This study undertakes the analysis of gamification in the context of everyday life. Everyday life can be defined as the tactics used by subjects to navigate and find meaning in (or through) strategically deployed modes of power. Gamification uses game mechanics to promote engagement with applications, alter behaviors and collect, display and contextualize data. Gamified design represents a seductive strategy that utilizes play to promote control in the form of ludic protocol. Additionally, it is an ideological and design-based approach to surveillance that eschews disciplinary techniques of control; rather, gamification uses seduction, in the forms of games and play, to encourage people to perform, track and submit to the data of everyday life. This dissertation examines gamification from ontological, epistemological and affective angles. Additionally, it uses historical examples of pre-gamified technologies and techniques to explore gamification effect on environments, bodies and spaces.
For Play: Gamification and Everyday Life

by
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DEDICATION

This dissertation is dedicated to my supportive parents and my closest friend.
BIOGRAPHY

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Introduction

Video games have become nearly ubiquitous media in contemporary American life. According to the 2015 Electronic Software Association, digital games sales in the U.S. totaled $15.4 billion and 54% of total U.S. consumers played games (Marshall, 1999). Additionally, the average age of gamer is 35, with a substantial increase in adult and female gamers who now comprise over 44% of the total market share (Marshall, 1999). Digital games comprised a 91% use rate among U.S. children and teenagers ages 8-17 in 2013 (Callahan, 2013) and a market penetration rate of 97% as of 2008 (Lenhart et al., 2008). However, globally gaming has not reached saturation. This is predominately due to the lack of available infrastructure in many areas of the world. While the U.S. has a wired infrastructure with a strong broadband penetration, many regions’ online access is predominantly routed through cellular traffic—these include Africa, Central and South America and Central and East Asia. Because people in these regions predominantly utilize cell phones for accessing the internet, the mobile games market is driving expansion that veers from traditional computer or console video games.

A new series of reports state that the global market for games will expand from $67 billion in 2012 to $82 billion in 2017 (Gaudiosi, 2012), thanks to the mobile gaming market. Increasingly, consumers of mobile games are fragmenting the games market and creating new, unique approaches to what could be considered a game. Game industry data does not account for the ever-increasing category of game-like applications like Foursquare, a location-based service that contains game elements like levels, points and badges. In addition, the mobile applications market is suffused with free-to-play, free-to-buy and
“freemium” products that draw on the gaming boom. Free applications are not for charity. They expand the base of users due to a nonexistent entry price and profit on the data users produce. They produce profits by mining data for third parties, which has produced a cottage-industry of data brokers (Steel & Dembosky, 2013). Still, mobile-only gamers account for 20% of the total gaming market in 2015 (Brightman, 2015). However, these reports only tell part of the story concerning mobile games since they do not include applications that borrow from games but never fulfill the category of “a game.” This dissertation addresses these liminal applications, which are commonly referred to as gamified applications by industry professionals. The rate of gamified applications has increased significantly in recent years but they remain relatively unaddressed in critical scholarship. Gamification is a unique practice: while gamified applications draw on games, they do not purport to be games. They simply draw from a vast array of practices and pursuits associated with games and play.

The growth of gamified applications is related to the increasing complexity of playing games. Gaming is a combination of technology, play, and sociability that relies on the technological embodiment of players. These attributes identify digital games as a particularly conspicuous aspect of “new media” (J. Dovey & Kennedy, 2006). Gaming relies on the convergence of play, consumption, simulation, media technologies, human feedback to manipulate and to create pleasurable, and seductive human (or non-human) bonds with machines (Giddings, 2007a). Lying at the fringes of games and gaming are a set of practices that make use of other tactics that aim at influencing and recording the everyday activities of anyone with the ability to access free mobile applications. These practices are loosely
referred to as “gamification,” and they directly result in the current influx of gamified applications onto the mobile market.

Gamification is typically defined by practitioners as a business or marketing strategy that began to emerge after marketers and public relations professionals noticed the success of traditional video game platforms in driving behavioral practices among players (Campbell, 2011; Davenport, 2010; Delo, 2012; Zicherman & Linder, 2010). A key focus of gamified applications is promoting, regulating and tracking engagement with products, services, spaces, institutions and ideas through motivational tactics embedded within seemingly simple aspects of game design. For example, Google’s *Ingress* uses competitive territory defense that players access and take hold via location-aware devices—resource nodes, via a modified GIS systems, are embedded into physical spaces such as monuments, museums and dog parks. *Ingress* drives research into navigational issues affecting pedestrian traffic and location-based advertising by studying the routes players take to reach certain nodes and their motivation in regards to rewards for travelling longer distances. Likewise, Friskies’ *Games for Cats* uses touch-screen devices to mine data about cat owners who recruit their cats to register and play for a leaderboard. Friskies, in turn, is granted access to information on the pet owner’s mobile touch-screen device.

Gamification represents a wide array of applications used for a variety of purposes. In a nutshell, gamification represents a new take on life, one that embraces playful-but-serious surveillance and introduces new techniques that attempt to redefine the categorical position of “player.” Gamification achieves this by introducing game mechanics into non-ludic environments via design (Zicherman & Cunningham, 2011). In addition to design-oriented
aspects, gamification has embraces behaviorism by promoting playful behaviors, such as seeking and parsing information, arranging patterns, route finding, leveling, progression, self-archiving, socially exchanging information and seeking positive feedback through intrinsic and extrinsic rewards. In short, gamification as a set of design practices takes a contradictory, but strangely unifying, approach to labor and leisure (M. Fuchs, 2014a; Raczkowski, 2014a; Raessens, 2014; Schrape, 2014). It toys with boundaries between leisure and labor by circumventing the common definitions of both. Gamified applications profit from exploiting the idea that labor can be converted into a playful activity to increase productivity and engagement—that leisure can become labor.

However, play is often associated with free-wheeling, nonproductive, redundant and chaotic actions that do not directly interfere with quotidian processes of law, capital or culture (Huizinga, 1950). Gamification seems to utilize play in a manner that promotes control, order and capital. The outcomes of this experiment in design are thus far unknown. This contradictory set of purposes and outcomes is the primary focus of this dissertation: a key question concerning gamification is “why play?” Deploying play for the purposes of control seems counterintuitive; if play is truly non-productive from the standpoint of capital why attempt to use it for purposes of production? If it eschews disciplinary tactics then why use it to promote processes of behavioral categorization? This question lies at the heart of gamification: how can a mode of control harness a force that, by some interpretations, inherently resists uniformity?

The answer lies, largely, in what can be considered play. Gamification uses play, but only in a certain context. Play is ambiguous and contains a variety of actions, outcomes and
practices (Sutton-Smith, 1997). Some aspects of play, such as free play (Derrida, 1966), resist centralized constraints. There are also aspects of play that favor regulated, centralized and rule-based competition (Baudrillard, 1979, 2001; Caillois, 1961). Gamification primarily leans towards these by using the compulsory nature of progression to promote behavioral modifications in players, specifically to increase efficiency in everyday actions by rewarding players for desired behavioral outcomes. On this level, play can be used as a positive set of potentialities aimed at individual or collective control. Since games are rule-based systems designed to structure play into ordered contingencies, game design and the resulting gameplay serve as a key aspects of gamification’s relationship with control.

Games certainly exhibit control on a certain level, but they only instantiate it in terms of gameplay—the cybernetic loop between player and game that comprises a negotiation of agency rather than a system of outright control (J. Dovey & Kennedy, 2006) states that gameplay is the site of power and control in gaming, and it is a constructive power that comprises “the site where the game and player contest each other’s capacity to structure and give meaning to their ongoing interfacing” constructed through an “economy of desire.”

Gameplay is actively constructed between the player’s agency, the game’s mechanics (its contingencies and rules) and its logics, or the intended outcomes and progressions (Lorant & Lieury; Sicart, 2008). Gameplay, as an ongoing negotiation of desire, cannot survive as a domineering mode of control. Rather, (game)play is seductive (Baudrillard, 1979; O’Donnell, 2014), meaning that it exhibits weak or soft control through challenges and
promises made to the player—the player willingly engages in constructing his or her desires through the contingencies set forth by gameplay.¹

Baudrillard (1979) states that seduction, as play, is “entangled” with production and power, but must not be confused with either. Seduction is an inception of desire and possibility—it serves as an alternative route to coercion that can either serve the ends of disciplinary power and production or reverse them. One aspect of seduction is its reversibility—it can go in a variety of ways and it can reverse course just as quickly. Seduction presents a challenge but does not present a contract—it does not invite any sort of conclusion or conclusive state of affairs (Baudrillard, 1979). If a conclusion is reached, seduction ends. Seduction is the key to gamification’s relationship with power, productivity and control. Gamified applications instantiate a gameplay loop by focusing on what is possible, rather than any final or actual outcomes. For example, gamified applications rarely offer an endpoint. Users of applications like Foursquare can never “beat” the application. They engage in an endless stream of potential challenges and rewards. When they are rewarded for one challenge, another is generated. Thus, through gameplay, gamification achieves a state of equilibrium between leisure and labor by never conclusively being either one—it serves as an alternative to both.

¹ According to Baudrillard (1979), seduction is essentially play. Seduction is weakness—it is not sovereignty or outright force, but rather acts through the inception and channeling of desire. Seduction, then, is the interplay of desire, appearance and potentiality. By channeling desire seduction focuses on potentiality, not outcomes; it works through the possibility of a desire’s fulfillment. As such, it is the primary origin of simulation—the appearance of possibilities and the desire to pursue them. It is an non-disciplinary form of power—it only exists through process, meaning that any sort of finality is arbitrary for seduction. Baudrillard points out that seduction, as a process, ends once desire is fulfilled. Using sex as a metaphor, he points out that once sex begins, seduction—the process of playing sexuality—ends.
Gamified applications hint at the possibility of productivity, but never fully arrive that point. Players are being productive in terms of providing behavioral data, but they are subjectively working towards progression as it is interpreted via game dynamics. Their productive behavior is tied to the design of the gamified application—the continuance of play. Seductive power, as an alternative to coercive or disciplinary power, is at the heart of gaming and gamification. Understanding how this modulation of power acts on the everyday lives of people whose actions are increasingly gamified is largely the purpose of this study.

Gamified applications often extend seductive gameplay into wider networks while concealing the aspects of “games” or “play” embedded within the application—people become engaged in the loop of gameplay without fully being aware of their status as “player.” Gamified applications are rarely marketed as games, thus downplaying the idea that they are either leisure or labor. In other words, gamification, through design practices, works to break down artificial boundaries between the two. However, while players are being productive, the applications also actively remove any sort of finality to the actions that perform—thus gamified applications also introduce a sense of choice and arbitrariness to actions. Thus, what players do through gamified applications is not entirely labor, either. The point of engagement is removed from a definitive endpoint and replaced with the intrinsic reasoning of gameplay—they do it because it is fun to progress. At the same time, gamification drives the player towards efficiency in gameplay, and this efficiency is directly linked to the production of useful (and profitable) data.

It is important to address gamification through the concept of control because it brings new modes of surveillance, governance and monetization to everyday life. It also
creates different categories of players; when engaging in gamified activities, players are no longer engaging in purely self-referential gameplay—gameplay where actions taken in-game correspond only to the game itself. They are participating in a much wider network of consumerism, education, and surveillance that has direct connections to power, capital and modes of production. Addressing how everyday life is enhanced or disrupted through gamified applications because important because evidence suggests that they are diffuse methods of control enacted through game design (Dragona, 2014; Raczkowski, 2014b; Paolo Ruffino, 2014; Schrape, 2014). In other words, gamification controls by taking on the appearance of a game based in seductive possibility of choice, risk and reward.

Exploring the possible benefits and consequences of seductive design choices strengthens our understanding of how playful media technologies and design practices are converging. For example, gamification curiously utilizes anti-gaming logics in its design to keep players within a set of clear boundaries (Zicherman & Cunningham, 2011). Players must not modify or “win” a gamified application—the goal of gamification is to produce measurable, contextualized data rooted in continuous behavior. However, not all gamified applications disguise their game-like appearance and they contain varying levels of anti-gaming logics. Depending on the level of control embedded into the design, gamified applications can be either more or less game-like, meaning that gamification and games work

\[2\]

\footnote{De Certeau (1988) states that “everyday life” involves distinct modes of collective and individual power that can be described as strategic and tactical practices. Strategic practices are designed by large organizations such as governments, corporations and militaries to control the flows of ideas, bodies and goods through space. Tactical practices, the methods by which people navigate and experience strategically designed spaces, originate from place-making activities that allow people to survive. The combination of strategies and tactics occurring throughout space constitutes a large part of everyday life, as it often determines who or what is allowed to move where and act in a certain context.}
on a spectrum of seductive power. The spectrum has, on one end, play that is geared towards intrinsically valuable activities only related to ludic activity (such as free play). On the other end, it has highly controlled play that is geared towards ever-increasing modes of efficiency not just related to games, but branching to serves other related forms of production and capital. Gamification lies at this end of the spectrum: it is neither entirely separate from gaming nor is it the same. Some applications, like Ingress, are more recognizable as games. Others, such as Twitter and Facebook, have more deeply embedded links to game design. Exploring gamification as a wide set of practices that allow a varied degree of freedom and transparency concerning game mechanics and logics will greatly improve upon current literature concerning gamification.

**Literature Review**

What is known about gamification largely comes from practitioner manuals, industry sites, marketing books and popular scholarship. Zicherman and Cunningham’s (2011) *Gamification by Design* is one of the first manuals produced that defines and teaches marketers and application designers how to build and distribute successful gamified applications. It also contains one of the first succinct definitions of gamification as a design practice that utilizes game mechanics to increase loyalty, contextual data and end-user motivation (Zicherman & Cunningham, 2011). In a move that perhaps informs how practitioners view gamification, the cover of *Gamification by Design* portrays a group of monkeys imitating one another in play. The illustration draws from behaviorist studies of animals. Specifically, the cover evokes the process of “aping,” or using cues to motivate a
primate to perform a certain action in a certain context. The cover overtly hints at the behavior-oriented design behind gamification.

Because gamification focuses on behavioral control in the context of motivated application or software usage, it has been targeted by software designers as an alternate form of usability methodology (Kumar & Herger, 2013). It has also been covered by data curators as a contextualizing method for data collection (Paharia, 2013). Information on gamification is also frequently curated via online zines, blogs and industry analyst sites. Popular blogs such as Gamifier and Gamification.co sustain a cohort of industry journalists and commentators. In marketing blogs and books, gamification has been touted as a way to produce loyal customers that willingly submit to market-based surveillance and categorize their own information (Burke, 2014; Paharia, 2013; Zicherman & Linder, 2010). However, these practices are portrayed in marketing literature, such as Paharia’s (2013) Loyalty 3.0, as better alternatives to traditional marketing methods like repetitive advertisements and industry prying that are unpopular with consumers (Burke, 2014). From industry and design standpoints, gamified applications are an efficient way to inspire loyalty while also collecting mounds of useful data without coercive or underhanded methods.

In popular scholarship, a publishing category that aims scholarly work at general readers, gamification is often received with very little criticism—it is often viewed as the opposite of disciplinary approaches to management, labor and education. For example, McGonigal (2009) claims that gamification has the ability to free workers and consumers from the trappings of bureaucracy and disciplinary surveillance by introducing play into formerly invasive practices. Her approach situates gamification as a possible gateway to a
slightly less disciplinary utopia. Manuals on education-oriented gamification have suggested that gamified applications are a way to break the disciplinary mold of current educational practices (Kapp, 2012b). By adding play to the classroom, gamification may help in addressing motivational issues that decrease student interest (Kapp, 2012a). Gamification, in most instances, is viewed as a positive practice and a step forward from panoptic modes of consumer surveillance and disciplinary educational approaches (Burke, 2014; Kapp, 2012a; McGonigal, 2011). The positive attitude evinced by popular scholarship is decidedly absent from academic works concerning gamification.

Game studies scholarship only recently gave gamification serious attention. Bogost (2011) dismissed gamification as a perversion of play, simply calling it “bullshit.” He maintains that gamification is not about fun or play, so it has nothing to do with games. This is a good example of how ethical concerns in gamification are approached broadly. However, Whitson (2013) has introduced gamification into conversations about surveillance, particularly from the standpoint of quantifying everyday activities via wearable technologies like health monitors. Following on this, O’Donnell (2014) stated that gamification posed an important moment to study “algorithmic surveillance.” Additionally, the edited volume *Rethinking Gamification* (M. Fuchs, Fizek, Ruffino, & Schrape, 2014) presents the most complete example of scholarly work to date concerning the impact of gamification as a mode of control and surveillance.

Approaching gamification from a critical and historical standpoint, the volume examines gamification as an ideological practice rooted in design (Paolo Ruffino, 2014). Gamified applications utilize pedantic practices linked to educational methodologies (M.
Fuchs, 2014b). The current mode of gamification is aligned with behaviorism and the rise of psychology-based marketing approaches (Raczkowski, 2014b). However, *Rethinking Gamification* often casts gamification as a dangerous and ethically murky practice that exploits the human desire to play (Poltronieri, 2014; Raessens, 2014; Paolo Ruffino, 2014; Schrape, 2014). Collectively, the chapters in this collection warn that gamification represents new and dangerous examples of capitalism’s assault on the everyday life of consumers (Dragona, 2014; Raessens, 2014). In other publications, gamification has been classified as a type of “ludic interface,” a collection of design-oriented practices that place game-like qualities at superficial levels of interaction (M. Fuchs, 2012). It has also been suggested that any gamified application can also be “degamified” in order to reveal its true nature as a control-oriented tool (Dragona, 2014; Mosca, 2012). Critical research into gamification points out that behind the game-like exterior of gamified applications lies a complex web of control-oriented practices aimed at communal surveillance and complex problem-solving via metadata (N. Hulsey, 2015; Hulsey & Reeves, 2014b; Whitson, 2013). From the critical standpoint, gamification is just now coming under the knife. However, the knife often still identifies gamification as its own “thing”—what O’Donnell glibly refers to as the “thingification” of gamification—rather than as a spectrum practices, related to seductive control and efficiency, closely related to the digital game.

Gaps in gamification scholarship arise because gamification is in its infancy despite that its combined market impact is projected to reach over $10 billion in 2020 (BusinessWire, 2015). While gamification has been notably successful in the commercial, mobile and healthcare sectors, little work has been done to explore how game design
contributes to its success (Mosca, 2012). Furthermore, there is a dearth of scholarship on the convergence of game-related technologies and practices across additional areas, particularly in regards to information management, labor, materiality and surveillance (Byrne, 2012; Danforth, 2011; M. Fuchs, 2012; Nicholson, 2012; Whitson, 2013). The goal of this dissertation is to critically examine how gamification manifests itself as a series of seductive design choices that affect environments, bodies and spaces.

