combatants of a rebellious group against an oppressing monarchism government. At beginning of the game, they are on a long and tiresome retreat forced by the mighty Sentinel army. In common logic, one would expect a combatant living in such harsh condition to wear effective protections such chainmail and thick chest plates to cover vital areas of their bodies. Instead, those girls dress in highly-decorated and fashionable clothing which show no capacity for such protection. Moreover, much of their bodies are exposed which leaving them vulnerable for physical strikes. Finally, their poses say very little about their personalities and roles in the game, rather they pose in manner akin to girls from the American pin-up posters. In conclusion, few narrative supports can be found in visual design of costumes and the characters' poses. One can only assume such design approach is to attract the male demographic of players through overly sexualised female characters.

Figure 5.4 a compilation of female protagonists in Magna Carta 2, official character art

Book scan from *Oxide 2 Carta Numinous - Kim Hyung Tae: The Second Works (Magna Carta),* Softmax Korea, 2004

5.3.3. Reference-driven Design

Reference-driven visual design is one of the most common approaches that many visual artists used. The term reference-driven has two potential interpretations. Frist it can refer to the visual designs are created with reference to real objects or aspects of real objects. Second, it can refer to the use of references as a critical communicative device in the design to embed information beyond the mere appearance. Arnheim's theory on the three fundamental functions of an image addresses directly to those two interpretations. The function as *picture* correlates with the first one. The function as *symbol* and *sign* correlates with the second interpretations. In the following paragraphs, I will use the three functions to define the three subcategories of reference-driven design.

The first subcategory is the reference of *picture-level*. This is the most direct way of using reference in design. It can also be referred as one-to-one reference because the relationship between the design and its reference is very linear. This approach often relies on concrete and high-fidelity visual representations. The benefit of referencing real life objects on the picture level is that the artist can easily convey the design because it has the look of something that audience are all too familiar with in reality. In addition, referencing reality provides the designer with an excellent opportunity to blend events in real life such as historical figure and events with fictional material. In doing so, it creates a fictional world that people can relate based on their own familiarity with the reference materials. What's more, by using picture-level reference it required far less imaginative efforts in comparison with other approaches because the artists can just mimic the world in front of him. This is made even easier with help of modern technology such as photo cameras. Video games such as the *Call of Duty* franchise are well-known for its realism and immersive game world, one main reason is that they use plethora of references from historical events, real weapons, vehicles, uniforms and locations in their visual designs.

The reference on the *symbol level* and the *sign level* works in more subtle ways in comparison. The symbolic reference first creates an impression on the viewers through its visual appearance. With its iconic graphics, it can evoke ideas and emotional reactions associating with that appearance. As McCloud suggested, symbolic images

amplify their communicative capacity through simplification (McCloud, 1993). The relationship between the design and its reference on the symbol-level is one-to-multiple because one symbolic design could remind us of many different things and ideas.

The *sign* reference means that the visual design does not reply on its appearance for communication, but rather, it functions as an indicator of something entirely different. This visual design approach is less common than the other two methods above, but it is an effective and powerful mean while properly used. The sign-level reference is often found in the combinational use with symbolic reference and picture reference in the same design.

In the following, I will provide examples for the sign-level and symbol-level. Since the picture-level reference is straightforward and a brief example[21] has been mentioned previously, an extra example will be discarded.

5.3.3.1. Case Study: Design Driven by Sign-level Reference – *Valkyrie Profile*

The character designs in *Valkyrie Profile* show evidences of using reference at the sign level. In this game, the player will assume the role of a Valkyrie, the goddess of war in Norse mythology, to take on various tasks in order to recruit souls of brave warriors on earth for the preparation of Ragnarök[22]. The story setting and the visual design borrows heavily from the Celtic and Norse cultures. However the game is not interested in creating an exact replica of medieval Northern Europe; rather the game integrates aspects of the Celtic and Norse tradition to establish a fictional fantasy world.

The costume design draws elements from traditional Celtic and Norse ornaments. In figure 5.5 and figure 5.6, evidently there are formal similarities between the embroidery on the clothing and the Celtic traditional design patterns. Those patterns function as an indicator and signifier for Celtic traditions. The decorative patterns in the

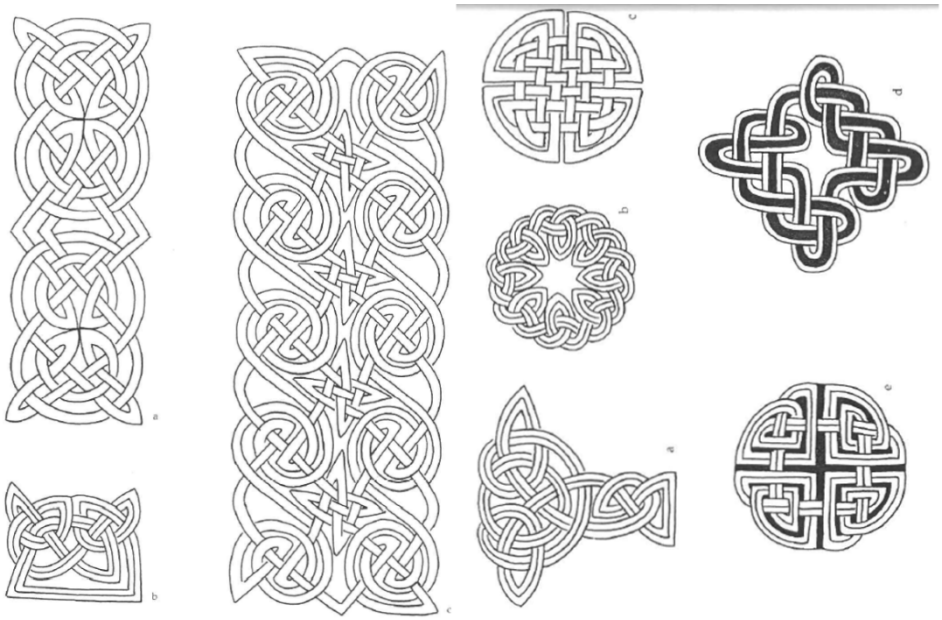
[21] The mention of the Call of Duty franchise which heavily uses picture-level references
[22] It means the end of world in Norse mythology

costume design render the game world with a strong sense of history and give the game world a richness of culture.

Figure 5.5 various costume design in Valkyrie Profile

Book scan from *Valkyrie Profile Material Collection,* Media Works, 2004

Figure 5.6 designs of various Celtic stone crosses



Book scan from *Celtic and Old Norse Designs*, illustrations by Davis, C., Dover Publication, 2000

5.3.3.2. Case Study: Design Driven by Symbol-level Reference - *Bayonetta*

Bayonetta is a unique beat-them-up action game with unconventional and controversial story setting. In this game, the player played as Bayonetta – a witch with extraordinary acrobatic ability and powerful magic spell. Her task is to fight off hoards of angels. From the beginning, the game challenges the common notion on the visual symbols of good and evil. The protagonist (fig. 5.7) dresses in full black and skin-tight suit. When she attacks, she summons torturing apparatuses and uses them on enemies. She talked in manner resembling the archetype of the flirtatious temptress and she moves as if she were strip-dancing. Those are definitely not attribute we would normally associate with goodness albeit she looks rather neat and beautiful. On the other hand, the enemy designs (fig. 5.8) looks absolutely monstrous and inhuman. Their body physiques resemble that of insects. Yet they are attached with halo and wings of angel and they are colored in bright golden. The character design of the witch and the angel in this game becomes visual symbols; they are used to reference all the conventional ideas we have been cultivated to associate with in our culture. Then the game presents us with beauty of the witch and the ugliness of the angel. Such reversal of the cultural norms produces a shock value that attracts the audiences through curiosity and opens opportunities for interpretations. The symbol-level references in the visual design are used intricately in supporting and sustaining the attraction of the unique game world in *Bayonetta*.

Figure 5.7 Bayonetta (protagonist) in the gameplay

Screen capture, *Bayonetta* (©SEGA, 2010)
Retrieved from http://cdn.planetplaystation.com/m.php/2012/07/Bayonetta-Top-51-600x337.jpg

Figure 5.8 angels (enemy creature) in Bayonetta

Screen capture, *Bayonetta* (©SEGA, 2010)
Retrieved from http://i.jeuxactus.com/datas/jeux/b/a/bayonetta/xl/bayonetta-4e26445b816a1.jpg

5.4. Aesthetic Effect

Through the instantiation of my framework in the sample study, I noticed that the synergy of certain visual design elements in a game can produce an all-inclusive aesthetic effect. This effect is similar to the first dimension of Arnheim's theory of expression that I discussed in chapter 2.1.3.2[23]. It rewards players on a purely aesthetic level and they often bring visual consistency and visual identity to a game. Unlike the gameplay utility and the narrative utility of a visual design whereas each individual visual element has its own specific utility , the aesthetic effect relies on all the stylistic elements working together across many or all environments and objects in a game.

Hogarth's six principles of beauty serve as a useful analytical tool in dissecting the phenomenon of aesthetic effect here. He suggests that variety is one of the key principles in creating beauty in visual art. "How great a share variety has in producing beauty may be seen in the ornamental part of nature. The shapes and colours of plants, flowers, leaves, the paintings in butterflies wings, shells, etc. seem of little other intended use, **than that of entertaining the eye with the pleasure of variety. All the senses delight in it, and equally are averse to sameness.**" (Hogarth, 1997) However he maintained that variety should be properly modulated, because "for variety uncomposed and without design, is confusion and deformity." (Hogarth, 1997) Since the visual design of a video game is a large compound of various visual elements and it includes different modes of expression; modulated visual variety among those components has a great importance in producing the aesthetic effect.

The sample studies reveal that two design approaches under this category. They are visual consistency and visual identifiability. They both are used to produce unity and regulation amongst different visual components. In the following sections, I will present an example and a counter-example to exemplify the two design heuristics of aesthetic effects.

[23] It refers to the holistic nature of expression.

5.4.1. Consistency-Driven Design

Needless to say that *consistency* has always been in the core of good graphic design. Through our evolutionary process, the human minds are hardwired to seek for patterns in the world before us. Having consistency in visual design could facilitate the efficiency of communication. Any accidental departures in a visual presentation would spark psychological reactions from viewers and those reactions might create misinterpretation. As Drew Davidson, Director of the Entertainment Technology Center at Carnegie Mellon University, said "we're pattern-making people. We look for things even then they're not there" (Chen, 2008). In addition, the visual elements need not only satisfy the aesthetic demand but they need to support both gameplay and storytelling. When analyzing the visual consistency of video game graphics, it is beneficial to consider its relationships with other game design variables.

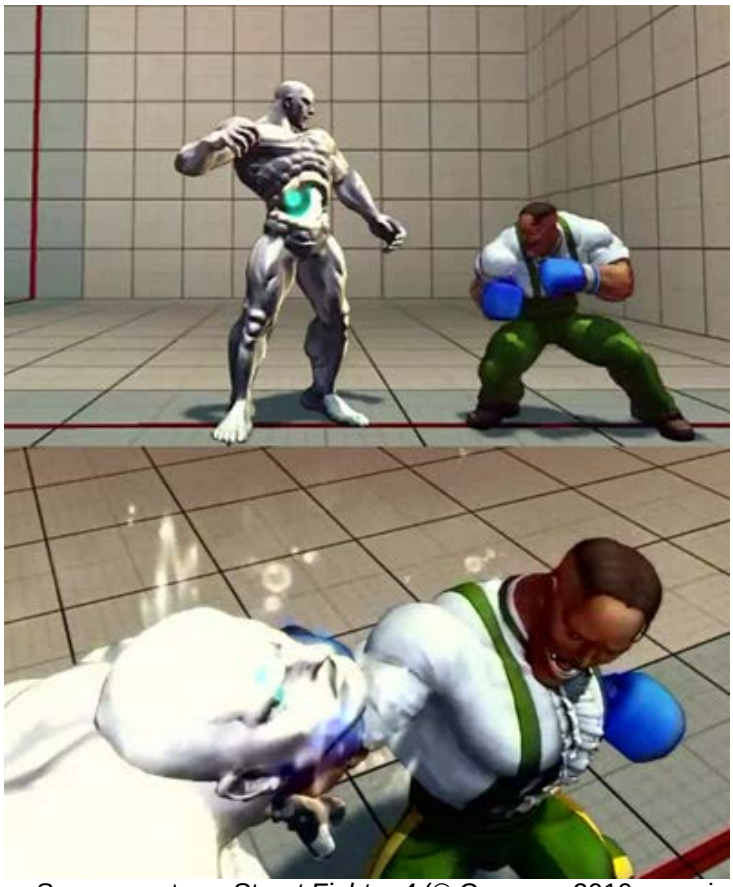
5.4.1.1. Case Study: Consistency between Visual Salience and Gaming Tension - *Super Street Fighter 4*

The first example of consistency is between *visual salience* in the design and *the gaming tension*. The gaming tension includes both dramatic tension and ludic tension. In practice, the critical elements for a particular gameplay moment often have more prominent positioning in comparison with those less important ones in the moment. The more important characters in a narrative event have more elaborate visual design than those less significant ones. When the visual highlighting in a design become consistent with the dramatic and ludic requirements in a game, the flow of perceptual impacts generated by visual design can provide support for players' engagement.

The latest entry to the Street Fighter franchise, *Street Fighter 4*, has brought a new visual design feature to the 2-D fighting genre. Although the game uses 3-D polygonal models for character sprites in the game, the players can only move their characters on a 2-D plane which is very much like those classic 2-D fighting games. However, with the 3-D technology incorporated, the visual design team creates in a new camera mechanism that shifts the zoom and the angle of the shot when a player performs a special attack called ultra-move. During the moment of using a super attack called ultra-move, the animation in the game begins to slow down. The slow-motion moment allows for more visibility on the gesture and expression of a character during

this critical gameplay moment. In figure 5.9, the top shows the standard camera angle during most of the gameplay and the bottom shows the ultra-move camera angle. In term of its gameplay function, the ultra-move is significant because it could potentially inflict substantial amounts of damage on one's opponent. That often plays a critical role in deciding the winning and losing of the match. The change of camera angle and game speed produces a visual salience on the screen which corresponding with the ludic tension generated by the ultra-move. The visual highlighting urges players to become more focus at the critical moment of gameplay and eventually it might stimulate quick reactions and better performances.

