Zombies, Run! and the Myth of Digital Duality

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Abstract

Augmented reality (AR) games use mobile devices that are connected to the Internet and are equipped with global positioning software (GPS) to create a gamespace that occurs simultaneously in both the physical and digital world. This paper will analyze the AR exergame, *Zombies, Run!* and the way in which it expands the notion of gamespace to contain both physical and digital elements. This paper will also explore the blurring of the line between the physical and virtual world that *Zombies, Run!* provides and use it as an example of how the demarcation between online and offline experiences, represented by the digital dualist perspective, is being stripped away to reveal an ever-present augmented hyperreality.

Introduction

Imagine this: you lace up your favorite tennis shoes, plug in your headphones and head out for your morning run. Jogging along your normal route, you hear disembodies moans and growls coming from all around you. Suddenly a voice chimes in through your headphones, "There's a hoard of zombies chasing you! They're 50 feet away!" You do not bother to check over your shoulder; you simply run, because that is the only way to survive.

This is the world of *Zombies, Run!*, an audio-based augmented reality exergame experienced via a smartphone app and headphones. Produced by Six to Start Media with writer Naomi Alderman, the game uses a deep narrative that engages the user and provides a rich story world. Users are invited to supplement their ordinary exercise routine with the game, with the hope that it makes the physical expenditure of energy more fun and possibly more rewarding.

Zombies, Run! represents an interesting departure from the usual concept of an exercise-type game, which typically keeps the user in a fixed location. By requiring the user to move through physical space, as well as within the digital gamespace, *Zombies Run!* combines these two realms, which are often thought of as distinct and separate realities, or existing in a digital duality (Jurgenson 2011, Tuszynski 2006).

This paper attempts to dissect the digital dualist argument and address it from a perspective that considers a more nuanced view of reality with regards to digital and physical elements. Using the augmented reality game *Zombies Run!* as a case study, this paper will demonstrate that a digital dualist perspective of reality no longer explains the

complex interconnection of our digital and physical selves that exists in our current state of hyperreality.

Operational Definitions

Augmented Reality

Augmented Reality (AR) refers to the use of digital technology to overlay computer-generated sensory elements (sound, graphics or global positioning data) in physical real-world environments (Azuma 1997). AR is a variation of Virtual Reality (VR), where the user is completely immersed in a virtual environment. Unlike Virtual Reality, AR allows for the user to see the physical world with virtual objects superimposed upon it (Azuma 1997). *Zombies, Run!* uses both an augmented reality, audio-based narrative as well as a rich storyworld to provide an engrossing narrative inside of an exergame.

Exergame

An exergame (a portmanteau of the words exercise and game) is a videogame that incorporates the physical movements of the user, via some kind of input sensor, into the game (Bogost 2005). Exergames emphasize physical activity as a basis for gameplay and push the boundaries of what can be traditionally thought of as gamespace.

Gamespace

Gamespace refers to the arena in which any game takes place. This can be the designated board on which two players compete in a game of chess, the meticulously measured chalk lines of a baseball diamond or the digital framework provided by a traditional console video game (De Souza e Silva & Sutko 2008). The AR game *Zombies, Run!* expands the notion of gamespace by combining both digital and physical elements to the game, as well as incorporating the location tracking GPS software of mobile smartphones. This allows the user to move through a world that is both physical and digital at the same time, blurring the line between the two; a concept known as hyperreality.

Hyperreality

Hyperreality is term used to describe the inability to perceive reality from a simulation of reality. It is a way of understanding what is truly "real" and how the mediation by images of what we perceive as "real" works to define that term (Vanderbeeken 2009). Due to the vast amount of media that frame and filter our experiences, it has become almost impossible to experience life in an unmediated fashion. This inability to distinguish reality from simulation, or hyperreality, can be seen as a blurring of the line between what is considered "real" and what is considered "virtual." This points to a blending of the offline and online worlds that offers a critique to the concept of digital dualism.