Popular scholarship concerning gamification has been hyper-critical (Bogost, 2011), utopian (McGonigal, 2011), or practice-related (Zicherman & Cunningham, 2011). Academic scholarship has been more precise; however, it also tends to separate gamification from games due to supposed ethical differences, a stance which fails to take into account the fact that seductive power is present in both gaming and gamification. This means that there is a gap concerning the ontological, historical and epistemological aspects of gamification. For example, there are a number of articles published on educational applications (Cohen, 2011; Kapp, 2012b; Murray, Bogost, Mateas, & Nitsche, 2006; Smith-Robbins, 2011; Thomas, 2006). Each of these articles fails to make note of the fact that education already contains many gamified elements: points, levels and competition are all built into Western education practices (Smith-Robbins, 2011). This research has not identified why an educational model that already makes use of many game mechanics hasn’t fully succeeded in terms of student engagement, motivation, and performance across the board.

However, gamified applications are clearly addressing some sort of practical need espoused by educators, marketers and software designers. Based on revenue alone, it appears to succeed in its initial goal of motivating consumers and workers (BusinessWire, 2015;
Comer, 2012; Deterding, 2012; Environment, 2012; Gopaladesikan, 2012; Krogue, 2012; "The play's the thing," 2011; Scofidio, 2012; Swan, 2012). If it is ethically flawed, there is little work done to address why and even less that explores what play or fun means in a gamified application. Because gamification has yet to be decisively defined in terms of theory, history, and use, current critical and academic works often miss the proverbial mark. With exception of scattered articles and one edited volume, Rethinking Gamification (2014), it has received relatively little attention from critical, social and humanities-oriented scholarship.

**Research Questions**

This dissertation grounds the study of gamification on the history of games in general, and computer games specifically. Because there is relatively little literature on gamification on the level of play and everyday life, these research questions expand upon the work currently available. Four primary research questions arise from considerations on why gamification has suddenly gained traction:

1) What place does gamification hold in relation to seduction, games and play?

2) What are the conditions of knowledge/power that enable gamification?

3) How is gamification materially and socially instantiated through gamified applications and uses?

4) What are the historical conditions that have enabled gamified applications and gamification, in general?
These questions lend themselves to two pervasive meta-question addressed throughout this dissertation: what is gamification and why does it use play as a mode of control? As such, the goal of this dissertation is to empirically examine how gamification alters a variety of networks in favor of play including social networking, healthcare, workplace productivity and consumer research. Specifically, there are four major theoretical lenses through which gamified applications are examined: (1) ontology/epistemology, (2) power/knowledge, (3) protocol/biopolitics and (4) space/simulation.

Each lens has a specific focus: ontology/epistemology examines the definitional qualities of gamification and how they are deployed currently and historically to produce knowledge about subjects; power/knowledge addresses how gamification shapes and changes environments where it is deployed by redefining the power/knowledge dichotomies within those environments; protocol/biopower focuses on how gamification creates and influences subjects and behaviors; and space/simulation examines how gamification utilizes simulated spaces to collect data and drive profits. Examining gamification through these separate-but-connected lenses requires the understanding that gamification did not just pop into existence with all of its technological, ethical and ontological quandaries. We cannot assume that gamification is tautological—that it exists because it does. Gamification is not a “new” development. Rather, it is the product of historical relationships between play, games, power, and technologies.

One key aspect of exploring gamified applications is analyzing power and knowledge in the context of networks. The theorists used to this end are Michel Foucault, Jean Baudrillard, Gilbert Simondon, Bruno Latour (2005) and Katherine Hayles (2012). Each one
of these theorists have been taken up by media studies scholars. Using them in a media-oriented context places this research squarely in that overarching academic category.

Hayles (2012), Simondon (1992; 2007) and Latour (2005) are often controversially identified as “posthuman” scholars. To put it simply, they assume that the human being is not always the center of relationships; rather, “humans” are a changeable category shaped by a variety of forces. Posthuman scholarship resists making humans a de-facto focal point in any analysis of society, media and technology. My analysis also assumes that humans are just one of many unevenly distributed actors in the network of gamification, each with its own brand of affective capacity, or agency. Finally, this dissertation also assumes via Foucault (1980) and Baudrillard (1979, 2005) that power and desire are inherent in all relational interactions, and that the complexities of these interactions must be a focal point for research. These theorists lead me to assert that analyzing gamified applications pose a question of design choices rendered through media technologies.

In this dissertation I make a critical analysis of gamification by addressing a number of topics. First, I propose that gamification and games are like identical twins: they look the same but they have very different personalities. Gamification can be dangerous and ethically murky, but it also fulfills a purpose in replacing former coercive surveillance and control mechanisms. Like O’Donell (2014), I also think that gamification presents a unique chance to look at a quiet revolution in “algorithmic surveillance.” I state that gamified applications represent a new approach that draws from old sources—the concept of “life as play” can be traced back to the ancient Greek philosophers and Eastern Zen philosophies (Sutton-Smith, 1997). In the end, gamified applications use a ludic interface that serves purposes other than
self-referential play—it is a mode of packaging and implementing simulation for the masses. Gamification may possibly be “better” than more disciplinary methods like hard surveillance; at the same time, it is also a wolf in sheep’s clothing—it does not propose any new solutions to old problems with control, surveillance and hierarchy. This dissertation primarily argues that gamification uses what was already present in play to implement far-reaching changes in environments where it is deployed, and it does that by seduction rather than coercion.

The implementation of gamified applications depends on the ability of gamification to adapt to different spatial, technological and social factors across a range of contexts. This assumption operates against the tendency of media theorists to emphasize the overarching agency of media technologies as a priori, as if “media were naturally the way they are without authors, designers, engineers, entrepreneurs, programmers, investors, owners or audiences” (Gitelman, 2008, p. 9). Because gamified applications are deployed via media, it is congenital in the production and maintenance of media-oriented protocol. This dissertation maintains that that protocol does not assume media technologies are authoritative while “the social processes of their definition and dissemination are separated out or forgotten” (Gitelman, 2008, p. 6). Examining gamification through different lenses relies on looking at related media technologies as historical subjects that co-constitute the environments through which they operate.

Method

The primary method I use is genealogy. Genealogy is a method developed by Foucault (2010) to account for the confluence of power, knowledge, and practices at the
horizon of events as they occur. Genealogy, for Foucault (2003), is a “form of history that accounts for the constitution of knowledges, discourses, domains of objects, and so on, without having to make reference to a subject which is either transcendental in relation to the field of events or runs in its empty sameness throughout the course of history” (p. 306). As a study of an “emergent history” of contextual power and knowledge, genealogy does not seek a teleological truth; rather, it is attuned to the materialization of many historically situated truths (Kendall & Wickham, 1999). Genealogy, according to Kendall and Wickham (1999), is discursive—it focuses on statements (i.e., ideologies, beliefs, “knowledge” and documentation) and visibilities (i.e., the material/technological conditions of practice). Of course, in order to fully understand the conditions of statements and visibilities, one must first tease out exactly how they came to be regarded as cultural or discursive truths. This requires a second method, also developed by Foucault (2010), known as archaeology.

Archaeology and genealogy can be seen as two branches on the same tree. While genealogy focuses on the conditions of power and knowledge generally, archaeology utilizes specific historical events, processes and technologies to “decouple” historical events from legitimacy (Foucault, 2007b). Archaeology does this by separating the “fact of acceptance” of the thing in question to “system of acceptability” that gives it legitimacy as a discursive fact (Foucault, 2007b). Foucault moves the focus of historical inquisition from events or objects to the processes that allowed them to “exist” to the point that they are legitimized as a part of an epoch or era. Specifically, Foucault (2007b) states that archaeology is “proceeding from the fact of acceptance to the system of acceptability analyzed through the knowledge-power interplay” (p. 63). Foucault’s (2010) archaeology seeks to “excavate” objects, events and
statements from their previous place as “naturally” occurring, and bring to light questions of the organized deployment of statements and visibilities, which he calls “discursive formations.”

In this dissertation, I genealogically excavate gamified applications using analyses of technological objects, practices, structures and computational programs in an archaeological fashion. These include early games, early marketing tactics, approaches to simulation and spatial representation. Specifically, I focus on a collection of gamified mobile applications that span a wide array of uses, including location-based services, consumer research, social networking, health monitoring, and pet care. I also juxtapose these applications with previous technologies and programs that inform their design and use. Genealogy is unique in that it invites the use of case studies to excavate tensions and points of resonance between seemingly disparate examples.

I employ genealogy to juxtapose older examples of gamification or “proto-gamification,” such as Nimbi, with newer ones, like Ingress. I trace points of contact in the development of gamification across different temporal and spatial contexts. For example, I look at similar theories that conceptually predate gamification such as ludology, historical examples of simulation-based programs like Game of Life, early geographic information systems such as radar, and early games like Pong and Spacewar. These examples are combined with a variety of current applications like Strava, Clue, and Foursquare that address gamification’s modern uses in the context of historical conditionality. The selection of analyses contained in this dissertation is aimed at charting relationships between knowledge, power, and material conditions that enable gamification to be identified and
deployed. The historical analyses serve as the archaeological exploration of processes that give gamification meaning. As a whole, they contribute to an overall look at how gamified applications toy with concepts of power and knowledge in a variety of contexts.

According to Kendall & Wickham (1999), a genealogy typically involves analyzing statements, visibilities, contingencies, and techniques that situate the topic in terms of a knowledge/power dichotomy. Statements focus on what is said about gamification, which is primarily developed in Chapters 1 and 2. These chapters respectively analyze insights into gamification from recent game studies literature and explore ambiguity in past ludological texts utilized in concert with gamified applications. By analyzing both recent game studies literature and past ludological texts, I explore why gamification has yet to be fully recognized as a practice directly related to play and gaming.

Visibilities deal with actions and materials—to put it simply, what can be seen. Visibilities are largely related to practices. In this case, practices connote the daily strategies of individuals dealing with the power relations they encounter in the course of their ordinary, everyday lives (de Certeau, 1988). Practice also implies that a key focus of genealogy is not necessarily the “abnormal” or the “important” historical event, but rather the assumption that all cultural production is “ordinary,” and in its ordinariness we can find the relations that make cultural production visible (R. Williams, 1989). This involves selecting commonly used current applications which, on the surface, are not often cited as “unique.” However, the popularity of applications like Foursquare also gives a clear picture of how gamified applications insert themselves into the middle of ordinary cultural production. Additionally, I focus on past computational technologies that enable modern gamified applications. This
focus on juxtaposing current, popular applications with lesser-known historical developments serves to highlight the slow inflation of gamification from research to reality. In Chapter 4, I explore how wearable technologies and gamification co-evolved to alter healthcare practices. In Chapter 6, I cover how gamification evolved from early simulation software and spatial technologies such as radar. Together, past and present provide a range of materials to examine in relation to one another. They also provide an entry point for examining the contingencies of.

Contingencies account for how and why statements and visibilities can be identified, act and be acted upon. In most cases, contingencies are the defining characteristics of historicized power relationships. By separating contingencies into categories, or “lenses,” I am following Foucault’s (1980) insistence that an examination of power’s conditions of possibility must not be localized “in the primary existence of a central point” (p. 93). Rather, gamification can only be “seen” as it becomes “known.” In other words, multiple contingencies are in action simultaneously, and they must be viewed as a web of relationships that constitute a surface of emergence. Cultural contingencies denote the relationships between power and knowledge. Ontological contingencies denote how an object operates in a certain context. Epistemological contingencies denote what processes or institutes contribute to the visibility of a technique or technology, or how we come to “know” it. Finally, material contingencies are the physical conditions that enable the network to support itself—the arrangements of actors (players, social contexts and technologies) that provide gamification’s identity as a distinct set of relations that are deployed in a certain manner.
It is from the study of contingencies that this project derives the research questions concerning the ontology, epistemology, and affective capacity of gamified applications. Contingency-based questions primarily lead to the analyses in Chapters 4 and 5. I examine how gamification generates knowledge about different subjects—pet owners and health enthusiasts—as they operate in their chosen environments. In turn, the data gathered on subjects as they go about their daily-gamified business alters the very environments that applications were meant to monitor and the subjects they were meant to categorize. Examining how gamification alters the environments where it is used involves understanding the ways in which gamified applications shift physical and discursive conditions in a strategic manner.

Techniques relate directly to the issue of deployment. Techniques are the technical modes of enacting power relations. They can be juridico-political, material or cultural. Technological objects deploy power through their interface, conditional to what acts can be performed (Gane & Beer, 2008; Manovich, 2002). Panoptic modes of surveillance are deployed in certain ways and with specific goals, and games themselves circulate power through arrangements of mechanics and logics. Two chapters cover the use of surveillance techniques. In Chapter 4, I examine international health protocols and their relationship with gamification. Understanding how health-related applications generate capital through knowledge is key to understanding why gamification fulfills a practical need in the current healthcare market. In Chapter 2, I examine the ideological value of gamification in the form of a comparative literature review; specifically, I look at how it works as a technique for exploiting power and progress via playful behavior. The web of techniques presented in this
dissertation is not meant to be all-inclusive of the archaeological or genealogical method. Each chapter examines, in part, why gamification is viewed as valuable in the area where it is deployed.

Gamification must be recognized as a technique that involves both games and play. Recognizing it as such places it squarely within the context of Game Studies. However, it must also be recognized for what makes it unique—its use of game mechanics to directly intervene in everyday life are more brazen and manipulative than self-referential games. Understanding the similarities and differences between games and gamification, in addition to exploring the historical signatures that account for these differences, will contribute to a more balanced understanding of gamification and its applications. Additionally, it will lay a groundwork for the critical study of gamification from the standpoint of Media and Game Studies.

A genealogy of gamification that addresses its ontology, epistemology, history, and environmental effects reveals that game mechanics are in play across a variety of applications that are not immediately recognizable as “games.” Each application, in turn, affects the everyday activities the applications are intended to facilitate. In short, understanding why and how gamification works in terms of statements, visibilities, contingencies and techniques is imperative to producing a clear and relevant picture of how and why it has skyrocketed in popularity. What does gamification provide that other methods of engagement and control lack?
Chapter Contents

Each chapter in this dissertation takes on a specific lens. They seek to address the research questions topically, with each chapter focusing on a particular aspect of gamification. Chapter 2 proposes a new theoretical, conceptual and discursive lens through which to view gamification, thus addressing ontology. Chapter 3 looks at aspects of knowledge and power in gamified environments; it deals with epistemology. Chapter 4 examines the quantified body’s role in gamification, which helps to identify social and material issues with gamification. Finally, Chapter 5 examines gamification from the standpoints of space and simulation, which explores how gamification creates ludic environments.

Chapter 1: Games and Gamification

This chapter presents a strategic literature review of recent critical Game Studies scholarship and applies it to gamification. In order to position gamification as a set of practices with similarities and differences to gaming in general, I thematically cover power from the perspective of gameplay and production from the perspective of the grind in order to chart the similar DNA that games and gamification share. First, I examine how gaming is instrumentalized into wide cultural contexts. I then explore how gameplay is the nexus of power and control in gaming. Second, I examine what production entails from the standpoint of gameplay and seduction by using Game Studies literature to explore what constitutes productive space in games. I then go on to examine the process of collapse between leisure and labor into “playbor,” the collapse of leisure and labor (D. M. Wood & Ball, 2013). Finally, I look at how the labor of players can be scientized, legitimized and capitalized on in
wider contexts. I encourage a Foucauldian take on gameplay: the idea that rather than restricting players, the enable players to restrict themselves. The purpose of seductive power is to sustain play within gamespace; without coercive or disciplinary force invites players to exchange freedom for the possibility of desire.

**Chapter 2: Defining Gamification**

This chapter serves as an introduction to the study of gamification from the standpoint of ludology and game studies. First, it provides a brief history of the term “gamification” as a form of marketing and advertising design while also covering the shift in gamified marketing and advertising in light of mobile gaming. I also consider historical aspects of location-based mobile games and their current place in the toolkit of gamification. Second, it situates gamification in the context of past discursive formations of play, specifically ludology. Doing this legitimizes the concept of viewing gamification as a specific use or modulation of play rather than dismissing it based on a broad ethical definition of play as a distinctly positive set of action. Chapter 2 primarily serves to resituate common discourses of play as contextual entities that have distinct and varied contingencies. I argue that play is not separated from control, power, and progress. Rather, it is an ethically murky, seductive process that is progressive and serves as an alternate modulation of power based in desire. It grounds the definition of gamification as an ambiguous set of practices with varied social and ethical outcomes. It also suggests that in order to truly study
gamification as a seductive process, researchers must focus on the “gaming of culture” (Boellstorff, 2006)—the adoption of play as the predominate mode of everyday life.

Chapter 3: Gamification, Power and Networks

Chapter 3 utilizes an analysis of inter-species gamification, namely Friskies’ Games for Cats, to explore how gamification plays with knowledge and power to produce identities and spaces by naturalizing ludic environmental protocols. By exploring Games for Cats and other gamified petcare applications like Whistle and Petcube, I suggest that gamification centers on changing an environment’s network architecture, causing the environment and its inhabitants to undergo the process of “epigenesis,” which holds that the evolution of a network is co-dependent on both environment and actor (Hayles, 2012; G. Simondon, 2007). In short, epigenesis holds that evolution is not a one-way process where organisms react to an environment. The environment also must adapt to the presence of the organisms, which in turn requires further adaptation.

When gamified applications are deployed, quotidian spaces become epigenetic gamespaces and users become players. Thus, the space must constantly change to sustain desire, and players must change to navigate the gamespace. I utilize Games for Cats to illustrate how gamification can be situated and examined as an environmental technique aimed at decontextualizing circulations of knowledge and power in favor of seduction. I also maintain that examining gamification is an exercise of charting how power, control and play
manifest themselves across a wide variety of social, biological and technological contexts, which lead to the extended discussion of biopower and gamification in the following chapter.

**Chapter 4: Gamified Health and Bodies**

This chapter analyzes gamified applications that center on lateral, top-down and personal surveillance for the use of promoting healthy bodies and minds. Mobile fitness and “period tracker” applications (which encourage women to input and track their individual reproductive cycles) support quantified life and “big data” by designing for a biometric definition of play. I also place these applications in a historical context by examining the development of modern health protocols, the creation of wearable computers and the use of games in physical education. These analyses emphasize gamification’s inclusion of game logics and mechanics for a variety of surveillance-oriented purposes relating to personal health and hygiene. By analyzing gamified, health-related applications, I demonstrate how “healthcare” has moved from the disciplinary clinic (Foucault, 1989) to personalized spaces of consumption within the digital enclosure (Adrejevic, 2007). In this chapter, I suggest that the primary role of gamified applications is the generation of various forms of capital, both economic and cultural, through networked surveillance, most notably inverse surveillance in the form of “self-work.”

**Chapter 5: Space, Simulation and Gamification**

In this chapter, I chart the convergence between gaming technologies and spatial simulation. Analyses include the examination of location-aware applications like Google’s geolocative application *Ingress*—which focus on using movements through space as a complex, simulative problem-solving apparatus—and *Strava*, a competitive social biking
application that creates living maps from players’ bike routes. I contrast these modern
gamified approaches to gamespace against an exploration of the historical connection
between spatial simulation, interface design, and early computer games to reveal how
gamification creates spaces that exist somewhere between simulation and game.
Gamification, in a spatial context, crates seductive spaces aimed at sustaining living spatial
simulations where players replace modeled automata.

