

Conference Paper

Ethics of Biotechnology in *Bioshock's* Interactive Narrative

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Abstract

The interactivity element in video games allows the process of delivering narration through words and actions taken by the game player. The diversity of game design in delivering stories leads to a debate between ludology (game-centered) and narratology (narrative-centered). Ludology perceives game as 'sets of rules' because game itself is a medium that is made up of rules. On the other hand, narratology views game in terms of the narrative resulted from the rules. Narratology tends to reduce the peculiarity of the medium because it does not take game rules into account, while ludology ignores the narrative elements. However, in recent times, games combine aspects of gameplay and narration to form an interactive narrative. One video game that uses such combination is *Bioshock* (2007). The interactivity elements in this game are not only for conveying the story, but also for allowing players' participation to determine the resolution of the story through the player's interaction with the character named Little Sister. Gameplay-wise, Little Sister acts as one of the main resources that helps players complete the game. Narrative-wise, Little Sister who is a chimera (a combination between animal and human) is a representation of technological advancement. Positioned as resource both in the gameplay and the narration, the game player's treatment toward Little Sister implies ethical and moral consequences. For these reasons, this article implements textual analysis to discuss the characterization of Little Sisters displayed in the gameplay and the narration that leads to the ethical and morality issues lies in biotechnology.

Keywords: Biotechnology, chimera, interactivity, moral-ethics, video game criticism.

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1. Introduction

As technology advances, the media for delivering human expressions also changes. Each medium of expression has its own devices in delivering meaning. Poetry, novels, dramas, songs, films, even comics have their own peculiarities. The same thing also happens in the video game. Games have two distinctive elements; rules and interactivity. Game rules allow a game to form a simulation that builds its own reality. Combined with *interactivity*, a game will be able to mediate the interaction between players with the 'modified' reality. Players' action in playing the game forms a unique pattern lead by the

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game rules. This 'framed action' will set a condition for players to take action. For the example, to fulfill the 'victory condition', a player is given the options to take 'action A' or 'action B'. With this, the definition of 'victory' and 'defeat' has already been constructed by the author or the game designer. What the players have to do is to obey the "victory condition" set by the game rules. The combination between *game rules* and the players *interactivity* throughout the game forms a meaning.

Game's ability to assemble ideas and meanings through game rules can also be used by researchers in the field of education. One of the research of this type is done by Trisna and Nasution (2018) who used *macromedia flash* in English teaching method. *Macromedia flash* amplifies the interactive elements between user and curriculum that help the students understand English language through rules implemented in the program. This indirectly proves that the element of interaction is effective in the process of channeling ideas, which in this case, language teaching methodology.

Meanings that are formed by rules can also be seen in popular games intended for entertainment. One of them can be found in *CMS (Construction and Management Simulation)* ("Construction and management simulations (CMS) are games about processes. The player's goal is not to defeat an enemy, but to build something within the context of an ongoing process. The better the player understands and controls the process, the more success he will have at building." (Adams and Rollings, 2003: 592)) games. One of the most popular *CMS* games is *Civilization* by MicroProse and was released in 1991. *Civilization* provides a simulation in building a macro civilization from the ancient era to the futuristic era. Poblocki (in Mayra, 2008: 98) states that the success rate in playing *Civilization* increases if the players adopt the principles of western industrialization in managing the civilization. Poblocki then comes to a conclusion that the ideal model of civilization displayed in *Civilization* is the one that resembles the American economic system.

Games like *Civilization* shows the ideology of a state through the perspective of the authority. *Civilization* puts the player in the position of 'God' that has the ability to control the development of a civilization. However, what if the economic system is told from another perspective? If the CMS offers God's position/authority, what about games that offer a micro perspective? One of the games that offers an individual perspective under an economic system is *Bioshock*. Unlike *Civilization* which offers a ruler's perspective, *Bioshock* offers a perspective of and individual who is acting within a larger system. This individual perspective can be seen from the camera point of view presented by *Bioshock* which offers the first-person perspective.

