



Actantial Model as a Tool in Analyzing Video Games Narrative

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Abstract. Video game is one of the mediums for channeling human's expressions. At first, it is considered as a mere entertainment, but recently it received attention from the academic world. The complexity of current video games opens up interest from various field of studies. Literary studies find the incorporation of narrative in a game as a new area for their research. However, the interactivity element of video games created a challenge as there is no methodology in literary criticism that can be used to analyze this element. Therefore, this field offers opportunities for researchers to develop methodology for this purpose. This article proposes a modified actantial model as a methodology in analyzing video games' narrative by combining the gameplay and the narrative aspects. The model combines Greimas' actantial model proposed in 1966 and Konzak's concept of gameplay elements developed in 2002. This model was then tested on the game *Bioshock* (2007) which utilizes both gameplay and narrative elements in its storytelling. The findings show that the use of the modified actantial model provides a clear presentation of the complex relation in the gameplay and narrative elements in a video game. The model is applicable for other research of video games' narrative.

Keywords: Actantial · Gameplay · Narrative · Video Game

1 Introduction

Many game scholars have tried to develop a suitable methodology to analyze video game. The interactivity element in a game has made video game to be considered as a complex medium that calls for interdisciplinary perspective. The interactivity of video games has evolved to the point where it can reach many aspects of life that obscures the line between game viewed as entertainment and game viewed from its utility. This development has attracted different fields, such as psychology, sociology, linguistics, computer science, and also literary studies to study video game.

As narrative in a video game is not something uncommon. Many games, whether produced by big or independent companies, include/use an embedded narrative—pre-existing narrative content prior to player's interaction with a game [1]. In fact, *Best Narrative Games* is one of the recognized categories in *Game of the Year Awards*, given to the game with outstanding storytelling and narrative development. With the development of narrative in video games, literary studies show their interest in the narrative aspects

of video games. However, to see video games only from its narrative counterparts can be considered as devaluing the capabilities of this medium.

The problem in analyzing video games narrative arises when researchers try to dissect video games with complex storytelling. Some games try to incorporate the gameplay dimension (how a player plays the game) of a video game into the storytelling dimension. Games like these are very difficult to analyze without sufficient methodology that combines the gameplay element with the narrative element. One of the games that incorporate complex storytelling style is *Bioshock* (2007) created by Irrational Games. *Bioshock* utilizes gameplay into its narrative that makes it difficult to be distinguished. Narrative elements such as characterization and story lines in *Bioshock* is constructed in such a way that it is determined by the gameplay it provides. The emergence of video game such as *Bioshock* brings the need for a specific methodology.

The discussion about video games' narrative gave birth to several views on "what kind of storytelling medium video game uses/utilizes". In their efforts to understand the new medium, game scholars used different perspectives. Some views video games as "cybertext", "rule-based systems", "simulation", and other views video games as "second-order cybernetic systems." [2].

The cybertext perspective is brought by Aarseth [3] which views game as an ergodic literature, a form of literature that needs an extra effort to allow the reader to traverse the text. In the other hand, Jesper Juul [4] views game as a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values. The players then exert effort to influence the outcome while they feel emotionally attached to the outcome. Ian Bogost [5] argues that video games may contain a procedural rhetoric (PR), the art of persuasion through rule-based representations and interactions rather than the spoken word, writing, images, or moving pictures. He also argues that video games can deliver meaning through its own rules. In conclusion, Aarseth's cybertext paradigm shows that video game is a unique subject that needs a special understanding to analyze it. Bogost's procedural rhetoric proves that the unique characteristics of video game can provide multiple sources of interpretation: rules and narrative.

Frans Mayra, a scholar who acknowledges the importance of rules and narrative in a video game [6], perceives that a game has two distinctive elementary senses or 'layers': core and shell. Core is the 'gameplay layer' which concerns everything a player can do in playing the game, and also the game rules that govern these actions. *The Shell*, on the other hand, is the 'representation layer' which includes all the semiotic richness that modifies, contains, and adds significance to the 'gameplay layer'. In chess, the core layer of the game is the game rules that govern the winning condition or when a unique piece of the opponent is eliminated. That the unique piece is represented by a "king," is, according to Mayra, the shell layer. Both core and shell, gameplay and representation, are different structures that are closely interconnected [6]. However, many studies on video games only view games by its representational elements and ignore the essential characteristics [3].

