Playing Zombified Versions of the End of the World
Michael Mosel

Zombies are part of a wide variety of popular games and seem to inject certain peculiarities into the narrative or gameplay of the games they inhabit. The aim of this chapter is to give an outline of the depiction of the zombie apocalypse in video games. In the following, I will give an overview, starting with action-packed games like *first person shooters* and ending with games with a slower gameplay and a larger strategical gameplay component like *survival* games. While discussing these examples, I will show how zombies impact narrative and gameplay and create an interesting interplay between them. At the end of this chapter, with recourse to the discussed examples, I will outline how zombies can create a particular kind of gameplay when being treated according to already established generic conventions.

When dealing with zombies one first has to talk about the relatively recent changes the figure of the zombie has experienced. The academics Stephanie Boluk and Wylie Lenz[1] outline an evolution of the modern zombie, which they divide into three generations, each of which corresponds to anxieties of a respective historical era: "the Haitian voodoo zombie, George Romero's *Living Dead*, and the pathologized, infected humans who behave *as if they were living dead.*"[2] The Haitian voodoo-zombie is characterized by its creation by a voodoo priest. These zombies are not undead but living humans whose will is manipulated through voodoo. This kind of zombies is "deeply embedded within the historical imaginaries of slavery and colonialism."[3] George Romero's zombies, in contrast, are undead in a stricter sense, because they are dead humans who have been resurrected by some kind of foreign force and are 'undead' in the strictest form of the word. [4] Thus Romero cut off the Haitian influence with its accompanying fright of enslavement and transferred the menace to "an explicitly American cultural landscape"[5] The third category, that of infected humans, refers to

living humans who have been exposed to some kind of virus. This third kind of zombie reflects society's deeply integrated fear of diseases and viruses like AIDS, SARS, bird flu, ebola etc.[6]

According to Boluk and Lenz, the disperaties between these different kinds of zombies create ontological difficulties, because "the infected" in movies like Danny Boyles' *28 Days Later* (2002) are not undead but merely under the influence of a virus. Nevertheless, they behave zombie-like and still give "expression to the anxieties of that particular cultural moment."[7] What is of higher importance (addressed later in this chapter) is their ability to infect living people just like "highly infectous diseases are spread."[8] One scratch or bite from a zombie is sufficient to turn the victim into a zombie as well. As the aim of this chapter is not to give a general outline of the cultural concept of the zombie, I will use the term rather openly. For the purpose of this paper, a zombie is regarded as an undead or undead-like creature and former human who is not capable of tactical rafinesse, since it is only driven by its instincts and has an uncontrollable urge to kill every living being. This definition, with an emphasis on the behavior of the zombie, will become important when talking about the gameplay of videogames.

History of Zombie Video Games

Mobygames.com lists 247 games with the theme "zombie," beginning with the 1982 game *Entombed*.[9] Since then, zombies have been regular adversaries in video games of all genres. I argue that, although there is such a thing as a prototypical zombie narrative, zombies often get misused. As film scholar James Naremore has shown, in reference to film noir, how mainstream movies tend to quote certain noir characteristics such as audiovisual devices (e.g., long and deep shadows) "to capitalize on a wildly popular trend"[10] without employing "real" noir narratives. The same evolution has happened to zombies in video games: they

often are employed randomly due to their fame without being framed by narratives suited to zombies. As the Associate Editor of the video game magazine *Game Informer* Jeff Marchiafava has phrased it on *gameinformer*: "Zombies are a proven commodity."[11] Game researcher Jesper Juul points out that, from a rules perspective, the fiction and representation of a game — the theme — is arbitrary. It can be changed at whim without influencing the core of a game — the gameplay.[12]

When taking a look at the game *Rock of the Dead* (2010), this idea becomes clear. *Rock of the Dead* is a music video game which is played with a guitar (or drum) controller. It features a narrative in which the protagonist has the ability to defeat zombies by playing the correct tunes on his guitar (see figures 1 and 2). A narrative explanation as to why these zombies are hurt by certain tunes is not given. As Jesper Juul points out, if players are confronted with incoherent game worlds that they are unable to imagine, they resort to explaining the events of the game by "appealing to the rules."[13] Just as there is no narrative reason why the plumber "Mario" in the *Super Mario* games has three lives, there is also no explanation why these zombies can be hurt by listening to certain tunes (or why the protagonist of the game can see which tunes hurt which zombies, as shown in figure 2). Thus, the zombies are not central gameplay elements and could easily be exchanged with mutants, aliens, robots, etc.