Bioshock tells the adventure of Jack, the main character, who is struggling under a free market system in an underwater city called *Rapture*. In this game, the players are required to fight using the existing resources, to kill the rulers and their underlings, and eventually to escape from the system. One of the interesting things from *Bioshock* is the representation of game resource that is needed to complete the game. One of the most important resources in *Bioshock* is obtained through an interaction with the character named Little Sister. Players' interaction with Little Sister is divided into two options: "harvest" and "rescue". Each choice does not only affect the amount of resources obtained, but also determines the final resolution of the game narrative that offers another two options of ending; "Good ending" and "bad ending".

With the "Harvest" and "Rescue" options, the ending of the game will be indirectly determined by the way players collect their resources through the interactions with *Little Sister*. This interactions will lead to the representation of how the resource is treated within the game. This representation becomes complicated when the *Little Sister* is perceived as the representation of hybrid character between human and animal. Therefore, this article discusses the issue of ideology of resource management through the characterization of Little Sister which is formed through the narrative aspects and gameplay aspects that surrounds this character.

2. Literature Review

In understanding video games as text, Aarseth (1997) proposes a new term called cybertext. According to Aarseth, cybertext is not a new type of text found along with technological developments. Cybertext is a paradigm or perspective in looking at various forms of text.

The concept of cybertext focuses on the mechanical organization of the text, by positing the intricacies of the medium as an integral part of the literary exchange (Aarseth, 1997: 1)

In the perspective of cybertext, text is seen as a mechanical tool in the process of producing and consuming verbal symbols. Like a film that requires a projector and screen, a text requires a medium to connect the text to the reader (21). The meaning of a text (textology) is very closely related to the text medium itself (textonomy) (15). Therefore, in order to understand the text, understanding of medium is very important.

As a video game, *Bioshock* has been widely studied, either from the gameplay aspects or from its narrative aspects. *Bioshock's* style of storytelling can be said to be

unique. This uniqueness was examined by Lemmens (2017) who argues that *Bioshock* uses environmental storytelling techniques because it utilizes environment around the game in the process of storytelling. *Bioshock* uses objects, ambient sounds and music, as well as the behavior of Non-Playable Character (NPC) in telling stories, while at the same time creates nuances to the theme of the story. *Bioshock* also uses gameplay as a storytelling tool. This harmony between gameplay and narrative can be referred to as *ludonarrative synchronicity* (Reblin, 2015). One aspect of Reblin's research is how *Bioshock* describes "water" in its narration and gameplay. Rapture is described as an underwater city that creates constant fears of the possibility of a leak that can sink the entire city. "Water" as "something that can kill" is also represented by aspects of gameplay through the players' ability to use standing water as a weapon against the enemy.

Through the medium of video game, *Bioshock* brings philosophical themes from both the narrative aspects and the gameplay aspects. The gameplay aspects of *Bioshock* represents "Plato's Cave" allegory because of the illusions of choice that exist during the game (Travis, 2015). On the narrative aspect, *Bioshock* makes use intertextual reference to Ayn Rand's novel, *Atlas Shrugged*, when examined using Barthes 'Five Codes' (Nelis, 2013). On a different topic, *Bioshock* shows an ethical debate when humans are faced with genetic enhancement issue (Ledder, 2015). Ledder argues that *Bioshock* challenges the ethical boundaries in the development of biotechnology. On another level, *Bioshock* introduces the intersection and interconnectedness of beauty and morality (Muniz, 2015) through the study of J. S. Steinman, a beauty obsessed character in the game.

Through these researches, it has been proven that *Bioshock* has the potential to produce numbers of interpretations. With the themes of bioethics brought by Ledder (2015), as well as the use of environment as a game mechanics (Reblin, 2015), it can be said that *Bioshock* emphasizes the 'non-human aspects' as one of the core themes in its narrative. In order to continue the research, this article focuses on the representation of the ethical and morality dilemma derived from the biotechnology through the character named *Little Sister*. This article also examines *Bioshock's* position on viewing these ethical problems. The representation will then be related to the rules of the game that compile the actions of players in treating their resources.