Conclusion

The conclusion provides a summary of the major concepts covered in the dissertation
and suggests future implications of gamification and directions for continuing research. I also
situate my contribution to the literature and discuss the theoretical implications of the work
done in this dissertation.

Finally, I suggest that gamification’s focus on constantly evolving epigenetic spaces
spell its inevitable obsolescence. One key point of seduction is that it does not end at a
certain point—rather its very purpose is the continuation of desire. Seduction bypasses power
and production by eliminating any sort of endpoint—seduction is the embodiment of process.
Once the boundary between play and labor is dissolved, only the arbitrary process of play
remains. The outcomes of gamified applications will cease to be meaningful or informative
outside of the intrinsic value of play. Gamified applications, and the institutions they serve,
are no longer needed. When labor is eliminated so is capital. The need for a non-playful
outcome, such as the production of capital or profit, or any productive outcome at all (like
labor), becomes pointless. By employing seduction, the institutions formerly served by
gamification will become reliant on its continuation. This means they will result from play
rather than utilize it. Once a process results from play, it becomes a game—it becomes arbitrary.

To explore this point, I examine how the inevitable failure of anti-gaming logics embodies the future of gamification. Gamification, in order to maintain some sort of equilibrium, resorts to the very disciplinary measures it seeks to circumnavigate—it utilizes a set of failsafes to keep play in check, to keep it productive. However, discipline cannot survive when seduction is in play. Seduction requires that desire must never be fulfilled—the game must either continue or end. To do this, the game’s architectural components must constantly be modulated to continue channeling desire. Like modding and cheating a game, which inevitably alters the game’s architecture, players will continue to evolve gameplay in gamified applications to suit their wishes (and not the wishes of the designers). As such, the institutions who seek to control gamification will find themselves being controlled by the desire of the players they rely on. Players, whose gameplay is often treated as profitable data, will push gamification’s ludic environments increasingly towards a game by circumventing the logics in place to make their data a source of capital. This does not mean that the data will cease to be useful, but it will only be useful in the context of the game itself. The institutions, then, will be at the mercy of the game rather than the gatekeepers of play.

This dissertation contributes to research in Media and Game Studies. Specifically, it focuses on games, play, surveillance, simulation, and space. It combines theoretical work with a genealogical approach to critically examine the pervasiveness of gamification across temporal, spatial, and social contexts while also suggesting that gamified applications are far more than a marketing ploy. It closely examines gamification’s relationship with everyday
life, and therefore advances the idea that the impact of gaming, as an industry and a set of practices, is greater than the production, dissemination and use of video games themselves (see Galloway, 2006). Gamification continues to fan outwards, manifesting itself within diverse, emergent, and sometimes contradictory social and technical matrices. For example, gamification crops up in areas as diverse as healthcare, big data, simulation, consumerism, design practices, and even pet care. These matrices have, up to this point, been ignored in the broader conversation concerning media technologies and practices. Gamification comprises a collection of many procedures that are used differently across contexts.
CHAPTER 1—Game Studies and Gamification

Game Studies has been reticent to study gamification as a product of gaming culture. Since its public dismissal by Ian Bogost (2011), gamification has only had a small amount of play in Game Studies. While Bogost’s pronouncement that gamification was “bullshit” could be considered heavy handed, it was also written for a mass audience and published on the popular gaming site Kotaku.³ However, scholarly articles have been no less caustic. One, published in Games & Culture (Game Studies’ flagship journal) and written by game designer John Ferrara (2013), dismisses it in a no less totalitarian fashion—Ferrara calls it a “lie.” He states that the gamification “fad” assumes games can be “strip-mined for ‘useful’ bits that, when tacked onto conventional applications, should be expected to have the same effects as true games” (p.289). Rather than viewing games and gamification as a spectrum of similar practices with differing outcomes, Ferrara makes it seem as if gamification has a predatory with games. He states: “This lie exposes a disdain for play and an incapacity to perceive games themselves as useful and worthwhile endeavors” (p. 289). Ferrara’s claim is based on a formal argument about games—that there are “true” games—and it is a caveat that is repeated often by many early game studies scholars (Bogost, 2006, 2007; Juul, 2005; Salen & Zimmerman, 2003). This dissertation takes a different viewpoint. Rather than assuming there is any sort of “true” game, I question the narrative that games have a definite form and that play has a definite function.

³ Http://kotaku.com
Gamification’s dismissal may be due to the fact that it has not been thoroughly grounded in past or present. With the exception of one book chapter that primarily lists historical practices that resemble gamification (M. Fuchs, 2014b) there has been relatively little examination of gamification’s material or social history. Also, at present, critical approaches to gamification either treat gamification as unified “thing” (Bogost, 2011; Ferrara, 2013; M. Fuchs et al., 2014; Kirkpatrick, 2015) or only looked at single applications of gamification (Foxman & Forelle, 2014). What results is a relatively narrow pool of literature to pull from when examining gamification. Compounding this issue, there is a reticence in applying critical theory concerning games or gameplay to gamification. While I won’t dwell on the reasons for this, one can assume it is because, up until now, gamification has been accepted as a category ethically and ideologically separated from gaming. Couching gamification as an ambivalent set of practices leaves it with no theoretical home and no body of critical or historical literature for scholars to use.

I hope to rectify this gap. This chapter provides a literature review that addresses gamification in terms of critical game studies scholarship. This chapter explores the shared DNA of games and gamification. Also, it thematically approaches useful issues in the study of gamification that have already been covered in critical game studies literature.

The two themes that I use to examine the shared links between gaming and gamification are power and production. Power encompasses the unique properties of seduction in gameplay, which is linked to disciplinary power and yet serves as an alternative modulation focused on desire rather than fulfillment. Power, here, is used in the Foucauldian sense: it is circulated via relationships between actors, institutions and discourses. As we will
see, power in gaming is a difficult and complex subject. However, games’ relationships with power have far reaching consequences for players, who willingly engage in the negotiation of power in gaming through simulation, technology, space and embodiment.

Production is a concept that links closely with power, but focuses on how power plays out in the actions of players as they navigate gamespace. One aspect of production is gaming is the grind. Grinding is an innate part of gaming that involves repetitive, ritualistic actions by players to advance or progress through the game’s mechanics. The grind, then, is the labor/leisure aspect of gameplay. The grind is also the mechanism by which players exercise power with the confines of the game and how they develop and make meaning concerning their gameplay. If we liken games to a maze, grinding is the navigation of twists, turns, challenges and eventual rewards. Therefore, the grind encompasses gaming’s productive relations between capital, ritual, meaning and leisure/labor. By examining both power and production, I will explore a constructive set of concepts that are useful for examining both games and gamification. Rather than separating the two, I show that both share similarities and that the study of gamification should not be separated from the study of games. Rather, I suggest scholars consider gamification and gaming as shared practices that exist along a spectrum of power and production. Applications that are more gamified produce increasingly efficient behaviors directly related to the production of capital, usually through surveillance.
Games and Power

The debate over power and control in games is complex and to properly discuss power in gaming, we must attend to a few major issues. The first issue is the tendency to separate games from wider culture and to localize the effects of games to the intrinsic value of the game itself. If there is power and control in gaming, then that power and control is sometimes assumed to be bounded off or localized. The second issue is that power and control are often understood to stand in a dichotomous relationship to the player, as if the player resists or fights against the control of the game. Power, in this case, is not understood as being neutral or seductive, but as a negative of disciplinary force. This section employs critical literature (e.g. Galloway, 2006) to address each of these issues, which provides a roadmap for ensuing chapters on gamification.

Games and “Localized” Control

Games have, in the past, been considered “outside” of reality, and as such any circulation of power related to gameplay was considered to be contained within the process of play. That is, power circulated in a game was intrinsic to that game. Game studies scholars centered much of the debate concerning reality along the boundaries of the so-called “magic circle” (Mia Consalvo, 2009; Huizinga, 1950; Salen & Zimmerman, 2003). The circle, which will be covered in depth in the next chapter, has been interpreted as the boundary between gaming and everyday life (Salen & Zimmerman, 2003). Like a boundary, what happens within magic circle of the “virtual world” does not cross over or influence “the real world”—the game is considered a “half-real” or “synthetic” space that players make an “exodus” to in order to escape a “broken” reality (Ball, 2000; Juul, 2005; McGonigal, 2011; Meadmore,
However, recently game studies scholars have moved past the idea of a binary between what occurs in a game and what occurs “outside.”

One issue with contrasting games and reality concerns a dichotomous approach to what constitutes “the real.” T.L. Taylor (2006; 2009) states that games and play are best portrayed by nondichotomous models, or models that do not separate games from reality or play from labor, life and capitalism. This is in direct opposition to a formalist approach to games centered on a “truth” that games have a distinct form or function separate from everyday life. Following Taylor, Steinkuehler (2006) states that games are a “mangle” of categories: production/consumption and leisure/labor. Games highlight a number of struggles that are intertwined with issues concerning everyday life.

For example, gameplay contains conflicts of human intent (especially differences between game designers and players), material constraints, sociocultural practices and chance (Steinkuehler, 2006). Gameplay has also been called “part of what makes games and play so fundamentally an aspect of the human (and nonhuman) condition” (O’Donnell, 2014, p. 406). Aarseth (1997) states that games are “dynamic” processes composed of an interdependent ecology of simulation engines, players, databases, technologies, and non-player bots. Giddings (2007a) states, “we should recognize [digital games’] images and environments as marked by the semiotic excess of other commercial popular cultural forms…actual and virtual, embodied and distributed, human and nonhuman. They generate reality” (p. 428). For Giddings, digital games are not “Euclidean (cyber)spaces forming stages for the interaction between discrete bodies and objects” (p. 428). He maintains that gameplay and gamespaces comprise cybernetic systems—loops that are brought into being by, and bring into being both
virtual and actual objects and entities, including players. It is equally important to note that these loops cannot be considered “outside” or “inside” a specific realm. Rather, the cybernetic loop of gameplay has direct ramifications for everyday life by globally influencing cultural forms, flows of capital and technological practices (Dyer-Witheford & de Peuter, 2009). When studying power and control in games and gameplay, it is important to note that while power/control may take different forms, they very much “exist” and exert real influence on the circulation of goods, information and culture around the world (Dyer-Witheford & de Peuter, 2009). However, it is equally valuable to discuss the process by which games enter into broader circulations of power.

Grimes and Feenburg (2009) describe how games impact a wide variety of processes through instrumentality, or the uptake of technological logics into everyday practice. Instrumentality is essentially the spread of logics that are associated with a technological object. For example, the cell phone (a technological object) has initiated widespread changes in cultural practices across the globe; it is instrumental in affecting a wide array of processes not directly related to the logics of the cell phone itself. In gaming, the mangle of player/technology/game allows games to expand their territory. Digital games imbue a sense of instrumentality to play, which leads to a broader process called “ludification,” or the uptake of technologically influenced game logics in broader culture (Grimes & Feenberg, 2009). They state: “It is not that social order recapitulates certain features of games, but rather that games have themselves become forms of social order…Eventually, these games begin to generate their own form of social rationality” (p. 109). Boellstorff (2006) and Galloway (2006) claim that the instrumentality of games has led to the culture beginning to

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reflect a game. The creation of a class of subjects, the “gamer,” influences the design and implementation of other systems that hope to reproduce the subject in differing contexts. Players make themselves instruments of certain technological logics to acquire a desired state of being in the context of gaming. This does not go unnoticed by designers and purveyors of games—the voluntary instrumentality of the player on a mass scale designates that a gaming technology or logic could be instrumental in other sociocultural contexts. As already noted, game design (and by extension gamification) has become instrumental in health care, navigation and economics.

One example of this is the sudden influence of gaming and gamification in neuroscience, cognition and the science of aging. Lumosity, a gamified website that hosts a variety of “brain training” games, has over 70 million unique users according to its website.\(^4\) *Lumosity* claims to improve cognitive functioning with a vast regimen of games designed by “neuroscientists.” However, *Lumosity* also shares and sells its enormous data set with researchers, driving research into cognition, memory, attention, sleep and aging. The games, taken from schematized tests used to measure IQ, memory and cognition, are modified and hosted on the site. Players compete against themselves and others to improve the baseline cognition. In addition to lateral surveillance and self-archival, Luminosity sells and shares its data with “over 70 research partners” through its “Human Cognition Project.” While its partners are kept secret, its site lists its clients such as “healthcare providers” and “top universities.” *Lumosity* single-handedly provides the largest cognitive and intelligence-based

\(^4\) [http://www.lumosity.com](http://www.lumosity.com)
data sets in the history of neuroscience and psychology (Kontour, 2012). Gaming’s formal qualities—it is widespread, pleasurable, easily monitored and consists of cognitively stimulating processes—have led to it being instrumentalized as a research tool of enormous proportions. *Lumosity* is one example of how instrumentality circulates the seductive power of gaming outwards, and ludefication touches the lives of more people than one might think.

Because game design and gaming are successful in a variety of contexts, the fundamental designs of other processes (such as health care, advertising or consumer research) are altered to reflect this success. Players, as such, adopt instrumentality in relation to games and “play comes to operate as a source of institutional order” (Grimes & Feenberg, 2009). As Trammell and Gilbert (2014) put it:

> Our playful imprints in big data have produced depositories filled with beings that possess powers and ramifications far greater than those possessed by most individuals, yet we constantly and consistently deny our hand in their production. Play allows us to neglect responsibility for these creations, while simultaneously allowing them to take on lives of their own (p. 402).

Along these lines, critical Game Studies literature has allowed scholars to move beyond the idea that power and control in games stays localized in gameplay. Rather, games and their related technologies spread and evolve well beyond any sort of magic circle. As Galloway (2006) puts it, games have becomes harbingers of an algorithmic culture, one where the cybernetic loops of gaming become present in a variety of contexts, and gameplay shows up
in everyday life where it otherwise wouldn’t. It is this algoritmic culture that breeds “algorithmic surveillance,” such as the types used in gamification and serious games (Sternberg et al., 2013).

However, the idea of localized power and instrumentality serves to highlight a key difference in games and gamification. Games are instrumentalized based on the success of their design. However, their outcomes are still intrinsically motivated. The success of a specific element of game design may be used for other processes, but it does not mean that the game itself is altered. *Pac Man* or its outcomes are not changed because its design was instrumentalized for other games and external processes. Intrinsically, *Pac Man* remains the same. However, *Lumosity* (which contains several games based on the design of *Pac Man.*) is linked to a variety of other non-localized processes. Perhaps then, gamification is not just evidence of instrumentality: it is the direct result of instrumentality. If this is the case, then it follows that not just design elements are instrumentalized. Rather, it is the seduction-oriented methods of control utilized successfully in games that are being mined and exported across of variety of networks.

This dissertation is largely an exploration of how gaming has become instrumentalized, leading to gamification in health care, pet care, personal fitness, productivity management and other sectors. The instrumentalization of games’ unique mode of power and control provides the conditions surrounding the existence of gamification. Gamification, and projects like *Lumosity*’s “Human Cognition Project,” shows how power in games is a decidedly non-localized matter. Because power and control, enacted through games, spread they cannot be viewed a minimally as intrinsic or localized practices. But
games, to be effective, must have active players. Thus, power and control must also be explored within the context of gameplay.

**The Player/Game Dichotomy**

In the Introduction to this dissertation, I laid out a view that seduction is the primary modulation of power in games and gamification. Seduction answers *what* form power takes in gameplay, but looking at *how* power and control is generated in gaming has been a long-running debate and is the result of a “player/game dichotomy” (*Welcome to the Brain Age: How Culture Industry Transforms Videogames into Mental Training Tools in the Neoliberal Society*, 2008). For Voorhees (2013), the player/game dichotomy focuses on the diffuse mechanisms of control in gaming by posing the question: “does the player control the game or does the game control the player?” The answer, of course, should dictate which agent holds power over the other.

This led to two primary approaches in Game Studies: one that studied the design/mechanics of the game as the primary agent exerting control and those who explored players as the primary agents who shape and build meaning in the game. According to Voorhees, liberal arts and effects studies research backed the player-centric model in which an active subject constructs meaning in the game. Thus, design can be put to use by educators and policy makers to influence and guide active and engaged players. Some examples of this type of research are studies of community in video games (D. Williams et al., 2006), studies of embodiment/meaning-making (Crick, 2011; Lainema, 2009) and studies of effective design (Whitton, 2011). In these studies, the player initiates and sustains meanings through the game and the game merely provides a framework. In these studies the game is a tool for
the player (or designer) to use. This model is also commonly used to test and report on gamification, and provides the majority of articles concerning gamification (Lieberoth, 2015; Nicholson, 2012).

The game-centric category essentially views the player as a function of the game, meaning that there is no active subject and the game’s mechanics limit and determine experience. In these studies, the structure, design, logics and visual representations of games comes under scrutiny (Welcome to the Brain Age: How Culture Industry Transforms Videogames into Mental Training Tools in the Neoliberal Society, 2008). Critical studies locate the source of power within the game, and players become subject to it. Examples of this scholarship can be found in the exploration of ideology/economics/warfare in games (Crogan, 2011; Dyer-Witheford & de Peuter, 2009) and the interfaces that structure play (Galloway, 2006; Rush, 2011). For Voorhees, the formalist camp believes “a game is meant to be played, but it is…the game that control critical practice. Players are not objects acted upon by games; they are objects within the machinic apparatus of the game; they are pieces in play.” (p. 15). Thus, control is only dictated by rules, representations, interfaces and mechanics. The only logics are those put forth by the game designers and enforced by games. This method of inquiry is what forms the basis of critical gamification literature, such as studies concerning governmentality (Schrape, 2014) and modes of “counter-gamification” (Dragona, 2014).

However, Voorhees (2013) states that the player/game dichotomy is false, maintaining that gameplay is the concept that embodies, power and agency: gameplay is the
site of co-constructed control that exists on the part of the player and the game. Similarly, N. Taylor, Bergstrom, Jenson, and de Castell (2015) describes gameplay as an “economy of desire that operates between the player and the game” that contains a variety of elements including narrative, visuals, technology, space, pleasure and attention. This economy is based on co-agency and negotiation; it is the seductive aspect of gameplay, the continuous and procedural engagement with desire and possibility.

The conceptualization of gameplay as control situates control at the “nexus of structures of domination and individual agency” (Voorhees, 2013). Voorhees states that gameplay can be understood from the perspective of Foucauldian power: the relationship between the subject and power is not antagonistic, but rather a process of negotiating desire through the circulation of continuous possibilities. Gameplay, then, is a “possibility space” that is “bounded by but not bound to game rules” (Voorhees, 2013). Voorhees’ concept of gameplay as a space of possibility that is the nexus of a positive, seductive form of control is also echoed in critical scholarship concerning the rules and mechanics of games. It is here that I would like to locate the critical study of gamification, within the seductive loop of gameplay. One way to examine how gameplay operates in gamified applications is through examining how players interact with rules.