Nevertheless, although these scholars shared similar views on the importance of narrative and game rules in their efforts to define video games, they have not managed to come up with a clear methodological approach to analyze the two aspects of video games as integrated and interconnected factors. The complexity and the relations between the

two factors require a particular methodology that addresses both the rules that underlies the narrative and the representation layer to achieve a comprehensive interpretation of the game.

One scholar, Lars Konzack, offers a methodology in analyzing video games based on their rules [7]. He structures the elements of gameplay which is divided into eight categories: positions, resources, space and time, goals (sub-goals), obstacles, knowledge, and rewards or penalties. This categorization is useful to map out the rules and the objectives of the game. However, this method is still basic in the way that it ignores the narrative element and the relations between the eight elements of the gameplay itself. Konzack's method does not offer an explanation on how these elements are interconnected as a system.

Another scholar, Mattia Thibault [8] recognizes that the complexity a game is resulted from the activity of "playing". By using Greimas' actantial model, he decoded the activity of "playing" to understand 'what happened when someone play'. Thibault's research proves that actantial can be used to analyze the structure of "playing" when someone plays a game, even though he claimed that different kinds of play may have different actantial models. Thibault's claim shows that games can have their own types of action, depending on how they are designed. If we take Thibault's notion into a video game, it can be seen that video game can have its own activity of play. Since video game can construct the activity of play through its design, it creates some theme of action as it is being played. From the notion brought by Aarseth, Juul, and Bogost, this 'thematized action' can be constructed by the "game rules" and the "narrative" of a video game. Thibault's research opens up the possibility in using Greimas' actantial model to understand the thematized action structured by the rules and narrative elements in a video game.

Both Konzack's and Thibault's research are found to be unsuitable when analyzing a story-heavy game such as *Bioshock*. Used separately, Konzack and Thibault's methods only address one element of the inseparable gameplay and narrative elements that build *Bioshock*. Therefore, to analyze the complex storytelling in *Bioshock*, we need a method that combines both gameplay and narrative elements. To achieve the goal, this article will combine Konzack's classification of gameplay and Greimas' Actantial model. The combined model is expected to be applicable in analyzing the narrative aspect and the gameplay aspect of the video game. Thus, the research is aimed to offer a research methodology that will be useful to analyze video game both in terms of its gameplay and its narrative aspects. To show how to operate the methodology, the research uses *Bioshock* as a case study.

2 Methodology

To analyze games with embedded narratives, the research combines and modifies Greimas' Actantial model and Konzack's classification of gameplay. The methodology offered in this article can be used in analyzing the embedded narrative in video games using the modified actantial model. There is also a possibility to use this method to the video game that has dynamic narrative (the type of narrative that has multiple possibilities of outcome) with some alteration and modification. However, in this article, the model will be focused on the type of game with embedded narrative represented by *Bioshock*.

From previous explanation, it is known that game has two distinctive yet crucial elements; rules and representation. Game rules is the most fundamental element of a game because they are the bases of gameplay. Gameplay is a result of the interactivity between the rules and the players [6]. For example, in the game of chess, each playable piece has its own rules that needs to be played in certain ways to meet the winning condition (which is also one of the game rules). The way the player interacts with these rules to meet a certain winning condition is called the gameplay. By using the perspective of Ludology (study of game), Konzack [7], classifies gameplay into eight elements.

1. *Positions*. The position in which the game is perceived. It can be the player, the audience, or the tester. Konzack argues that player is the most important position within a game. When a game becomes more complicated, how the game is perceived is also becoming more complicated. The player in a game can be a team leader or coaches.
2. *Goal/Sub-Goal*. This element is what is needed to win the game. Sub-goals are what are needed to partially reach the main goal.
3. *Resources*. The element in which the players are able to influence the game to achieve the goal.
4. *Space*. Konzack divides space into two categories; virtual space—the space inside the game—and playground, the space of the real world from which players influence the virtual space. Playground is a crucial element when the game includes real world interaction to play the game, like a virtual reality or augmented reality.
5. *Time*. The time limit sets for the game duration. Some games are set to be completed if the challenges are met within a limited time.
6. *Obstacles*. The challenge within the game that are set in order to prevent players from reaching the goal.
7. *Knowledge*. Knowledge that are needed to complete the game.
8. *Rewards/Penalties*. The rewards and penalties are the consequences players got from their actions during the game.