Figure 1: Woman playing *Rock of the Dead*[14]

Figure 2: *Rock of the Dead* - in-game screenshot[15]

Left 4 Dead and Action Games

In the following, I will examine more closely games that do not just use zombies as exchangeable enemies but that also employ narratives (and probably gameplay) tailored towards zombies. These games can be reconed as being within a spectrum of two poles: On the one end, there are fast-paced action games like first-person shooters and, on the other, games with a slower and, most of the time, also more tactical gameplay.

First, an example of a fast-paced action game: *Left 4 Dead. Left 4 Dead* is a cooperative first-person shooter in which up to four human players battle through various zombie-infested urban locales that are based on real towns, cities and places in Pennsylvania. In the world of *Left 4 Dead* an unknown disease called "The Green Flu", which mutates humans into mindless and extremely aggressive zombies, broke out in Pennsylvania. Situating the game in Pennsylvania seems to be a cleverly hidden reference to either or both popcultural events: George Romeros famous *Night of the Living Dead* (1968) takes action in Pennsylvania and The Onion once had the headline "Study Reveals Pittsburgh Unprepared For Full-Scale Zombie Attack"[16] which is considered to be cult among zombie fans.[17]

The *Left 4 Dead* series plummets the player right into the zombie apocalypse. The intro video of the first part of the series begins with a text insert, "2 weeks after first infection" and introduces the protagonists, dubbed *survivors*, via a pre-rendered opening cutscene that does not show actual gameplay. After a short introduction of the four protagonists, who are sneaking heavily armed through a town, the first "infected" are shown. These are similar to the infected in *28 Days Later* in term of their appearance and their ability to run. Also, the first *special infected* get introduced. The opening scene shows the action focus of the game when the four survivors are spotted by the zombies and are forced to shoot, using a wide array of weapons (like assault rifles, akimbo pistols and a shotgun) through the zombie horde. Some gameplay features, like the possibility to throw pipe-bombs[18] and the unlucky effect of shooting unvoluntarily against a car and activating the car alarm, which attracts a zombie horde, are shown. The video ends with the survivors fleeing on top of a building where they take a moment to catch their breath. The following dialogue takes place:

> Louis: We made it! I can't believe we made it!
>
> Bill: Son, we just crossed the street.
>
> [Bill pauses to light a cigarette.]
>
> Bill: Let's not throw a party 'til we're outta the city.[19]

This opening sequence establishes the mood for the whole game which is divided into five campaigns, each telling a different part of the story of the survivors' attempt to escape to safety. Every campaign consists of (typically) five levels (called chapters in the game menu). The goal of each level is to reach a safe room which is a barricaded room where the survivors can rest and stock up on supplies (figure 3).

Figure 3: Screenshots from *Left 4 Dead*; left: the survivors in combat with zombies; right: a typical safe room at the end/beginning of each level

Left 4 Dead is a game with a strong emphasis on action and not on—what I will later call—*survival gameplay*. Every player character (and zombie for that matter) has a certain amount of health points (see the bottom of figure 3) which decreases when getting hit by a zombie, being too near an explosion or by falling down. Injuries in some form do not exist in the gameplay (the player character runs as fast with 1 health as he runs with 100) and the player's avatar can also not get infected by a zombie scratch. Ammunition rarely needs to be rationed. Instead, the players run through levels with guns blazing (figure 3).

In addition, there are five types of so-called *special infected*, which are zombies with special abilitys, for example, *The Smoker* is a zombie that has the ability to use its tongue to ensnare and drag survivors, rendering them helpless and allowing the horde to attack them. It can even drag them off cliffs and roof-edges. The existence of these special infected, with abilities that normal zombies do not possess, radically changes the gameplay for the survivors, since they can no longer safely assume that they will not be attacked from higher ground or by ranged attacks. This brings additional tactical deepness and rafinesse to the gameplay. Furthermore, *Left 4 Dead* features an eight-player versus mode in which four players take on the role of the survivors while four additional players can play randomly chosen special infected.