**Gameplay, Rules and Power**

Critical literature on rules and players situates collisions between the two on separated but connected planes. The collision is between the rules of the game and the player, and the second is between the players themselves concerning how the game is played. Tulloch (2014) states: “Power in games is also about the rules of the game; who follows them
and who doesn’t” (p. 347). As such, power does not necessarily occur by force outright. In other words, games do not have power over players. Rules enable players to interact with the game at the most basic levels and thus they enable players to begin the process of co-agential meaning-making and creation with games and their related technologies. Far from restricting players, rules are the very basis of players’ agency within games. This is an important point is freeing gameplay, whether or not it is gamified, from the player/game dichotomy. The notion of power in gameplay must be productive of relations outside of abject domination—otherwise gamification’s success in controlling populations is already written in stone.

This interpretation of power in gaming works against the concept that rules in games are restrictive. The idea that rules are enabling is a Foucauldian interpretation, one that takes the agency of the player into account (Tulloch, 2014). For Foucault (1977), a subject is a creation of power and also the means by which power sustains itself. Tulloch maintains that this approach sheds light into the pleasure of gameplay and why players take it upon themselves to either police or violate the rules of play within a gamespace by any means possible. J. Kücklich (2009); J. R. Kücklich (2009); D. M. Wood and Ball (2013) points out that modders, who work countless hours to create personalized effects within games by programming against the rules, work in a balance for and against the design of the game. On one hand, popular mods like Counter Strike (CS) and Defense of the Ancients (DOTA) are picked up by game companies and sold as bonafide games in and of themselves. In both cases, the labor of modding led to entirely new practices and genres of games. DOTA spawned the enormously popular genre of multiplayer online battle areas (MOBAS) and CS was one of the first games to be played professionally in the then-nascent e-sports scene. In
these cases, the mods themselves were instrumentalized. On the other hand, illegal mods are sometimes viewed and cheating and they are banned or removed. In either case, the modders (and cheaters) actively modulate the mechanics of gameplay (the process of “techno-semiotics”) in order to extend the life of the game itself (J. Kücklich, 2009). The precarious position of the modder shows the lengths that players will go to extend the process of seduction within a familiar mode of gameplay.

For Tulloch (2015), the outright obedience to rules in a game “is not a given but rather a complex negotiation” (p. 348). Rules that are banal or unnecessary may result in a game being shelved or intentionally modified. Rules that are restrictive kill a game simply because, as I have noted, a game cannot force players to play. Rules are the building blocks that create games; they are also the constructive elements that sustain gameplay. While set up by designers, they do not always result in expected outcomes. Tulloch states that games “must offer the player the kinds of experiences and pleasures they are looking for or the rules will be challenged…Players are far from unwitting prisoners of restrictive rules; they are active agents in the construction of play” (p. 348). This idea that players push and pull with and against the rules, using them as a source of power, is important to the study of gamification because it pictures gamification as a series of relationships between players, designers, and the game itself. These relations form the basis of tensions between power, knowledge, and control in gamified environments.

Power in games is a process of co-construction that “allows us a way of viewing rules and player agency not as competing forces but rather as part of the same force” (Tulloch, 2014, p. 348). Rules enable the economy of desire that comprises gameplay. If a player
desires to complete an objective, then she utilizes the rules to do so. In this model, the rules are not antagonistic: the purpose of the game is to be played and the purpose of the player is to gain pleasure from playing. The rules aid her in procedurally generating and sustaining her desire and the challenge they present is a large part of the pleasure. Because the game is partly comprised of rules and mechanics designed to present a space of possibilities, they also aid the player in exploring it. However, power is also negotiated between players, designers and rule systems.

Key evidence of power as negotiated between players is demonstrated by T.L Taylor (2006) in the multiplayer online games of *World of Warcraft*. Taylor (2006), one of the first authors to reformulate formalist positions taken by early Game Studies authors, notes:

Life in game worlds is not exempt from forms of player-based regulation and control…systems of stratification and control can arise from the bottom up and be implemented in not only everyday play culture but even player-produced modifications to the game system itself (p. 318).

While game designers do make rules to govern the ways in which conflict and complexity unfold, often built into the architecture of the game, they do not always represent the desires of players to manage their own play in relation to others. Taylor found that players created their own mods to manage relationships with other players. These mods filled a number of gaps within the provided architecture of *World of Warcraft*; namely, the ability to monitor other players’ behaviors. The mods were “an extensive network of tools and functions that consistently monitor, surveil, and report at a micro level a variety of aspects of player behavior” (Taylor, 2006, p. 329). The fact that players created their own tools for
addressing needs in gameplay supports the idea that rules, enabled and abetted by technological modding, support players in their desire to play with one another in a certain manner, rather than restrict them. Surveillance and power go hand in hand, and the ability to laterally monitor (and self-monitor) play behaviors in relation to the rules is inherent to gaming’s relationship to the deployment of power as it plays out among players. Within the larger structure of rules, players mod the game to negotiate power with one another, determining how the power is shared and with who. While one aspect of power in gameplay is players’ negotiations of rules, players also create their own rule systems within the game, which may challenge the protocol set up by designers (T. L. Taylor, 2006). The importance of rules coinciding with and supporting desire is equally important to counterplay, or alternative methods for play that forgo or outright change the rules through heavy modding or cheating. It is in bending the rules that players shape the mode and modulation of gameplay to suite their own desires and ensure that the seductive state of gameplay remains active. Additionally, it is this pushback that keeps the game itself in a constant state of evolution. This is important to note for gamification, since counterplay involves constant evolution, a point I bring up in subsequent chapters.

Rules in a game can be perfectly made, but no matter how wonderful the rules, part of seduction revolves around negotiating desires and imagination of the player. All gameplay invites counterplay and cheating, creativity and bending the rules. Consalvo (2009) maintains that counterplay, and specifically cheating, is an example of players circumventing designated rulesets to create pleasure outside of the modulated possibilities present by the game. The cheater, states Consalvo, is actually the most aware of the rules: in order to cheat,
the cheater must assume that everyone else is following the rules or else “the cheater gains no real advantage” (p. 409). “Cheating can be an excellent path into studying the gameplay situation,” Consalvo says, “because it lays bare player’s frustrations and limitations” (p. 415). Like Taylor (2006), Consalvo points out that game rules must inevitably be taken up, bent, modified, extended and, in some cases, ignored by players in order sustain the economy of desire that is embodied in gameplay.

Game Studies scholars have located the nexus of control and power in the process of gameplay. Additionally, they have also explored how rules enable or disallow the circulation of desires of the player in the interest of sustaining gameplay. Sustaining gameplay sustains seduction, and players will inevitably alter and modulate rules in order to continue the process of being seduced. The study of power and control in gaming is valuable to the study of gamification because the conditions of gamification are rooted in the instrumentality of gameplay. Instrumentalized, seductive modulations of power allow services like Luminosity to exist. At the same time, seduction is also entirely reliant on the desire of the user to continue. This means that users also exert power by enacting changes to rules in order to modulate their own pleasure. These demands can be taken up within the game through modding, which allows players to “customize” their relationships with the game’s design and with each other. However, when rules do not allow for modification, players are willing and able to counterplay, which effectively allows them to modulate what types of control they are willing to submit to. However, this issue leaves Luminosity in an awkward position: if players attempt to modify or cheat, then the data that has been so useful to researchers
suddenly becomes useless. If the data is useless, then the use value of the game from the standpoint of both players and researchers is diminished and the game effectively ends.

Herein lies a key difference between gaming and gamification: while gaming can absorb and even encourage counterplay and modding to extend the pleasure of gameplay, gamification is not nearly as flexible. Because the data in gamification is extrinsically useful and profitable to players (who believe the game is scientifically accurate) and researchers (who rely on the results to prove that accuracy) the game cannot be modified and cheating would be disastrous for the veracity of the data. Still, both modding and counterplay serve to illustrate how the negotiation of desire and the economies of pleasure in gaming and gamification are the result of two forces (player and game) acting in tandem to mutually extend a state of seduction. However, they also serve to illustrate a key mutation in gamification: gameplay is fully instrumentalized and networked into wider flows of capital by making player data the key endpoint of all gameplay. Data, for other games, can be used to intrinsically modify the game itself or inform design aspects in other processes. In gamification data is the productive process.

However, another issue arises: what does gameplay produce and, more importantly, where does this production occur? This issue leads to my second theme: the issue of production and the grind. If gameplay is a seductive modulation of power that controls by economies of desire, then what is the logic of this economy? Game Studies literature’s treatment of production and labor reveals a complex portrait of what gameplay’s outcomes
mean for both players and the broader economy in general. They also lead to pressing questions about economies of desire in highly instrumentalized gameplay.

**Gaming and Production**

Game Studies literature has evolved from the idea that games exist in a “magic circle” (Salen & Zimmerman, 2003) to the idea that “there is no magic circle” (Mia Consalvo, 2009). For gameplay, the conceptual breakdown of the magic circle leads to the exploration of non-localized power and control through gameplay. However, it stands to reason that instrumentality cannot exist unless gameplay exhibits some form of use-value. This means that gameplay must produce something than can be utilized for a large number of institutions. Seductive power is certainly on outcome of gameplay; however, games also have an economic output that is substantially entwined into everyday life (Dyer-Witheford & de Peuter, 2009; Galloway, 2006). It has already been noted that capitalism itself is a global game of enormous scale (Baudrillard, 1998b, 2005) and that science and knowledge are “games of truth” or “language games” (Foucault, 1988; Toft-Nielsen & Norgard, 2015). However, these games are so diffuse they have (unfortunately) lost their *sin qua non* status as “games” in critical scholarship. What can the actions of players contribute to larger circulations of power?

To explore relationships between player labor and gameplay, we must begin with exploring the space where production takes place. As geographer Harvey (1990) states, capitalism and production are linked spatial practices concentrated around moving resources, ideas and power from one place to another. According to Harvey, the production of spatial
relations is key to the continuance of capitalism. Locating the production of capital through gameplay entails locating the type of space that gameplay produces. We must begin with discussing the production of gamespace.

**Producing Gamespace**

Scholarship on gamespace originally located the space of games within the set boundaries of their rule systems (Salen & Zimmerman, 2003). As such, gamespaces in early formalist takes on games constituted them as purely “half-real” spaces that are generated solely by players’ interactions with rules and mechanics (Juul, 2005). Gamespace, then, was considered to be a “procedurally generated” rhetorical space that contained and constrained player actions (Bogost, 2007). However, this idea has been altered by recent game studies scholarship that focuses on gamespace as a process linked to gameplay (J. Dovey & Kennedy, 2006; Welcome to the Brain Age: How Culture Industry Transforms Videogames into Mental Training Tools in the Neoliberal Society, 2008). Gamespace, then, largely entails the “spaces of possibility” that are opened up by gameplay, meaning that players actively generate gamespace rather than gamespaces generating players (Welcome to the Brain Age: How Culture Industry Transforms Videogames into Mental Training Tools in the Neoliberal Society, 2008). However, this generative power is shared. In turn, the player granted player status so long as the process of gameplay continues—gamespace is the negotiation of the status of player and she explores the possibilities of gameplay. It grants and sustains the body of the player as so long as gameplay continues. This creation of the player through gamespace, the conversion of the quotidian
body to the body-in-play is key for the profitability of gamification. The body-in-play is a watched body, a body that is entangled in quantified rule sets. It is the body of the player that generates the data needed for gamification to occur, and it is gamespace that sustains this body as a source of capital. Once the gamespace terminates itself, the body of the player and the space it is in return to inactivity.

For example, a simple game like *Pac man* cannot unfold without the player’s input with the physical interface of the controller. Without input, the space of *Pac Man* remains frozen—the entirely of gamespace consists of many different levels, environments and possibilities. However, these possibilities cannot come into being unless a variety of contingencies are met. The technology must work, the player must master the physical use of the technology and the player must decide that the gamespace is “worth it” in terms of pleasure. This last part involves the negotiation of gameplay—the economy of desire between the player, technology and mechanics.

Wood (2012) states that gamespace is “co-constituted” by gameplay: “This space is recursive, based on feedback between the state of the game (relations between the objects) and the state of the gamer” (p. 102). For Wood, gamespace is instantiated two ways: one is the player’s engagement with the designed space of possibility via technology and another is the procedural creation of co-agential gamespace that exists beyond the cybernetic loop. Thus, gamespace is understood as a recursive space that exists based on contingency—the contingencies of the game’s mechanics, the contingencies of the technology on which the game is played and the contingencies of the player’s body as it interacts with both mechanics and technology (Malaby, 2007; A. Wood, 2012). While gamespace might be formally
classified as a series of procedural rules (Bogost, 2006, 2007), these rules require constant collisions and engagements between player, technology and possibility—instantiated and sustained via gameplay—in order to exist. Thus, the creation and maintenance of gamespace is of the utmost importance for gamified applications. At the same time, these applications must cede control to the desires of the players, and gamified spaces must be in constant lockstep with the desires of the player.

This aspect of gamespace creates organizing principles that allow play to extend beyond the capacities of the game itself as meaning-making practices. Once again, gamespace is produced by a mangle. “Players manage their input to try and work with or against the ways in which the game recursively plays out…any action of an avatar mediated by the gamer has the potential to alter space” (Wood, 2012, p. 103). Recursive space proposes that gameplay interacts with both the meaning-making actions of the player and technology—it is an entanglement of code, materiality and the player’s actions as they deliberately build gamespace via technological co-agency.

This view also brings the body of the player into question. While gaming, the player’s body is extended through gamespace via technology—i.e., the player is technologically embodied in gamespace via cybernetic loops constantly reproduced through engagement with technology (J. Dovey & Kennedy, 2006; Simon, 2007a; A. Wood, 2012). In this seductive loop, the body of the player becomes a technologized body that is enabled and constrained by a willing negotiation with gameplay’s requirements (J. Dovey & Kennedy, 2006). One example of this comes from the labor that players put into the technologies that enable them within gamespace. Gameplay highlights the co-dependency of players and machines in the
act of gameplay and the production of gamespace. One example explored by Simon (2007) involves practices such as case modding (or building and decorating the cases that house gaming equipment) and LAN parties, where players set up impressive networked spaces for localized multiplayer gaming. In both instances, players go through extreme effort to display and valorize their co-productive status with technology and materialize their relationship with gamespace. The effort is important to the study of gamification, because these efforts to combine the body with both technology and mechanics are what produces data—the desire to meld with gamespace and its rules is the primary site of activity, and the primary source of data.

Many players produce aesthetic displays of the technology that gives them the chance to engage with gamespace. Simon’s (2007) study on case modders and LAN party enthusiasts shows that players often “revel in, and indeed identify with, the material guts of their computer systems” (p. 175). Simon points out that players, specifically those who game via computer rather than console, are in stark relief to the model of “invisible technology” famously proposed by design scholar Don Norman (2008, 2011), a rule of design that assumes technology should fade into the background during use. Simon states that “it is in the cultures of gaming…where the desire for escape and the imperative for invisible computing meet their sociomaterial limit” (p. 176). Gamespace relies on the body of the player as it is engaged with technology. Not only this, it also relies on the pleasurable, material display of this relationship.

A key example in the co-agency in the creation of gamespace is the gaming culture of e-sports, where public and competitive displays of technological prowess are regular features
in the lives of players who classify themselves as “elite” or “professional” (Nicholas Taylor, Jenson, de Castell, & Dilouya, 2014; N. T. Taylor, 2009; T. L. Taylor, 2009; T.L. Taylor, 2012; T. L. Taylor & Witkowski, 2010). In gamespace, “the software and the hardware are themselves objects of pleasure, fantasy, and possibility” (Simon, 2007, p. 191). While the body might be seen as a frustration, the case mod turns the player’s technologically co-constructed body into a source of pleasure that is “coextensive” with the gameplay and gamespace (Simon, 2007a). Thus, the production of gamespace is inevitably linked to the technologically enabled body of the player. The produced/productive body of the player is also key in the continuance of gameplay and gamespace. The body, then, is instrumental in the production of gamespace and the players are engaged in what T.L. Taylor (2006) calls “the joys of instrumentality”—a desire to become engaged in the process of gameplay. The body of the player is the productive benchmark for the continuance of gameplay, gamespace and seduction.

For gamification, the technologized body of the player operates as the primary focus of production, as well. Like games, gamification targets the body of the player and the primary mode of production for gamification’s capitalization on gamespace. However, gamification drives the body towards more efficiency in the context of everyday life. In non-gamified gamespaces, gameplay can take a variety of actions and encourage them such as aimless exploration, experimentation or free play. Gamified gamespaces almost always are
geared towards making the player’s body more efficient in the production of gamespace and, by extension, capital.

For example, Kirkpatrick (2015) outlines the effects of “ludification,” or the negative side effects of applying games and game mechanics to labor practices. Kirkpatrick targets applications that turn workdays into a series of points, levels and feedback mechanisms. One example of such an applications are Badgeville and Bunchball, gamified software that provide customized project and workforce management solutions that utilizes goal-setting mechanics, real-time feedback, positive rewards and progression to make workforces engaged on the job or keep consumers engaged with the brand (Mintz, 2011; Zhang, 2013). “Work comes to seem more attractive even as it makes more intense and invasive demands on its human subject,” Kirkpatrick writes. “Beyond this, however, ludification grasps the way in which gamification intensifies exploitation in the, probably unprecedented, development of allowing power to tap into the radical imaginary, that is, the facility we have for creating an alternative, better world.” With software like Bunchball, the body of the player (who is at work and play simultaneously) is reduced to a series of points and levels determined by the amount of time they spend doing certain actions with technology. Checking and responding to e-mail, completing tasks and attending meeting are logged, categorized and rewarded. The technologized body becomes the generative mechanism for gameplay. However, Kirkpatrick’s take on gamification identifies it as an “ambivalent” practice, one without clear benefits and more than a few dangers.

By contrasting labor with play, Kirkpatrick (2015) has set a binary that may be faulty: perhaps ambivalence is the result of the categorical definition proposed. Game studies
literature has recently begun to bring the idea that play is the opposite of labor into question. A key aspect of this has been the study of “the grind,” or repetitive action by players in pursuit of capital that become ritualized. The grind, and related practices such as gold farming, highlight how gameplay and gamespace intersect with labor and capital.

**Games, Labor, and the Grind**

Game Studies scholars have begun to examine the connections between gameplay and labor through examining the process by which players produce intrinsic capital within games and how this capital is instrumentalized for extrinsic uses in the broader economy (Dyer-Witheford & de Peuter, 2009; Steinkuehler, 2006). There are two primary practices that have garnered the most attention: the grind, which involves working for currency in-game, and gold farming, which involves selling and trading digital currency for fiat. Both are viewed as forms of “playbor” (D. M. Wood & Ball, 2013), or the collapse of labor and play into categorical indeterminacy. The grind involves the use of productive playbor to intrinsically build meaning into the in-game economy and the gold farming is an example of how the in-game economy is directly linked to broader economic processes.

The grind is primarily the use of repetitive mechanics to create ritualistic behavior. Grinding involves collecting objects, points and other positive reinforcements via gameplay. For example, players in *Lumosity* must play games in increasingly efficient ways to collect, or grind for, “Lumosity Points” (LP) that supposedly represents their “intelligence.” In large multiplayer games like *World of Warcraft*, the grind drives the player economy—users must collect and craft items to sell on auction houses. The scarcity of items and the benefits that
items provide influence the price they bring on the auction. The grind has been noted as a primary cause of collisions between game economies and everyday economies (Dyer-Witheford & de Peuter, 2009; Steinkuehler, 2006). J. R. Küchlich (2009) highlights the process of gold farming as exploiting the grind for money and bypassing—or “creatively interpreting”—game economies in order to accrue fiat currency.