Konzack's concept of gameplay is useful to structure elements of gameplay. However, the concept does not demonstrate the relations between the elements which is necessary for analyzing the narrative aspect of the game. Apart from the deficiency of the concept, there are some overlapping elements which serves situational purposes. Time and obstacles can be overlapped. Time can be obstacles in some games, but it can also become a challenge for another game. The same thing applies with resources and knowledge. In certain games, knowledge can be translated as a resource that are needed in order to complete the game.

The premises from Konzack's classification of gameplay has similarity with the notion brought by Greimas' Actantial model, which theoretically can be used to analyze any real or thematic action. Although Actantial model is usually used in literary text or images, due to its 'thematic action' properties, this model can be used in gaming activity because the action players do in a game can be considered as thematized. The theme is the patterned activity constructed by the game rules that is represented by the narrative, visual, auditory, or other possible forms. Both game rules and the representation construct the theme of action during the game.

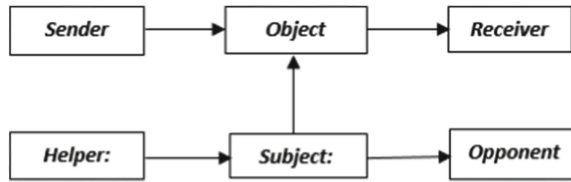


Fig. 1. Actantial Model

Actantial model comes with a concept of actant, which according to Hebert [10] is derived from the broadening of the concept of ‘character’. An actant may correspond to an anthropomorphic being, inanimate element, or a concept. It may be individual or collective, singular or plural. Generally speaking, an actant is a higher abstraction of the concept of character. The actantial model is divided into three axis, each constitutes a pair of actant [10]. *Axis of Desire*, *Axis of Power* and lastly, *Axis of Transmission* (in the actantial model below, each axis is represented by the arrow) Fig. 1.

Axis of Desire is the relation between the actant subject which aim is to get the actant object. For example, the Prince (Subject) wants to marry the Princess (Object) or the player (Subject) wants to kill the final boss (Object) in a game. The relationship between Subject and Object is called junction. Meanwhile, the relation between the assistance and hindrance towards the desired junction is called *Axis of Power*. This axis shows the relation between two actants, the helper and the opponent. The helper can be the “sword”, “horse”, or any resources that can be used to fulfill the desired aim. The last axis, *Axis of Transmission*, is the relation between sender and receiver. Sender is the element requesting the establishment of the junction between subject and object. The receiver is the element which benefits from the junction. Both sender and receiver can be posited by the same element.

If we compare Greimas’ actantial to Konzack’s classification of gameplay, there are some elements that contains similarity. The Sender has similar notion with knowledge, Object with goal/subgoal, Helper with resource, Subject with position, and Opponent with obstacles. The problem arises when adjusting rewards/penalties, time, and space into the model. These gameplay elements are only to be found in a video game. Rewards/penalties are the elements that influences the dynamism of how the player achieve their goal. However, it cannot be considered as opponent nor helper because it is derived from the player’s interactivity with the game rules. Therefore, rewards/penalties can be considered as new components that stands between subject and object, because it influences how the subject reaches the object.

Another complex element that is specifically found in gameplay and not to be found in narratives is space and time. In Konzack’s term, space is an element where a player can influence the game. Virtual space is the fictional space inside the game, while playground is the term referring the real space where the real player exists. In narratives, there is no interaction between the real space and the fictional space. Another difference is also found in the concept of time. In narratives, time acts as a setting. It is not the element that actuates the story. In a game, time is the element that moves the events into chronological order. In a game, time acts as the time itself, not only as a narrative setting. Time and space

prove that video game blurs the border between the fictional and the reality. Therefore, the reality needs to be taken into account in order to analyze a video game.

Then, another question arises, “How does each element connect to each other?” In the actantial model of narratives, the structure of the narrative is built on the relationships of the elements represented by the three axis. Meanwhile, the structure of a game is constructed by the narrative structure and the game rules.

To classify the game rules, Frasca (in Chee Siang Ang) [11] distinguishes game rules into two types: *ludus* and *paidea*. *Ludus* rules refer to games whose result defines a winning condition, while *paidea* rules refers to games whose result does not define winning condition. From this classification, we know that the game rules itself have some particular utility that defines how the game is played. These rules connect the elements of gameplay into one system that builds the game. If we combine the notions above and incorporate them into the actantial model, we will get the model as the following Fig. 2.