Digital Dualism

Digital dualism is the belief that the online and offline worlds are two separate entities (Jurgenson 2011). This belief focuses on the distinct nature of each of these worlds as the reasoning for them being separate, however by applying the concepts of hyperreality and augmented reality to the AR game *Zombies, Run!* it is clear that digital dualism is a fallacy and no longer applies to a world that has grown so deeply enmeshed with digital technology.

Literature Review

Exergames

Exergames have existed in their current form since the late 1980's when Atari introduced their *Exus Foot Craz*, a small game pad, that lay on the floor, with five different-colored buttons that responded to touch. This was the first home console game to rely on physical movement of the user to advance gameplay. The Foot Craz was soon followed by Nintendo's much more successful knockoff, the *Power Pad* and its corresponding series of games that utilized its technology (Bogost 2005). While it could be argued that early arcade console games required some degree of physical activity as they required the user to remain standing while playing and to manipulate a joystick, these do not typically get grouped into the category of exergames (Bogost 2005). The largest breakthrough in exergaming came with the release of Konami's *Dance Dance Revolution* (Jin 2009).

Debuted in 1999, *Dance Dance Revolution* (DDR) was first an arcade console game, and then was adapted for home gaming consoles as well. Relying on the same basic technology as the game pads developed by Atari and Nintendo, DDR provided much better graphics featuring dancing avatars and popular music. By following on-screen prompts to place their feet in corresponding positions on the gamepad, the player follows sequences of movements to advance in the game (Jin 2009). Following the success of DDR, a variety of exergames hit the market utilizing new technologies employed by home gaming systems such as the Wii Fit for the Nintendo Wii and Microsoft Kinect for Xbox 360 (Bogost 2005).

Although often times sold with the promise of providing exercise through gameplay, studies have revealed that exergames, while providing more of a workout than traditional sedentary games, should not be a replacement for regular exercise (Graves 2007). While not a stand-alone treatment for obesity and a sedentary lifestyle, exergaming has been shown to have a positive impact on psychological adjustment and perceived competence to exercise in general (Wagener, et al 2012). So, even if exergames do not completely replace traditional forms of exercise, they can help to introduce users to a non-sedentary lifestyle and perhaps improve self-esteem and self-perception. This is important as theories of what games are and what games can do are becoming more diverse and interesting. By expanding the idea of gamespace off of the screen, exergames offer the opportunity for an ever-increasing transcendence of the digital and physical world.

Gamespace

Past notions of gameplay and gamespace have focused on the separation between playful space and ordinary life space (Caillois 2001, Crawford 1984, Huizinga 1970). In fact, Huizinga (1970) defines play as, "an activity standing quite consciously outside 'ordinary life' as being 'not serious,' but at the same time absorbing the player intensely and utterly" (p. 13). This idea of play and games being outside of ordinary life is based on the artificial nature of gamespace defined by *the magic circle* (Crawford 1984, Salen & Zimmerman 2003) as an artificially constructed space where the game takes place.

The problem with this analysis is that it does not consider games that utilize mobile media technology to move the game outside of the confines of traditional gamespace. These types of games, or augmented reality games, expand the gamespace past digital representation into the physical world, so that the game exists in both worlds simultaneously. The magic circle must be expanded.

Augmented Reality

The term, augmented reality was coined by Caudell and Mizell (1992) who used it to describe the overlaying of digital computer material on top of the real, physical world. While the term did not come about until 1992, the history of augmented reality stretches back a bit further. In 1957, Helig began building a machine he called *The Sensorama*, which consisted of a stationary bicycle positioned in front of a screen displaying a stereoscopic 3D environment of a bicycle ride through Brooklyn, New York. The machine blew wind in the user's face, vibrated the seat and played sounds from mounted speakers (Sung 2011). While actually containing a few elements that could be described as *virtual reality* instead of augmented reality, the machine did have several clear

elements of AR including the visual elements, which were real world elements, even if recorded.