The grind is time consuming in many games and exists to place boundaries on game economies and prevent deflation of goods. Like real-world economies, resources in games gain value through scarcity. Some resources are easy to find and some are harder. Like cheating, gold-farming and RMT address scarcity through a “shadow economy” of labor that provide game goods for either real money or paid labor (Harambam, Aupers, & Houtman, 2011). Steinkuehler (2006) gives an example of gold farming where individuals are hired by a virtual currency selling company to spend long hours in-game to cultivate currency (in this case called “adena”) or resources which are sold online.

As best as I can piece together, Chinese adena farmers normally work 12-hour shifts…with two people to each computer so that the in-game character they share is always online. Typically, they must collect 300,000 adena per shift in exchange for their daily wage of about US$3. It may not sound like much, but compared to China’s average yearly income of US$316, it’s rather lucrative work (p. 203).

Like everyday economies respond to black markets, an in-game economy must respond to counterplay such as RMT and gold farming. They do this by altering regulations, laws and
rules or embracing the practice. Increasingly game rules and regulations include deliberate crossovers between real-world economies and game economies. For example, Blizzard’s game *Diablo 3* provided players with a real-time auction house where in-game currency can be converted to U.S. dollars via a fluctuating rate. Like fiat currencies, the price of in-game gold and items fluctuate based on scarcity and the strength of the currency in question. As Dyer-Witheford and de Peuter (2009) point out, gaming is not separated from the larger flows of capital—it merely participates in these flows via unique circulations of gameplay in recursive, imaginary spaces.

Gold farming and RMT exist partly because the grind can be time consuming and unpleasant. If games ever approach outright labor, it is when there is a grind. Additionally, in the case of RMT and gold farming, it can be disastrous to players and in-game economies rather than helping them. Scholars point out that the reason for the grind are the “joys” of ritual in the process of meaning-making (Burroughs, 2014; Alison Gazzard & Peacock, 2011). In other words, capital accrual in gamespaces embodies more than just raw economics and money. Beyond the obvious economic market—where game development companies make money from individual games—the players engage in a larger, less tangible economy of social capital and personal meaning accrued through gameplay that is informed by plabor and the grind.

Games involve repetition and rules that contribute to both in-game economics and external economics, but there is also a social realm to the grind: the creation of ritual logic through recurrence and repetition that then links to a general sense of player well-being and transformation. Alison Gazzard and Peacock (2011) maintain there are two meanings to
repeated actions that constitute the grind: One involves the function of the game itself (the actions are needed to make the game work), and the other has to do with the creation of a ritual, the “conscious awareness” of repeated actions and the “deliberate execution of them to make a special meaning.” Gazzard and Peacock state: “These recurrent actions are characterized by being mainly reactions and responses, and may be seen as being ‘automatic’ in their operation and awareness as these are the thrills and pleasures of being immersed in the game” (p. 505). These two meanings combine to form a “ritual logic” to the grind, an innate understanding of how and why the grind moves the game forward. Gazzard and Peacock explain: “Ritual logic is about the way ideas of ritual move through the culture and its artifacts, and inhabits the minds of the members of the culture. Ritual logic is about the way a videogame player understands what ritual is, what it does, and how it operates” (p. 501). Ritual logic is the transformative process from repetitively collecting and arranging items in service of meaning, narrative and engagement. In this manner, the grind instills some sense of meaning and accomplishment to gameplay while also instilling logics to the methodical and recursive actions sustaining gamespace and the subject position of the player. The transformation of repetition into meaning is an important aspect of gaming, since it moves outside of the bounds of cultural artifacts and processes. Instrumentalizing the logic of repetition gives meaning to the broader impact of gaming as social logic. It is this repetition that inspires efficiency, and efficiency supports the gamification’s capitalization on the players’ actions.

Scholars also point out that the grind is a collective way of making meaning on a broader scale. Niman (2013) states that players, as a whole, dedicate their time and efforts to
solving problems in-game. He states: “Righting a wrong…or making the world a safer place are all examples where multiple individuals have contributed to a single problem…Because the problem is so large and the solution requires the help of many, working toward a solution confers great honor” (p. 38). The pleasure of defeating a boss or defending a kingdom is enhanced by the grind that precludes it. The grind, and gameplay in general, is considered socially collective providing both intrinsic and extrinsic rewards. In-game, players cultivate a ritual logic via the grind. On a broader scale, there is a sense that through gameplay, many players are collectively working towards the goal of problem solving for specific games.

Collecting social capital through grinding is most obvious in multiplayer games; however, single-player games often develop communities that explicate problems through walkthroughs and “Let’s Plays” (LPs), where play sessions are shared via sites like Twitch and YouTube. LPs are, in their own right, an exercise in plabor since the hosting sites and the streamers themselves collect capital from the advertisements and views of their recorded sessions. Thus, plabor also falls under the shroud of “informational capitalism,” which extends the bounds of class and capital beyond the scope of material or economic labor (Behrenshausen, 2007; Fernández-Vara, 2009). Informational capitalism exploits the labor of anyone who creates or recreates informational content in digital spaces such as social media sites and message boards—under informational capitalism, even creativity and play taking place in open public can be harnessed and extracted (Behrenshausen, 2007). Informational capitalism and plabor are also tied to the socioeconomic transactions between players, and game companies within gamespace. These transactions, of course, are tracked and manipulated through the design and re-design of the game. They form, alongside
surveillance, the basis of profit in gamified environments. Players produce capital by grinding for micro-transactions and also by producing data through their grinding activities.

Players’ collective grinding activities in gamespace can be extracted and harnessed by the gaming industry itself. In China, there is a “secondary industry” centered around the socioeconomic activities of the largest Chinese guilds in multiplayer games (A. Gazzard & Peacock, 2012). Zhang and Fung point out that “as the secondary industry has evolved…This changing regime of value has given rise to bio-political control of consumer labor and, along with state control, is drawing gamers into the tug-of-war between entrepreneurial invention and labor exploitation” (p. 38). Informational capitalism is also practiced in-game between players, as well. As noted by M. a. D.-K. Molesworth, Janice (2007), non-violent and trade-oriented players of the space exploration game *EVE Online*, known as “industrialists,” are targeted and exploited by players and the game designers for the purposes of informational capitalism. Attacks, based on high prices in-game, against non-violent players who engage in resource-harvesting and trading were condoned by the designers, who cater to players who prefer combat. The industrialists’ deep knowledge and informational labor in the economy of *EVE Online* designated them as targets to other players. Plabor and the grind, then, are signs that gameplay is productive and also suffers from the same tensions as broad capitalist economic processes. This complex model of plabor also sheds light on the conditions of gamification and its modes of production.

When gamified, the grind cultivates ritual behavior via gamified play. It also produces valuable data and valuable behaviors. However, the ritual logic behind repetitive actions also creates a larger, goal-based community around the gamified application that aids
in providing unique motivations in extending gameplay. This is accomplished by folding ritual-inducing behaviors and social rewards into the game’s architecture. *Farmville*, an application that involves running a socially-linked farm through *Facebook*, is an example of a gamification that combines the grind with social motivations. Data from gameplay is harvested through *Facebook*, which hosts the game, revealing both interpersonal networks and behavioral patterns ensconced in *Farmville’s* ritual logic. Burroughs (2014) points out that *Farmville’s* ritual logic involves plabor that leads to a “feeling of contribution.” Burroughs explains the grind as a “digital ritual” that gives meaning to the recursive actions of players and creates a sense of community. For Burroughs, the grind is largely a question of design. In a sense, the grind and the resulting rituals are enhanced by the “architectural structure” of the game. The pleasure of the grind results from a shared sense of agency within the context of game mechanics dispersed through the architecture of gamespaces.

Burroughs (2014) states that *Farmville* players derive “a great deal of pleasure” from the grind. Players collect and farm seeds, but they also collect friends who will help with farming their crops. This creates a favor economy linked to social capital. The addition of friends is a social grind that directly impacts the mechanic-driven grind of farming and selling crops. Additionally, they derive social pleasure that is “architecturally driven” into the gamespace. The gamified grind, and its resulting extrinsic social pleasures, occupy a “liminoid phase” where subjective identities are blurred—they become “malleable” (Burroughs, 2014). In other words, the identity of the player becomes indistinct and able to take on multiple successive roles and identities. This malleable subject exists between “play” and “labor.” Plabor inhabits an “in-between space” that is “meaningful for stepping outside
the structures of power and constructing social bonds” (p. 162). Burroughs suggests that these liminal spaces are useful for producing labor-like behaviors without the onus of labor. But as Kirkpatrick (2015) argues, ludefaction—the “fracking” of the radical imaginary concerning play and labor—may result in increasing demands on the plaborer such as longer work hours, faster tasks, and more speedy interactions. These demands are hidden behind the curtain of gameplay, where concepts of abuse and coercion are reduced to a manageable, liminoid status.

However, research also shows that injecting plabor into everyday labor reduces stress and heightens enjoyment—when skillfully designed in certain contexts (Herodotou, Winters, & Kambouri, 2015; Whitton & Moseley, 2014). Perhaps it is heightened enjoyment and reduced stress that are hallmarks of seductive power when deployed for production. While players certainly find some joy in the grind, that does not remove it from circulation of power and control in gameplay. Gamespaces may be co-constructed, but this does not mean that they are fair. That seems to be the core question when it comes to power and production in both games and gamification: what are the effects of unfairness, surveillance and exploitation if this is all just a game? Does the fact that play is involved lessen the ethical impact, or make exploitation and control all the more heinous?

**Conclusion**

The observations made in this chapter serve a few purposes in the scope of this dissertation. The first is to provide ideas and literature from which to proceed unravelling gamification. Born from the same DNA as games, gamification also raises many of the same
questions concerning power and production. This chapter also provides an overview of the ontological position of gamification regarding games with a focus on critical studies.

The observations listed here, and the fact that gameplay is an organizing principle that stretches well outside the boundaries of “a game,” gives an urgency to the critique of gamification from the standpoint of games, gameplay and play. Games and play are unstable and ambiguous entities. Gamification, a set of practices that inserts game mechanics into non-gaming situations, sits at the center of this situational ambiguity. Bart Simon (2006) sums up this ambiguity between work and play neatly:

We should continue to theorize the relationship between technology, culture, social interaction, and subjectivity but also more carefully consider the role of games and play in a world often defined only in terms of relations of work and stress (p. 64).

Similarly, Trammel (2014) states: “Not only can our reality be configured theoretically as a gamespace, but it is now also being explicitly and materially engineered as a sort of gamespace…games are becoming the predominant paradigm of the commercial sector” (p. 399). Beyond the commercial sector, gamified applications are being incorporated into a variety of “serious” undertakings such as healthcare and the reorganization of space.

Exploring these instantiations is the purpose of this dissertation. While this chapter covers modern literature on games and gaming, I must also reconstruct past instances of theory in relation to gamification. In Chapter 2, I move to a general history of gamification and its ideological roots. This results in excavating “ludology,” or the study of play, from a variety of sources and applying it to the history of gamification. Chapter 2 covers the
epistemological conditions of gamification, or how we come to “know” gamification through constructions of play.
CHAPTER 2—Defining Gamification

Watts (1995), a well-known Zen philosopher, is one of the first popular scholars to ever mention the core concept behind gamification in the early 1970s. In a series of lectures entitled “Work as Play,” Watts (1995) states that making everything a game, or “playing through” all aspects of life, is the key to conquering the fear of death. By “playing through” life, everyday tasks, such as love, work and even dying become secondhand illusions to the process of obtaining enlightenment, or an awareness of one’s self in the world (Watts, 1995). This is a recurring theme in the study of play. Fink (1974), a student of Heidegger, noted that the life and the universe may be composed of play. Fink (1968) envisioned all life as “play life” and all actions as “playing life.” Play, and its constant modulation through games, brings focus back to the moment—because games are, by nature, a momentary pursuit. “Work-as-play” and “life-as-play” are major conceptual sticking point for gamification. In order to understand how this schema works, I take on the task of understanding the nature of play and games as cultural and philosophical entities that often have ambiguous results, one of which happens to be gamification. There are many different and contradictory definitions of gamification and its ideological roots.

While Chapter 1 focused primarily on new conceptualization of games and what digital games research can bring to the study of gamification, this chapter steps back and looks at the history of play through past scholarship on ludology. In doing so, I question the discursive roots of ludology, and why those roots have hindered the study of gamification from a nuanced standpoint. Because Game Studies is currently moving towards a nuanced definition of gameplay as a site of control and power in games that opens doors to the study
of gamification, it is also necessary to look back at Game Studies, which drew largely from canonical ludological texts, and understand why they dismissed gamification based on ideological assumptions about what play, games and game design.

Scholars agree on the point that gamification is a design-oriented set of practices. However, not all theorists and practitioners agree on what that design is meant to do. There are two significant deviations: One holds that gamification restricts choices while the other sees gamified design as granting a choice to escape from the trappings of coercive or stressful labor. While one formation views gamification as a disciplinary exploitation of play, the other couches it as an exercise in freedom. The difference between both of these views is the understanding of efficiency in play. Gamification, as noted in the introduction, is often geared toward promoting more efficient forms of play. Since the play is directly linked to everyday life, this efficiency in play also has direct effects in everyday productivity—everyday life becomes more efficient through play. For some, the increase in efficiency required by gamified design is a sign of coercion—players are tricked into a perversely playful slavery. For others, the increased efficiency is attributed to the players’ enjoyment of the design—the efficiency is the result of play.

For example, Deterding (2012), one of the first scholars to directly address gamification as a concept, states that design choices are less about behaviorist control and more about motivation. The difference between the control and motivation lies in the idea of engaging out one’s own volition rather than submitting to conditioned responses. While exact reactions are required for conditioning, gameplay rewards creative responses, as long as they conform to the general rules of the game. Efficient behavior—such as better times in
returning e-mail, completing tasks or navigating spaces—and individualized forms of play are rewarded by positive conditioning in gamification (e.g. points, progression and customization). McGonigal (2011), a scholar-practitioner, states that games and gamified applications are productive designs that simulate, pervade, and alter “reality.” Gamified productivity stems from channeling the biological desire to play, which renders actions pleasurable. In other words, gamification may be a “way out” of the master-less slavery of our current labor conditions (McGonigal, 2011).

Other accounts of gamification trace gamification’s roots directly to behaviorism and simulation theory. For example, practitioners Zicherman and Cunningham (2011) also point out that gamification’s design serves to drive or inform behavior by limiting actions, not necessarily enabling them. In addition, Raessens (2014) state that gamification represents a ludification of labor and culture that is more, and not less, regulated since games require exact adherence to rules.

All of these definitions are insightful in their own ways, but they vacillate between gamification enhancing or curtailing choice. Perhaps the reason is that each definition only spans a few years. Gamification has a much longer history than many assume. The debate over what constitutes a “good” work-life-play balance is an old one beginning with Aristotle, who valued play very highly, and Plato, who didn’t (Sutton-Smith, 1997). Examples of proto-gamification are predigital and pervasive in the history of human thought and practice

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5 Proto-gamification accounts for historical uses of games that share some similarities with modern gamification. Because modern gamification thrives on networked surveillance, examples of proto-gamification
(M. Fuchs, 2014c). Music, art, business and science⁶ have, at various points, deployed proto-
gamification for learning, early marketing and thought experimentation (M. Fuchs, 2014c;  
Raczkowski, 2014a).

This chapter conceptualizes gamification by understanding both “life” and “work” as  
forms of play, or perhaps plabor. Particularly salient to this pursuit is examining gamification
from the standpoint of ludology, or the social, biological, and philosophical interrogation of 
play. Throughout this chapter, I cover past ludological texts that imply all culture, including 
labor, stems from the desire to play (Huizinga, 1950; Spariosu, 1989). Additionally, I 
examine texts that question play’s de facto “good” intentions by comparing it with war, 
mechanization, catharsis, and simulation (Baudrillard, 1979, 1998a; Mumford, 
1934(Baudrillard, 1981 #174). I develop a critical history of gamification by exploring how 
the concepts of work-as-play and life-as-play align with or deviate from standard definitions 
of games and play.

First, I examine how gamification collides with and diverges from common notions 
of games and play as superfluous pursuits. Second, I include a general history of gamification 
as it stands today, in which it is primarily utilized as a tool for management, marketing and 
consumer surveillance. I also note a breakdown in the understanding of play, life, and labor 
brought about by location-based mobile games. I suggest that gamified applications are not 

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⁶ Utilizing games, game mechanics and game theory to drive innovation in science and philosophy has a long 
history in scholarship, especially in the form of collective ‘thought experiments’, secret societies, grant/research 
competitions and hacker communities that form and compete on the sidelines of ‘official’ academic gatherings 
and events (M. Fuchs, 2014c; Huhtamo, 2012). In some cases, such as Foldit (a ludic protein-folding 
application) scientists use gamified tactics to encourage amateur and citizen science (Parslow, 2013).
necessarily a break from play; rather, they represent a change in the discursive formations by which play is deployed. I suggest that play is ethically and ontologically elusive: It always exists between the discursive frames of power and progress (Sutton-Smith, 1997). Third, I explore the scholarly treatment of play itself, arguing that in order to undertake a serious examination of gamification and games, play must be repositioned as a situational pursuit fraught with ambiguity. Finally, I suggest that examining gamification is necessarily a cultural pursuit. It is rooted in exploring the contingencies gaming produces socially and materially.

Gamification represents a question of work-as-play and life-as-play only as long as the concepts work, life, and play remain separate and distinguishable from one another. Ironically, this separation is something that gamification seeks to obliterate. As a result, gamification brings about the terms for its own obsolescence—since it relies on the boundaries between labor and play to exist, dissolving these boundaries leave gamification with no true use value. Gamification’s discursive complexity, when framed in terms of play, contributes to the ongoing debate concerning games and labor covered in the previous chapter. This chapter considers this complexity from the standpoint of play as a discursive formation, rather than gameplay as a specific process of power and control. In this chapter, gamified design is reimagined as the “gaming of culture” (Boellstorff, 2006)—a set of ethically muddy practices that utilize playful practices, contingencies and processes that are inevitably linked to the spread of computational networks and network protocol (Galloway, 2006). Without a set of networks to exploit, gamification would not be able to maintain its
profitability as a mode of surveillance or mass behavioral technique. But while gamification may need networks to produce profit, it relies on playful engagement as a source of power.