From the model above, we can see that the actants are divided into two layers. Fictional and non-fictional layer. Fictional is for the components inside the game, and non-fictional is for the components outside the game. In the activity of ‘playing’, sender can be the motivation players have to complete the game, and the receiver is the player who manage to complete the game. However, whenever the player enters the game world, they should obey the ‘quest giver’, the one who give the instruction to complete the game. The ‘quest giver’ can be the game’s instructions or a particular character in the game’s story. This means that players have to follow the objectives that are given to them to beat the game. The ‘motif to complete the game’—which is the motif before entering the game world—transforms into ‘the fictional motif that are given inside the game’. The ‘motif to complete the game’ can be personal and varied amongst the players. But

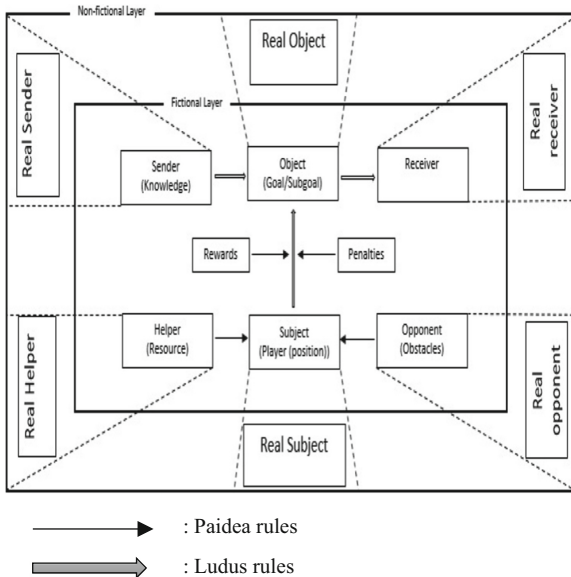


Fig. 2. Actantial-gameplay model

the given ‘fictional motif within the game’ is represented universally to anyone who play the said game. This is where the fictional elements of the game play their part.

This model can be a tool to show how the sender and receiver from outside the game becomes connected to the sender and receiver from inside the game. The same thing also applies to goals, opponent, helper, and subject. The goal in non-fictional layer is “to complete the game”. However, when it is transformed into the fictional layer, the goals become the main object that are constructed by the game design.

The opponent in fictional layer also works the same. Some obstacles and challenges in video games require particular cognitive ability from the player. Some games require reaction speed, precision of hand-eye coordination, and so on. This cognitive ability belongs to the non-fictional layer. And the obstacles’ representation, such as “dragons” or “zombies” belongs to the fictional layers. On the other side, the helper from fictional layer helps the player ease out the cognitive challenges from the opponent. These fictional and non-fictional layers help to structure the relation between the real and the fiction that interrelated in a video game. However, in analyzing *Bioshock*, this article will only be focused on the fictional layer to show the integration of the rules and the narrative.

3 *Bioshock* Analysis Using Actantial-Gameplay Method

Research findings show that *Bioshock* is one of the many video games with strong embedded narrative. This quality is shown by the game design that incorporates the narrative and gameplay elements that are carried out simultaneously in the storytelling. *Bioshock*’s game design shows that rules and narrative in a video game can become interrelated to each other in its storytelling. The merger of these two elements results in the interdependency of its elements. The interactive element derived from the combination of the narrative elements and the gameplay results in a complex storytelling. For example, when playing *Bioshock*, the players have to interact to a character named Little Sister to gather the main resources to complete the game. The amount of the resource will be determined by this interaction. In *Bioshock*, the resource is determined by the character’s relationship. In other words, the gameplay element and the narrative element are integrated. In addition, this interaction will also affect the types of resolution at the end of the game: the good ending or the bad ending. This means that there is a close interrelation of gameplay, characterization, and the story.

In an embedded narrative game, players usually have to follow certain instructions of a fictional character. As an example, the player needs to follow the King’s instruction to assassinate certain characters in order to receive a reward. In *Bioshock*, the instructions are given by a character named Atlas. The sender of a game in the narrative level is the motif that is constructed by the representational layer, which is the narrative itself. In *Bioshock*’s case, the sender is Atlas. The same logic also applies to receiver, which is the one who benefits from the object that are represented on the narrative level.