After Helig's *Sensorama*, the next step in AR came in 1966 when Sutherland, a professor at Harvard University, developed the very first head-mounted display. The device was too heavy to actually be worn on the human head, but remained suspended to the ceiling, allowing the user to view wireframe models of computer generated environments (Sung 2011). Sutherland (1965) envisioned what AR would become in the future in a 1965 essay entitled *The Ultimate Display* saying, "There is no reason why the objects displayed by a computer have to follow the ordinary rules of physical reality with which we are familiar. The kinesthetic display might be used to simulate the motions of a negative mass. The user of one of today's visual displays can easily make solid objects transparent – he can "see through matter" (pg. 4).

Following Sutherland's head-mounted display, AR remained in the realm of an expensive toy for scientists and computer programmers typically consisting of enormous, weighty backpack-type devices that relied on military-level satellite clearance to connect to GPS systems (Wagner 2011). An early commercial adaptation of AR technology was in the realm of televised sports, which has adopted several forms of AR (from the successful first down line in NFL football to the not-so-successful glowing hockey puck in National Hockey League) with varying degrees of success (Keri 2006).

In 1999, Kato of the Nara Institute of Science and Technology released the ARToolKit, an open source software library for building AR applications, which most current AR apps are still based on today (Sung 2011).

Presently, consumer-level AR typically exists in the form of smartphone apps that take advantage of the built-in location aware GPS system as well as the camera to pinpoint a user's location and overlay graphics. Apps like Wikitude, Layar and Yelp's Monocle use AR to help users identify landmarks and commercial establishments nearby while programs like CrowdOptic allow users to point their smart phones at professional athletes or performers and view real-time stats and insights (Sawers 2011). While these applications provide ample opportunity for marketing and the gathering of commercial data, it is the creative application of AR that seems to be pushing it into new directions. Games like SpecTrek, in which users hunt virtual ghosts in the real world using the smartphone's screen and GPS tracking, as well as the audio-based 3D character generator, Konstruct, are pushing the boundaries of AR (Sawers 2011).

With a focus now on wearable computing by companies like Apple (iWatch) and Google (Google Glass), the future of AR growing independently as a distinct medium seems certain. In addition, with the greater adoption of AR technology, the line between what is digital and what is physical continues to blur. This inability to distinguish where the offline world ends and where the online world begins is known as a state of hyperreality.

Hyperreality

The nature of reality is something that philosophers have pondered and debated for centuries. And up until this point, unfortunately, have not reached a consensus. This may have to do with questions of an individual's perception of reality or perhaps the rapidly changing nature of reality itself. This changing nature can be seen in relation to

on-going discussion of the reality of digital spaces as well as the idea of hyperreality (Hosterman 2010).

Hyperreality is a concept used in philosophy and semiotics to describe the inability to distinguish what is true reality from what is a simulation of reality. It was first described by Baudrillard (1994) in *Simulacra and Simulation* as, "the generation by models of a real without origin or reality: a hyperreal" (p. 1). Here Baudrillard is addressing reality as a copy of a copy with no true original. According to Baudrillard (1994), the real has become lost in the endless reproducibility that is a result of digital technology.

The idea of the hyperreal is similar to Debord's (1994) belief that society had been overrun by the concept of *spectacle*, or the mediation by images of individual's relationships to each other and the world around them. When everything is understood through the lens of mediated images, the world begins to resemble those images. This is hyperreality. Mediated perceptions of the world as well as actual materializations of these mediated perceptions (places like Disneyland and Las Vegas) combine to create a real world that resembles fiction, which in turn makes the fiction real.

Baudrillard believed that due to the massive saturation of media in society, "it is now impossible to isolate the process of the real, or to prove the real" (p. 21). This concept of "the death of the real" is something that Baudrillard addresses frequently in his work and brings to light the ultimate argument of this paper: if the "real" is dead due to the proliferation of a "mediated realness" or hyperreal, then it would stand to reason that the new "real" is the hyperreal. There no longer remains a clear distinction between

the realness of the offline world and the mediated realness of the online world. They have folded into one.