Thus, although *Left 4 Dead* is able to establish an increasingly fatalistic mood with an emphasis on the hardships of survival through its audiovisual presentation and narration, the gameplay does not venture into this direction. To reach the safe room at the end of each level, the players have to fight their way through hordes of zombies, often about a few hundred per level. The gameplay does not include specific aspects of surviving, like having to bandage wounds to avoid bleeding out, getting infected, or finding food and ammunition. The existence of the special infected and the versus-multiplayer-mode clearly show that gameplay with an emphasis on survival was not the main interest of *Left 4 Dead's* developers.

The design of the levels shows the aim of the developers to deliver a fast-paced action game. All levels only offer one path from beginning to the end with few junctions always ending very soon in dead-ends whose only purpose is to be explored to gain better equipment. This makes it impossible to avoid fights by skirting them. Also, the game is not designed to evoke conflicts between the survivors (friendly fire does less damage than shooting at a zombie); it is meant to be played cooperatively.

Infestation: Survivor Stories

Infestation: Survivor Stories[20] (2012) is "the world's first survival mmo Zombie Game" according to the description on the official homepage and can be played from a first and third person perspective.[21] It can only be played online on two maps which are roughly 100km² large and consist of several cities, towns, forests, settlements, which are populated by up to one hundred players and a few hundreds (or even thousands?) of zombies. Although players can form teams to play together against computer-controlled enemies or other human players, these alliances are often fragile.

The action of the game starts about five years after an unknown disease has killed large parts of the population or mutated them into zombies of which a few thousand populate

the game map. As in many zombie narratives, the cities tend to be overrun by zombies while solitary forests with a low density of human settlements are relatively free of zombies. In this world the player needs to survive. The game does not have a clear goal (or storyline for that matter) except to try to survive as long as possible. The player starts the game with basically no equipment and also only has space for a few items to carry around.

Since the game incorporates survival mechanics like hunger and thirst, the player has to search human settlements to obtain food, water and other supplies like clothing and weapons. This means that the player has to be in constant movement to make runs into zombie-infested cities to obtain supplies for survival. Also, some players have hidden stashes on the map, for example, somewhere deep in the forest, where they leave valuable items that they do not need for the moment. These stashes are of utmost importance, as players lose all their possessions when their avatars die. Of course, players from all kinds of backgrounds and nations often team up to cover each other or to try to ambush other players to get their loot.

Zombies themselves are not that big of a threat. They are dumb, relatively slow — under normal conditions you can outrun them — and do not know how to use weapons. Since the zombies themselves are not that much of a menace as long as the player does not attract large numbers of them by creating too much noise, the greatest enemies for the player are hunger, thirst, and other human players. Since hoarding supplies and staying in control of them is one of the key goals of this game, the greatest danger stems from other players who try to rob you of your supplies and weapons and, most often, will try to kill you along the way.

While doing primary research for this article, I experienced one situation in which I was deep in the zombie-infested wilderness trying to find loot when suddenly I spotted another player who fortunately had not seen me. I immediately went into hiding and shouted

something along the lines of: "I can clearly see you, turn around, no one needs to get harmed." The player immediately dropped to the ground and hid behind a few bushes, trying to spot me. Fortunately, I was uphill from him, had a clear view of the area and was very unlikely to be seen by him. He shouted back: "Peace, I don't want trouble" and slowly backed away, all the while aiming his weapon at places where he suspected I might be hiding. The funny thing is: I didn't even have a weapon and would have definitely been outgunned in a fight. As you may imagine, I experienced this situation as very nerve-wracking, because I was only bluffing.