Bioshock has a twist in the middle phase of the game, indicated by the change of the point of view in its narration. In the first phase, the main character—Jack—was under the manipulation of Frank Fontaine who is disguised as Atlas. A false awareness is implemented to Jack which causes him to willingly adopt Fontaine’s motif as his own.

Meanwhile, in the second phase, the false consciousness is removed when Jack is informed about Fontaine’s manipulations on him. This automatically changes his

motif and changes Fontaine’s position in the actantial model from sender and helper to the opponent. The change in the narrative structure affects the player’s perspective. Therefore, the division of *Bioshock*’s narrative structure into two phases is very useful for identifying the different perspectives. In the first phase, the goal of the game is to kill a character named Andrew Ryan. In the second phase, after the revelation of the false consciousness, the player’s goal (or the object in the actantial model) is no longer to kill Andrew Ryan, but to kill Fontaine. Based on this paradigm shift, this analysis will divide *Bioshock*’s narrative into two phases as shown in the following (Fig. 3, 4 and Fig. 5).

Another uniqueness in *Bioshock* is the representation of the game resource in the form of little girls called Little Sister. Little Sisters are little girls that have been biotechnologically modified by implanting sea slugs into their bodies. The modified body of these little girls produce plasma called ADAM which becomes the valuable resource of power for Jack/the player. By obtaining ADAM, Jack/the player’s ability will be upgraded. Overall, there are 21 Little Sisters that have to be collected throughout the game.

What is unusual with *Bioshock* is the rules related to gaining ADAM from these Little Sisters. There are two options that Jack/the player can take in obtaining ADAM from Little Sister. The first option is called Harvest which means Jack/the player will get the full amount of ADAM by taking the life of Little Sister. The second option is called Rescue in which Jack/the player keep Little Sister alive with the consequence that Jack/the player will only get half the amount of ADAM for each Little Sister they rescue. For every three spared life of Little Sisters, Jack/the player will get a bonus of

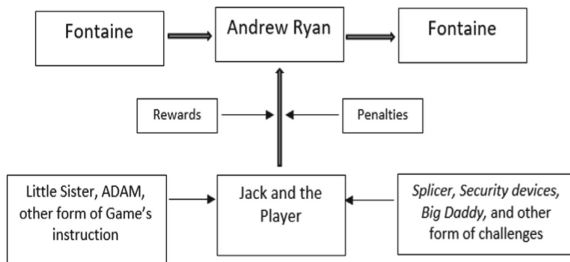


Fig. 3. First Phase Model

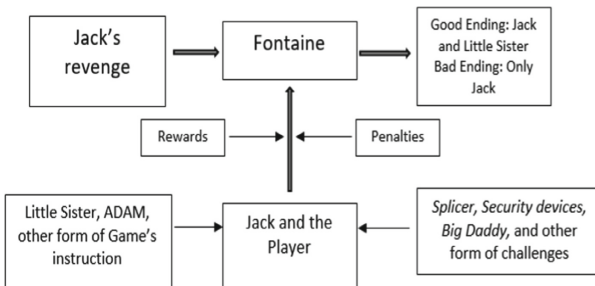


Fig. 4. Second Phase Model

| Actant-Gameplay | First Phase | Second Phase |
|-----------------|--|--|
| Position | The Player, Jack | The Player, Jack |
| Goals | Killing Andrew Ryan | Killing Fontaine |
| Resource | Little Sister, ADAM, other form of Game's instruction | Little Sister, ADAM, other form of Game's instruction |
| Obstacles | <i>Splicer, Security devices, Big Daddy</i> , and other form of challenges | <i>Splicer, Security devices, Big Daddy</i> , and other form of challenges |
| Knowledge | Fontaine | Jack's revenge |
| Receiver | Fontaine | <i>Good Ending: Jack and Little Sister</i> <i>Bad Ending: Only Jack</i> |

Fig. 5. Bioshock's Actantial Model

additional ADAM. The choices of the player in getting their resource from Little Sisters determine the kind of ending the player will get. If the player chooses Harvest, he will get a bad ending in which Jack becomes corrupt and ends up destroying the world selfishly which leaves Jack as the only one getting all the benefit. On the other hand, if he chooses Rescue, he will get a good ending, in which Jack and Little Sisters are saved.