Figure 5.9 normal camera (top) vs. ultra-move camera (bottom)



Screen capture, *Street Fighter 4* (© Capcom, 2010, permission pending)

5.4.1.2. Case Study: Lack of consistency between Visual Style and Narrative Genre - *Valkyria Chronicles*

The second example (or rather counter-example in this case) is on the consistency between *visual style* and *narrative genre*. As mentioned by Eisner, visual styles would create expectations for narrative genre and vice versa. (Eisner, 1996) Taking the horror genre in visual media as an example, it always has certain idiosyncratic visual elements, such as the shadowy environment, low-saturated color theme, and grainy picture qualities. They almost become essential for the visual storytelling of the genre. However, like any design practices, the rule can be broke. If the designers understand the potential effects of the inconsistency and approach it purposefully, they might be able to take advantage of it and create more meaning from it.

When the visual style matches the narrative genre in a video game, it can strengthen players' engagement with the game world. Here I will examine a game that its visual style unintentionally departs from the narrative genre. In the tactic role-playing game *Valkyria Chronicles*, player commends a squad of soldiers to battle against invading armies to protect their fellow villagers and hometowns. The game tells a story about the impact of war on people's relationship; it laments the life and death between lovers and friends; and it shows the cruelty and dilemma that one has to face in the war time. The game world even goes so far to blend historical elements that resembling the situation of World War II. A serious story like this often demands a serious tone and it relies on realism in its visual to create a sense of believability; so that viewers would care and sympathize for the characters that they thought were real. On the other hand, the visual style (fig. 5.10) of this game features a brightly colored cell-shading animation graphics with a touch of watercolor texture. Although the game is undeniably beautiful, it does not offer the kind of realism that the story demands. Ultimately, its cartoony aesthetic not only fails to support the story, it also diminishes the emotional impact of the narrative by producing a sense of lightheartedness.

Figure 5.10 cutscene of Valkyria Chronicles

Screen capture*, Valkyria Chronicles* (© SEGA, 2008, permission pending)

5.4.1.3. Case Study: Lack of consistency of Visual Faithfulness across all of a game's graphic - *Eternal Poison*

The third case is an example of a game that lacks consistency of *visual faithfulness* across all video game graphics. By visual faithfulness, I mean that if there is any difference in visual qualities and styles between in-game graphics and other video game graphics[24]. This is an area that many game designers of the past generations aspired to accomplish only to be held back by the limit of computational power of game consoles. The benefit is obvious. Seamless transition between in-game section and cutscene sections of a video game would reduce the oscillations between the state of *hypermediacy* and the state of *immediacy*. (Bolter & Grusin, 1999)

Inconsistency of visual faithfulness is actually a very common but often neglected problem in the visual design of a game. It could break a game single-handedly despites the tremendous efforts and ingenious artistic creations that went into the production of the game. *Eternal Poison* has such a wonderful and charming character design but the

[24] Such as cutscenes and official concept arts

cutscene and in-game battle sequence does not do its justice when they were translated into the game. The original design features a personal and painterly style which suits well with the gothic and the enigmatic theme of the narrative in the game. In figure 5.11, the 3-D rendered protagonist Thage(left) produce a sense of plasticity and deprives the highly-idiosyncratic character traits from the in-game character portrait(right). It is unclear that why the design team would choose to use 3-D technology where 2-D graphics would be plenty adequate. My hypothesis is that people tends to be obsessed with newly emerged technology; 3-D rendering is a newer technology so it often create the false assumption that newer technology automatically produces better design. New technology is just another tool. The goal of game design should always be to create a fun and engaging experience for players. A graphic technology should be used only in the way that can produce contents that are consistent with the rest of the design.

Figure 5.11 Thage from cutscene (left) vs. official character art (right)

Screen capture*, Eternal Poison* (© ATLUS, 2008, permission pending) & Book scans from *Eternal Poison: Librum Verspera*, Flight-Plan& Namco Bandai Games Inc., 2008

5.4.2. Identifiability-driven Design

Identifiability-driven design focuses on producing an overall aesthetic feeling in a game's graphics. Formal qualities play an essential role in this approach. As Arnheim's *Gestalt* theory suggested, the abstract qualities of a visual piece tends to produce a

unifying aesthetic experience. (Arnheim, 1949) Only if all the visual elements in a video game are unified then the game could have a distinctive visual identity. To certain extent, the strategy is related to consistency-driven design strategy, but it has a different focus. Visual identity of a game can immediately make an emotional connection with players without having them to play the game.

5.4.2.1. Case Study: Using Visual Motif to Promote Identifiability – *Little Big Planet*

The sandbox platform game, *Little Big Planet*, introduces a robust character creation engine that allows player to customize their avatar based on a tiny, anthropomorphic humanoid figure called Sackboy (fig. 5.12). The texturing for the Sackboy imitates the material of fabrics and clothes. Also the background objects (fig. 5.13) are rendered if they were real household items such as wood board, fabric cut-outs and paper stickers. The image of the Sackboy here functions as a visual motif in this game and gives us a distinctive and immediately recognizable visual theme. The motif reminds us of the wonderful playtime when we were kids, moving toy in our home through various household items. In fact, that is what the game precisely wants the players to do – using their imagination and creativity to create various platforms. The fabric texturing and the banality of household items embodies the virtual objects in the game with a strong sense of materiality and physicality, it suggested to the players that they are not playing with the virtual polygons but they are actually crafting real things. The game sparks the player's interest to play primarily through this imaginative narrative.

Figure 5.12 various Sackboy avatars in Little Big Planet

Official character art, *Little Big Planet* (© Sony Computer Entertainment, 2008)
Retrieved from: http://ca.ign.com/images/games/littlebigplanet-ps3-856680

Figure 5.13 gameplay of Little Big Planet

Screen capture, *Little Big Planet* (© Sony Computer Entertainment, 2008)
Retrieved from
http://guides.gamepressure.com/littlebigplanet/gfx/gallery/large/Screenshots/littlebigplanet_3.jpg

5.4.2.2. Case Study: Using Visual Language to Promote Identifiability – *Odin Sphere*

Odin Sphere is a 2D side-scrolling action RPG. The game sets in a fantasy world that draws elements from Norse Mythology. The gameplay are framed through

chapters from a fairy tale book being read by a little girl. The player would follow adventures of five protagonists in their respective chapters from the book. The environment design of various chapters shows a great range of visual varieties in term of their looks and feels. From the interior of a palace with exquisite decoration, the immense snowfield with spectacular aurora to the beautiful forest under warming sunlight, the visual variety undoubtedly bring beauty into the visual design of the game. Despite the variety of environments, the game still manages to have a very identifiable look. That is done with the application of a carefully designed visual language. In figure 5.14, I have selected four representative screenshots of different environments along with different characters to demonstrate both the visual variety and the unifying visual language. In each environment, the color palettes are equally saturated and vibrant. Such color scheme produces a bold and high-key tonal quality that defies the principles of colors in conventional realism. For example, in the lower right picture of the screenshot collage, the leaves in the foreground shows many different highly saturated colors - green, orange, turquoise, purple and even blue. In reality, such abundance of vibrant colors is rarely found in natural environment. This visual language resembles the approach in Cezanne's *Still Life* (fig. 2.6) where the emphasis is on the expressivity of color instead of representational correctness. In addition, the proportions of all characters and objects (such as trees, flowers and mountains) in the environments are distorted in the manner that they match each other. Or to put it plainly, cutesy miniature figures live in cutesy miniature places. Furthermore, the painterly texture and widely usage of soft edges[25] produces an impressionistic appearance across all visual elements in the game. Through systematic distortion of forms and expressive use of textures and colors, the visual language of *Odin Sphere* successfully modulates the visual variety and establishes a unique visual identity for this game.

[25] In painting, soft edges means there is no hard and solid lines contouring and separating various forms - Schmid R., *Alla Prima – Everything I Know About Painting*, pp. 91, 2007

Figure 5.14 distinctive environments in Odin Sphere

Screen capture, *Odin Sphere*, (© ATLUS, 2007, permission pending)

5.5. Summary

In this chapter, I presented six design heuristics under three critical game design vectors. A total of eleven short case studies are provided for instantiating a heuristic or illustrating various aspects of the design heuristic. Although for each game exemplified in this chapter, only one heuristic is exemplified, I must clarify that does not necessarily mean that heuristic is the only one found in the game's visual design. It is common that a game would use a combination of those strategies. In addition, the categorization of design heuristics does not impose mutual exclusivity on the utility and the effect of a visual component. For example, matching visual salience with critical gaming moments could also provide emotional support for the storytelling indirectly, because critical gaming moments are likely to be synchronized with critical narrative events in a game. In practical situation, a given visual component that supports multiple game design vectors can be identified as a stronger design decision. Ultimately, the heuristics are

valid categories but they are not rigid rules. The final choice of which strategy (or strategies) to use for a game really depends on the storytelling requirements and the design goal of gameplays.

6. Close Reading

6.1. Introduction

The case studies provided in the last chapter exemplified individual design heuristics in a single visual component of a game. This chapter will present extensive analysis of two video games in which I use the analytical framework of visual styles to test all six design heuristics as well as their respective subcategories. The close readings provide me with an opportunity to study the inter-relationship of individual items in both my framework and my heuristics.

The two games in the close readings are representative samples in my data set. They are carefully chosen on the basis of visual styles, commercial success, critical receptions and sale records. The final candidates are a third person military shooter *Gears of War 3* (*GOW 3*) and a turn-based RPG *Shin Megami Tensei: Nocturne* (*Nocturne*). The former has generated an accumulative sale of 5.5 million[26] copies by 2012 which is a tremendous commercial success. It also has been consistently praised by various reputable critics[27]. The latter has a rather humble sale record[28] mainly due to its niche audience market. Regardless, it has received great rating[29] and it is regarded as one of the most critically acclaimed RPG in 2004. Another important reason for choosing *Nocturne* over other games is that it features drastically different narrative genre and visual style comparing with *GOW 3*. Such combination would allow me to instantiate all the categories in my framework and domain and to compare the

[26] According to data retrieved from www.vgchartz.com
[27] IGN 9/10, Famitsu 39/40, GamePro 4.5/5, GameSpot 9.5/10, and Game Informer 9.5/10
[28] 0.38 million, Global Total as Sep. 2012, according to data retrieved from www.vgchartz.com
[29] IGN 8.6/10, GameSpot 8.5/10, and Famitsu 35/40

usefulness of the heuristics in different game genres; since it would difficult to find one game that includes all the modes of visual styles in my framework. That is also the reason why the close reading on *Nocturne* (chapter 6.3) is considerably shorter than the close reading on *GOW 3* (chapter 6.2). The second close reading aims at providing a supplementary analysis on items in the framework that have not been covered in the first one.

6.2. Close Reading on Gears of War 3

6.2.1. Overview

Table 6.1 shows a few basic facts of the game and checklists of all items in the research domain and the analytical framework. Table 6.2 presents a checklist of exemplified categories and subcategories in the design heuristics.

Table 6.1 Close Reading Overview (part1) – Gears of War 3

Game Title	Gears of War 3	
Console	Xbox 360	
Publisher	**Developer**	Epic Games
	Publisher	Microsoft Studios
	Release Year	2011
IGN Rating	9/10	
Accumulative Sale Record	5.5 millions	
Genre	Third-person Shooter	
Domain of Analysis	☑ Character Design ☑ Props Design ☑ Environment Design ☑ Visual Effects	
Visual Style Modes in the Framework	**Representational Level** ☑ Conventionalized Realism ☐ Simplified Realism ☑ Distorted Realism **Formal Level** ☐ Stylized Abstraction ☑ Decorative Abstraction ☑ Sensory Abstraction	

Table 6.2 Close Reading Overview (part2) – Gears of War 3

Heuristic Dimension	**Exemplified Category and Subcategory**
Gameplay Utility	☑ Design Driven by Gameplay Utility
Narrative Utility	**Story Requirement**

	☑ Design Driven by Story Requirement **Plausibility** ☑ Design Driven by Engineering Plausibility ☑ Design Driven by Logic Plausibility **Reference** ☑ Design Driven by Picture Level Reference ☑ Design Driven by Sign Level Reference ☐ Design Driven by Symbol Level Reference
Aesthetic Effect	**Consistency** ☑ Consistency between Visual Salience and Gaming Tension ☐ Consistency between Visual Style and Narrative Genres ☑ Consistency of Visual Faithfulness across all video game graphics **Identifiability** ☑ Using Visual Motif to Promote Identifiability ☐ Using Visual Language to Promote Identifiability

6.2.1.1. Story Setting

The game sets in a fictional universe where the human army known as Coalition of Gears engaging in a planetary warfare against an invading alien race named Locust. *Gears of War 3* is the third installment of the series. This entry tells the story of Delta squad and its battles for their home, for survival and for friendship. The enemies in this game come from two different races. The first race, Locust, is a native humanoid alien race with dinosaur-like skin living in the subterranean regions of the planet Sera; In the scenario of Emergence day, they decided to come up to the surface of the planet which leads to the lengthy and violent conflict with human - the habitants of the surface. They see human being as a threat and they plan to exterminate all human. Locust's weaponry technology is akin to that of the humans. But they also have integrated many

biologically based weapons[30] into their arsenal. The second one, Lambent Locust, a mutated variant of the Locust, the cause of mutation is a liquid and luminescent chemical substance called Imulsion. It was deeply buried under Sera's surface. After an oil exploration drill conducted by the human, it was discovered and widely used as a fuel. However, it was later discovered that, extensive contact with Imulsion will cause Locust members to mutate into the more vicious Lambent. Lambent Locust has the ability to morph into larger creatures during battle. When they die, they will explode which can cause harms to objects and animals nearby. Those features make the Lambent race a more dangerous enemy than the Locust.

6.2.1.2. The Game's Mechanics

Gears of War 3 carries the heritage of a solid third-person shooter that has been established and refined through the previous two installments. The game features an over-the-shoulder viewpoint which means players will only be able to see their own characters on the screen from behind the back. Like many other games of the same genre, the primary gameplay challenges for players include precision aiming, agile movements, and cover searching in a 3D virtual environment. In comparison with other military shooters such as the popular *Call of Duty* series, besides the obvious difference in viewpoints[31], the *Gears* series employs a much slower pace and it puts the gameplay emphasis on close-quarter combat. Actions such as grinding your enemies into pieces with a chainsaw became a signature mechanics for the Gears series. According to the design director of the game - Cliff Bleszinski, the relatively slow-pace combat in Gears is intentional. It is to accommodate the lack of speed and precision in the control scheme of controller in comparison with the PC's mouse and keyboard, and therefore creates a shooter experience that is unique to the console audience. (Bissell, 2011)

[30] Such as using wild animals as the carrier of heavy assault weapons

[31] The Call of Duty series is typically referred as a first person shooter and the Gears is a third person shooter

6.2.1.3. Visual Design Overview

The game features a visual style that combining high-fidelity photorealistic rendering with exaggerated visual descriptions of violence and limited distortions on characters' physiques. Although the story of the game is set in a very far future; the visual design of environments and props in this game borrowed many contemporary and modern elements such as Baroque architectures, Vietnam era weaponry, and diesel-powered machineries.