3. Research Method

The method used in analyzing *Bioshock* is *textual analysis*. In reviewing *Bioshock* as a game, aspects of gameplay are considered in the text-building element. This article focuses on the character and characterization of Little Sister, who is an important figure in *Bioshock*. This article suspects that Little Sister represents a hybrid character, a combination between human and animal. *Gameplay-wise*, *Little Sister* is also treated as a game resource that players must use in the game. Based on this hypothesis, this article will examine *Little Sister* from the point of view of technological ethics and morality.

One of the roots of ethical and moral values is derived from the concept of Anthropocentrism. Clark (2011: 3) argues that Anthropocentrism is a perception or conception that regards humans as the center of all norms. This concept influences our ethics, politics, and the moral status of Others (the non-humans) (Boddice, 2011: 1). Therefore, anthropocentric representations represent humans as the center of everything. Rueckert (1966: 113) argues that the anthropocentric paradigm causes exploitation, domestication, to "humanize" things that should be part of nature.

This article analyzes the image of Little Sister presented through the narration and gameplay and explores the representation of 'Chimera', a mixed creature between human and animal, contained in the character. This article also examines on how *Bioshock* treats Little Sister through the rules applied in the game. The game rules and the representation of Chimera bring out an understanding about the ideology in the environmental resource management that is problematized in *Bioshock*.

4. Result and Discussion

4.1. Chimeras and the ethics of biotechnology

The advancement of biotechnology is always calling for human development. Biotechnology can lead the progress in the field of biomedicine, or even in enhancing human physical or cognitive abilities. One project that results from the development of biotechnology is the ability to combine human and animal cells. A human body that contains cells or tissues from another animal or human is known as Chimera (Bioethics Advisory Committee, 2008: 6). Traditionally, Chimeras are imaginary or mythological creatures made up of parts from two or more species, yet technically, Chimera is an organism whose body contains cells from another different organism (11). One of the recent work in Chimeras is done by Jacob Hanna using the mouse embryo

as in *in vivo* (An experiment that is done inside the body of the living organism (<https://www.medicinenet.com/script/main/art.asp?articlekey=4034>)) system to test the potential of human pluripotent (Pluripotent cells are the master cells that are able to produce any cell or tissue the body needs to repair itself. Pluripotent cells are also able to self-renew, which means they can perpetually create more copies of themselves. (<http://stemcell.childrenshospital.org/about-stem-cells/pluripotent-stem-cells-101/>)) cells.

Chimera has raised ethical, moral, and religious concerns because it challenges the concept of nature and because the creator of a chimera is perceived to be 'Playing God' (7, 21). For scientific purposes, Chimera is useful to gain basic knowledge on how cells work, to achieve biomedical purposes, or also to avoid the threat of an early death (19). Despite the benefits, Chimera also has some risks that can result in ethical problems that are caused by the repugnance of human-animal combinations.

The human-animal combination in Chimera can also lead to moral and social confusion because humans and animals are raised differently within our culture (Hermeren, 2015: 4). Even each of the species of animal has different ethical position that adds to the confusion. This confusion can result in the emergence of the new rights and obligations that arises from this boundary-breaking technology. Therefore, there is still an ongoing discussion to lay down the ethical rules of this technological revolution.

4.2. Chimera as Bioshock's main resource

According to Konzack (2002), a game *Resource* is the means by which the players are able to influence the game, which could be anything. It can be a chess piece, a ball, or in a computer game, it can be as a computer controlled pixel images on screen. *Bioshock* has many kind of resources, but the main resource is a character named Little Sister. Little Sister is one of the most important figures in *Bioshock's* narrative. That is because Little Sister is described as the only character who "carries" and "produces" ADAM, the most important resource in the city of Rapture. Adam is a substance that can modify human genes to produce some kind of superpowers to enhance human ability. ADAM is told as a substance obtained through extracting Sea Slugs that roam around Rapture. However, the amount produced by extracting was very little, so ADAM could not be commercialized. But then, when the Sea Slug is inserted into the body of a girl (which is then named Little Sister), the amount of ADAM produced will increase tenfold. With this method, the Little Sister and the Sea Slug have become one and could not be separated. Separation will cause the Little Sister her life. Because of this, Little Sister

is considered as a valuable asset considering the rising market demand for ADAM in Rapture.