**Resituating Games and Play**

The first step in understanding how and why gamification has been considered a divisive set of practices in the last few years is examining how gaming and play have conceptually been treated in the past. Studying play is commonly referred to as “ludology,” or the study of play from an anthropological standpoint. Traditional ludology has two major players: Huizinga (1950) and Caillois (1961). Both espoused definitions of games as free-standing, rule-based, ritualized systems that result in play—behaviors set apart, at least superficially, from more “serious” social pursuits (Juul, 2005; Salen & Zimmerman, 2003). This is also the most common interpretation of games and put forth in early media and game studies. However, it is not the only one. Other theorists, such as Baudrillard (1979) and Mumford (1934) viewed games as highly technical systems that support simulation, seduction and mechanization. These lesser-known approaches were often overlooked in early media and game studies literature because they generally do not fall into the category of ludology or narratology—the primary stable of literature on which early game studies operated—and thus they were not covered as frequently. As we saw in Chapter 1, game studies is now embracing a definitions of games and play that includes the possibility that they are, or can be, methods of control, instrumentality and surveillance. However, when looking at gamification, a genealogy of past ideas needs to be excavated and read against modern and traditional ludological definitions. Doing this may clear up the dissonance
between definitional accounts of gamification by providing alternate modes of examining play. For this reason, this chapter includes accounts from a variety of disciplinary perspectives. It engages in the task of deconstructing the “magic circle” (Huizinga, 1950) that has been drawn around games and play. Additionally, it provides a multitude of perspectives that are frequently lost or overlooked in early studies of play. While ludology and early game studies scholarship are not dismissed here, they will be questioned. Doing so will unravel alternative definitions of play apart from games, definitions that do not place it on a pedestal.

The Magic Circle and Types of Play

Huizinga (1950) is mostly noted for coining the term “magic circle,” something that has a mixed history in the study of games. He discusses play as something happening outside ordinary life. Huizinga views play, and by extension, games, as a type of ritual activity that emerges through rules that are largely separate from everyday reality. Huizinga states that play and games constitute a “free activity standing quite consciously outside ‘ordinary’ life as being ‘not serious,’ but at the same time absorbing the players intensely and utterly” (p. 13). Huizinga was also interested in understanding how play, ensconced in the ritual space of games, is both an outlet for culture and a key component in cultural circulation. Oddly, for Huizinga, games and play are also activities connected with no material interests. They entail actions from which no profit can be gained. They also proceed within their own proper boundaries of time and space according to fixed rules and in an orderly manner. Huizinga’s primary thesis is that play is a primogenitor of culture, and

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7 Huizinga (1950) points out that the activities within the magic circle are directly carried over into “real life.” In other words, games are a form a cultural learning and expression that are only ritualistically partitioned from non-ludic processes.
games are its vehicle. The order created in the ritual nature of games is a sort of laboratory for cultural pursuits ranging from law to sexuality to art. Huizinga’s argument is not one that precludes a bounded space, but one that suggests all culture is a realm of networked spaces, of topographies, and play inhabits and influences many spaces at the same time. His primary goal is not to identify play as a set of practices existing within culture or to define games as inhabiting their own cultural milieu. He examines how all aspects of culture bears resemblance to play and games. Games imply a cultural cycle—they are containers, or spaces of germination, for cultural possibility. Huizinga assumed that play was contained in a “magic circle” created by games. The magic circle has different temporal constraints, spatial boundaries and sets of rules. He points out that the activities within the magic circle are directly carried over into “real life.” In other words, play is a form a cultural learning that is only superficially separated. In reality, society functions alongside the rules that are “tested” in a playful environment first. Huizinga can be credited with drawing attention to games as an integral part of the social realm.

Caillois (1961) is most noted for categorizing the types of play that certain games produce. He analyzes different aspects of play in various cultures and then creates a “comprehensive review” of different play forms. He notes that there is considerable difficulty in defining play without first categorizing it. His conclusion is that play is characterized through six core characteristics: It is never forced; it is separate from everyday activities; it occupies its own time and space; its results cannot be pre-determined and thus requires special initiative from the player; it is ultimately not tied to capital in that it creates no wealth and it has a definite “end” and “beginning;” it is a-cultural in that play is produced through
rules that suspend normative laws and behaviors; and finally, play involves a process of imagination that allows players to confirm the imagined realities it produces. Caillois was primarily interested in games and play as social forces that exist alongside everyday activities while also providing a distinct, positive social influence.

Caillois (1961) was highly critical of any games that involved chance. He associated games of chance with gambling and compulsion. Games of chance are “all games that are based on a decision independent of the player, an outcome over which he has no control, and in which winning is the result of fate rather than triumphing over an adversary” (p. 17). In games of chance, Caillois claims, “the player is entirely passive: he does not deploy his resources, skill, muscles, intelligence. All he need do is await, in hope and trembling, the cast of the die” (p. 17). Chance “negates work, patience, experience, qualifications… It seems an insolent and sovereign insult to merit” (Caillois, 2001, p. 17). Digital games were unheard of and computers were in their nascent stage when Caillois was writing; still, a computer actually shares a fair amount in common with cards or a slot machine—both are counting mechanisms and their inner workings are opaque, that is, their key mechanics are generated via chance, at least as they are perceived by the average user. Games of chance are pitted against more honorable games (e.g. Chess) where there is no agency other than human dictating rules or outcomes. In the case of Kasperov vs. Deep Blue, Baudrillard (2001) maintains that even Chess is reduced to agon in the advent of simulation; he states that Deep Blue “has no adversary, it moves within the scope of its own programme…The computer…is condemned to play at the height of its capabilities” (p. 117). Baudrillard, who was reliant on Caillois’ definition of play, implies that truly playing with a machine via simulation is an
“impossible exchange.” Caillois’ definition of play requires human actors to engage with one another. Whether engaged in solitary games that require raw imagination, cooperative games that require players to help one another or adversarial games in which wits and strategy prevail, games are a thoroughly human pursuit. In order for “healthy” play to occur, games must bring human actors together. For Caillois, games where resources or mechanics are generated impartially by a non-human system are games in which chance plays a key role. These are games that are compulsory in nature, and lead to undesirable behaviors in which the game masters the player, as opposed to the other way around.

If we look at gamification as a design process that adds gaming mechanics to non-gaming systems for the purpose of “inviting” or “driving” engagement, it becomes highly suspect under both Caillois’ (1961) and Huizinga’s (1950) notions of ludic activity. Because gamified applications are primarily used to monitor and influence behavior within networked environments, they often involve chance and they usually have positive reinforcement through points and rewards with real-world value. Gamified applications often reinforce “normal” or “desired” outcomes rather than disrupting them. Many of these gamified applications rely heavily on chance-based mechanics and positive reinforcement (some examples include Farmville, McDonalds’ Monopoly and Shopkick). Gamified design is largely about inspiring “fun” and “playfulness” in everyday situations (Zicherman & Linder, 2010) while also providing “loyalty-oriented” tools to the organization that seeks to benefit from it (Zicherman & Cunningham, 2011). So there seem to be some elements of gamification that fit the bill for traditional games (fun and playfulness) while also disrupting
the idea that play is “free” or separate from more quotidian sectors like economics or government.

**Games, Mechanization and Seduction**

While Huizinga (1950) and Caillois (1961) primarily link play and games with *positive* elements of cultural production, other theorists do not take the same path. Mumford (1934), in *Technics and Civilization*, links the evolution of games with the creation of a “technical society.” Baudrillard (1981b, 1998c) also frequently used the metaphor of games and gaming to illuminate consumerism and simulation. Like Fink (1968, 1974) both authors were somewhat hesitant to extol ludic activity as a positive pursuit, metaphysical or otherwise. Baudrillard and Mumford can both be considered “tertiary ludologists” because their interest in games is often nested in much larger social trends, pitting notions of games and play against economics, mechanization and warfare.

Mumford (1934) felt that games operate as “agents of mechanization” that reverse his romanticized “eotechnic” age. As games become more technical, they present an illusion that “fair play” is an obtainable ideal. For instance, technology has often been seen as the great leveler, and advances in technology are often accompanied with the caveat that they will create a more equal society (Carey, 1989). Mumford argues that in reality “win at any cost” becomes the standard operating procedure in a fully technicized society. Winning, in this case, is obtaining more time and resources for leisure by making more powerful machines. He maintains that mechanized parts such as wheels, gears and levers, are really just “buckets and shovels dressed up for adults” (Mumford, 1934, p. 101) and that games and play are infinitely caught between “consumptive pull and productive drive” (p. 102). Civilization’s
advance towards “complete mechanization” is closely intertwined with the desire for leisure, namely the desire to save time and increase efficiency.

Leisure activities birth technologies that focus on producing more leisure. Formerly non-practical objects, like toys and models made of moving parts, eventually become larger and more powerful. Mumford (1934) notes that the gyroscope was originally a toy before it became a stabilization device for trains and airplanes and carriages existed in the miniature before they became widely used (Mumford, 1934). For Mumford, mechanization begins with the maximization of sensual pleasure and “life itself.” Unfortunately, mechanization ends in a hellish arena where the brutality of real-life is inseparable from the games in which it was based (Mumford, 1934). In seeking a maximal, luxurious balance between leisure, play, and work, mechanization leads to an “upthrust in barbarism, aided by the very forces and interests which originally had been directed towards the …perfection of human nature” (Mumford, 1934, p. 154). This barbarism originates partly from the luxury of play transforming into a form a bloodlust. Mumford states that play, through “mass-sport,” has degenerated into the worship of the productive “goddess” who values generativity above all else. He states: “Sport, then, in this mechanized society, is no longer a mere game empty of any rewards other than playing; it is a profitable business…” (p. 307). Mumford maintains that in a mechanized society, play is at the mercy of capital. There are no longer rewards from play for play’s sake. Every game must have a meaning and play must produce calculable results. This prediction, in many ways, holds some similarities with gamification’s play for profit model. Mumford’s presuppositions about the brutality of a technological society are heavy-handed. However, he envisions games as precursors to a situation where
the desire for leisure results in leisure and labor becoming indistinguishable. Both signifiers collapse and become meaningless under the ambiguity of play. Mumford’s take on games, toys, gadgets and play is also premeditative of the later writings of Baudrillard (Baudrillard, 1981b, 1998a), who links games with simulation and the move towards hyper-reality in technologized societies.

Scholars maintain that, for Baudrillard, gaming and play is an ambivalent experience that suffuses the modern condition of being human (Coulter, 2007; Crogan, 2007). Similar to Huizinga’s (1950) space of “social possibility,” Baudrillard (1981) saw games as an exercise in the eradication of reality; perhaps more accurately, the increasing importance of games to simulation is a sign that reality is already eradicated. Play, for Baudrillard, is an act of seduction, or a complicity with generating and living within an illusion, a world in which simulation has already triumphed (Galloway, 2007). Seduction is the ultimate metaphysical tromp d’oeil—a type of charade in which appearances move beyond the stable categories of production or consumption (Baudrillard, 1991). For Baudrillard, all games represent the situational elements that allow simulation, fantasy, and seduction to infiltrate daily life at the most fundamental levels. Baudrillard holds that life, love, and work are not distinct entities separated from play. Rather, play itself is desire and desire gives rise to all manner of possible ills. One of which is the triumph of simulation over reality.

Baudrillard (1991) states, “all appearances conspire to combat meaning, to uproot meaning, whether intentional or not, and to convert it into a game” (p. 153). He continues, “We seduce with weakness, never with strong powers and strong signs. In seduction we enact this weakness, and through this weakness, seduction derives its power…Seduction makes use
of weakness, makes a game of it, with its own rules” (p. 165). For Baudrillard, the advent of the information age is also the advent of appearances and signs—seduction is the type of force complicit with technologies of appearance and inscription (i.e., writing, visual art, screens, lenses and mirrors). Gamified applications rely on channeling seduction through design. They are simulations that invite certain behaviors and utilize play as a form of desire to inspire actions that, in normal contexts, don’t make sense. Behaviors like stopping to check in at a coffee shop or driving to multiple store locations to collect tokens are done because of a desire for rewards, rewards that often have no value outside the application. What ensues is an increasingly complex system of badges, avatars, titles and points that form a web of objects linked to the performance of rituals in service to the gamified application’s mechanics.

Baudrillard (1981b) maintains that the proliferation of technological objects and their related codes is based on the assumption that nature as we can perceive it is mechanistic and capable of being reproduced. In other words, technology improves upon nature on insomuch as nature itself is technological (Lane, 2008). Technology acts as a compensatory mode of being in a world that is increasingly automated; any naturalistic relationship between human actors and the world has been fractured by the transferal of human desire and agency to a system of replicable objects and processes. In turn, the human subject no longer embodies a natural sense of being in the world. Rather, the world is populated by simulacra—objects, signs and representations that human subjects actively observe. The seduced human subject is adrift in a simulative environment that replaces, or at worst obliterates, any notion of
reality as a stable concept (Baudrillard, 1981b). Seduction is the active process of this obliteration, the slow and joyful transfer of agency to objects, signs and signifiers.

Seduction and games are primarily simulative processes sustained by a myriad of technical networks; seduction serves to manipulate and direct the desires of humans. Baudrillard (1991) maintains that seduction is essentially a mechanic embedded in “a game of simulation” that is being played. This game is not one that someone chooses to play; rather, the game of seduction “plays itself” and human actors are caught up in it. As such, Baudrillard viewed life and game as a mutated category, in which they infinitely refer to each other (Galloway, 2007). A Baudrillardian approach to games implies that “what we recognize as games (digital or otherwise) are merely old order distractions from the real game or perhaps the game of the real” (Simon, 2007b, p. 356). “The virtual is emphatically not the gamic for Baudrillard,” Galloway (2007) writes, “it is this world that is the game” (p. 378).

Games and play are an order of “psychic complicity” with simulation, a complicity that finds its roots in the seductive system of objects (Galloway, 2007). Games and play here are indicative of a technological imbroglio, one born of rampant computerization and the rapid diffusion of media technologies throughout the developed world: They are indicative a technologized world, rather than being mere parts.

In Mumford (1934) and Baudrillard (1981), we see a line of reasoning that postulates games and play as bloodthirsty, seductive forces that serve to direct and manipulate human agency. Seduction is the promise of pleasurable simulation; the idea that technologically supported leisure leads to more leisure, and that more leisure ensures more technology, which in turn ensures more pleasure. For both Baudrillard and Mumford, what ensues is a
society in which all meaningful references to labor or leisure collapse, resulting in a world that resembles a game at all times. Labor and leisure become meaningless symbols, replaced by consumer-driven games of chance and luxury. From this standpoint, gamified design represents the epitome of a “game of seduction” in which seduction supplants the game. Seductive applications foreground simulated rewards and supplant free play for labor’s sake—forsaking creativity for efficiency. For Baudrillard, seduction conceptualizes games, play, consumerism and desire as ubiquitous, directed processes in an increasingly simulated society.

A layman’s definition of both games and play might situate them as fun, harmless, ebullient systems—they rise and fall in an ebb-flow cycle that dovetails with a set of fantastical, ritual and material spaces. Humans, rather than automated systems, determine the rules and these rules are agreed upon through a ritualistic pact that has no bearing on reality. However, Huizinga (1950) and Caillois (1961) both noted that games, while existing in a specific categorical space, are actually conjoined to social and material processes. In the works of Mumford (1934) and Baudrillard (1981), games are a force that can be culturally harnessed and directed towards a variety of means and ends, including social and technological control. In the case of Baudrillard and Mumford, the “pact” inherent in games is always social and technological, and it should be closely examined. Mumford’s obsession with games as “mass blood sport” and toys as miniature precursors to weapons—as well as Baudrillard’s (2005) assertion that economics are merely games played for the rich—identify the relations between games and dangerous or disruptive technologies as a key concern for both theorists. For Baudrillard (1994), games are complicit with simulation, consumption,
and seduction. For Mumford, play-objects such as toys are inherently tied to teleological mechanized processes.

Each author’s approach is illuminating because it provides a background for gamification’s marooned status in early game studies and ludology: The ludic was often conceptualized by scholars as a black and white gaming universe. There was an ethical fault line where a “game” stops short of control and exploitation. The alternative concept, only now being explored in depth, is that games embody a possibly dangerous expansion of control as soon as they are initiated (Dyer-Witheford & de Peuter, 2009; Galloway, 2006, 2007; Rush, 2011). After some examination, ludology’s take on both play and games is largely ambiguous; play can be used as tool for freedom or regulation, for stability or disruption, and for leisure or labor. It is important to keep this in mind when approaching gamification.

Games and Play as Metaphysics

Philosophers have also construed play as vital part of human experience. Two key figures in ludological philosophy are Fink (1974), mentioned earlier, and Carse (1987). Fink contends that play was unfairly devalued in metaphysical tradition, and maintained that to understand the world as a ontological concept, play must first be interrogated (Elden, 2008). For Fink, play is cosmological force that is not necessarily human in nature; rather, is both the cosmos and a symbol of the cosmos—it produces and realizes ontological difference (Elden, 2008). As Fink (1968) states, “the mode of play is that of spontaneous act, of vital impulse…Play is, as it were, existence centered in itself. But while seeming to be unrelated to our normal life, it relates to it in every meaningful way” (pp. 20-22). Play, in an illusory
manner, produces the world around us, and it also produces the objects that we interact with in everyday life. Play is like a mirror, or a shadow, of a larger concept; it allows humans the ability to don and discard a variety of social, spiritual, and material possibilities. When playing, people willingly take on new identities, perform new rules and traditions, and create new tools. For Fink, “play always has to do with play objects. The play-thing alone is enough to assure us that play does not take place in pure subjectivity without any reference to the concrete world around us” (p. 27). Illusion and reality, the extant world and the world we perceive, are all processes of interplay and interpolation—all play produces a “play-world” that mirrors and affects the real (Fink et al., 1968). In other words, social processes, such as language, music, and art, mirror the inherent mimicry that play requires to function—and from this mimesis flows a self-referentiality that defines existence.

Similar to Huizinga’s (1950) thesis, play and games are spaces of possibility. However, Fink (1968, 1974) takes Huizinga’s conceptualizations one step forward: play is not only the primary source for the social, it is also a “basic existential phenomenon” which is “just as primordial and autonomous as death, love, work, and struggle for power” (p. 22). “We play at being serious,” Fink (1968) postulates, “we play truth, we play reality, we play work and struggle, we play love and death, and we even play play itself” (p. 22). For Fink (1968, 1974), play is the polarity of two extreme modes of existence—the clear “Apollonian” moment of self-determination and the “dark Dionysian” moment of panic and self-abandonment. Both are procreative of the world as humans perceive it.

Carse (1987) noted that play revolves around two different world-making technologies: finite and infinite games. Finite games are games that take place in a space—
they are contests of power, ritual and democracy. They are also voluntary, and cannot be undertaken if compulsory (Carse, 1987). Infinite games, on the other hand, are games of life. They are games in which the only rules that exist are rules that ensure the continuation of play (Carse, 1987). While finite games can be seen as pursuits linked to distinct spatial and temporal boundaries, infinite games are games that transcend both space and time—infinitest games play with boundaries. A finite game is a game of Marco Polo. An infinite game, hearkening back to Watts (1995) is a game played via consciousness—a game where the self’s position in the context of reality is evolving. More concretely, infinite games are processes. Economics—with its emphasis on constant growth—could also be considered and infinite game—its effectively defines our place in the grand scheme of things. Carse maintains these two types of games mark the boundaries between the world of the social (finite games) and the realm of metaphysical truth (infinite games). He states,

the rules of an infinite game must change in the course of play. The rules are changed when the players of an infinite game agree that the play is imperiled by a finite outcome…The rules of an infinite game are changed to prevent anyone from winning the game and to bring as many persons as possible into the play (p. 9).