Gears of Wars 3 received overwhelmingly positive reception among various reputable game critic sources[32]. The highly refined gameplay contributes greatly to its market success. On the other hand, the story itself is in no way exceptionally innovative and unique. Many military and sci-fi films and games have explored similar themes. However I suggest that various visual elements in this game have provided great support for the narrative. It turns an ordinary plot into a heart-gripping and blood-pumping interactive storytelling experience. For example, the high-fidelity textures and spectacular lightings create an extensive degree of visual realism that establishes a strong sense of presence and believability in the game world. The intentional distortion used in character design and the symbolic elements embedded in costume designs create two very different emotional reactions for the player's faction and the enemy's faction. In addition, the visual design plays critical role in encouraging players to learn the game mechanics. For example, the exaggerated violence from successfully performing a melee attack provides players with sensory rewards for their precision control. In the following paragraphs, I will analyze the various components in the visual design as defined in my research domain; and I will use my framework to examine the ways that the visual style influencing both the gameplay and the storytelling experience. To better illustrate my argument, a few games of similar gameplay and story setting will be brought in for comparative studies.

[32] Metacritic 91/100, GameSpot 9.5/10, Game Informer 9.5/100

6.2.2. Environment Design

Gears of War 3 has been praised for its realistic modeling, exquisite texturing and accurate lighting; the high fidelity visual becomes one of the key factors that make it such successful game. In the section, I will examine in detail how the game establishes its realism through the following design heuristics: picture-level reference, sign-level reference, narrative utility and plausibility.

6.2.2.1. Picture-level Reference in Environment Design

In *Gears of War 3*, referencing the appearance of real life environment helps to establish realism for the game world. The game employs the texture, lighting and depth of field that resembles scenes from real life to produce a realistic look. Comparing to the previous entry, the game uses an updated Unreal 3 Engine. However, let us put the technical details aside and examine what they have changed visually to improve the realism. Through the comparison, I hope to find out the exact visual details that affects players' perception of realism in the game world.

Figure 6.1 shows a rendering comparison of the same scene between *Gears of War 2* and *Gears of War 3*. The top screen capture feels flat and chalky. In the bottom one, the foreground and the background are clearly discernible. If we observe more carefully, it is not difficult to notice that in *GOW 3,* the contrast between light and shadow has been increased considerably. When a light shed on an object in real life, it would cast a very dark shadow behind, which is why people are able to see forms and volumes. The contrast between shadow and light area is critical for viewers to read the form of an object. Furthermore, in the background of the scene from *GOW3*, the details are much less visible and crispy than ones in GOW 2. In reality, because of the existence of dust particles in the air, the further an object is from us, it texture and contour will become more faded and blurry. The rendering changes from GOW 2 to GOW 3 clearly show a better understanding in mimicking the texture and lighting condition in real life condition.

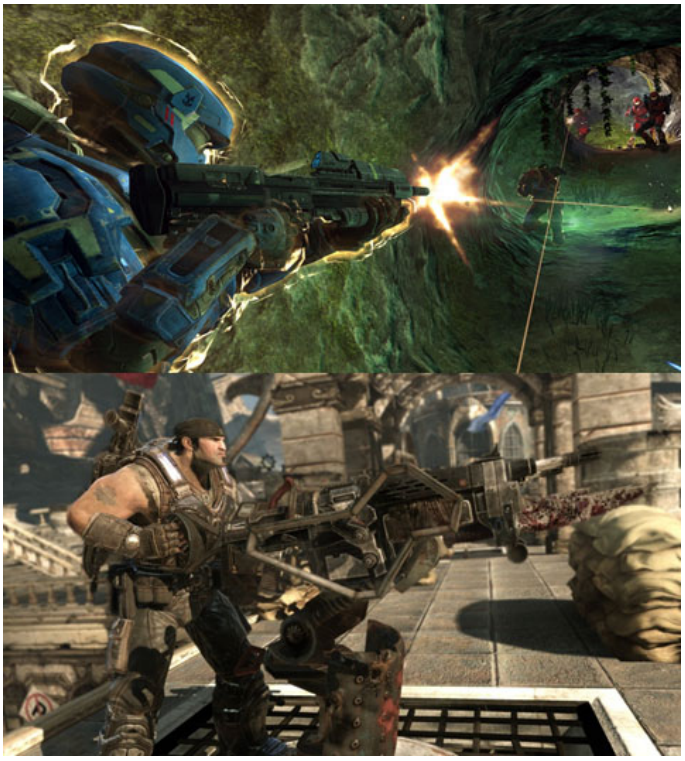
Figure 6.1 Rendering comparison GOW 2(top) vs. GOW 3(bottom)

Retrieved from http://www.laurenscorijn.com/wp-content/uploads/2009/11/UDKcompare004.jpg, (© Epic Games, 2009)

Comparing with other less realistic game such as *Halo Reach*, the realism in GOW 3 is also helped by its moderate and wash-out color palette. As we know, computer generated images (CGI) can produce highly vibrant and pure color very easily. However such perfection in color saturation from CGI usually produces a very plastic look as observed in the screenshot of Halo Reach (fig. 6.2). In reality, due to the atmosphere, lighting condition, the materiality of a surface, uneven mixed of paint and many other factors, rarely one can see colors that are as vibrant and saturated as that of CGI. In the bottom picture of figure 6.2, the color scheme is relatively washed out hence it creates an impression of atmospheric haze. That makes GOW 3 feel more realistic. In addition, from the look of the armor design of the Halo Reach, it feels a bit glossy and plastic and this is due to the combination of vibrant blue color and excessive use of highlighting. Meanwhile *GOW 3* is far more careful on the use of highlighting.

Considering both games are intended to be serious military fictions, the visual style in *GOW 3* clearly shows better support for that theme than the plastic and cartoony style of *Halo Reach*.

Figure 6.2 Halo Reach (top) vs. GOW 3 (bottom)



Screen capture, *Halo Reach* (© Microsoft Game Studios & Bungie, 2010)
Retrieved from http://media1.gameinformer.com/imagefeed/screenshots/HaloReach/highlands_006.jpg (top),
Screen capture, *Gears of War 3* (© Microsoft Studios & Epic Games, 2011)
Retrieved from http://planetgearsofwar.gamespy.com/newsimages/2010-06-09-g3slew/GearsOfWar3-Screenshot-16.jpg (bottom)

6.2.2.2. Sign-Level Reference in Environment Design

The sign-level reference is used for the support of the world setting in the game. The game designers incorporated elements from real life objects to support the storytelling. Besides the obvious benefits of reality effect, another side of referencing real-life objects is that certain elements can work as signs that indicating a set of more complicated ideas and experiences beyond the appearance of things. Those signs can

help to can quickly establish a narrative context which draws on our understanding, our cultural connotations of those familiar objects in real life.

The environment design in the game (figure 6.3) features beautiful and exquisite architectures that show lots of resemblances to the Baroque era architectures (figure 6.4). From the aesthetic perspective, such reference provides the environments with richness of visual decorations. More importantly, for the game world, the reference provides the audience with a narrative context that is almost impossible to communicate through mere plots and dialogues. This narrative context includes ethnic identity, history, religious belief, ideology and social value. By immersing the players in such context, they gradually develop a sense of understanding on the complexity of the game world. Hence the Baroque style architectures in the game offer players not only the look but they also allow them to imply all of the cultural and social connotations that are associated with the art style. And the sculptures on the top of the building can suggest that the civilization in game world has accumulated a set of sophisticated artistic vocabularies resonating with the achievements of high Renaissance.

Figure 6.3 Azura in Gears of War 3

Official concept art, *Gears of War 3* (© Microsoft Studios & Epic Games, 2011) Retrieved from http://epicgames.com/community/wp-content/uploads/2011/10/DLC_Map_Azura.jpg

Figure 6.4 Basilica di Superga (Baroque Architecture) near Turin by Juvarra, F.

Retrieved from Wikipedia at http://en.wikipedia.org/wiki/File:Mg-k_Basilica_Superga2.jpg

Using various visual references as signs, the game designers are able to translate the cultural and social connotations into the game world and that produces a sense of grandness and complexity. It creates the illusion that the game world is much bigger than the plots and the protagonist presented during the gameplay and players are participating one event in the history of this universe. From there, the believability of the game world has been established.

6.2.2.3. Environment Design Driven by Story Requirement

Figure 6.5 the "make-shift" green house in the background

Screen capture, *Gears of War 3* (© Microsoft Studios, 2011)
Retrieved from http://www.windingdown.net/wp-content/uploads/2011/02/gears-of-war-3-ss.jpg

One of the common determining factors of environment design is the story setting. In this environment (figure 6.5), we can see there is a make-shift greenhouse behind the barricade in the background. That addition to the environment helps to visually telling the plot that the crews of the ship have been isolated from the outside world; not only obtaining supplies are impossible, but also there are risks of getting infected by virus from the mutated Locust. Hence they have been self-sustaining this entire time with vegetables grown in the greenhouse.

6.2.3. Characters Design

6.2.3.1. Faces & Physiques Design Driven by Story Requirement

The unique appearance of characters is a signature trait of the *GOW* franchise. Almost every major male character in the game features the body size akin to a professional football player. Their arms are thicker than their head; they have huge and bulky muscles. Their skins are coarse like rocks. Their faces are full of battle-hardened scars. That is very different from the physique of average human being in real life. Are those visual exaggerations just the random decisions made by the game designers? I believe they are not. This visual style of character design is almost required by the story setting in the game. The Gears are elite soldiers that are designed to combat the reptilian alien race Locust who are significantly stronger than human being in average.

In addition, Locust horde also incorporates various gigantic and vicious creatures in their battalions which make them even more devastating to fight against. In addition, the environments they live in are not exactly pleasant. The story of the Gears franchise takes place in an earth-like planet named Sera. After a series of lengthy and brutal wars fought among humans themselves and human against Locust much of surface of Sera is left in ruins. The weather is unpredictable and there are severe lacks of shelter, foods and energy. With the premises in mind, one can imagine only the toughest and the strongest soldiers can fight toe-to-toe with the Locust and survive in such harsh environments. Hence it comes no surprises that the physiques of surviving Gears soldiers are extremely muscular and bulky. Taking the protagonist Marcus Fenix as an example (figure 6.6), his anatomical proportion is exaggerated and distorted. The diameter of his thick arms rivals that of his head; his enormous hands triple the sizes of average human hands. Such distortions produce a sense of physical strength and toughness which is exactly how those Gears soldiers are portrayed in the story.

Figure 6.6 Marcus Fenix

Book scan from *The Art of Gears of War 3*, ed. R. Gramazio, Ballistic Publishing, 2012 (© Epic Games, 2011)

6.2.3.2. Logic Plausibility in Costume Design

The Gears soldiers have their unique military uniforms. In reality, the designs of uniforms are primarily based on utilities. The most obvious usages include identification on the battle fields, protections for the soldiers and carrying of necessary equipment. The culture and the aesthetic of a nation also can influence the design of uniforms. After all, uniforms are often used a symbol of a nation's pride, strength and unity.

In figure 6.6, we can see that the Gears uniforms Marcus wearing is consisted of a metal chest armour, a small elbow armour, a wide waist belt with several pouches attached, a pair of communication devices on the wrists, and two pairs of gauntlets/gloves. The presence of those design details implies their logic plausibility in

the context of the game world. For instance, the chest armour offers Marcus protection on the vital part of the body, while the exposed shoulder joints allow him to move his arms freely to perform various combat techniques. The water bottle attached to the waist belt provides him with the most basic survival need – drinking water. Those pouches allow them to carry miscellaneous items such as grenades, first aids kits and other military gadgets.

Such plausibility-driven design is also apparent in the female soldiers' uniforms. Due to the differences in the evolutionary role of women, their bodies are usually less muscular and smaller in sizes comparing to men. As a result, they are physically more vulnerable. Taking Sam Byrne a female Gears soldier (fig. 6.7) as an example, her armour covers considerable more body area than that of Marcus' armour examined above. She has a pair of shoulder plates and gauntlets with longer arm coverage. Also, comparing to the body physique of Marcus and other male soldiers, her waist is much thinner. Those pouches and bags attached to the belt seem a bit hefty. The cushion wrapped around her waist is designed to increase her waist size and so it will keep the loaded belt firmly in places.

Figure 6.7 Sam Byrne

Book scan from *The Art of Gears of War 3*, ed. R. Gramazio, Ballistic Publishing, 2012 (© Epic Games, 2011)

It is reasonable to suggest that the costume designers might have considered the game world beyond the mere gameplay sequences. The designers might have thought of how it is like for a soldier to actually live in the game world and those design details on the costumes are the result of that. In the end, the costumes help to establish the believability of the game world through those seemingly extraneous but logically plausible design details.

However not every game takes the plausibility of visual design into serious consideration. This could create a sense of discrepancy between the characters and the game world. To make a comparison, in the game *Quantum Theory*, a post-apocalyptic 3rd person shooter with very similar gameplay, it also has visually complicated costume design (fig 6.8). However the design tells us very little about the character and the game

world. The male protagonist, Syd, wears armour with lots of Gothic/Rococo style decorative patterns but it is unclear about how they can facilitate his movements and actions from a practical standpoint. For example, it seems implausible why would Syd enter a battlefield dressed in an amour with angular and spiky forms all over it; since those decorative spikes might actually pierce his own skin and cause him discomforts during rapid and intense combat maneuvers. In addition, whether the armour could actually help him to carry essential supplies needed for combat is questionable; for one thing, there are no pouches and belts in his costume to help carry any sort of ammunitions for his rifle. The costume design of female protagonist Nyx suffers similar shortcomings. Her major role during the gameplay is close-quarter melee combat but she dresses in thin-layered fabric with no armour plate protecting on her abdominal areas. Her open cleavage definitely would be a vulnerable and dangerous spot for enemy attacks; all those impossible designs just create a dissonance between the player's expectations of them and their capabilities in the gameplay.