I was lucky that the other player could not see me. Most of the time, you get shot as soon as someone spots you, as all supplies will increase your chances of staying alive. In this regard, *Infestation: Survivor Stories* becomes a typical zombie narrative, as academic Gerry Canavan puts it, "a kind of ethical minefield, in which other humans 'must' be fought, betrayed, abandoned, and destroyed so that the protagonists, our heros, might survive."[22]

The Walking Dead

The Walking Dead (2012) is a point-and-click adventure with role-playing elements. It is based on Robert Kirkman's *The Walking Dead* comic book series and consists of five episodes. The game takes place during, or at least shortly after, the beginning of a zombie apocalypse in Georgia, United States. The player takes on the role of university history professor Lee Everett, who was convicted of murder for killing his wife's lover after catching them red-handed. At the beginning of tha game Lee rescues a young girl named. During the course of the game Lee implies that the death of his wife's lover was purely accidently and that he feels guilty. Lee is characterized as being smart, polite, helpful and generally nice despite his past. Lee and Clementine bond and Lee looks out for her. In dialogues towards the

end of the game it is implied that Lee always wanted kids on his own which may provide the reason why he cares so much about Clementine.

The gameplay is that of a typical point-and-click adventure, which is played from a third-person-perspective and uses a variety of static camera angles. The player has to examine and interact with his environment, talk to people and combine items to advance in the game. But *The Walking Dead* also features time-critical actions, most often during dialogues in which players have to select their answers within a limited time. These decisions regarding what to say (or whom to rescue) will impact the game's story, affect how other characters respond to the decision-making player-character, and impact the unfolding of certain events. Although there are some action sequences and also a few puzzles, the game focuses on character development and group behavior.

Infestation: Survivor Stories managed to create conflict between humans through its gameplay. With limited ressources needed for survival, fights and betrayals between players are inevitable. The Walking Dead takes another approach. First of all, it is a single-player game, which means that the player is aware that she is not playing with/against other human beings but "only" faces pre-designed events and situations constructed by the game designers.

Although the player is confronted by some action-sequences, most conflicts are moral ones. The game excels at creating very dense and emotional situations in which the player has to make moral decisions: Do you shoot the infected woman who begs you to kill her and give her dignity although the sound of your shot may alert the zombies? Or do you let her turn and become a zombie? Do you force the family whose son is turning to leave the common base? Do you let the suicidal Ben fall from the clocktower or will you rescue him? One declared aim in the writing process of the story and the design of the choices the player has to make

was to make sure that choices were not black and white. They are always difficult and morally comprimising.[23] Without giving the player clear indications or feedback on the influence his decision will have, the player has to fall back on his own sense of morality.

Project Zomboid

A game that takes the aforementioned survival aspect very seriously is *Project Zomboid* (in alpha stage development at the time of writing but open to public testing). It is often described as an "open world survival horror video game"[24] and is also set in a zombie apocalypse. The graphic style could be described as retro, seen from an isometric perspective and going for lots of little details to create a believable world.

When starting the game, a text insertion is shown saying "This is how you died," establishing the fatalistic mood of the game, which takes place in Muldraugh, Knox County, Kentucky. The area has been quarantined by the government to contain the zombie infestation. Unfortunately, the player character Bob is locked in the quarantine zone together with his wife Kate, with no chance of escape. Although the campaign mode of *Project Zomboid* features a storyline, evolving around the player's avatar Bob and his leg-injured and bedridden wife Kate, which the player can follow and presumably bring to an end, no win condition is defined.

The game will always end—sooner or later—with the death of the player-character. The only question is how you as a player will forge this experience: Will you get gunned down by robbers who try to steal your food? Will you try to escape the quarantine zone and get mowed down by government troops? Will you recruit other survivors and try to become king of a dying world until one henchman is fed up with you? Will your wife get infected and kill you in your sleep?[25] This fatalistic mood is typical of zombie narratives in which, no matter how well the protagonists are prepared and fortified, the zombies will manage to break

in and kill (nearly) everyone in the end, because zombie stories always end this way: "no matter how long they [the zombies] have been gone from the action, we are always awaiting their eventual, inevitable return. The *telos* of the fortress, like the *telos* of empire, is always, in the end, to fall."[26]

The longer the player manages to survive, the more signs of a dying world the player-character will witness. Cracks and fissures will appear in floors, walls, and roads and "grass, vines and trees [will grow] over urban areas as nature reclaims the planet.[27] After a few weeks of game-timethe power station will stop working, resulting in the failures of lights and kitchen appliances. This changes gameplay fundamentally since navigating the town safely becomes much harder without light and the abilities to cook and store food (refrigerators stop working, too).