The symbiosis between the Little Sister and the Sea Slug can be classified as a Chimera that is used for human interests. Both Little Sisters and the Sea Slugs have become one creature that cannot be separated. Little Sisters are told to have a great healing ability when merged with the Sea Slugs. But at the same time, they will die if the Sea Slug is removed from their bodies. Because of the ADAM that is produced by this “creature”, both Little Sisters and Sea can live alongside one another.

Unlike the mythological Chimera which shows the explicit change in their bodies (for example, a lion with snake as its tail), Little Sister is only represented in human form. The Sea Slug “component” within this girl is hidden inside their stomach. The combination between these two is used to increase the amount of the resource produced. This method is like combining one variety of wheat with other variety to produce a better quantity. Except, the Chimera combination is interspecies. In Little Sister, the combination is between a little girl and a Sea Slug—a human with an animal. Because of that, Little Sister can be considered as a technology that breaks the boundary between human and animal in order to produce some valuable resource, which is ADAM.

In its narrative, *Bioshock* treats ADAM as a resource or “currency” to increase Jack’s ability (the main character) in order to facilitate players in completing challenges during the game. The more ADAM the player gets, the more powerful the main character will become. Therefore, players are required to interact with Little Sister to get ADAM. There are two options of interaction they can do with Little Sister; “*Harvest*” or “*Rescue*”. If the player chooses *Harvest*, the player will get 160 ADAM with the consequence of Little Sister’s death. Meanwhile, if the player chooses *Rescue*, the player will save Little Sister but only gets a total of 80 ADAM, half the number of *Harvest*. There is a total of 21 Little Sisters throughout the game. If the player chooses *Rescue* three times in a row, the player will get an additional 200 ADAM as a token of gratitude from a character named Brigid Tenenbaum, a female scientist who discovered ADAM and its benefit for humans. Tenenbaum is also the scientist who discovered that the symbiosis between the Sea Slugs and the little girls will produce more ADAM.

Both of the choices offered to the players, *Harvest* and *Rescue* view Chimeras as a resource. The difference lies in how the resource is perceived. Players will get more ADAM if they choose *Harvest* because they will get 480 ADAM per three Little Sister (160x3). Meanwhile, the ADAM produced by *Rescue* is 440 (80x3 + 200). In total, when the players manage to gain 21 Little Sisters, they will gain more resource if they choose *Harvest* (3360 ADAM) compared to *Rescue* (3080 ADAM). Because more ADAM equals

more power, in this case, *Harvest* offers more power than *Rescue*. However, *Rescue* offers morality aspects because it spares Little Sister's life. Also, *Harvest* offers short-term benefits because players obtain Adam instantly. Meanwhile, *Rescue* offers long-term oriented benefits because the bonus of ADAM will be given to the players each time they *Rescue* 3 Little Sisters. This is shown by the additional 200 ADAMs if the player chooses *Rescue* three times in a row. The full *Rescue* reward is given in the future, unlike *Harvest* which rewards players the whole amount of ADAM at the exact moment of interaction.

However, the game interactivity creates some other complexities. Little Sister's element of interactivity is not only programmed as a method to gain resources. Both *Harvest* and *Rescue* options will determine the kind of *ending* the players will get at the end of the game. The players will get a *good ending* if they choose *Rescue* to all 21 Little Sisters in the game. The story will end up as Jack living peacefully on the surface with the Little Sisters he rescued. However, if the players choose *Harvest* to at even one Little Sister they encounter throughout the game, the *bad ending* will occur. At the end of the game, Jack will launch a nuclear attack and brings catastrophe into the surface.

Bioshock treats *Little Sisters* as a necessary resource in completing the game. Therefore, the interactive elements in the game representing on how players manage their resources is reflected through the *Rescue* or *Harvest* options. These options are about the choice between "getting more resource to gain power" or "the morality of treating Little Sister as a human being". From this interaction, *Bioshock* puts "power" or "ethics" in comparison as the main methods of gaining resource. From the ending it offers, *Bioshock* tries to tell the player what will happen if they put "power" over "ethics" while treating the Chimeras as a resource, and vice versa.