Figure 6.8 Syd(left) and Nyx(right)

Official character art, *Quantum Theory* (© Tecmo, 2011) Retrieved from http://www.giantbomb.com/profile/1der/all-images/52-152551/sid/51-1553834/

6.2.3.3. Costume Design Driven by Story Requirement

As parts of the Gears army, most of the main protagonists have the similar uniforms. However there are small differences among individual characters in the visual details of their uniforms design. In the case of Dizzy Wallin (fig 6.9), such subtle details have narrative utility in providing supports for his background story. Unlike other Gears soldiers who were formally trained before sending to the battlefield, Dizzy was a former member of a merchant navy turned Gears soldier. He joined as a Gear soldier under the condition that the government would take care of his two daughters. Therefore, he has much stronger ties with the civilian population than other Gears soldiers. He dresses himself more casually. For example, he wears a cowboy hat instead of a military hamlet. His armour is considerably older and more wore-off. This suggests that he does not receive official military supplies and he is no longer with the formal army. Those visual

detail work as a visual reinforcement to the plot that Dizzy often prefers to stay with the civilians and to offer them protection rather than mobilizing with the military battalion.

Figure 6.9 Dizzy Wallin

Book scan from *The Art of Gears of War 3*, ed. R. Gramazio, Ballistic Publishing, 2012 (© Epic Games, 2011)

6.2.3.4. Costume Design Driven by Gameplay Utility

As mentioned before, one primary utility of military uniforms in real life is that it offers a recognizable visual identity for the soldiers of same faction. On the battlefield, recognizing and distinguishing hostile and allied combatants often depend on the visual differences of their uniforms.

During a chaotic gameplay sequence, due to the similar body size of enemy units and ally units, distinguishing enemy units and ally units purely based on their physiques from a distance can be quite difficult. To solve this problem, the designers embed a glowing spot in costume design of both sides that allows players for quick identifications. In figure 6.10, we can see the blue glowing lights on the human uniforms and the red dots on the Locust uniforms. I also think the choice of color for each faction is not random. In the western culture, blue is commonly associated with ideas such as calm, peaceful and benevolent. On the other hand, red bares the connotations of blood, aggressiveness and hostility. Using blue to indicate friendly units and red for hostile units is semantically consistent with our cultural interpretations. That makes the recognition of units in gameplay more intuitive and efficient.

Figure 6.10 Red dots in enemies (top) and blue dots in protagonists (bottom)

Screen capture*, Gears of War 3* (© Microsoft Studios, 2011)
Retrieved from http://gearsofwar.wikia.com/wiki/Grappler?file=HammerheadDrone.jpg &
http://egamer.co.za/wp-content/gallery/15-september-2011-gears-of-war-3-screens/hanover_campaign_01.jpg

6.2.3.5. Enemy Design Driven by Story Requirement

Costumes are not always designed for practical purposes. Even in real life a lot of exotic costumes are often driven by purposes that have nothing to do with practicality. They are used to express personal/ethnic taste of aesthetics, to distinct gender, to follow trend of fashion, to reinforce their social status, and many more.

The Locust society in the game world is a combination of militarism and matriarchy. The Queen of Locust is both the political leader and the military leader of the Locust horde. Most common members of the horde are the drone class. They consist of the massive frontline armies and they have the lowest rank in the horde. Then there is the elite group of soldier called the Theron class. They take the more important role in the battlefield such as squad leaders and field commanders. The most loyal and most noble members of the Locust horde are the palace guards. They are under the direct command of the Queen Myrrah herself and they are almost only seen in the vicinity of the queen's palace.

Figure 6.11 Grenadier Drone, Theron Elite, and Palace Guard

Book scan from *The Art of Gears of War 3*, ed. R. Gramazio, Ballistic Publishing, 2012 (© Epic Games, 2011)

In figure 6.11, from left to right here, I show a drone class grenadier, a Theron class elite, and a palace guard for comparison of their visual designs. First thing to

notice is that the differences of visual complexity in their protective armours. The lack of protection on the grenadier's costume suggests that they are more expendable. This is consistent with the narrative setting that the drone class has very low social status in the Locust society. The armour of the higher-ranked Theron elite protects more body area comparing to the grenadier and it is noticeable more decorative. The better protection of the Theron armour implies that the Theron elites are the more valuable members of the horde and their lives are much cherished. At last, the almost excessive and extremely sophisticated decoration in the armour of the palace guard speaks status more than anything else.

Comparing the character design of Locust soldiers with that of Gears soldiers, we see different design tendencies determined by various factors. From the standpoint of plot development, the story focuses on portraying survival, friendship, heroism and humanity of the Gears soldiers – the protagonists. Their costume design provides us with clues of their past and their personalities as the narrative required. On the other hand, the Locust units are the villains and the enemies. The narrative focus for them is to portray them as the brutal, merciless and vicious warriors. Their costume design implies the idea of the entirety of locust horde functions as a well-structured and effective war machine.

While different levels of decorative complexity support the narrative setting of different enemies, it is worth to note those design details can also facilitate the understanding the gameplay to certain extent. The amount and sophistication of decoration on an enemy unit often corresponds with its toughness in the gameplay. For example, the design of Place Guard is much more sophisticated than the plain-looking Grenadier Drone; so a Palace Guard is much more deadly than an average drone. Since visual differences in the costumes are very visible and easily identified; they help players to quickly differentiate various types of enemies with different AI, strength and hit-point. That information is vital for players to succeed in the gameplay. Based on that knowledge, the players can quickly identify their enemies and plan their strategy accordingly.

In the end, because the design of costume in this game has taken story requirements into consideration, the costume design appears coherent with the story

setting of the video game. Moreover, just because the decorative details are used primarily to support the narrative, it does not prevent it from having gameplay utility. In fact, having the same visual design element supports both the storytelling and the gameplay of a video game only proves that very design to be a more robust one.

6.2.3.6. Symbolic Reference in Enemy Design

In the design of enemy units, there are many symbolic traits reminding us of creatures in real life. For example, in figure 6.12, on the left side is a Locust unit named armored Kantus. It has rows of jagged teeth resembling that of a shark. From its head to back, it is covered with sharp, hard and triangular scales. Its hands remind us of the claws of alligator. This creature design bares many traits that found in animals such as hedgehog, shark and alligator. On the right side of figure 6.12, the spider-like crawler is Corpser. Those enormous creatures display traits of spiders with their multiple eyes and feet and dinosaurs with their rugged and thick skins.

The advantage of referencing various creatures of the real life in creature design is that those images created through visual referencing will immediately evoke a wide range of emotions that are difficult to achieve through diegetic means. Through the evolutionary process of human mind, we have developed complicated ideas and emotions towards objects and creatures around us. Some of those things present us with painful memories because they are dangerous and harmful; so we learnt to avoid them. Some objects bring us pleasant ideas because they are beneficial and useful to our survival. Jaws of sharks, venom of spiders, spikes of hedgehogs and skin of alligators, all those visual details in the designs tap into the fear stored deeply in our instinctive memory and cultural memory. The organic mixtures of all those reference intensify the fear. The mere image of the creature design could make us cringed. Here the symbolic referencing is s an effective tool for evoking genuine and visceral emotional responses that could promote the player’s engagement.

Figure 6.12 Armored Kantus and Corpser

Book scan from *The Art of Gears of War 3*, ed. R. Gramazio, Ballistic Publishing, 2012 (© Epic Games, 2011)

6.2.3.7. Unifying Visual Languages in Different Character Factions

Consistent visual languages are employed while designing characters and props for different factions in the game. Figure 6.13 shows several design artworks ranging from various characters to vehicles on the human faction. One visual trait that all the characters and vehicles shared is the prevalent use of round, circular, and rectangle shapes throughout all the design components. Another commonality found among them is the use of symmetrical composition. From the front to the back, the design of the military armour suits shows strict visual symmetry. The repeated and consistent application of those shapes and composition produces a unique visual look that evokes ideas such as protection, security, durability and equilibrium. Those positive ideas reinforce the game's portrayal of the Gears army – the brave heroes that protect their people. Ultimately, the combining effects of the consistent visual language and the positive emotions it evoked become an invisible force that unifies the design appearances among all the objects and subjects of the Gears faction.

Figure 6.13 a compilation of design works from the human faction

Book scan from *The Art of Gears of War 3*, ed. R. Gramazio, Ballistic Publishing, 2012 (© Epic Games, 2011)

Comparing the visual language used in the visual design of Locust faction (figure6.14) with that of the protagonist faction (figure 6.13); the stylistic distinction is easily noticeable. Here the visual language employs a different set of shapes, forms, textures and compositions. In opposing to the round and stable shapes found in the Gears' design, the characters of Locust race are consisted of spiky and angular shapes. The vehicles from both factions exhibit the same design approach - using idiosyncratic visual elements to establish a visual identity that evokes with the necessary narrative

emotions. For the Locust vehicle "siege beast" [33], the body is covered with spikes with textures of bones. Ultimately, the visual language used in the Locust faction produces a sense of predatory, viciousness, and primitive through the skeletal and insect-like parts and the asymmetrical design. On the other hand, the design of human faction produces a sense of sophistication and industrialization through the accurately-drawn geometrical shapes and orderly constructions of parts.

Figure 6.14 a compilation of design work from the enemy faction

Book scan from *The Art of Gears of War 3*, ed. R. Gramazio, Ballistic Publishing, 2012 (© Epic Games, 2011)

During gameplay, players would spend most their time killing Locust soldiers. The level of violence in the game is notoriously excessive. The gruesomeness is much more intense and exaggerated comparing with many generic third person shooters on

[33] The vehicle is placed in the lower left corner of figure 6.14

the market. In order to lessen the discomfort reactions to violence and to justify the cause for such brutal actions, the Locusts are portrayed as nightmarish and monstrous intruders and murderers throughout the storytelling. In addition, the Locust solders still have a humanoid form. That resemblance to humanity is potentially capable of provoking sympathy. To reduce the change of one developing guilt and sympathy for their killings in the game, the locust and their technologies are given repulsive and menacing visual appearances. In the end, despite that there are visual varieties among the specific visual designs of characters and objects in a faction; the visual language they all shared modulates the variety through the consistent emotional experience it generates. That helps to establish a sense of uniformity in the visual aesthetics of each faction.

6.2.3.8. Visual Motifs used in the Visual Designs of Different Factions

Visual motif can be used in visual design to reinforce a specific theme through its symbolic implication. In figure 6.15, a collection of facial designs, regardless their anatomical differences, shows clearly that they all seem to share those iconic features - rows of teeth and bony skull.

The teeth and skull motif which are consistently found in almost all creature design of the Locust faction. On the pictorial level, the motif functions as a guideline for the formal structures used in enemy design. To be more specific, all Locust creatures need to have excessive and protruding teeth in order to give the impression that they are the same race. On the narrative level, the motif suggests the dangerous nature of the war with Locust. The teeth could be understood as a symbol to evoke the savage and predatory nature of the Locust race. The skull could symbolize danger and death during the war.

Figure 6.15 a compilation of the facial designs of the Locust units

Book scan from *The Art of Gears of War 3*, ed. R. Gramazio, Ballistic Publishing, 2012 (© Epic Games, 2011)

In addition, it is probably no coincident that the logo of the game (fig 6.16) happens to be a skull with abnormal quantity of teeth within a gear shape. Also, not only the human soldiers are named Gears in the story; the gear shape motif can be found in the designs of various military uniforms of the soldiers (fig 6. 17). The gear shape is another significant visual motif that symbolizes the nature of the Gears soldiers – that they are expandable and efficient war machines. The graphic composition of the game's logo featuring the gear motif encircling the skull motif might be a hint for suggesting the ultimate victory of the war against the Locust invasion by the humans. The patterns of cracks and veins in the logo might imply the devastating and tragic nature of the war. Those implication and interpretation is eventually supported by the ending of the game's story in which the human race triumphs over the Locust in the manner of a Pyrrhic victory.

Figure 6.16 Gears of War 3 Logo

Logo design, *Gears of War 3* (© Microsoft Studios, 2011), images retrieved from epicgames.com

Figure 6.17 a compilation of armor designs of Gears soldiers

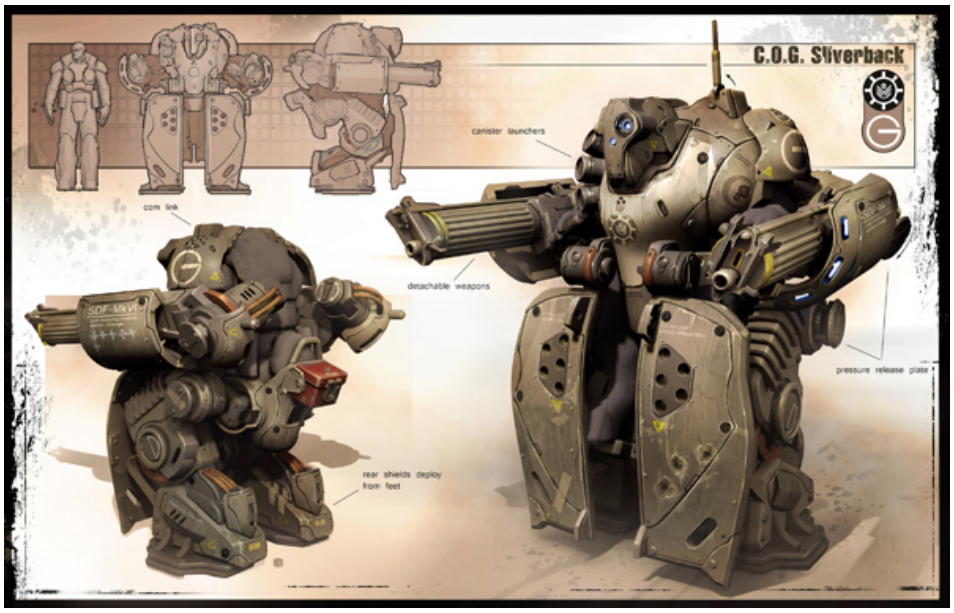
Official concept art, *Gears of War 3* (© Microsoft Studios, 2011, permission pending), images retrieved from epicgames.com

6.2.4. Prop Design

6.2.4.1. Engineering Plausibility in Weapon Design

As I mentioned before, engineering plausibility is a crucial factor for shaping the distinctive look in the visual designs of weapons and vehicles. In the story setting, the Silverback exo-suit (fig. 6.18) is originally developed for loading cargos. That is why its protruding arms are equipped with forklifts. During the war with Locust, it was weaponized as a combat vehicle so the forks are replaced with auto-turrets and heavy armour plates were added. In the gameplay, the silverback can spread its leg armours and function as a shield wall to provide cover for allied soldiers at expense of its mobility. In the shield mode, it can also fire powerful canister shells and the stationary state also helps to absorb some of the recoil.