The game's rules incorporate many aspects which are stylized simulations of real actions needed to survive, like sleeping, eating, drinking or having to bandaging bleeding wounds. The game uses role-playing mechanisms like skills and also makes use of a variety of emotional and physical effects the player-character can experience. These range from hunger, thirst, tiredness and injury to more psychological effects like anxiety, anger and panic. All in all, the game makes use of 19 different effects, which all have an impact on gameplay and/or the abilities of the avatar.[28]

Furthermore, every item the character can pick up has a certain weight. Every character also has a strength attribute. With the help of these two forms of information, the degree of encumbrance can easily be calculated. The more encumbered the character gets, the less actions, like running, jumping and climbing, he can perform. Exhaustation will occur sooner and being encumbered for too long of a time may lead to back injuries. Furthermore, backpacks, which characters need to carry things around, have a limited capacity and can only carry a certain amount of weight.

Of the games discussed so far, *Project Zomboid* seems to be the one that tries the most to feel verisimilar. This perfectly suits the game's interpretation of zombies. In a

blogpost on their homepage, the game designers explain why they went for Romero-inspired, slow zombies in *Project Zomboid*:

> Finding yourself surrounded by the horde because you broke into a house, set a burglar alarm off, and failed to check if you had another escape route is a much more exciting turn of events (to me, at least) than finding yourself surrounded by the horde because they can run as fast as you but have no stamina limits to worry about.
>
> In every good zombie film, it's the slip-up which leads to death. I went to bed without checking the back door was locked. I came home from a supply run without checking that no zombies had followed me. I failed to keep my comrades sane, so one has walked out in the middle of the night leaving the front door wide open. Those sorts of things.
>
> The other final beauty of the slow zombie, is that you can never be entirely sure you weren't followed. You've arrived home, the streets are empty – you're safe! But who's to say that hours and hours ago a zombie didn't look up and see you creeping past and begin his slow relentless trudge after you, alerting more and more zombies as he does? Who's to say that somewhere out there, there isn't a hundred zombies all stumbling ceaselessly in your direction? Are you really certain? Sweet dreams.[29]

I concur with their point: dramatic impact increases when things happen slowly but inevitably. When dealing with slow zombies, players do not have to worry about their hand-eye coordination and sharp reflexes but have to play in a very different way. They have to understand the laws according to which zombies function, think strategically and be very pedantic to not have that one "slip-up which leads to death."

Plants versus Zombies

Plants vs. Zombies (2010) is a "tower defense" game in which the player has to defend his mansion by planting aggressive plants against waves of the undead (figure 5). The goal of every *tower defense* game is to stop enemies from reaching your house by placing towers, in this case aggressive plants, which attack them as they pass. Most tower defense games let the player choose between a variety of towers that all have different abilities and costs. Also, in most tower defense games the player has a certain resource, like money or points, which are earned for every defeated opponent and can be used to upgrade the towers for more damage or range. Also, in most *tower defense* games the enemies will always choose exactly the same path through the map although there are exceptions to this rule. The interesting part of the gameplay is, thus, the choice and positioning of the towers along the path the enemy will take.

Another example for a *tower defense* game is *Defense Grid: The Awakening* (2008) (see figure 5). *Defense Grid* differs from *Plants vs. Zombies* in many points, such as in the visual point of view, the size of the gameworld and the way the story is narrated. I would like to single one out: Although the enemy aliens in *Defense Grid* are introduced as being able to formulate tactical plans and use technology, ergo as intelligent, sentient beings, they are still unable to use any other way than the one which is predefined by the programming of the game designers. No narrative reason is given for this behavior which makes the player wonder why these intelligent aliens do not choose a way which circumnavigates the towers.