Thus, finite games are interested in logistic outcomes and infinite games involve a never-ending process. For Carse (1987), infinite games can be material or spiritual, social or solitary—but they are always productive. Games that involve destruction must inevitably end, thus making them finite.
From the standpoint of gamification, both Carse (1987) and Fink (1968, 1974) reiterate the ideal notion of work-as-play. Gamification, indeed, holds many resemblances to infinite games. It relies on an infinite loop of playful behavior that nobody can win. Ending a gamified application terminates intended behaviors and the data they produce. Additionally, like an infinite game, gamified applications are only useful when vast numbers of people play. However, unlike Carse’s infinite and emancipatory gamespaces, gamification is largely about the modulation of desire. Players are expected to desire finite outcomes for play, such as badges, gift cards, or avatars. These finite rewards, based in positive reinforcement, are at odds with the reality-shaking implications of Carse’s infinite game. It is true that gamification’s rules only exist to extend play infinitely; however, gamification’s boundary play is aimed at concealing the compulsory rather than eradicating it. Furthermore, the aims of gamification are solidly tied to finite material and social outcomes. Thus, gamification lands squarely on the side of Fink’s (1968) world of illusion and shadows. The rewards given for infinite play are decidedly finite, and often they don’t “exist” at all, as in the cases of digital badges and titles. From a metaphysical standpoint, gamification’s infinite game mirrors Dionysian self-abandonment: It does not replace or supersede work or life, it simply aims at persuading players to momentarily forget.

Ambiguous Play: Taking the Fun out Gaming

Despite differences in conceptual approaches among gamification practitioners, ludologists and tertiary ludologists are interested in the power of games and play. The short history of gamification just presented brings this interest into direct focus—play is being
used more than ever to observe, and modulate behavior and cultural production on a large scale. However, defining just what play entails has been a messy discursive exercise. In this section, I move towards an understanding of play as an ambiguous act that does not necessarily connote a set ethical standpoint; rather, it is the discursive treatment of play as ethical that often creates a problem in “placing” or “defining” gamification.

Gregory Bateson (1956), a biologist, suggests that play is a paradox because it is and is not what it seems to be. The playful “nip” of an animal at play is a both a bite and not a bite; it “connotes a bite but not what a bite connotes” (Sutton-Smith, 1997). Robert Fagen (1981), an animal play theorist, states: “The most irritating feature of play is not the perceptual incoherence, as such, but rather that play taunts us with its inaccessibility. We feel that something is behind it all, but we do not know, or have forgotten how to see it” (as cited in Sutton-Smith, 1997, p.2, emphasis mine). Play’s ambiguity seems to be couched in its curious visibility: we can only define play by what happens during its course. Culturally, play manifests in an infinite spectrum that acts as a barrier to stable definitions. Brian Sutton-Smith (1997) states:

…biologists, psychologists, educators, and sociologists tend to focus on how play is adaptive or contributes to growth, development, and socialization. Communication theorists tell us that play is a form of metacommunication far preceding language in evolution because it is also found in animals.8 Sociologists say that play is an imperial social system that is typically manipulated by those with power for their own

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8 This could be a reference to Huizinga (1950), Mead (1934), Goffman (1961) or all three.
benefit. Mathematicians focus on war games and games of chance, important in turn because of the data they supply about strategy and probability…No discipline is, however, so homogeneous that all its members are funneled into only one such way of theorizing. Nevertheless the diversity exists, and it makes reconciliation difficult” (p. 6-7).

With all of these contingencies present, play appears to be a rather useless concept—it is rhetorically vague and theoretically ungrounded. It has been largely avoided by theorists and philosophers and often the concept of “play” does not exist in non-Western discourse (Malaby, 2007). Play is so diffuse that its discursive boundaries seem to infuse everything from warfare to lovemaking to religion.

Perhaps, then, it is best to focus on the ambiguity of play in the context of how it alters the discursive environments where it takes place. Play always seems to occupy a position that implies some sort of power or action is needed to activate, regulate and direct it. The need to direct or define play as a clearly defined set of activities is largely linked to the rhetorical framing of what play entails. Sutton-Smith (1997) points that play is often seen as existing between two diametric poles: progress and chaos. Ensconced within these two polarities are several subsets of statements made about play, two of which are particularly relevant to the idea of play in the context of both gaming and gamification: play as progress and play as power.

The first discursive framework is play as progress. Sutton-Smith (1997) points out that progressive play is a biological approach, one that has, until recently, implied “the notion
that animals and children, but not adults, adapt and develop through their play” (p. 9). This belief in play as progress is something of a scientific ideal, and it is often rooted in the epistemology of both biologists and educators. Play is a currency in children and animals that can be used to culturally imbue certain favorable aspects through the application of ludic rules and procedure. Sutton-Smith (1997) states that “most educators over the past two hundred years seem to have so needed to represent playful imitation as a form of children’s socialization and moral, social, and cognitive growth that they have seen play as being primarily about development rather than enjoyment” (p. 10). What is interesting here is that this educational view of play is beginning to be transferred to behavioral analysis of adults, especially in the workplace (Costea, Crump and Holm, 2005). For example, the research done at the National Institute For Play (NIFP) under Stuart Brown (2009) and the psychological research of Mihaly Csikszentmihalyi (1990) approaches play as a biological and psychic necessity for the continued growth and health of adult human beings.

The change in conditionalities makes play as progress applicable to non-ludic subjects and spaces. Play, or at least playful behavior, is a trigger for healthy lifestyles. In the case of Csikszentmihalyi (1990), play is a rabbit-hole to the realm of “flow”—a timeless space where mastery is the key to joy. For Brown (2009), mastery and instrumentality are keys to bodily health. Both of these researchers assume that play is a golden horizon to be sought out in the drudgery of day-to-day living; it is a key to biological wellness and mindful joy. Play is truly a generative process, in these cases, and it is seen as a lifelong undertaking and part of the duty of every person to live a “good life”.

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Play as power is the second discursive framework play inhabits. Sutton-Smith (1997) points out that play as power is inherent in games of competition. Games pitting a human player against fate, chance, destiny and the “will of the gods” are conduits for psychic, social and material energies. Like Baudrillard’s and Mumford’s concerns about play’s links to seduction, simulation, warfare and techniques of domination, power and play focus on play’s homogenizing and unifying power—the power to supplant all previous modes of existence for a time. Play as power advocates “collectively held community values rather than individual experiences,” and as a rule it denotes that play is a way to make things more real, rather less so (Sutton-Smith, 1997). Sutton-Smith states, “The rhetoric of play as power is about the use of play as the representation of conflict and as a way to fortify the status of those who control the play or are its heroes” (p. 10). The view of play-as-power has its roots in psychological literature about excess energy similar to Bataille’s (1991) theory of “general economics”—play is a primitive mode of blowing off excess cultural energy when that energy can no longer be directed towards the expansion of the “economic organism.” The explosion of magic, games, sacrifice and festivals in ancient economies is a way a transmitting power as catharsis or fulfillment (Schiller, 1965; Sutton-Smith, 1997). Play, then, becomes the act that makes other acts bearable.

Play as power also links back to two key play theorists: Huizinga (1950) and Sparisou (1989). Huizinga viewed play as a catalyst for culture—the excess energy of play was redirected into spheres such as law, war, art and even scholarship (scholars do, in fact, compete with each other by “playing” with ideas and concepts). These connections between play and society are “morphological parallelisms” in which the mastery of games is a catalyst
for social hierarchies through the formation of *communitas* (Sutton-Smith, 1997).

Interestingly, recent thinkers in biopolitics (see Esposito, 2011) have also pointed out that the potlatch style of playful excess is key in the formation and regulation of community—the reciprocity of play is literally the glue that allows communities to form (Campbell, 2006). However, Sparisou maintains that the ties that bind are also the ties that can dissolve (similar to the concept of *reversibility* in Baudrillard’s account of seduction). He contends that play is as much about disorder as it is about order. In this manner, play and games act as disruptive agents just as much as they can be ordering principles. Sutton-Smith states, “there are two conflicting rhetorics about the play: One that says it is positive, as a mode of cultural origination, humanization, catharsis, or socialization, and another that says it is a site for power seeking, domination, and hegemony, or disorder, inversion, and resistance” (p. 81-82).

In short, gamification’s definitional quandary lies in the complexity of play, and what it means in terms of individual behavior and the social.

The unifying thread between power and progress is the question of ambiguity. That is to say, play is inexorably linked to the environments in which it occurs: It directs and is directed towards a number of possibilities. However, each possibility is tied to the concepts of power and progress, two contingencies linked to a host of other social and material processes. In the context of gamification, both power and progress are at stake, yet both are linked directly to the generation of capital, data and control. A quick look at the history of gamification will confirm this.
A (Brief) History of Gamification

American pragmatist Mead (1934) situates games and play as key processes in learning how to objectify one’s self and take the perspective of others. These acts must precede economics, language and mathematics. For Mead, play is the original mode of transmission for language, economics and culture. Mead, another tertiary ludologist, points out a key point in historicizing gamification: Games and play are the producers of social systems and ideologies. This leads to another key point: As long as there are game mechanics and logics that direct outcomes for playful behavior, there exists the possibility of gamification. Gamification presents a key opportunity to examine emergent history, and it would be impossible to construct a total history of gamification at this point in time. In lieu of totality, a general history that examines the material conditions through which gamification becomes visible proves more useful.

Mathias Fuchs (2014a) states that gamification operates at the level of “ideology”—one that privileges soft power and gift-based economic exchange. Fuchs cites Mauss as one of the first authors to ideologically explore gamification by situating “gift economies” as alternatives to capitalist exchange. Fuchs also cites Georges Bataille’s theory of general economics.

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9 Total histories seek to define governing or formal principles to account for a cohesive or “meaningful” history in the context of age, epoch or period. It also assumes homogenous networks of relations that imply causality. These relations are often arranged by the researcher in an arbitrarily ordered fashion that impart a cohesiveness to the subject matter (Dean, 1994). On the other hand, general histories are non-totalizing, with special interest in details and complexity. The key difference is general history’s focus on “series, divisions, differences of temporality and level, forms of continuity and mutation, particular types of transitions and events” and relations of possibility (Dean, 1994, p. 93-4).

10 Mauss (2000) explored the origin of potlatch style gatherings and festivals in various cultures. His analysis of gift-giving serves as a key reference point for the anthropological exploration of economic systems, which are based in symbolic, playful exchanges that are also deadly serious.

11 Bataille’s (1991) theory of general economics explores art, magic, games and festivals as “excess energy” burned off by the “economic organism.” Similar to Mauss (2000), Bataille situates “gift economies” as a predecessor to (and a cure for) capitalism.
economics as a precursor to gamification’s principle goal of seeing play supersede labor in a viable system of economics. However, Fuchs also notes that by replacing labor with leisure, gamification may bring about conditions where play itself becomes drudgery, thus bringing about its own demise. In the end, Fuchs argues that the effort to combine play and labor through gamification has very serious consequences. Because leisure and labor politics is where the primary conflict over gamification’s legitimacy begins (deWinter & Kocurek, 2014), it is also where I begin its history.

**Proto-Gamification in Business and Marketing**

The idea of work-as-play may have first been explored by Watts (1995) and his Zen philosophy during a series of television broadcasts in the 1970s. Gray (2007), a leisure studies scholar, notes that this revolution ended the idea that leisure is a matter of having more “free time”—instead, as the globalized economy became more computerized, work became “24/7,” inseparable from everyday life. Coonradt (2007) first proposed in 1984 that games may serve as a better framework for conducting business that standard business best practices. Reckoned the “grandfather of Gamification” by *Forbes Magazine* (Krogue, 2012), Coonradt points out that recreational games provided better motivation and feedback, stable rules of play and efficient scorekeeping than traditional managerial methods, stating “in recreation participants feel they have a higher degree of choice…Part of the reason for liking a recreational activity is the freedom you have in doing it” (p. 150-51). Other scholars note a ludic managerial turn. Costea, Crump, and Holm (2005) identify a “Dionysian turn” in the way that play is deployed in the workplace. Costea et al. point out that “play emerges as a managerial resource because it has an affinity with the increased weight placed upon ‘work’
as a site for the pursuit of collective and individual 'wellness' and happiness as key dimensions of self-assertion” (p. 140). The biological and cultural trajectories of play in the workplace have combined. The authors state that the social manifestation of play embodies an “entitlement to happiness” and a “duty to be happy” as a form of managerial and biological self-work (Costea et al., 2005).

Trapped in the “work-as-play” conceptual webbing, play is reframed as a duty in the workplace. Games, the chief modulators of playful behavior, become a form of technology that enables duty. Costea et al. (2005) state that

The link between production, consumption, play, and wellness is most clearly evident…the logic here is that effective design of the consumer experience requires moving away from the rationalized logics of the market… results are the 21st century’s fully-fledged consumption cultures in which the entitlement to happiness (through choice and consumption) and the ‘duty to be happy’ as consumers and as workers are the new dimensions of ‘citizenship’ (p. 143-147).

In the Dionysian turn, the work-as-play ideal operates as a biological imperative privileging wellness and the “adult” principle of generative labor. Like Dionysus, the god of wine and forgetfulness, the Dionysian turn aims to make workers forget they are working. What results is an ideological marketing and business ploy that exploits the boundaries between leisure, labor, and life.

Marketing via a conflation of life-work-play has been utilized frequently in predigital forms (M. Fuchs, 2014c). Although, without networked computing the scope of gamified
projects was usually simple. New York University’s Governance Lab has noted that in 1910 Cracker Jack is cited as utilizing the “first” predigital marketing ploy to involve gamification (Verhulst, 2013). Cracker Jack was the first to give away toys in a box. Similarly, frequent flier cards, loyalty rewards and points, and even complex advertising campaigns like McDonalds’ Monopoly (Zicherman & Cunningham, 2011; Zicherman & Linder, 2010) are early examples of gamification in marketing.

McDonald’s Monopoly was a marketing scheme that placed game pieces onto specific items on the McDonald’s menu. Styled after the board game, players had to collect matching pieces of color-coded property to win prizes. Certain items of the menu would have game pieces attached—for example, if you matched three pieces of purple-colored property, you would win a significant prize. Also, some game pieces offered free menu items, like burgers and cokes. The game was an enormous success and drove sales up for the McDonald’s franchise, leading it to become a yearly offering (Marketer, 2011). McDonald’s Monopoly effectively turned the network of franchise stores across cities into a game board, inspiring consumers to change their eating and shopping habits to participate in the game (N. Hulsey, 2015). For example, a player might buy an abnormal amount of french fries or extra large drinks because they have more game pieces than other items of the menu. As evidenced by Monopoly, early marketing-based gamification wasn’t always simple loyalty tricks, toys or rewards. In some cases predigital gamification was also be extremely sophisticated, playing with collective labor and social identity.

For example, the fictional character of “Betty Crocker” and her cookbook contests are examples of harnessing collective, ritualistic games that women play with themselves and
each other (Horner, 2000; Rossi-Wilcox, 2006). Betty was originally envisioned as a fictional character—or perhaps a non-player character (NPC)—whose purpose was to answer consumer mail about home economics and domestic labor in the 1920s. Originally, “Betty Crocker” was all the women of the Home Service Department of the Washburn Crosby Company; however, in a Baudrillardian move she was separated from her biological counterparts by General Mills to circulate as a signifier in the world of consumer objects (Marks, 2005). After appropriating the faces, voices and talents of biological women, Betty Crocker won the title “The First Lady of Food” after being named the second most influential woman by *Fortune* magazine in 1945. ¹² This honor was based off the (mostly free) collective labor of countless women—Betty wasn’t even real.

While Betty Crocker is one of the most sophisticated exercises in predigital, proto-gamification most approaches had to do with loyalty programs, punch cards, and reward programs. Proto-gamification in its predigital form only had a few sets of design choices to play, and distribution was limited to the restraints of the time. The digitization of games and gamification expands the array of design practices used in addition to highlighting new modes of distribution, surveillance and transmission (Whitson, 2013). The term gamification would not be used until the implementation of networked computing.

**“Modern” Gamification Goes Viral**

In an interview with game journalist Andrzej Marczewski, Richard Bartle—an early proponent of networked gaming—claims to be one of the first computer scientists to use “to gamify” as a verb in the 1980’s (Andrzej Marczewski & Richard Bartle, 2012). Bartle was

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¹² She “lost” to Eleanor Roosevelt.
working on the first ever multi-user dungeon (MUD) and “to gamify” meant to turn a simple text-based “virtual room” into a game. Of course, the intent of “gamifying” the virtual room was to provide motivation for people to use the space. As such, the term “to gamify” originated alongside the first networked game. Bartle sees gamification as a stage in the evolution of a game. Bartle states: “I’m a game designer. I want all gamification to take that last extra step and become a game. From that point of view, no example of gamification is done well!” (Andrzej Marczewski & Richard Bartle, 2012). For Bartle, gamification means to turn a quotidian networked space, which is not a game, into a game (Andrzej Marczewski & Richard Bartle, 2012). Modern usages of “to gamify” focus on the act of breaking games down into their individual design components and then strategically distributing them into non-ludic environments, an inversion of Bartle’s use of the word.

The more modern take on “gamifying” is due in part to the theoretical work on play, learning, and user motivation done at Xerox’s Palo Alto Research Center (Xerox PARC). “Motivation,” in this case, is an attempt to understand what makes things fun to learn and why people sustain engagement with certain environments and objects as opposed to others. The work on learning and motivation through play is largely attributed to research done by Thomas Malone (1980). Malone noted that motivational approaches to software design and learning could be modular, a supposition that influenced distance education, where learning applications are referred to as “modules.” In the 2000s, Xerox PARC and its alumni made major leaps in the sociology of digital play and the field of game studies, including

13 Multiple gaming studies from XPARC were published, most notably: Ducheneaut, Moore, and Nickell (2007); D. Williams et al. (2006); Yee (2006a).
addressing the pressing question of how to make labor “fun” (Yee, 2006b). At the same time, the research done at the Xerox PARC lab also highlighted the differences between gamification and games by solidifying early definitions of gameplay, gamespace and play styles. During the first decade of the 21st century, relationships between games and learning were primary focuses for ludic research. Additionally, mobile and location-based games also became popular as both art and leisure {de Souza e Silva, 2009 #111}. Fast forward to a few years later—“gamification” (a previously non-existent term) has become, as Richard Bartle (2012) calls it, a “bandwagon.”

Gamification went viral quickly in the first decade of the 21st Century (Economist, 2011; Liyakasa, 2012b; Raczkowski, 2014a; Scofidio, 2012; Zicherman & Cunningham, 2011). In 2002, Nick Pelling created Conundra14—a company proclaiming that Moore’s law determines all devices will become a game or game-like in the 21st century. Conundra was the first to publicly use the term “gamification” in a business context. Pelling’s Conundra website refers to hardware alteration, as opposed to manipulating software. While Conundra was “ahead of its time,” according to Pelling (2011), Bunchball, the first successful software-based gamification platform, launched in 2007. In 2010, the term “gamification” went viral. Jessie Schell’s DICE Conference presentation, named “The Secret Mechanisms” described a world in which “gamification” and the “gameocolypse” conquer all (Jessie Schell, 2013). Since 2010 gamification has truly become a bandwagon. Three years ago, much-hyped gamification was predicted to plunge into the technological “trough of disillusionment” (Goad, 2011). In 2015, gamification drives market expansion in big data (Boyd & Crawford,

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14 A cached copy of the original website is available for historical research (see Pelling, 2002).