Figure 6.18 design sketches of C.O.G Silverback



Book scan from *The Art of Gears of War 3*, ed. R. Gramazio, Ballistic Publishing, 2012 (© Epic Games, 2011)

Figure 6.19 piloting a silverback

Screen capture, *Gears of War 3* (© Microsoft Studios, 2011, permission pending)

Taking a close look at the design sketch (fig. 6.18), a few engineering functions of the vehicle are hinted through the visual design of its mechanical components. First, the Silverback features hulking and hefty legs and feet. The upper body is proportionally smaller; this triangle shape design indicates its stability. Also, the thickness of the armour plates provokes a sense of the toughness and durability. Since in both narrative and gameplay setting, this suit is regarded as one of best protective equipment in the Gears' arsenal, it is necessary that the visual design also conveys the idea that it is extremely resilient to enemy fires. Perhaps the most intriguing designs are the carefully described joints, cables and the control interfaces in this machine (fig. 6.19). Since this is not something needed to be built in real life, why does the visual design provide us with this level of engineering details? I believe one of the reasons is that such detail can help the animators and modeller during the development state of the game. Knowing how parts are connected exactly, they can easily create models and animations without having to conjure up the engineering details themselves. Additionally, those extra engineering details produce a reality effect (Barthes, 1986) for players. In real life,

machines and vehicles people observed are result of engineering. People have developed certain expectations on how mechanical parts should fit together and interact with each other. For example, for people who drive, they probably know snow tires with its deep treads can provide better friction on slippery surface than tires with shallow treads. While the game presents us visual designs that describing the movements and structures of the various mechanical components in the Silverback, we are likely to draw our experience with machines from the past and use our rational thinking to determine whether the design is plausible. For instance, when we see the shapes and the connections of joints in the sketch, we can comfortably accept that those joints are rotatable and they can facilitate the aiming of the gun turrets. Ultimately, the engineering-driven design contributes to the creation of realism and believability in the game world.

In the fictional world of a video game, certainly engineering plausibility should only be carried out to certain extent. As I mentioned before, the design does not need to be built in real life. For example, while designing an aircraft for a video game, one does not have to consider the sizes of the turbo engine, or the strength of the metal. So the artist can have the flexibility and liberty to add some stylistic and imaginative design elements for the purpose of generating visual attractions and aesthetic rewards.

6.2.5. Visual Effects

6.2.5.1. Consistency between Gaming Tension and Visual Attraction in Visual Effects

GOW 3 uses various visual effects to attract and to engage players at critical gameplay moments. Those visual effects take place in the screen space and they manifest as abstract motion graphics. Their functions are to intensify and to accentuate certain emotions of the players so it is in synchronization with the tension of the gameplay.

The first example to look at is the splattering effects of blood and gore on the screen space during melee combats (fig. 6.20). Melee combat is one of the most critical and attention-gripping gameplay moments. Because in lengthy shoot out sections of the

gameplay, players are unlikely to be killed in a brief moment, but a melee combat is intensive and it often ends very rapidly. The result of melee combat is that either the player annihilates the enemy or the enemy destroys the player. As showed in the picture, through bringing the blood and gore onto the screen space which is literally the closest distance between the player and the game world, it produces an immediate sensory stimulation. In addition, the immediate screen effects of the exaggerated violence rewards players with visceral sensory pleasures.

Figure 6.20 Marcus chain-sawing an enemy

Screen capture, *Gears of War 3* (© Microsoft Studios, 2011, permission pending)

The second example of that the visual effect being consistent with gameplay requirement is the use of motion-blur when the protagonist is running. The addition of this lens effect on the screen space accentuates the sense of acceleration and speed and creates a sharp visual contrast between the state of walking and the state of running (fig. 6.21). As McMahan suggested, the ability to make significant change during interaction is a key to players' engagement in a 3D virtual world. (McMahan, 2003) The motion-blur represents that very significant change of state when the player input the "run" command and it contributes directly to players' engagement.

Figure 6.21 running state (left) vs. still state (right)

Screen capture, *Gears of War 3* (© Microsoft Studios, 2011, permission pending)

6.3. Close Reading on Shin Megami Tensei: Nocturne

6.3.1. Overview

Table 6.3 displays the basic information regarding the game *Shin Megami Tensei: Nocturne* and checklists of all items in the research domain and the analytical framework. Table 6.4 presents a checklist of exemplified categories and subcategories in the design heuristic.

Table 6.3 Close Reading Overview (Part 1) – Shin Megami Tensei: Nocturne

Game Title	Shin Megami Tensei: Nocturne	
Console	Playstation 2	
Publisher	**Developer**	Atlus
	Publisher	Atlus
	Release Year	2004
IGN Rating	8.6/10	
Accumulative Sale Record	0.38 millions	
Genre	Turn-based Role-playing	

Domain of Analysis	☑ Character Design ☐ Props Design ☑ Environment Design ☐ Visual Effects
Visual Style Modes in the Framework	**Representational Level** ☐ Conventionalized Realism ☑ Simplified Realism ☐ Distorted Realism **Formal Level** ☑ Stylized Abstraction ☑ Decorative Abstraction ☑ Sensory Abstraction

Table 6.4 Close Reading Overview (Part 2) – Shin Megami Tensei: Nocturne

Heuristic Dimension	Exemplified Category and Subcategory
Gameplay Utility	☑ Design Driven by Gameplay Utility
Narrative Utility	**Story Requirement** ☑ Design Driven by Story Requirement **Plausibility** ☐ Design Driven by Engineering Plausibility ☐ Design Driven by Logic Plausibility **Reference** ☑ Design Driven by Picture Level Reference ☑ Design Driven by Sign Level Reference ☑ Design Driven by Symbol Level Reference
Aesthetic Effect	**Consistency** ☑ Consistency between Visual Salience and Gaming Tension ☑ Consistency between Visual Style and Narrative Genres ☑ Consistency of Visual Faithfulness across all video game graphics **Identifiability**

	☐ Using Visual Motif to Promote Identifiability ☑ Using Visual Language to Promote Identifiability

6.3.1.1. Story Setting

The story of *Nocturne* sets in the modern time Tokyo of a fictional universe. At beginning of the game, all living things on earth are perished by a catastrophic event known as "The Conception". The cause for this event remains in mystery. After the end of world, various demons from different mythological origins enter the human world from other dimensions. Among them, the more powerful demons and gods engage in wars for the right to create their ideal world order. The player assumes the role of the protagonist, one of a few human survivors who are bestowed with demonic power. The several survivors are eventually going to into a conflicting path because they are each guided by a powerful demon or god who gave them powers at the beginning. Based on the narrative setting, the protagonist is alone throughout the whole game. That is a unique setting in the game which affects every aspect of the game design.

The storytelling in the game has some minor plot branches but it is mostly linear. During the course of the game, the protagonist is given two choices: first, to follow his own will and wipe out all other survivor; second, to help one of the survivors and support their causes. Depending on the player's actions and choices, there are several drastically different endings although much of the major narrative events will be the same. For instance, one of survivor Chiaki represents the ideology that society should be constructed based on an extreme version of "survival of the strongest", suggesting that social structure purely depends on brute strength. If players choose to support her in the game, the ending would be a world reborn into a primitive jungle where the stronger ones prey and enslave the weaker ones. Additionally, this seemingly simple story setting actually shows considerable philosophical depth through the dialogues and the depiction of narrative events.

Another unique aspect of the story setting is the way that all the demons in the game are portrayed. In many role-playing games, the monsters in the game world exist mostly for the gameplay purpose of providing challenges for players. However in

Nocturne, various demons, monsters and deities from different mythological origins come into a co-existence in a fashion akin to that of a human society. Different demons take different social roles. Some demon would open weapon shops while others would open night clubs. To certain extent, the demon merely replaces human as the new residents of the world but the pre-existing social structure remains unchanged. This creates an uncanny sense of familiarity on a world filled with fantasy and strange dwellers.

From a standpoint of realism, the story setting might seem to be lack of details and explanations. However, the attraction of this game's narrative comes from how well it depicts the various aspects of human nature in front of existential crisis.

6.3.1.2. The Game's Mechanics

The gameplay features traditional RPG elements such as turn-based battle, experience point, item inventory and in-game currency. However unlike conventional RPG, where the protagonist would have several pre-determined party members to join along the journey and those members usually would have a role in the narrative; *Nocturne* allows players to coerce almost any enemy demons they encounter to join their party. In addition, those party members play no role in the pre-scripted narrative, so they can be replaced at will.

The Demon Conversation System

Demon conversation is a mechanic that enables the recruitment of random encounters during combat. Although recruitment is the primary function, it can also be used to obtain items and to escape dangerous situations.

During any non-boss battle sequence, the player can choose the talk option to initiate a demon conversation with the enemies. During the conversation, the players are given choices of different approaches to the targeted subjects, such as persuading, providing entertainment, offering money, offering presents, solving riddles, intimidating, and more. Different choices would trigger the mood change of the targeted subjects, depending on their moods, they will have different responses. Results of the conversation with demons can vary from rewarding players with money and items, joining players' party, becoming angry and returning to battle, and leaving the battle.

There are different conversational skills that the players and their party members can learn which could facilitate certain occasions. Occasional the enemy demons would initiate when their health are low, the result of such conversation often brings favorable outcomes for the players.

The design of this system is consistent with the unique story setting that the protagonist is an outsider and loner in the demon world. It plays an important role in creating flexible party member system but also produces micro-narrative moments that facilitate the player's personal interpretations and imaginations of the game's narrative.

The Demon Fusion System

Another core mechanic in Nocturne is the "demon fusion" system. It allows players to fuse two or more demons from the current party to create a new and often stronger demon. The fusion can be performed in a place called Cathedral of Shadows. The skill sets, weakness and strength of the demons used for fusion can be carried over to the new demon. This mechanic creates a highly-customizable, non-repetitious and dynamic gameplay experience which keeps players engaged.

6.3.1.3. Visual Design Overview

The visual style in this game features simplified realism created with a combination of a modified cell-shading technique and a cold color palette. It is evident that the various environments in the game are modeled after real locations in Japan. This unique visual language allows real locations to be blended smoothly with the various uncanny fictional environments in the game. The character designs, especially the various demon designs are filled with unconventional elements. While there are still some visual elements in the design of demons that hint on their mythological origins, the

game's designer takes liberty to embed modern fashion elements in their designs. As one of the IGN game reviewers Jeremy Dunham describe the design of demons in this game as "Evil wears Armani"[34]. Both the environment design and character design (e.g. interior of a building or costume of a character) heavily utilize symbolic and abstract graphic elements. Those elements provide great supports for the sophisticated and philosophical narrative theme in the game.

In this close reading, I will exemplify the use of design heuristics on both the formal and the representational visual elements. I will analyze their gameplay and narrative functions using my framework of visual styles. This close reading also functions as a supplement to my first close reading. It is intended for covering items in my framework and my design heuristics that the first close reading could not exemplify.

6.3.2. Character Design

6.3.2.1. Visual Design of the Protagonist Driven by the Story Requirement

Storytelling in video games is strongly influenced by the specificity of the game media. First, the narrative in a story-centric video game is constantly accompanied artificial challenges within a given system of rules (Zimmerman, 2004). The advancement of plot not only depends on the protagonists' action in their narrative role but also it requires players to successfully complete the associated challenges. Second, the interactive nature of video game media gives players considerable controls over the storytelling. Depending on their actions and choices in a game environment, every player would have formed very personal story. Since people with different cultures, experiences, preferences and personalities would assume the role of the same protagonist in the story of a game, the visual design of the protagonist should aim at helping the target players identifying themselves with the role. Some many features a character customization system. That is one of the most effective ways to achieve

[34] The phrase is cited from a game review by Jeremy Dunham on 2004 titled *Shin Megami Tensei:Nocture – Dark, Strange, and Even Distrubing, Atlus' Cool Demonic RPG Has Arrived.* Retrieved from IGN.com at http://ca.ign.com/articles/2004/09/23/shin-megami-tensei-nocturne, October, 2011

player identification since a player can define every visual design of his character under the game's aesthetic framework. The down side of that design approach is the writer of the video game needs to come up with flexible plots to accommodate the varieties of characters generated from a customization system. That flexibility is often detrimental to the depth and the complexity of the storytelling. The game *Nocturne*, as I mentioned above, has a strong focus on the philosophical depth in its narrative. A character customization system might limit the depth of the script. Hence, I suggest that the game uses a different approach in the design of the protagonist character to make him relatable to the players. The evidences are in the story setting and the character design. First, the story setting in *Nocturne* certainly did not give too much of information regarding the protagonist's personality. All we know is that he is a male student of Yoko and he is in the same class with the other three survivors, much of his background and personality is intentionally left open for interpretation. Second, in the character design of the protagonist (fig. 6.22), he is given a rather generic treatment on his clothing and facial features. Of course, many readers might argue his clothing is still quite unique. However considering the originally intended demographics, which are the stoic and shy teenage male gamers in Japan, the poker face and the tight-fit clothing suddenly do not seem to be that strange anymore. In fact, if one compares his design with variety of highly stylized monsters and idiosyncratic characters, the appearance of protagonist's design feels very banal and generic. However, in doing so, it allows a similar level of flexibility offered by a customized character when a player tries to identify themselves with the protagonist. When target audiences assume the role of protagonist in the game, the lack of characteristics in visual design would not strike any significant inconsistencies with the audiences' self-perceptions. In the end, I believe that the seemingly generic design of the protagonist is for the benefit of maintaining a balance between the player's identification and the requirement of the storytelling.