Figure 5: Two Examples of Tower Defense Games; left: *Plants vs. Zombies* (2010), right: *Defense Grid: The Awakening* (2008)

Just as in *Rock of the Dead* (why do zombies get hurt from listening to certain tunes?) and *Super Mario* (why does Mario have multiple lives?), the player searches the answer to this question in their experience of the *rules* of games similar to *Defense Grid* and not in their narrative contents. *Defense Grid* is a *tower defense* game and in games belonging to this genre the enemies always take a predetermined route. This matches again with Jesper Juuls' explanation about the players' activity when confronted with incoherent game worlds: When trying to explain happenings that we cannot explain by resorting to fictional aspects, we not only turn towards the rules searching for an explanation but also fall back to our knowledge of genre conventions.[30]

The difference between the behavior of the aliens in *Defense Grid* and the zombies in *Plants vs. Zombies* seems to be unimportant on a superficial level but, looking closer at *Plants vs. Zombies*, it becomes important: *Plants vs. Zombies* does give us a reason why the zombies behave as stupidly as they do: Because they are zombies. The gameplay of *Plants vs. Zombies* seems to be a perfect example for what Jesper Juul calls a match between rules and fiction.[31] Juul points out that the fictional world often cues the player's assumptions about the rules of a game. Since the rules of the game are normally hidden from the player, the player has to either figure them out by experiencing them while playing or by infering them. When

trying to make inferences about the rules of a game, the player uses the fictional world and its graphical representation to make his hypothesis.[32]

Conclusion

Zombies in videogames bring quite a few presumptions with them: When seeing a zombie in a videogame, the average player expects the zombies to be (at least in most cases) slow, shambling and easy to kill. [33] [34] Also, players know that zombies can be encountered alone or in hordes. Furthermore, they do not employ tactics like flanking the player; instead, they always take the most direct route to the player and do not try to dodge attacks. They also do not use weapons. In games with a variety of enemies, this makes zombies perfect entry-level monsters: "Slow zombies are … easy targets, giving the player a reasonable amount of time to either aim and shoot or run away."[35]

As these examples have shown, zombies can be transformed from "cannon fodder into devices that embody dramatic game mechanics."[36] To achieve this, the properties that make zombies unique according to genre conventions have to be explored thoroughly. In recourse to the examples I have discussed, a few spring to mind.

In many fictional works, whether novels, movies or games, zombies are infectious: once a human gets scratched or even bitten by a zombie, he will become one himself. This can easily be used as a dramatic element. Slaughtering zombies which the player-character had absolutey no connection to while they were still human does not bother the player much or is even recognized as morally safed. But realizing that a loved one has been infected, having to deal with the situation and pondering the options does have an emotional impact, which becomes even stronger the longer the transformation takes. [37]

Zombies can also be treated as natural phenomena. If zombies are to be perceived as natural phenomena, it has to be made clear that zombies are not individualized enemies but more a kind of "overwhelming natural disaster"[38] that functions according to laws of (undead) nature. Zombies do not operate according to logic or reason but rather primitive instinct. This can be used for developing specific strategies against them and is often shown in all kinds of zombie fiction. For example, zombies are attracted to noise that can easily be used to lure them away from important points. This trick is used in the movie *Dawn of the Dead (1978)* to clear a path for the protagonists Peter and Roger, allowing them to return safely to their comrades with a wheelbarrow full of supplies.

Zombies as a natural disaster can also be used to define space and to control player movement in a relatively subtle way. Since even one zombie can be a deadly enemy in a *survival* game, zombies can easily be employed as justifiable and believable definers of space. This way, the player can be forced by the game designers to travel in a pre-defined direction where the game-designer wants the player to be without having to use implausible barriers. [39]

There are even more aspects one could consider when talking about zombies and their impact on gameplay: zombies can be used in sophisticated ways to create very specific kinds of gameplay. Without wanting to sound like a purist, zombies should be taken seriously to avoid misusing them as cannon fodder. If taken seriously, zombies can be used to increase the dramatic content of a game and can create emotionally deep situations with choices that matter.

Notes

1. Stephanie Boluk and Wylie Lenz, eds., *Generation Zombie: Essays on the Living Dead in Modern Culture* (Jefferson, N.C: McFarland, 2011), 3 pp.