With this type of game design, *Bioshock* mixes the element of gameplay in the form of resource and the element of narration. This combination is a clear example of procedural rhetoric [5] in which the characterization is displayed through interaction and description in the game narrative.

Bioshock has various common enemy NPC (Non-playable Character) that needs to be killed; Splicer, security devices, and Big Daddy. Big Daddy is a special case because it is an optional enemy. Players need to kill Big Daddy in order to interact with Little Sister. With these elements laid out, we can structure the actantial model of the game as shown in the models and table below.

From the conceptualization of *Bioshock*'s actantial model, it is easier to see both the gameplay and the representational level at the same time. From the subject, we can see that both the player and the main character occupy the same spot. We can assume that the player in some sense is the main character, but at the same time serves some differences since the players are the real human, while the main character is fictional. By putting the player and the main character in the same actant, it indicates that the players are constructed by the game to share the same perspective as the main character. It can also be an indicator that the game applies a particular point of view.

This model points out the overlapping position of the helper, which serves both as a character and the resource which indicates the interactivity of the players in 'managing' fictional characters for their advantages. This is because the player needs to use the resources to enable them to win the game. Moreover, this model also reveals the relation between the helper and the receiver during the second storyline. There is an option in good ending if the subject and the resource (Little Sister) becomes the receiver. On the other hand, the game also provides another option in which the subject becomes the only

receiver. This option leads to the bad ending. This interrelation between subject, helper and receiver can become an indicator *Bioshock's* ideological position. Since *Bioshock* rewards the player with the good ending to the ones who keep the Little Sisters alive, *Bioshock* favors the non-self-centered view (since the player does not save himself but also others that is Little Sister) in managing the resources.

4 Conclusion

The elaboration above shows how the combined model of Greimas' actantial model and Konzack's elements of gameplay offers a more comprehensive understanding of the game's structure since the modified model demonstrates the interrelation of the 'narrative' and 'the game rules'. However, this article only provides a case study of a game with an embedded narrative and linear storytelling in some sense. Based on this limited analysis, this article recommends the use of this modified version of actantial model in analyzing video game's narrative since the model offers a more grounded structural analysis of video games that helps elucidate the game's ideological position. With this model, the structure of both narrative and gameplay in a game can be relatively easier to achieve. However, for deeper analysis, this model needs to be followed with another methodology such as textual analysis, close reading/playing or other methodologies that could facilitate the deeper subject.

This research helps to contribute to the warehouse of methodology in game studies, especially in analyzing game's narrative. Game study can be considered as a new field of study that is still taking its form, and the process is still ongoing. Therefore, the future of this disciplines is still widely open. This research helps to contribute in that ongoing process to enhance our understanding of video games.

References

1. Salen, K. & Zimmerman, E. (2004). *Rules of Play: Game Design Fundamentals*. The MIT Press.
2. Malliet, S. (2007). Adapting the Principles of Ludology to the Method of Video Game Content Analysis. *Game Studies: The International Journal of Computer Game Research*, 7(1), pp. 1–18. <http://gamestudies.org/0701/articles/malliet>
3. Aarseth, E. J. (1997). *Cybertext: Perspective on Ergodic Literature*. The John Hopkins University Press.
4. Juul, J. (2005). *Half-Real: Video Games between Real Rules and Fictional Worlds*. The MIT Press.
5. Bogost, I. (2007). *Persuasive Games: The Expressive Power of Videogames*. The MIT Press.
6. Mayra, F. (2008). *An Introduction to Game Studies: Games and Culture*. SAGE Publications.
7. Konzack, L. (2002). *Computer Game Criticism: A Method for Computer Game Analysis*. Tampere University Press.
8. Thibault, M. (2013, May 31-June 1). Voyage in the Play-sphere, consideration on Play Semiotics [Conference presentation]. Semiofest 2013, Barcelona, Spain. <https://www.semiofest.com/2013/mattia-thibault-italy/>
9. Jenkins, H. (2005). Game Design as Narrative Architecture. *Computer*, 44(3), pp. 118-130.
10. Hebert, L. (2011). *Tools For Text and Image Analysis: An introduction to Applied Semiotics* (Trans. J. Tabler).

11. Ang, C. S. (2005). Rules, Gameplay and Narratives in Video Games. *Simulation and Gaming: An Interdisciplinary Journal of Theory, Practice and Research*, 37(3), pp. 306–325. <https://doi.org/10.1177/1046878105285604>

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