Figure 6.22 Character design of the Protagonist, official character art

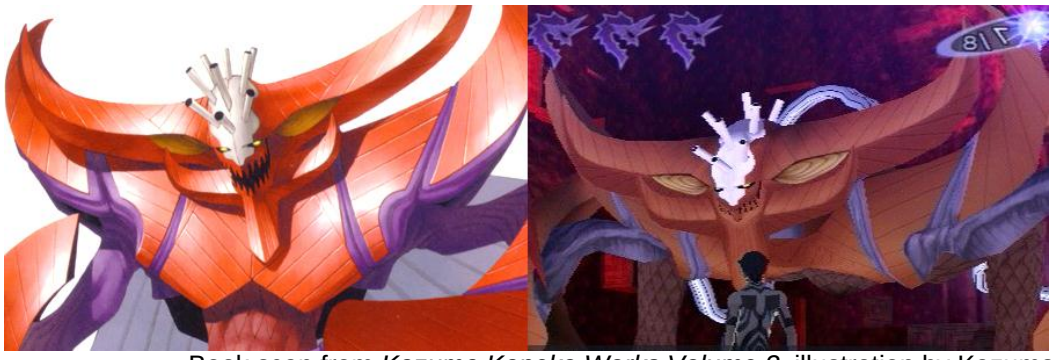
Book scan from *Kazuma Kaneko Works Volume 3,* illustration by Kazuma Kaneko, ATLUS, 2006

6.3.2.2. Visual Faithfulness in the Character Design

One common problem of video games that features unique visual style in concept art is that the game developers sometime fail to translate the visual style faithfully into in-game graphics. This visual style inconsistency between in-game characters and concept artworks could take the players out of the imaginative immersion. For example, if the concept arts of a game provide players with exquisite and lavish detail in character design, but its in-game graphic counterpart displays a downgraded and different set of visuals. As a result players will be sidetracked from the storytelling experience and forced to spend mental efforts drawing parallels between the two versions of visual representations on the same objects/characters.

The character design in *Nocturne* approaches this problem with a customized cell-shading rendering technique to mimic the drawing style of the character designer, Kazuma Kaneko. His signature style features minimalistic texture and low-key color palettes. The smooth texture and softly contrasted shades on the character's 3D in-game models produced by the rendering technique accurately replicate that particular drawing style. In figure 6.23, we can see how faithfully the character designs are been translated into the in-game graphics. The clean 3D models combining with minimalistic lighting brings the exact monster from the drawing board into live in the dynamic gameplay.

Figure 6.23 official design of the monster (left) vs. the same monster in gameplay (right)



Book scan from *Kazuma Kaneko Works Volume 3*, illustration by Kazuma Kaneko, ATLUS, 2006

6.3.2.3. Identifiability-Driven Visual Design in Character Design

The players would never experience such the strong sense of melancholy and alienation in the narrative without its unique visual style. McCloud in *Understanding Comic* stated that the qualities of lines and brush strokes can stimulate sensory responses (McCloud, 1993). The visual style of character design utilizes that mechanism suggested by McCloud to unify the overall emotional experience from merely looking at characters. In figure 6.24, the character design features dull black eyes, pale skins and slender bodies. The tight-fit and minimalistic clothing they wear resembles those avant-garden costumes wearing by anorexic models in high-fashion show. Those combinations produce a sense of coldness, alienation, lifeless, and modernity. The story focuses on portraying the lonely protagonist's struggle in a cold, outlandish and miserable world. Those are the emotions can be used to help to synchronize players' moods with the storytelling in the game. To certain degree, the visual design amplifies those moods required by the narrative. The mood synchronization enables the players to have a strong emotional bond; so the player can experience the same depression and sadness as how the characters would feel in the story.

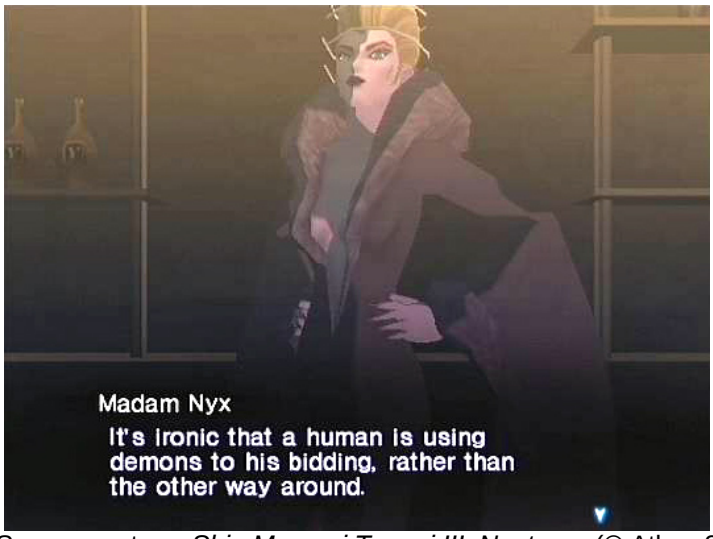
Figure 6.24 the main characters, official character art

Book scan from *Kazuma Kaneko Works Volume 3*, illustration by Kazuma Kaneko, ATLUS, 2006

6.3.2.4. Game Utility in the Visual Designs of Expression, Gesture, Pose and Body Types of Character

The demon conversation system affects every aspect of the gameplay in *Nocturne*. Recruiting new members, obtaining items and avoiding dangers all depend on the success of the conversation with demons during combat sequences. The visual details of monsters such as their poses, expressions, and costumes, provide players with information regarding their personalities, potential interests and tempers. That information can help players to choose appropriate strategies for different demon conversation.

Figure 6.25 Nyx in the gameplay



Screen capture, *Shin Megami Tensei III: Nocturne* (© Atlus, 2004, permission pending)

For example, Nyx is a high level demon that players encounter in late game (fig 6.25). In Greek mythology, Nyx is the goddess of night. In the story of *Nocturne*, she is portrayed as a mid-age woman whom showed great pride of the demon race. She dresses in a lavish evening gown and her poses and movements are elegant. The design of her poses and costume give players an impression that she is intelligent and noble. Those character traits can encourage players to choose civilized and respectful dialogues during the conversation with her. In the gameplay, using those approaches on her can indeed generate favorable results for the players.

Figure 6.26 Oni in the gameplay

Screen capture, *Shin Megami Tensei III: Nocturne* (© Atlus, 2004, permission pending)

On the other hand, in figure 6.26, the demon Oni would not engage in any sophisticated conversation and reasoning with players during gameplay. His muscular physique and vicious facial expression suggests the savage nature of him. Also, one can even imply that he is likely to be low on the intelligence and his actions are driven by basic instinct and pleasures. In this case, approaches such as giving him hard liquors will delight him. This increases the chance for him to join the players or simply leave the combat without cause any harm. In both cases above, the visual design of characters' expressions, gestures and costumes provides player with useful gameplay tips to succeed in the demon conversation.

6.3.2.5. Reference-driven Design in Character Design

Symbol-Level Reference

The visual design of characters and monsters in *Nocturne* uses symbolic visual elements to communicate beyond their mere appearances. One example can be found in the visual design of the protagonist (fig. 6.27). After his demonic transformation in the beginning of the game, the appearance of protagonist has been slightly changed. A horn has grown out of the back of his neck and there are black stripe patterns tattooed all over his body. The plot in the game tells us that the transformation turns the

protagonist into a half-demon and half-human. That very transformation also grants him with the superhuman strength and the ability to use spell. In Japanese culture, the horn has symbolic significance. Horns on a humanoid creature often are considered to be the tell-tale sign of its demonic origin or its association with demon. For example, in Japanese folklore, there are ogre-like creatures that have multiple horns on their faces. Also many samurai mask design use horn as decorative elements to create fears among their enemies. The horn design on the protagonist hints the demonic aspect of his identity. In addition, the placement of the horn is rather distinctive. Instead of having it on his forehead like the iconic image of demon, it is on the back of his neck. Hence the horn is invisible while viewing from the front. The sense of concealing his demonic identity provides support for the story setting that the protagonist is troubled by his half-human and half-demon identity. The crisis of the dual identity plays a critical role in creating major conflicts in the narrative. The development of the story is driven by the moral struggles of the protagonist - whether he should embrace his demon or remain a human in heart. The horn and the black tattoos become a symbol for the very source of that problem – his demonic identity.

Figure 6.27 the protagonist before (bottom) and after (top) the transformation, official character art

Book scan from *Kazuma Kaneko Works Volume 3*, illustration by Kazuma Kaneko, ATLUS, 2006

Sign-Level Reference

As I mentioned before, the game sets in a world where ancient mythologies and folklores meet modern society. The story setting describes a modern world where the human are replaced by mythological entities of ancient time. However the social structure is somewhat retained by having different monsters to take up different social roles. That produces a mixing feeling with both familiarity and otherworldliness. To support this unique setting, the costume design of characters and demons in this game also incorporates modern elements. For a particular monster, the modern elements are thoughtfully chosen to still reflect certain aspect of its mythological identity. In figure 6.28, it shows designs of three characters - Lilim, Atropos, and Cú Chulainn from left to right.

Figure 6.28 Lilim, Atropos and Cú Chulainn (from left to right), official character art

Book scan from *Kazuma Kaneko Works Volume 3*, illustration by Kazuma Kaneko, ATLUS, 2006

Lilim is a night spirit in Jewish folklore. She preys on the soul of young people through sexual seduction. The character design portrays her in a way that resembles a trendy, flirtatious and materialistic urban girl dressed in revealing a white leather jacket and short jean. Her modern costume makeover retains traits of the archetypal enchantress which her mythological identity also subscribes to. Finally, her most symbolic features – the devil wings and tail from the folklore are kept to remind us of her mythological origin.

In the middle, the costume design shows Atropos the Greek Goddess of fate dressed in an extravagant hat and a skin-tight bodysuit. That resembles the look of an elegant high-fashion runway super model. The contemporary sense of celebrity status as produced by her voguish clothing is comparable with her goddess status in the mythology. They both are subjects of worship that are particularly attractive to the male demographic. Additionally, the design portrays an image that she dresses in black and she holds a pair of scissor and a black thread in her hands. Those design details are used to represent her mythological identity. In Greek mythology, Atropos is one of the three goddesses responsible for determining the fate of all living things. Her particular duty is to decide one's final destination (or death) by cutting the symbolic life thread of that person. While the black suit symbolizes death, the two items in her hands symbolize her duty as the cutter of life threads.

On the right, Cú Chulainn is young hero from the Scottish folklore *Ulster Cycle* who killed vicious hell hound using a magical spear named Gae Bulg. He has a straight bob haircut that is an intrinsically modern artifact. Also, the fashionable blue scarf and pearl white thigh high boots portray him as a young hipster. That hipster-like image emphasize on the idea of youth in this character. This is consistent with the important trait of Cú Chulainn's tale that he is a hero who achieves so much as a youngster. In addition, color scheme used in the character design resembles that of a Scottish flag. The metal spear he is holding signifies the signature weapon he has used in the folklore. Those symbolic elements tie him back to the folklore of his origin.

At first glance, those contemporary design elements might strike us as a matter of personal taste. However, by examining closely the design of the three characters, it becomes apparent that the modern elements in the costume design serve as a sign of

contemporaneity. The contemporaneity found in various aspects of character design supports the story setting of the world being a partially familiar and partially alien place. In addition, the fashion reference in costume designs allows the players to understand those monsters in term of their places in the modern society of the fictional game world. The fact that every monster has a corresponding social role generates a profound implication - that the fictional game world is every bit as complete as our reality. This ultimately would lead to players taking the fantasy world seriously and developing a sense of believability for it.

6.3.2.6. Visual Salience and Gaming Tension in the Character Designs

In *Nocturne*, the character design utilizes ornamental elements to visually emphasize on the major characters and enemies. My observations reveal that in many cases of character and monster design, the more powerful deities and demons are, the more ornamental elements they have in this game. In the left of figure 6.29, it shows three monsters that players would encounter in the early game. Comparing them with the three late game monsters on the right, it is obvious the late game monsters have more decorative details in their design. Admittedly there are exceptions; there some monsters have very simplistic look but they still play important roles and possess great powers. However the majority of the character designs follow the trend that the visual sophistication of monster designs corresponds with the level of their strength in the gameplay and the level of their significance in the story.

Not only visual ornaments can make a design more interesting for the eyes, but also they carry many connotations, such as nobility, luxury, craftsmanship, and status. In the early day of civilization, ornaments were available exclusively to those who achieved prestige social status, because they are difficult to make and the production process is very costly. In modern time, with the development of technology and industrialization of societies, the production of ornaments becomes cheap. They are found almost everywhere. However, those connotations of ornaments remain in our collective memories. When an object or a character has more ornaments, it also makes players think that they are more valuable and important. That is why ornament in visual design can be so effective at creating significance for the design.

In the gameplay, the sophistication of visual ornaments in an enemy can suggest a high danger level during combat. The ornament here functions as a visual cue to help players identifying the major threat in a battle. In the visual storytelling of the game, the ornaments of a character design can suggest his/her significance in a narrative moment.

Figure 6.29 a set of weaker enemies vs. a set of stronger enemies, official character art

Book scan from *Kazuma Kaneko Works Volume 3*, illustration by Kazuma Kaneko, ATLUS, 2006

6.3.3. Environment Design

6.3.3.1. Picture-Level Reference in Environment Design

The believability of the game world is crucial for creating a compelling and engaging game narrative. To make such fictional world believable, common sense tells us there are large amount of information needed to be conjured up by the game designers. For example, many literary fictions spend chapters on building a sophisticated story world. During the gameplay, players already commit a great deal of their attentions to understand the system of rule of a game and to overcome challenges in a game. They simply do not have the same comprehensive capacity as literature

readers who can spend extensive amount of time to read about the narrative setting. Meanwhile, it is also unrealistic for the game developers to build a virtual world that has the same level of details as in our reality.

In *Nocturne*, the environment design uses a very economical approach to solve this problem. The game recreates a few highly-recognizable real life locations in its environments. In figure 6.30, it shows the very first dungeon in the game. The interior visual layout of subway station references the real life Yoyogi Park Station. Considering the fact that *Nocturne* is initially only intended to be released in the domestic gaming market of Japan, the familiar location Yoyogi Park in the game taps into the players' perception of reality. It reminds them about their daily experience on the commute and it enables them to project the sense of realism they have for the real location onto the fictional environment in the game.

Drawing reference on only a few popular locations from reality in the environment design is enough to establish the believability of the game world. The reason for that is people will assume the existence of the largely unseen whole reality based on the familiar parts they experienced. McCloud called this phenomenon *closure* (McCloud, 1993).