The ethics in treating Chimeras as a resource is a complicated one. This is because the creature contains two types of species that has different ethics. It gets more complicated if one of the species is human. In the context of Little Sisters, because of their combination between humans and animals, and also due to their function as a resource, there are two conflicting ways on viewing Little Sisters. The first is to view "Little Sister as a resource" and the second is to perceive "Little Sister as human". Little Sister can be assumed as a resource because they produce valuable resources, while at the same time, they are also human beings. This ethical dilemma is seen from the following quote.

"We went on a raid outside the wire today. We snagged 31 rounds of buckshot, 4 frag grenades, a shotgun, and 34 ADAM. We lost McGee, Epstein and Vallette. We got one of those goddamn Big Daddies in the bargain, though.

It was something awful what they had to do to that **little girl** to get the ADAM, but we didn't start this thing. Ryan did. I can't wait to tell Atlas. He'll be so pleased..." (Diane McClintock in *Audio Diary* "Today's Raid")

The context of the quote is about a girl who is part of the rebels in *Rapture* lead by Atlas. To bring down the existing government under the leadership of Andrew Ryan, Atlas needs the resources. McClintock's report on the success of Atlas's army indicates her ambivalent perception toward Little Sisters. On one hand, she feels sympathy toward the violation inflicted on Little Sisters as a human being. On the other hand, she also treats them as a resource for weaponry. According to Hübner (2018), creatures that combine human and animal parts may undermine species integrity as well as human identity (198). From the quotation above, the value in treating the "chimera as a resource" is too valuable to be ignored. From this description, the existence of "Chimera as resource" undermine the existence of "Chimera as human".

The Little Sisters indirectly show the moral dilemma arises from biotechnology. The problem arises from Chimera is not because it destroys the ecosystem, but because of the ethical and morality that lies behind this technology. Little Sisters are too valuable not to be considered as a resource, while at the same time, they have "human attributes" emerging from the moral conflict behind their treatment. The Chimeras are needed for the progression, whether it is for medication, or even it is for knowledge and information. In *Bioshock*, this moral conflict is shown by the rebellion because they need Little Sister to enrich their weaponry, so their aim for a revolution can be achieved. But at the same time, this comes to the part where the exploitation begins. The Little Sister is treated as a weapon, not as human, to justify their unfair treatment. The technology is too valuable not to be used, while the humanity lying in Little Sister is too evident to ignore.

The humanity brings out the moral conflict because the exploited chimeras are taking a human form, which in this case, the little girls are called Little Sister. In other words, *Bioshock* uses human attribute to bring out the morality and ethical issues in the use of chimera as a resource. This moral and ethical issues are aligned with the concept of anthropocentrism because "the morality of the non-humans" does not come from the non-humans, rather from the "human attributes". The Chimeras do not cry out for mercy; it is the "human attributes" who give them the "voice" so that they can be pitied.

The two choices (*Harvest* and *Rescue*) that determine the ending of the story are built from these moral considerations. One of these considerations is shown by the leader of the rebellion named Atlas. Atlas considers Little Sisters as a nonhuman, thus they are justified to be exploited without any moral implications.

“You think that’s a child down there? Don’t be fooled. She’s a Little Sister now. Somebody went and turned sweet baby **girl** into a **monster**. Whatever you thought about right and wrong on the surface, well that don’t count for much down in Rapture. Those Little Sisters, they carry ADAM—the genetic material that keeps the wheels of Rapture turning. Everybody wants it. Everybody needs it.” (Atlas, from one of the scenes in *Bioshock*)

In his view, Little Sisters are no longer a sweet little girl because biogenetically she has been turned into a “monster” because she is no longer a “normal” human being. With this perception, Atlas justifies his treatment toward Little Sisters as merely the carrier and producer of ADAMS. Atlas’ view of Little Sisters implies that it is morally acceptable to treat Little Sisters as monsters that can be or even should be eliminated to get the precious ADAM they carry within their bodies. In contrast to McClintock who has a slight “feeling of pity” toward Little Sister, Atlas actually removes the humanity aspects that exist in Little Sisters so that he does not have to be concerned with the moral and ethical issues.