2. Stephanie Boluk and Wylie Lenz, "Introduction: Generation Z, the Age of Apocalypse," in *Generation Zombie: Essays on the Living Dead in Modern Culture*, ed. Stephanie Boluk and Wylie Lenz (Jefferson, N.C: McFarland, 2011), 3.

3. Boluk and Lenz, 3-4.

4. In none of Romero's movies is the question of the origin of zombies answered conclusively.

5. Boluk and Lenz, 5.

6. Boluk and Lenz, 6.

7. Boluk and Lenz, 9.

8. Brendan Riley, "The E-Dead: Zombies in the Digital Age," in *Generation Zombie: Essays on the Living Dead in Modern Culture*, ed. Stephanie Boluk and Wylie Lenz (Jefferson, N.C: McFarland, 2011), 197.

9. www.mobygames.com/game-group/theme-zombies/ (28. Apr. 2013).

10. James Naremore, *More Than Night. Film Noir in Its Contexts* (Berkeley: University of California Press, 1998), 200.

11. Jeff Marchiafava, "Why Are Zombies Still So Popular In Video Games?," *Gameinformer.com*, 2011, www.gameinformer.com/b/features/archive/2011/09/05/why-are-zombies-still-so-popular-in-video-games.aspx (28. Apr. 2013).

12. Jesper Juul, *Half-Real: Video Games Between Real Rules and Fictional Worlds*

    (Cambridge Mass., London: MIT Press, 2005), 189.

13. Juul, *Half-Real,* 130.

14 https://farm5.staticflickr.com/4103/4954310521_72ae1a8e30_b.jpg

15. http://cache.gawkerassets.com/assets/images/9/2010/10/rock_of_the_dead_review_01.jpg

16.www.theonion.com/articles/study-reveals-pittsburgh-unprepared-for-fullscale,1815/   (28.

    Apr. 2013).

17. www.nytimes.com/2008/12/13/arts/television/13dead.html?_r=0 (28. Apr. 2013).

18. Pipe bombs are improvised explosive devices consisting of explosive material and a

    loudly beeping smoke detector to attract infected.

19. left4dead.wikia.com/wiki/Videos_and_Trailers (28. Apr. 2013).

20. Formerly known as *The War Z*

21. infestationmmo.com/ (28. Apr. 2013).

22. Gerry Canavan, "'We Are the Walking Dead': Race, Time, and Survival in Zombie

    Narrative," *Extrapolation* 51, no. 3 (2010): 445.

23. "Features: The Making of… The Walking Dead," *Edge Online*, 2013, www.edge-

    online.com/features/the-making-of-the-walking-dead/#null (28. Apr. 2013).

24. en.wikipedia.org/wiki/Project_Zomboid (28. Apr. 2013).

25. Chris Simpson, "World Timeline," *Project Zomboid*, 2011,

    projectzomboid.com/blog/index.php/2011/04/project-zomboid-game-length-and-

    world-timeline/ (28. Apr. 2013).

26. Canavan, "'We Are the Walking Dead': Race, Time, and Survival in Zombie Narrative,"

    445.

27. projectzomboid.com/blog/2014/08/erosion-integration/ (28. Apr. 2013).

28. For a complete list of all effects (dubbed "moodles") see pzwiki.net/wiki/Moodles (28. Apr. 2013).

29. projectzomboid.com/blog/2011/04/fast-vs-slow-zombies/ (28. Apr. 2013).

30. Juul, *Half-Real*, 123.

31. Juul, *Half-Real*, 188 p.

32. Juul, *Half-Real*, 176 p.

33. Shawn McIntosh and Marc Leverette, eds., *Zombie Culture. Autopsies of the Living Dead* (Lanham; Toronto; Playmouth: Scarecrow Press, 2008), 12 p.

34. Christopher W. Totten, "Building a Better Zombie," *Gamasutra*, 2012, www.gamasutra.com/view/feature/173144/building_a_better_zombie.php?print=1 (28. Apr. 2013).