Figure 6.30 Yoyogi Park Station in Nocturne (left) vs. Yoyogi Park Station in real life (right), screen capture & photo

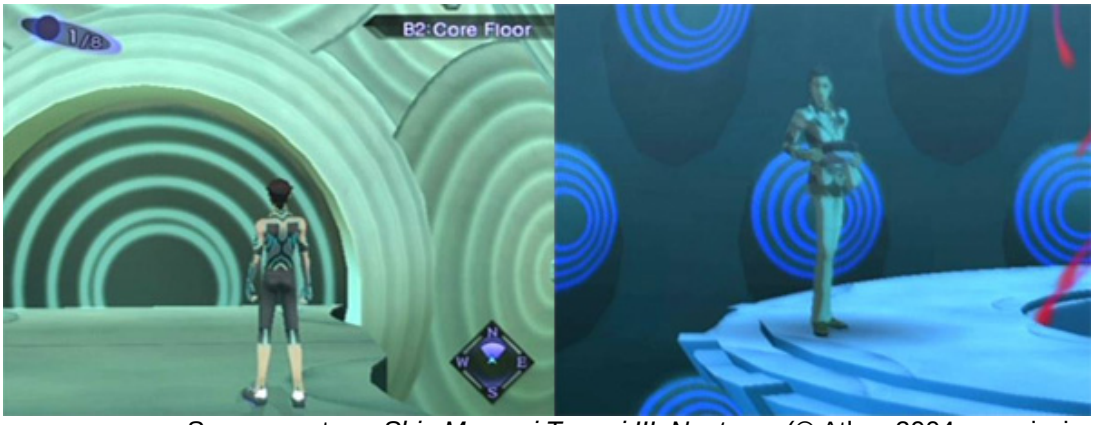
Screen capture, *Shin Megami Tensei III: Nocturne* (© Atlus, 2004, permission pending)

Photo retrieved from http://www.pictureninja.com/pages/japan/image-tokyo-subway-entrance.htm

6.3.3.2. Visual Motif in Environment Design

The world of *Nocturne* is packed with many complex dungeons. The game uses abstract visual patterns in the environment design of those dungeons. For example, in figure 6.31, the screenshot shows the environment of labyrinth Nekomata. The protagonist is trapped into this constantly changing dungeon that created by a power demon who is a master of creating confusions and deceptions. The interior walls are decorated with the patterns of concentric circles. This particular visual arrangement produces a sense of vertigo and dizziness. That helps the players to synchronize their emotion with the narrative theme of that narrative event. The concentric circles functions a visual motif that symbolizes the narrative event that the player is under the influence of the demon's magic power. In fact, there are many locations in the game that have their own visual motifs. Those visual motifs play a critical role in creating different feelings and emotions for their respective environments and those feelings of environments provide support for their respective narrative event. Additionally, the visual motifs also produce identifiable looks for different environments in the game. That enables players to quickly recognize the locations of the environment in the game world.

Figure 6.31 labyrinth Nekomata in Nocturne, screen capture



Screen capture, *Shin Megami Tensei III: Nocturne* (© Atlus, 2004, permission pending)

7. Conclusion

7.1. Overview

As a newly emerging media, video game shares many similarities with conventional visual media such as animation, cartoon, film, and comic. Especially when it comes to communication, like those traditional media, video game relies heavily on the visual channel to convey messages and to create experiences. However, unlike those older media where their audiences passively take in a pre-scripted narrative by the authors and the creators, video game requires players to interact the game world in order to experience the storytelling. In other words, interactivity is at the core of gaming experience and the storytelling occurs at the same time as the gameplay. In the video game industry, gamers and critics often categorizes a game's genre on the basis of its gameplay style. Most game companies would even prioritize the design of a game's gameplay mechanics over any other important design variables in term of resource allocation during a game's development. Meanwhile, much of the attention in academic game studies is spent on gameplay mechanics and narrative studies.

Admittedly all the research above has valid perspectives. However in-depth academic studies on the visual design of video games are rarely conducted. I believe that visual design is a fundamental component of video games, and many other important design vectors such as the gameplay and the narrative greatly depends on it. Simply surveying the human resource allocation for visual design in any major game development team, it is common to see that large portion of the game production team is consisted of visual artists. This thesis is a result of my concern regarding the lack of serious investigation on the visual design of games in academic.

7.2. Revisiting the Research Question

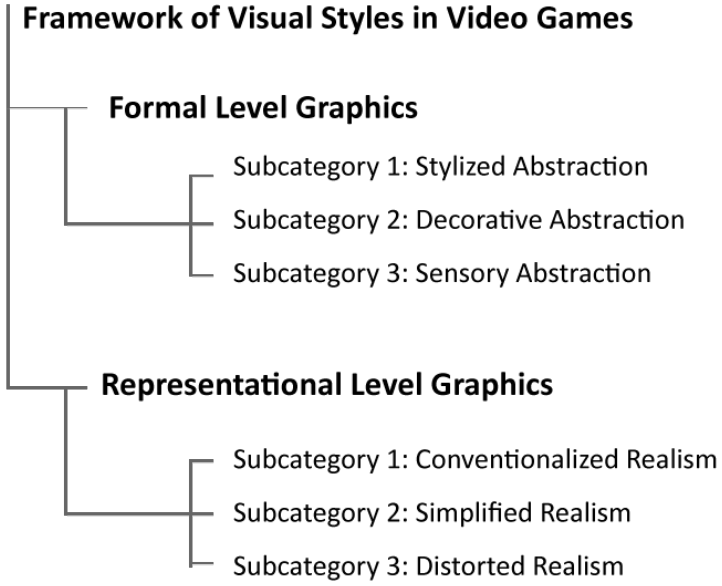
This thesis suggests that the visual style in a video game serves as a critical reference point in players' understanding of both the storytelling and the gameplay. From the perspective of visual storytelling, specific formal equalities within a particular visual style can evoke specific emotions and memories. When used properly, those emotions and memories can promote players' immersion in the game's narrative. Additionally, the visual styles are often associated with respective narrative genres in our culture. Because of that, the visual style could affect players' expectations and perceptions of the narrative content in a game. From the perspective of gameplay, the choice the visual styles can affect both players' understanding of the gameplay and players' enjoyment of the gameplay. While some visual abstract elements in a particular style can produce aesthetic rewards for player's performance, others might affect the clarity of communication of gameplay rules. As a result, the choice of visual styles is never random and it always requires the designer to fully understand the various utilities of a visual style. Even the tiniest detail in visual style could have huge influence on players' experience regarding the storytelling and the gameplay of a game.

7.3. Research Outcome One: Framework of Visual Styles in Video Game

In this thesis, I have reviewed relevant theories and frameworks from the fields of game study, narrative study, visual aesthetics and industry training material. Primarily utilizing concepts and definitions from the four theoretical frameworks - *Jim Bizzocchi's* Narrative Framework for Games, *Owen Demers'* Six Visual Genres in Digital Painting, *Rudolf Arnheim's* Gestalt Psychology of Expression and *Eric Zimmerman's* Design Parameters: Narrative, Interactivity, Play and Games, I construct a framework regarding the aesthetics of visual styles in video games. Inspired by Arnheim's Gestalt theory of artistic expressions, the framework established two major visual style categories - the formal level graphics and the representational level graphics. The formal level graphics refers to abstract and non-representational visual qualities. The representational level graphics refers to concrete and illusionistic visual qualities. Through studying the utilities, describing the appearances and examining the inter-relationships of various

visual properties in the two categories, I was able to create six more specific sub-categories under the two categories (fig 7.1).

Figure 7.1 the Framework of Visual Styles in Video Games, chart by author



The major contribution of this framework is that, it provides more descriptive and analytical specificity than the commonly used and somehow vaguely defined terms – “abstract” and “realistic”. The six sub-categories in the framework provide a more concrete and clear understanding of the visual styles qualities for the purpose of analyzing the exact functions of specific visual design decisions in a video game. At the same time, it is worth noting that although those are valid categories, the visual design in practice often employs a combination of different visual styles from my framework. In other words, the categories and sub-categories do not have hard boundaries and they are not mutually exclusive. In this regard, they are more akin to different modes of visual expression.

7.4. Research Outcome Two: Visual Design Heuristics

7.4.1. The Design Heuristic with Supporting Case Examples

Through the process of instantiating and illustrating the framework categories in my dataset[35] – a collection of 29 games, I identify a total of six design heuristics falls into three different categories depending on what aspect of the gaming experience that the visual design support (table 7.1).

Table 7.1 Design Heuristics, chart by author

Design Heuristics	Supporting Case Studies
Gameplay Utility	Design Driven by Gameplay Utility - *Fallout 3*
Narrative Utility	
Story Requirement	Design Driven by Story Requirement - *Nier Gestalt*
Plausibility	Design Driven by Engineering Plausibility - *Halo Wars* Design Lack of Logic Plausibility - *Magna Carta 2*
Reference	Design Driven by Sign-level Reference - *Valkyrie Profile* Design Driven by Symbol-level Reference - *Bayonetta*
Aesthetic Effect	
Consistency	Consistency between Visual Salience and Gaming Tension - *Super Street Fighter 4* Lack of consistency between Visual Style and Narrative Genre - *Valkyria Chronicles* Lack of consistency of Visual Faithfulness across all of a game's graphic - *Eternal Poison*
Identifiability	Using Visual Motif to Promote Identifiability – *Little Big Planet* Using Visual Language to Promote Identifiability – *Odin Sphere*

Gameplay Utility: This design heuristic refers to the visual design of a particular component has explicit gameplay function. The visual design plays a critical role in facilitate the interactions between the player and the rule of a game.

- Case Example - The prop “Pipboy 3000” in *Fallout 3*

[35] see Appendix A for more detail

Narrative Utility – Story Requirement: Story requirement refers to information that is critical to the portrayal of key events, situations and characters. Visual design driven by story requirement plays a critical role in communicating that information.

- Case Example - The character design of “Kaine” in *Nier Gestalt*

Narrative Utility – Plausibility: The visual design of an object is possible or likely to exist in the game world in term of their structures and purposes. Engineering plausibility emphasizes on the structural correctness of a visual design. Logic plausibility refers to whether the visual design of the object is appropriate for the given narrative context.

- Case Example #1 (Engineering Plausibility) – The vehicle “Cobra” in *Halo Wars*
- Case Example #2 (Logic Plausibility) – Various female characters costumes in *Magna Carta 2*

Narrative Utility – Reference: It refers to the use of references as a critical communicative device in the design to embed information beyond the mere appearance. Picture-level reference directly imitates real life environments, objects and people. Sign-level reference in a visual design works as an indicator of something entirely different from the design’s appearance. Symbol-level reference in a visual design can evoke ideas and emotions associated with the appearance.

- Case Example #1 (Picture-level Reference) – Various environments in the *Call of Duty* franchise and various locations in *Uncharted 3*
- Case Example #2 (Sign-level Reference) – Various Celtic patterns in costumes design in *Valkyrie Profile*
- Case Example #3 (Symbol-level Reference) – The witch archetypal design of the protagonist “Bayonetta” in *Bayonetta*

Aesthetic Effect - Consistency: Consistency-driven visual design emphasizes on maintaining a similar aesthetic experience across various visual components in both the context of visual storytelling and gameplay.

- Case Example #1 (Consistency between Visual Salience and Gaming Tension) – The shift of screen composition during a super move moment in *Super Street Fighter 4*
- Case Example #2 (Consistency between Visual Style and Narrative Genres) – The visual style and the emotion of the story in *Valkyria Chronicles*
- Case Example #3 (Consistency of Visual Faithfulness across all video game graphics) – Character design and in-game graphics in *Eternal Poison*

Aesthetic Effect - Identifiability: Identifiability-driven design focuses on the overall aesthetic feeling regarding the visual design of the game, so the appearance of the game would radiate a very specific visual tone to the players. This approach primarily uses formal level graphics.

- Case Example #1 (Visual Motif) – "Sackboy" from *Little Big Planet*
- Case Example #2 (Visual Language) – The game's painterly style from *Odin Sphere*

The case examples provide an opportunity to exemplify the design heuristics and to test the utility of framework in individual visual design components.

7.4.2. Close Reading Summary

The two closed readings provide a final measure of the utility and validation of the heuristics in much greater details. Also they are intended to investigate the inter-relationships among individual categories in the framework and to provide the framework with limited validation.

The first close reading is conducted on the game *Gears of War 3*, an action-pack third person shooter that features high fidelity graphics and realistic visual style. Through carefully observing the gameplay of the first three chapters and several

sessions in multi-play mode, I have tested the following heuristic on various visual components (table 7.2).

Table 7.2 Close Reading Summary - Gears of War 3

<table>
<tr><th colspan="2">Domain of Analysis</th></tr>
<tr><td colspan="2">☑ Character Design
☑ Props Design
☑ Environment Design
☑ Visual Effects</td></tr>
<tr><th colspan="2">Visual Style Modes in the Framework</th></tr>
<tr><td colspan="2">Representational Level
☑ Conventionalized Realism
☐ Simplified Realism
☑ Distorted Realism

Formal Level
☐ Stylized Abstraction
☑ Decorative Abstraction
☑ Sensory Abstraction</td></tr>
<tr><th>Heuristic Dimension</th><th>Exemplified Category and Subcategory</th></tr>
<tr><td>Gameplay Utility</td><td>☑ Design Driven by Gameplay Utility</td></tr>
<tr><td>Narrative Utility</td><td>Story Requirement
☑ Design Driven by Story Requirement
Plausibility
☑ Design Driven by Engineering Plausibility
☑ Design Driven by Logic Plausibility
Reference
☑ Design Driven by Picture Level Reference
☑ Design Driven by Sign Level Reference
☐ Design Driven by Symbol Level Reference</td></tr>
<tr><td>Aesthetic Effect</td><td>Consistency
☑ Consistency between Visual Salience and Gaming Tension
☐ Consistency between Visual Style and Narrative Genres
☑ Consistency of Visual Faithfulness across all video game graphics</td></tr>
</table>

	Identifiability ☑ Using Visual Motif to Promote Identifiability ☐ Using Visual Language to Promote Identifiability

Close reading two is conducted on the game Shin *Megami Tensei Nocturne*, a traditional turn-based RPG that features expressive graphics and simplified realism. Due to the lengthy gameplay, I employ the strategy of loading save points at various stage of the game progress to conduct my data collection. The heuristics I tested in this close reading are complementary to our first close reading (table 7.3).

Table 7.3 Close Reading Summary - Shin Megami Tensei Nocturne

Domain of Analysis	
☑ Character Design ☐ Props Design ☑ Environment Design ☐ Visual Effects	
Visual Style Modes in the Framework	
Representational Level ☐ Conventionalized Realism ☑ Simplified Realism ☐ Distorted Realism	**Formal Level** ☑ Stylized Abstraction ☑ Decorative Abstraction ☑ Sensory Abstraction
Heuristic Dimension	**Exemplified Category and Subcategory**
Gameplay Utility	☑ Design Driven by Gameplay Utility
Narrative Utility	**Story Requirement** ☑ Design Driven by Story Requirement **Plausibility** ☐ Design Driven by Engineering Plausibility ☐ Design Driven by Logic Plausibility **Reference** ☑ Design Driven by Picture Level Reference ☑ Design Driven by Sign Level Reference ☑ Design Driven by Symbol Level Reference
Aesthetic Effect	**Consistency** ☑ Consistency between Visual Salience and Gaming Tension ☑ Consistency between Visual Style and Narrative Genres ☑ Consistency of Visual Faithfulness across all video game graphics **Identifiability** ☐ Using Visual Motif to Promote Identifiability ☑ Using Visual Language to Promote Identifiability

7.5. Limitation and Future Study Recommendation

Based on a wide range of literature review in art history, aesthetics, philosophy, narrative study, cinema, and new media, my research in visual designs has produce two major outcomes; the first is the framework of visual styles which describe six different modes of visual expression under two visual style categories. Second, through applying the framework in the analysis of a wide range of video games, including 29 brief surveys and two in-depth close reading, this thesis identified and tested a set of visual design heuristics that might be useful as a guideline for game artists.