The Digital Dualism Argument

The term digital dualism was first coined by Jurgenson (2011) as a way of addressing the tendency among some media theorists to create a false binary between an individual's online presence and their physical self.[1] Digital dualists believe that "online and offline (worlds) are largely distinct and independent realities" (Jurgenson 2011). The concept of dualism is closely associated with the philosophy of Descartes who believed that the mind and the brain were two distinct entities; with the mind being the seat of intelligence and consciousness. This is known as the mind-body problem or mind-body duality (Robinson 2003). It follows that the notion of separation between the physical self and the digital self would adopt this terminology.

From a digital dualist perspective, the digital and physical worlds are fundamentally different and in turn, their properties and effects should be treated as such. On the surface, this should immediately cause trouble for anyone looking at this issue from a scientific perspective as both atoms (physical) and bits (electronic) are ultimately composed of the same physical matter and would ultimately be subject to the same laws of psychics (Vial 2013). However, the concept is much more of a philosophical and psychological dilemma, addressing issues of self and the individual's relationship to their environment (be it digital or otherwise).

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[1] Notably Turkle's *Alone Together*, Carr's *The Shallows*, Keen's *The Cult of the Amateur*, Bauerlein's *The Dumbest Generation* and Lanier's *You Are Not a Gadget*.

The main critique of digital dualism is the objection to the idea that individuals are relinquishing control of their "real" lives in favor of their digital lives. As if there is some switch that a person throws to enter into the online world. Even back in the halcyon days of America Online and CompuServe, when "going online" was in fact an activity, the separation between the two worlds was still tenuous. Anyone who discovered people with similar interests in a chat room and then met them in real life certainly understood how the two worlds come together. Now, this is not to say that a person's online persona needs to be concurrent with their personality in non-digital social situations. In fact, this is one thing that digital media allows for; a situation where individuals may construct a new persona and explore new modes of communication and thinking without the weight of culturally-constructed ideals and morés to inhibit their personal expression.

In the current digital media environment, however, "going online" is no longer an activity or an exercise of wearing other hats; it has become the standard, the norm, and the new reality. Even locations typically known as quiet places such as campgrounds, libraries and places of worship now routinely offer Wi-Fi Internet connections to allow individuals to further intertwine their digital and physical existences. The Internet has become enmeshed into our everyday lives in ways that we could have never imagined back in the days of cyberspace and virtual reality.

The very 1990s notion of cyberspace, a term coined by science fiction writer Gibson in his novel *Neuromancer*, feeds into the digital dualist arguments of today (Gibson 2000). However, it should be noted that the concept began as science fiction and has always remained science fiction. Cyberspace seems to be way in which to understand, in a geographical sense, something that is beyond geography. Perhaps in the

early days of computing, with fixed servers and personal computers, the sedentary nature of the act of computing tied it to particular geographical locations and synchronous time. However, with the ever-increasing use of mobile devices, the geography of computing has become dynamic, and digital time now asynchronous.

This is evidenced in mobile smartphone applications that utilize some form of GPS tracking software as well as an augmented reality aspect. In particular, the audio drama exergame *Zombies, Run!* is an example of the fallacy of digital dualism, in that it situates the user in both a synchronous physical geographic location as well as in an asynchronous digital gamespace simultaneously.

Zombies, Run!

Zombies, Run! consists of two distinct game modes: the first being the "in-app" mode, which is experienced through visual representation in the smartphone app and consists of navigating the menu options, the multitude of missions, as well as the base building aspect of the game. The second game mode is the audio drama narrative that is experienced aurally while running. Together these two modes can be seen as delivering the narrative through two distinct channels: the visual representation of the base building and the aural presentation of the dramatic storyline.

The Story

The story of *Zombies, Run!* takes place within the context of a zombie apocalypse. Initially, there is a helicopter crash in which the user is the only survivor. Assuming the identity of *Runner 5* (the former Runner 5 having seemingly been

consumed by zombies), the user is summoned by a radio operator in a settlement nearby known as Able Township. The radio operator gives specific directions to the user to begin running towards Able Township with the caveat that there are hoards of flesh-eating zombies along the way. Some of the radio operator's comments are a bit cryptic and offer a glimpse into how the narrative will unfold. Throughout the game, the user is required to perform missions as a "runner" for Able Township. Running these missions allows the user to build up their base at Able Township in the In-App mode.