35. Tanya Krzywinska, "Zombies in Gamespace: Form, Context, and Meaning in Zombie-Based Video Games," in *Zombie Culture. Autopsies of the Living Dead*, ed. Shawn McIntosh and Marc Leverette (Lanham; Toronto; Playmouth: Scarecrow Press, 2008), 163.

36. Totten, "Building a Better Zombie."

37. Totten, "Building a Better Zombie."

38. Totten, "Building a Better Zombie."

39. Totten, "Building a Better Zombie."

Works cited

Boluk, Stephanie and Wylie Lenz, eds. *Generation Zombie: Essays on the Living Dead in Modern Culture* (Jefferson, N.C: McFarland, 2011), 3 pp.

Riley, Brendan. "The E-Dead: Zombies in the Digital Age," 194-205, in *Generation Zombie: Essays on the Living Dead in Modern Culture*, edited by Stephanie Boluk and Wylie Lenz (Jefferson, N.C: McFarland, 2011), 197.

Naremore, James. *More Than Night. Film Noir in Its Contexts* (Berkeley: University of California Press, 1998), 200.

Marchiafava, Jeff. "Why Are Zombies Still So Popular In Video Games?," *Gameinformer.com*, 2011, www.gameinformer.com/b/features/archive/2011/09/05/why-are-zombies-still-so-popular-in-video-games.aspx (28. Apr. 2013).

Juul, Jesper. *Half-Real: Video Games Between Real Rules and Fictional Worlds* (Cambridge Mass., London: MIT Press, 2005), 189.

Canavan, Gerry. "'We Are the Walking Dead': Race, Time, and Survival in Zombie Narrative," *Extrapolation* 51, no. 3 (2010): 445.

"Features: The Making of... The Walking Dead," *Edge Online*, 2013, www.edge-online.com/features/the-making-of-the-walking-dead/#null (28. Apr. 2013).

Simpson, Chris. "World Timeline," *Project Zomboid*, 2011, projectzomboid.com/blog/index.php/2011/04/project-zomboid-game-length-and-world-timeline/ (28. Apr. 2013).

McIntosh, Shawn and Leverette. Marc, eds. *Zombie Culture. Autopsies of the Living Dead* (Lanham; Toronto; Playmouth: Scarecrow Press, 2008), 12 p.

Totten, Christopher W. "Building a Better Zombie," *Gamasutra*, 2012, www.gamasutra.com/view/feature/173144/building_a_better_zombie.php?print=1. (28. Apr. 2013)

Krzywinska, Tanya. "Zombies in Gamespace: Form, Context, and Meaning in Zombie-Based Video Games," in *Zombie Culture. Autopsies of the Living Dead*, edited by Shawn McIntosh and Marc Leverette (Lanham; Toronto; Playmouth: Scarecrow Press, 2008), 163.

Gameography

Left 4 Dead (2008): US; *Developers:* Turtle Rock Studios, Valce Corporation; *Publisher:* Valve Corporation; *Designer:* Mike Booth; *Writer:* Chet Faliszek. *Platform:* Windows

Plants vs. Zombies (2009): US; *Developer:* PopCap Games; *Publishers:* PopCap Games, Electronic Arts; *Designer:* George Fan. *Platform:* Windows

Project Zomboid (2011-still in development): International; *Developer:* The Indie Stone; *Publisher:* tba; *Designer:* Chris Simpson. *Platform:* Windows

Rock of the Dead (2010): US; *Developer:* Epicenter Studios; *Publishers:* Conspiracy Entertainment, UFO Interactive. *Platform:* Wii.

The Walking Dead (2012): US; *Developer:* Telltale Games; *Publisher:* Telltale Games; *Designers:* Jake Rodkin, Sean Vanaman; *Writers:* Sean Vanaman, Mark Darin, Gary Whitta. *Platform:* Windows

Infestation: Survivor Stories (2012): US; *Developer:* Hammerpoint Interactive; *Publisher:* OP Productions; *Producer:* Sergey Titov. *Platform:* Windows

Films

28 Days Later. Directed by Danny Boyle. UK, 2002.

Dawn of the Dead. Directed by George A. Romero. United States and Italy, 1978.

Night of the Living Dead. Directed by George A. Romero. USA, 1968.