One potential problem my thesis might have is the scope of this thesis might be too wide to incorporate a complete and in-depth analysis of any one individual visual design component. Therefore I am looking forward to see new media scholars, video game researchers, video game developers, video game artists, and interactive storytellers applying the framework in their analysis on the visual design of video games. Any refinements and additions to this framework resulting from their more in-depth research are greatly appreciated.

On the other hand, although my framework tries to incorporate as many key factors of visual styles as possible; there are still many topics and variables related to visual styles in video games left unexplored, such as, kinaesthetic reactions to visual styles, motion as a component of visual style, visual styles in animation, and further relationships of visual styles to interaction design. Serious investigation of each one of the topics would produce a more complete understanding of the broader role of visual styles in video games.

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Appendices

Appendix A – Case Example Matrix

Game	Domain Categories Examined	Visual Style Modes(Framework) Examined	Found Design Heuristic
Call of Duty 3	**Prop** >> Vehicle	Conventionalized Realism	Reference-Driven
Gears of War 2	**Prop** >> Vehicle	Conventionalized Realism Distorted Realism	
Gears of War 3 (Close Reading)	**Character** >> Face **Character** >> Body type&physique **Character** >> Gesture&pose **Character** >> Costume **Prop** >> Weapon **Prop** >> Vehicle **Environment** **Visual Effect**	Decorative Abstraction Sensory Abstraction Conventionalized Realism Distorted Realism	Gameplay-Driven Story-Requirement-Driven Plausibility-Driven Reference-Driven Consistency-Driven Identifiability-Driven
Nier Gestalt	**Character** >> Face **Character** >> Costume **Character** >> Body type&physique	Simplified Realism	Story-Requirement-Driven
Blazblue Continuum Shift	**Character** >> Gesture&pose **Visual Effect**	Simplified Realism Sensory Abstraction	
Ninja Gaiden 2	**Prop** >> Weapon		
Soul Calibur 4	**Prop** >> Weapon		
Muramasa the Demon Blade	**Visual Effect** **Environment** **Character**	Stylized Abstraction Distorted Realism	
Valkyria Chronicles	**Visual Effect** **Environment** **Character**	Stylized Abstraction Simplified Realism	Consistency-Driven
Super Stardust HD	**Visual Effect**	Sensory Abstraction	
Child of Eden	**Visual Effect**	Sensory Abstraction	
Shin Megami Tensei: Nocturne (Close Reading)	**Character** >> Face **Character** >> Body type&physique **Character** >> Gesture&pose **Character** >> Costume **Environment** **Visual Effect**	Stylized Abstraction Decorative Abstraction Senosry Abstraction Simplified Realism	Gameplay-Driven Story-Requirement-Driven Reference-Driven Consistency-Driven Identifiability-Driven
God of War 3	**Character** >>Face **Character** >> Gesture&pose		
Uncharted 3	**Character** >> Face **Environment**	Conventionalized Realism	
Fat Princess	**Visual Effect** **Environment** **Character**	Simplifed Realism	
Katamari Forever	**Character** **Environment**	Simplified Realism	
Alice: Madness Returns	**Environment**	Distorted Realism	
Fallout 3	**Prop** >> Item	Conventionalized Realism	Gameplay-Driven
Halo Wars	**Prop** >> Vehicle	Conventionalized Realism	Plausibility-Driven
Magna Carta 2	**Character Design** >> Body type&physique **Character Design** >> Gesture&pose **Character Design** >> Costume	Stylized Abstraction Simplified Realism Distorted Realism	Plausibility-Driven
Valkyrie Profile	**Character Design** >> Costume	Decorative Abstraction Simplified Realism	Reference-Driven
Bayonetta	**Character** >> Costume **Character** >> Body type&physique **Prop** >> Weapon	Decorative Abstraction Conventionalized Realism Distorted Realism	Reference-Driven
Super Street Fighter 4	**Character** >> Body type&physique **Visual Effect**	Stylized Abstraction Simplified Realism Distorted Realism	Consistency-Driven
Eternal Poison	**Character** >> Face **Character** >> Costume **Character** >> Gesture&pose	Stylized Abstraction Simplified Realism	Consistency-Driven
Little Big Planet	**Character** **Environment**	Stylized Abstraction Distorted Realism	Identifiability-Driven
Odin Sphere	**Character** **Environment** **Visual Effect**	Stylized Abstraction Simplified Realism Distorted Realism	Identifiability-Driven
Halo Reach	**Character** **Environment**	Conventionalized Realism Stylized Abstraction	
Quantum Theory	**Character**	Conventionalized Realism Distorted Realism	

Appendix B – Video Game Terminologies

Usage of Video Games

Originally , the term video game refers exclusively to electronic games that run on a hardware system that outputting its audio and visual to a television set. Nowadays, the use of video game become more general and the meaning expands to include digital games of almost all platforms/hardware systems.

Here is a list of major platforms for current generation video games:

- **Arcade game**: Games that run on a coin-operated commercial entertainment machine
- **Console game**: Games that run on a video game hardware system that is primarily designed for the purpose of playing game of proprietary format
- **PC game**: Games that run on a PC or any personal computer systems
- **Handheld game**: Games that run on a handheld and compact platform, such as the Sony PSP and the Nintendo Gameboy
- **Mobile game:** Games that run on a cellphone or a tablet computer

Nowadays, the term video game is almost interchangeable with electronic game. To facilitate our discussion, we will adopt the common definition and refer all forms of electronic games as video game in this paper.

Visual Components in Video Game

In-game Sprite

In-game sprite is a layman's term for describing the fundamental graphic building blocks of a game world. It refers to visual elements found exclusively in gameplay sequences. It includes both two-dimensional graphic sprites and three-dimensional polygon models.

Cutscene

It sometimes referred as in-game cinematic. It refers the non-gameplay sequences within a video game where players have little or no control. It is primarily

used for advancing plots, illustrating dramatic moments and providing additional narrative information. There are several types of cutscenes.

Pre-rendered cutscenes - Those are essentially movie clips that the developers previously created or recorded. The reason for the pre-rendering is often due to the computational limitation of the game engine and hardware. They typically feature higher graphic quality if not equal to the in-game graphics.

Real-time cutscenes - They are pre-scripted sequences that are consisted of in-game sprites and rendered by the game engine in real time. They usually have the same quality as the in-game graphics.

Still-frame cutscenes - They are used to be the dominant way to doing cutscene back to older generations of games due to the limitations of video playback of a game system and the size of the game cartridge. However, nowadays it becomes less common on major game titles because the dramatic increment in the computational capacity in all gaming platforms in recent years. As the name suggested, this type of cutscene features slide-show of still-frame pictures.

Interactive cutscenes – They are a new way of incorporating cutscene into the gameplay. Unlike the other types of cutscenes which take away all interactivities from players. It still gives players some control over the narrative during the cutscene. Players' inputs during interactive cutscenes usually determine the narrative outcome after the cutscenes. It is alternatively known as quick time events (QTE).

In-game Design Illustration

Some video game includes concept art of characters and objects in the finished game for different reasons, such as using them as visual supplements to provide more details regarding a character or an object. The common places to find them are character status panels and item/weapons description panels.

Graphics External to the Gaming Experience

It refers character design concept art, scenery/environment illustrations, and storyboard sketches released by a game's publisher and developer for marketing and other purposes. Back to the early days of video games, when graphic engines of gaming hardware were only capable rendering pixelated and iconic sprites; artworks like those often were used to portray an idealized view of game world to players. Nowadays,

the visual quality differences between in-game graphics and concept artworks are narrowed. Those artworks often are used to show design details of objects/characters which are not possible to see during gameplay. Also they can be used to setup moods and expectations of the game world prior to a game's release. They are less essential to the gameplay, but they are a crucial part of gaming culture. A collection of this type of graphics is often released in the form of a game's official artbook.

Narrative Components

Narrative Genre

The narrative genre in video game is very similar to that of literature and film. Genres are categorized on the basis of their themes, narrative structures, techniques, moods, and sometime even historical eras. Common narrative genres in video games are horror, military, fantasy, science fiction and comedy.

Character

Base on their different gameplay roles, there are three types of characters in video games.

Avatar –In this thesis, I use avatar to distinguish from other pre-defined characters in the narrative of the game. Avatar refers as the graphic agent created solely for the purpose of representing the player. Often player can customize their avatar in its physical appearance and in-game attributes. For example, in the sandbox game *Fallout 3*, at beginning of the game, the player is given a chance to create a character from the game engine with unique appearance, name and abilities. Although there are a few pre-determined setting about the protagonist of the game, but the player would ultimately have the freedom to express themselves by making in-game choices with this avatar in the game. Those choices would ultimately create a personal narrative of that is unique to the avatar. On the other hand, in the linear game *Final Fantasy 13*, every player would assume the role of a pre-defined protagonist Lighting and follow through her adventure in the game. Lighting is a protagonist character and the player is just playing the role.

Protagonist/Major Character - This category refers to characters that play key roles in the storytelling of the video game. They come with pre-defined personalities and background narratives. In most case,

the protagonists are playable by the players however there are exceptions. For example, Kainé from *Nier Gestalt* is a vital character in the story and she accompanies the player's character throughout the whole game. But she is not controllable by players.

Supporting Cast/Minor Character - This category refers to characters that play supporting roles in the game world. They are non-essential to the development of the plot. In term of their gameplay utility, they are often used as the extensions and the embodiments of the game mechanics. For example, various shop owners and traders in role playing game functions as the exchange hubs of the in-game resources. In term of their narrative function, they can be used to populate the game world for the establishment of realism and believability.

Story World

Story world refers to the digital space that interaction and storytelling of a video game take place. It is defined through the visual appearance of various environments in game and the story setting of the virtual world in a game.

Narrative Emotion

Narrative emotion refers to the emotional responses generated during players' experience of the story in a game. There are three main sources where narrative emotion can come from:

Emotion of character - It refers to the feelings that character have in the storytelling of a game. They are often conveyed through dialogue and facial expression, behaviors of a character. Those emotions can be projected to players and evoke sympathy.

Emotional reaction to storytelling - It refers to the emotional responses that players experience from the plot in a game. For example, when a tragic hero knowingly enters a battle of inevitable defeat, we feel a sense of sadness.

Emotional reaction to environment - It refers to the moods and the feelings evoked the visual rendering of environments in game.

Ludic Components and Dynamics

Gameplay Genre

There is a lack of agreement on the categorization of video game genres among gamers, reviewers and scholars. To facilitate this research, I define several video game genres that are significant to this thesis based on their gameplay characteristics. However it is worth to note that the gameplay genre is never exclusive. One game can have different modes of gameplay.

Role Playing - It refers to games that focus on storytelling and character development. This genre of gameplay would typically feature extensive mechanics of leveling up, skills learning and inventory trading. Role playing game is commonly shortened for RPG.

Platformer – In this genre, the major challenges of gameplay require players to navigate through various platforms with mechanics such as jumping, running, climbing, and swinging. Depending on the dimensionality of the game world, there are 2-D platformers and 3-D platformers.

Sandbox – It is alternatively known open world games. This gameplay genre is characterized by allowing players to freely explore the game world. It gives players plethora of choices that could significantly alter the narrative development of the game.

Side-scrolling – This genre refers to gameplay taking place in a 2-D plane where the player's character can move up, down, left and right. The term scrolling comes from the idea that the screen will scroll with the player's movement direction. Also depending on the way that the players fight with the enemies, there are side-scrolling shooter and side-scrolling action games.

3D Shooter - The core gameplay in this genre allow players to move freely in a 3D environment and to fire projectile weapons towards enemies. Depending on the camera angle, there is third-person-shooter (TPS) where the player's character is visible from an over-the-shoulder view. Also there is first-person-shooter (FPS) where the player experiences the gameplay as if it were through the vision of main character of the game.

3D Action - It is very similar to the definition of 3D shooter. The major distinction is that in 3D action game, the player would rely mostly on

close range melee weapon to attack enemies. Alternatively it is known as hack-n-slash game due to the nature of the gameplay mechanics.

Fighting - The core mechanics features two or more characters engaging in close range combat on the screen. Often those games would provide the players with a large roster of characters with different abilities and fighting styles. In addition, depending on the character's movement on the game space, there are 3-D fighting games and 2-D fighting games.

Game Mechanic/Rule

The game mechanic refers to the rule of a game which restricts player's interactions and determines the outcomes of player's performance. Zimmerman defined game rule as "Rules as we understand them here as the formal structures of a game are not the same thing as strategies for play, even though the two might seem similar." (Zimmerman, 1999)

Game Economies

Economy refers to a system that produces, trades, and consumes resources. In video game, the resources are quantifiable attributes such as items and currencies. Economy can be used as a reward system for player's performance. The game's economic system plays a vital role in sustaining the optimal gaming experience where challenge and reward are balanced out dynamically.

Gameplay Emotion

The term is originally coined by Bernard Perron. Gameplay emotion refers specifically to the emotions aroused by players' interactions with the game world. It is different from narrative emotions created by storytelling. According to Perron, this type of emotions arises in response to events that are important to the individual's goals, motives and concerns. For example, a benign-positive or stressful situation will be characterized as pleasant or unpleasant. In conclusion, he proposed seven prototypical game emotions:

- **Interest**: the emotional tendency to attend and to paid attention

- **Enjoyment**: a tonic reaction of interacting and engaging in consummationary activities
- **Worry**: the emotional tendency that make us turn toward an object one is thinking about
- **Fear**: the emotion manifested by the impulse to run away
- **Surprise/shock**: it is created through being interrupted and it will cause freeze and then force player to re-orient.
- **Anger**: it has an agonistic tendency, a tendency to regain control
- **Frustration**: it too has a agonistic tendency, caused by repetitive failures in attempting to complete a task (Perron, 2005)