Apart from Atlas and McClintock’s perspective, Little Sister is also described through Brigid Tenenbaum. In her audio diary, Tenenbaum confesses her “motherly feelings” when interacting with Little Sister.

“... These children I brutalized have awoken something inside that for most is beautiful and natural, but in me, is an abomination... my maternal instinct.” (Brigid Tenenbaum in *Audio Diary* “Maternal Instinct”)

Despite conducting vicious experiments to Little Sisters, Tenenbaum looks at them from a humanity standpoint. This quote shows Tenenbaum’s regret to the children she makes into Little Sisters. This regret is shown by the awakening of the ‘maternal instinct’ which she calls an *abomination*, yet at the same time, for most people it is *beautiful* and *natural*. This quote highlights Tenenbaum’s internal conflict as a scientist. Tenenbaum views Little Sister as a ‘children’ which awakes her maternal instinct. Tenenbaum sees Little Sister as a human, not as a mere resource, which for her—as a scientist—an abomination. Tenenbaum ‘anthropocentric’ views of Little Sister give her internal conflict on treating the Chimeras. This view is in contrast to Atlas’ perspective which considers *Little Sisters* as resource that has been released from the moral value.

The two perspectives towards Little Sister—Atlas and Tennenbaum’s perspective — serve as the basis for the players’ choice in interacting with Little Sisters. If the player chooses *Rescue*, then the player indirectly follows Tennenbaum’s view by taking into account the aspects of humanity. Conversely, *Harvest* indicates Atlas’s perception of

Little Sisters as a mere resource. Both choices represent the two conflicting ideological differences in viewing Chimeras as the product of biotechnological resource, which are the conservationist ideology and the exploitative ideology.

5. Conclusion

Comparisons of the two choices show *Bioshock's* ideological position in viewing Chimera as a resource. By giving a *good ending* to the choice of "conservation" and a *bad ending* to the choice of "exploitation", *Bioshock* also takes the position to the side of the Chimeras. By siding to the conservation method to keep the Chimeras alive, *Bioshock* views that the Chimeras should be respected, by at the same time, treating them as the long-term oriented resource. It can be said that *Bioshock* is in the position that views the conservation leading to the investment to the future. *Bioshock* is on the side of futurist ideas that progression can be brought by Chimeras if treated by maintaining the humanity as the moral value behind it. On the other hand, *Bioshock* shows that exploitation is caused by ignoring the humanity attributes which can lead to the short-term resource that can also lead to the catastrophe.

From the interactivity it offers, *Bioshock* serves as a mirror that reflects player's ideology in viewing Little Sister as a Chimera. Player can choose the "power" route by choosing *Harvest*, and "morality" route by choosing *Rescue*. And then, from the ending offered, *Bioshock* also serves as a judge by giving the player *good* or *bad ending* from the route they choose while playing the game. With video game as a medium, *Bioshock* teaches their player by giving them insights to the consequences the players get from choosing certain route.

Bioshock's view in raising morality while treating the biotechnological resource, which in this case, a Chimera, actually does not see the chimera as a mere resource but considers them as a human being. This shows that *Bioshock* is in a position that supports anthropocentrism as a correct way in viewing Chimeras as a resource. The value of anthropocentrism is also seen through the role of the player in determining the ending of the game. The player, who plays the character Jack in *Bioshock*, is the only character who has the agency in determining the end of the story. Through the medium of video game, this important role is not given to other characters, but from the character Jack who is controlled by real humans (players). In other words, the choice to *save* or *destroy* is truly in the hands of humans (anthropocentric).

In addition, video game is a medium that can be enjoyed by the upper middle class because of the expensive equipments that are required to play this game, whether

it is with the *game console*, or PC (personal computer). With this, *Bioshock* targets the upper middle class market in delivering this ethical stand on viewing Chimera as a biotechnological resource. This goes hand in hand because as it turns out, people who have access to the biotechnological resource are in the upper middle class one. Regarding this matter, it can be said that *Bioshock* utilizes the video game medium in bringing the anthropocentrism ideology to the people that are in direct contact with these issues. By giving ideology to these choices, *Bioshock* gives the agency to the players to interact with the ideology on viewing Chimeras as a resource that could happen in the near future.

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