In-App Mode

This is the aspect of the game that is engaged with by interfacing with the screen of a mobile smartphone device. The "in-app" mode provides the access point to the game as well as the continuation method from which the game progresses, via base building and missions.

Base building. The base building section of the game consists of utilizing supplies and materials, acquired during the running aspect of the game, to help build up Able Township. Supplies are acquired based on how far and how fast the user runs, while materials are acquired by completing individual missions. Users can level up via acquired items and increase various aspects of the base including population, morale and defense. In addition, users can construct new buildings such as a hospital, playground or training grounds; each having a varying effect on the distinct aspects of the base. The more missions that are completed and the more supplies that are collected allows for expansion of the base, which in turn opens up new missions within the game.

Missions. The game offers twenty-three separate missions in Season 1 and twelve more in Season 2 (as well as several side missions unlocked as a result of achievements in the game). The missions must be completed in order (i.e. by completing the first mission, the second mission becomes available, etc.) and can be adjusted by the user to last either thirty minutes or one hour. This allows the user to adapt the game to their desired workout length. In addition to the missions offered through seasons 1 and 2, there is also the option to take part in a training program, which prepares the user for either a 5k, 10k or 20k road race.

Audio Drama Narrative

Before beginning to run, the mission is explained to the user via the audio drama narrative, and certain objectives are proposed. It should be noted that these objectives (i.e. run to the water tower) do not represent physical geographic locations, but rather locations within the digital framework of *Zombies, Run!* that are reached through movement in the physical world. In this sense, the user can be seen as running through both the physical world and the digital world at the same time, or through the merger of these two worlds; a hyperreality.

Running through hyperreality. Through the use of mobile GPS technology, *Zombies, Run!* places a user in a very specific location due to the location of their physical body. At the same time, the game also locates the user within the conceptual framework of the *Zombies, Run!* universe. In this sense, the user is in both place "x" as well as non-place "not x." While it may seem illogical that "x = not x" it is true within the blended reality of physical and digital space (Applin & Fischer 2011). If a person is

walking down the street talking on a cellphone, they could be seen as being in both place x (the particular street) and place not-x (the digital realm where their conversation takes place). There is no real "place" where this conversation is taking place, it is a non-place (Applin & Fischer 2011). However, both this place and non-place constitute the same reality; a reality that blends physical and digital information.

Much like the runner engaging with the narrative of *Zombies, Run!* this person on the cellphone can be conceptually seen as being in two places at once, both x and not-x. This is hyperreality and clearly demonstrates that the concept of digital dualism is a fallacy and must be abandoned in favor of a more nuanced view of reality, time and space that incorporates both digital and physical elements.

Conclusion

Augmented reality technology is allowing the physical world to become more and more enmeshed with digital information, transforming the world into a gigantic canvas for digital artists to create work on. This could take the form of digital graffiti and murals, painted on the sides of buildings or huge digital sculptures built in real world locations, viewable only through the lens of AR.

Ultimately, the course of AR, as with all other forms of digital technology, is unpredictable. Commercial applications are beginning to become more common and it would only follow that advertising will be the next to adopt the AR medium. As of now, it seems the only limit on AR technology is its reliance on the screen as a mediating

agent. *Zombies, Run!* is an interesting twist on this problem, as it relies heavily on an audio component. I see this area of audio augmented reality as an untapped and potentially fascinating place for future research and study. While currently AR technologies such as Google Glass seem a bit too *cyborgish* right now to really be integrated into everyday life, the proliferation of headphone use points to an acceptance of AR in its aural form. Overlaying physical world soundscapes with digitally produced sounds offers an opportunity to expand what is traditionally thought of as AR, further blending the two concepts together and undermining the digital dualist perspective.

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