In 2013, the study of gamification was “standardized” with the development of *Octalysis* (Chou, 2013). Octalysis works as a sliding octogon, with point holding a different logic. The more mechanics that work for the logic, the shape (or the weight) of the octagon changes. Thus, different applications can be examined based on the game mechanics present to determine what aspects of gamification they utilize and how gamified they are on a comparative scale—gamification literally taking a shape of Octalysis solidifies gamification as a set of diverse design practices centered on intrinsic, playful and motivational game mechanics embedded into devices or applications. For Chou (2013), gamification’s design is ethically fluid, and design choices can be separated into “Black Hat” and “White Hat” partitions (Chou, 2013). Black Hat\(^{15}\) gamification, like the hacker moniker it is drawn from, ...
plays with the compulsory side of game mechanics like scarcity and competition. White Hat\textsuperscript{16} gamification, once again like the hacking moniker, consists of positive motivational reinforcement like achievements, digital property, customizability and points. From Chou’s (2013) methodological perspective, gamified applications represent a rather ambiguous set of practices playing with both motivation and compulsion.

**Advergaming**

It is the distinction between motivation and compulsion that permeates the recent history, and controversy, surrounding gamification. However, it is advances in computing that drive gamification as a viral set of design practices. While Coonradt (2007) proposed personal solutions for increasing productivity in the workplace and mitigating stress, recent technological trends have catapulted the idea that game thinking can work as a collective solution to productivity and motivational issues on a truly massive scale (Byrne, 2012; Kim, 2012; Nicholson, 2012). Far from Watts’ (1995) idealist conception of work-as-play as way of becoming, gamification has largely been proposed as a business solution—it is this proposition that links back to gamification as a behaviorist technique altering daily practices. Although the word itself is new (Deterding, 2012; M. Fuchs, 2012; Liyakasa, 2012a; Mosca, 2012) the concept it is at least two decades old.

\textsuperscript{16}White hat hackers seek to shore up and reinforce security protocol (Moore, 2005). White hat gamification seeks to reinforce behaviors with positive, rather than negative, feedback. One example of “white hat” gamification is *Foursquare*, which takes a less competitive and more collective approach to gamifying social spaces by positively reinforcing certain renditions of spatiality. However, *Foursquare* also contains competitive mechanics (e.g. the “mayor” function); most gamified applications have a variety of mechanisms that span both black and white hat mechanics.
The current visibility of gamification comes on the heels of advertising and motivating through networked, social videogames (Clavio, Kraft, & Pedersen, 2009). Social-media games, such as Farmville, exposed a new brand of consumer provisionally called the “cyber-farmer,” an ideal consumer whose loyalty could be bought with virtual goods rather than expensive real-world loyalty rewards (Luscombe, 2009). Farmville led to development of “advergaming,” or building games that showcased a product, location or service using persuasive elements such as avatar customization driven by a “harvesting” mechanic (Bailey, Wise, & Bolls, 2009; Choi & Lee, 2012). Advergaming also had internal uses for the workplace—by attaching points and rewards to daily tasks employers sought new ways to manage production and consumption within the workplace (Byrne, 2012; Liyakasa, 2012c). However, advergaming had inconclusive results in promoting consumer action; it produced affective responses to products and brands but it did not drive extended cognitive or behavioral outcomes (Sukoco & Wu, 2011; van Reijmersdal, Rozendaal, & Buijzen, 2012). For example, players’ retention of brand information wasn’t revolutionary after playing a brand-related game (Sennott, 2005). The failure of game-based marketing to produce extended engagement with a brand was due to the fact that the advergames themselves were self-contained systems, that is, they produced motivational results solely within the context of the game and its rules (van Reijmersdal et al., 2012). When the game ended, so did the spike in engagement and retention. This problem harkens back to the difference between Carse’s (1987) finite and infinite games—to truly make money and later behavior for an extended period of time, advergaming need to be infinite.
To produce reliable results, marketers assumed that game dynamics nested in advergames also needed to be divorced from the idea of “a game” (Zicherman & Cunningham, 2011). Games are, by most standards, self-contained worlds with their own timelines and sets or rules. If producing and consuming are 24/7 pursuits that rely on maintaining interest, efficiency and overall motivation, then the idea of a single game would be insufficient to fulfill the dictum of work-as-play. Ideologically, marketers believed that game dynamics must be pulled from their ritualistic bubble and directly injected into everyday life. Alternate reality games (ARGs), like Majestic, released in 2001, had been successful in puncturing the thing divide between everyday life and gaming (T. L. Taylor & Kolko, 2003). Marketers sought the same hybridized effect. In order to drive engagement, the affective nature of gaming must become extrinsic, tied to real-time physical and economic events, and the mechanics and the logics behind the gamified application must be continuous.

The smart phone and tablet computer provided the platform to test out a mode of attaching game dynamics to everyday behaviors and locations while ensuring the gamified system was always present (Keats, 2011). Trade journals noted that the mobile revolution would usher in a new era of customer interaction and workplace management (Clavio et al., 2009; Keats, 2011; Naughton, 2003; Qin, Rau, & Salvendy, 2009; Rizzo, 2008; Sennott, 2005). Industry blogs asserted that “what yesterday’s science called Human Computer Interaction is today’s art of playing” (Gopaladesikan, 2012). The success of this venture has been confirmed, with applications like Shopkick—a gamified that rewards players with points for entering stores and locating products—generating millions of users, check-ins and product views (Ha, 2011; Rao, 2012). From the “cyberfarmer” to the always-on amalgamate
subject of employee/consumer/player, gamification’s uses are just now beginning to be
explored by researchers. However, the concepts behind gamification are quite old, and the
money (and data) has been flowing in for quite some time.

Gamification and LBMGs

The increasing flows of global data, risk, information and capital are enabled by the
“collapse” or, perhaps, contraction of space and time (Harvey, 1990, 2006). This is due partly
cellular infrastructure, mobile devices and, more specifically, “smart” devices that are
location-aware (Bell & Dourish, 2007; Dourish & Bell, 2007, 2011). The abilities of
networked and location-aware devices have led de Souza e Silva (2006) to propose the
concept of “hybrid space.” Hybrid space hinges on the idea that mobile devices are not just
modes of two-way communication; rather, they serve as microcomputers embedded in social
space that connect data spaces to physical locations and social networks (de Souza e Silva,
2006). Hybrid spaces, then, are “are mobile spaces, created by the constant movement of
users who carry portable devices continuously connected to the Internet and to other users”
(de Souza e Silva, 2006, p. 262). Hybrid space assumes that connected users are operating in
a hybrid reality where a “mix of social practices…occur simultaneously in digital and in
physical spaces, together with mobility…” (de Souza e Silva, 2006, p. 265). Because hybrid
reality is co-produced through social uses of technology, spatiality and infrastructure
removing data from space produce unalterable consequences. In other words, hybrid realities
and their associated spaces are inextricable from the data, technology, and users embedded in
them. De Souza e Silva (2006) encourages a reframing of what “physical” and “digital”
spaces actually entail through her analysis of “mobile interfaces” (p. 273). These interfaces
do not just translate between data spaces and lived, everyday activities. They fuse the two
together in an amalgamation of location awareness, smart navigation, crowd-sourced
locational information, visually represented social networks distributed across space and data
feeds linked across multiple global networks, including mobile, hybrid gamespaces.

Advergaming, which was highly localized began its shift towards gamification and
pervasive gaming when combined with location-based mobile games (LBMGs). Mobile
gaming initiated a collapse between the perceptions of “physical” and “virtual” gamespaces
(Chan, 2008; de Souza e Silva, 2008; Hjorth, 2011; Richardson, 2011). LBMGs share many
aspects with pervasive games, games that “expand” the magic circle (Montola, Stenros, &
Waern, 2009). However, LBMGs utilize very distinct technologies, such as location-aware
devices. Montola et al. (2009) state:

A pervasive game is a game that has one or more salient features that expand
the contractual magic circle of play spatially, temporally, or socially… The
game no longer takes place in certain times or certain places, and the
participants are no longer certain. Pervasive games pervade, bend, and blur the
traditional boundaries of game, bleeding from the domain of the game to the
domain of the ordinary (p. 503).

Pervasive games exist in the intersection of “phenomena such as city culture, mobile
technology, network communication, reality fiction, and performing arts, combining bits and
pieces from various contexts to produce new play experiences” (Montola et al., 2009).
Perhaps the best examples of pervasive games are those that have a diffuse “space” in which
they take place, such as some LBMGs that rely on pervasive techniques.
However, pervasive games do not have to involve advanced or networked technologies. For instance, games like *Assassins*, where players stalk others with water guns over a series of days and weeks, and live-action roleplaying (LARP) are also considered pervasive even though they need not involve digital or mobile devices. Both types of games are open-ended and take place across diffuse spaces; they appropriate quotidian spaces and convert them into gamespaces. LBMGs, on the other, utilize mobile devices that constitute as “mobile interfaces” (de Souza e Silva, 2006). Mobile interfaces, de Souza e Silva (2006) states, combine “portability, social interactivity, connectivity, individuality, and context sensitivity.” These devices are able to network players together, enable communication and transmit locational data.

Early LBMGs such as *Can You See Me Now?* and *Mogi* revealed that a variety of unique behaviors related to location-based gameplay (de Souza e Silva & Hjorth, 2009; Licoppe & Inada, 2010). *Mogi*, a Japanese LBMG demonstrated that the networked display positional data (where the player’s position can be marked and commented on) also provides users with resources to recognize their co-proximity while not necessarily being co-present (Licoppe & Inada, 2010). Players used this information to simulate future encounters with other players and, as a result of gamified lateral surveillance, changed their spatial practice in a number of ways including seeking out new social encounters, avoidance, mediated prosociability, and, at worst, stalking-type behaviors (Licoppe & Inada, 2008; Licoppe & Inada, 2010). From the standpoint of play, these behaviors indicate players would, for an extended period of time, change their typical behaviors in favor of engaging with locations and other players via the LBMG. In *Mogi*, players altered their daily routines in order to meet or avoid
other players in the city. (Licoppe & Inada, 2010). Gordon and de Souza e Silva (2010) point out that “most LBMGs lack a predefined game structure; that is, they do not have a clear end and are always running as long as there are users connected. Most importantly, gameplay often converges with ‘real’ life”’ (p. 60). This convergence is what makes LBMGs pervasive, and it also is what gives gamified applications their ability to reach far outside of bounded-off gamespaces.

Because LBMGs usually employ networked mobile interfaces, they can transmit continuous data concerning gameplay and location. This continuous transmission is necessary for gameplay, and also creates a unique environment for embedded surveillance of the type that gamification employs. However, LBMGs are also about producing new forms of play (de Souza e Silva, 2008). LBMGs introduced a new gaming logic that extricated gameplay from a set of highly redistricted spaces: They moved play from being confined to a screen or board to constant engagement with both physical and digital spaces (de Souza e Silva & Sutko, 2008). A key example of this move is the formation of Baudelaire’s flâneur into the “phoneur” (de Souza e Silva, 2008). The flâneur reframes the city through a series of playful actions that turn the city and its flows of power into a modern, observational game; the flâneur both participates and observes in an unaffected manner (de Souza e Silva & Hjorth, 2009). The flâneur observes, but the phoneur experiences and is experienced by others who are also embedded in hybrid game space. The phoneur, as a player, participates alongside “intimate strangers that inevitably get caught up in the gameplay” while “the magic circle of the game automatically fades and is blurred with the order of various ‘flows’—geographic, electronic, sociopolitical—of the context” (de Souza e Silva & Hjorth, 2009).
LBMGs “take the phoneur away from…‘panoptic mechanisms’” present in many mobile media practices and “place the phoneur in the pushing and pulling of play” (de Souza e Silva & Hjorth, 2009). For example, in the game *Botfighters* players would constantly alter their quotidian routines to engage with other players in combat, sometimes riding through the city until they came across an enemy combatant (de Souza e Silva, 2008). However, it is also important to note that phoneurism can also be networked into larger systems of surveillance while still using hybrid gamespace as a motivational apparatus—the development of gamification provides of example of how LBMGs have been instrumentalized into larger networks of control and capital.

The development of LBMGs allowed advergaming to move beyond contained or localized gamespaces and into hybrid space. Thus, the tracking and surveillance capabilities embedded in hybrid gamespaces to advance play are also tools that can be used to collect profitable data. For gamification, this involves recording players and gauging their efficiency is performing desired behaviors. The behaviors of players, which mechanics seek to influence and harness, is key to gamespace—the players’ bodies-in-space are the primary mode of generating data and profit. This is a key point in examining the history of interactions between LBMGs and gamification: the conversion of the quotidian space into the gamespace and the subsequent conversion of the player into profit.

Location-based gamification emerges at the end of a few phases in the development of LMBGs. The research phase of LBMGs consisted of experiments and art projects such as those conducted by the research and art group Blast Theory—e.g., *Can You See Me Now?* (2001) and *Uncle Roy All Around You* (2003)—both of which have been covered extensively
by research on LMBGs (de Souza e Silva, 2006, 2008; de Souza e Silva & Hjorth, 2009; Gordon & de Souza e Silva, 2010; Sutko & de Souza e Silva, 2008). This phase focused on the interactions between players and technology and the feasibility of creating LMBGs. They were hampered by technological limitations, for example players in *Can You See Me Now?* had to wear backpacks and carry GPS units. The second phase occurred as smart phones with built-in GPS began come to market—this phase is the social networking phase. Early LMBGs, such as *Mogi* (2003), which was played in Tokyo, made heavy use of social networking. These types of games went from localized gamespaces to international sensation with the emergence of social networking platforms such as *Foursquare* (2009), which is covered extensively in later chapters. *Foursquare* provides a transition into the current phase, which combines social networking and LMBGs with advergaming—the gamified phase. This phase is currently occurring. The gamified phase is less interested in exploring the possibilities of play and more interested in using location-based play for profit. *Foursquare* makes its money off selling location-based ads and customer data. *Ingress* (2013), another gamified LMBG covered later, also profitably generates data. Both games focus on efficiency in collecting friends and navigating/exploring the city for social capital and titles (*Foursquare*) or holding territory for points (*Ingress*). This efficiency is tied to the movement of the body through space, and the constant surveillance of the body in regards to gameplay efficiency—in other words, efficiency is rewarded and recorded. These rewards and data are applied to purposes outside the games itself—they are instrumentalized. This focus on surveilling and training the body towards efficiency in gameplay plays into discursive links between computation and behaviorism.
Gamification, Computation and Behaviorism

While gamification has only been “named” in the past two decades, it has its roots in the development and dispersal of networked computational devices. That is to say, gamification only exists through the networked media technologies it utilizes, technologies that began to proliferate as early as the 1970s (Leiner et al., 2009). The computer, with its hyper-logical simulative capabilities, was especially responsive to logistics derived from mathematical game theory (Halpern, 2003, 2007). Computing and simulation, much like gaming, rely almost entirely on propositional statements expressed through a specific language or code.

As many scholars have noted, the similarities between computational code and game theory are marked, as both derive from similar mathematical principles (By, 2012; Crookall, 2010; Klabbers, 2009). As such, games and play acted and modes of transmission for computing, and specifically networked computing; as early as 1963, game theory and games (which are visual expressions of game theory calculated by a computer) were used to demonstrate the use of computers as both logic machines and artificial intelligences (Jorgensen, 2009). As computers increasingly became necessary for monitoring the growing global economy, game logics were further integrated with computational systems and are

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17 Turing’s universal machine, the building block for almost all computational systems, is based on a simulated “game” played with a set of tables (Turing, Post, & Davies, 2004). Turing’s universal machine is actually a series of simulated counting machines playing a recursive logic game. In modern terminology, this is “running a program”. Computers and computer programs are logic games; however, they are referred to by Turing as “simulations” because machines (currently) lack a biological predisposition towards play (Baudrillard, 2001; Turing, 2004).
present in many aspects of basic systems design (Halpern, 2003). Game logics, software
design and simulation from a computational standpoint are mutually constructive of one
another.\textsuperscript{18}

The mutuality of games and computation is what allows for computers to perform
simulative calculations necessary for the basic functionality of software programming
ranging from economics to basic locational applications like navigation services. They are
also intrinsic to networking applications (Halpern, 2007). Games, from the standpoint of
game theory, are literally built into the fabric of computational protocol. Game theory, or the
theory of decision-making, probability and contingency played an important role in the
development of simulation, computer science and economics. The decision-making paths of
economic agents can calculated, based on contingency, as branching trees related to possible
gameplay scenarios, utilities and choices (N. a. R. Hulsey, Joshua, 2015). Additionally, game
theory has been used to explain evolutionary outcomes (M. Consalvo et al., 2010). While
game theory is not necessarily a game, it uses games as ways of understanding the paths and
possibilities that agents may take. Thus, game theory has also been used as a basis for
creating algorithms and artificial intelligence. Most important, game theory is also unique in
that is able to map the transmission and formation of power—the relationships between
actors as they move (C. Fuchs, 2010). In the study of gamification, games, game studies, and
mass computing are circuitously connected. In the Mobius loop of a gamified environment,

\textsuperscript{18} All of Turing’s computational tests, which are benchmarks for modern computing and artificial intelligence,
were games (Turing, 2004). At its most basic level, computation involves simulation-based devices. Because
games and simulations are very close, almost all early programming designs were tested and simulated via
games and game dynamics.
the data generated by players supports more simulation, more monetization and, of course, more play. Their behaviors are mapped, and the environment is altered via mechanics to account for deviation or counterplay. All decisions must conform to the logics required in producing the needed data.

Gamified design is the direct result of detaching game logics, game theory and game design practices from the concept of a self-sufficient “game.” Most notable is the use of game mechanics, which are specifically aimed at influencing user motivations when they engage with a product, brand, location or social network (Deterding, 2012; Kim, 2012). Game logics encode the outcomes of player choices through algorithmic sequences and represent the rationale for the end-state of actions produced in the game (van Benthem, 2003). Game mechanics are the specific architectural qualities of game design—the formal or structural components that constitutes rule systems, constraints and pathways (Sicart, 2008). However, despite the addition of game-like elements, gamification does not equate “turning something into a game.” Gamified design is largely about creating an environment where certain types of behavior, namely compulsive play, are encouraged and monitored.

Humans, it turns out, are compelled to play. Downplaying behaviorism in gamified design is a result of negatively typecasting game mechanics as Pavlov-style experiments in making “fun” superficial, with play behaviors actually serving a much deeper purpose. Scholars often base their judgments of gamified environments on the ethical assumptions that games make things better, regardless of where and how they are deployed. However, all software courts behaviorism; design, after all, is meant to facilitate behavior (Norman, 2008, 2011). Computation itself is noted as a double-edged blade by scholars, who state that the
transferal of behavioral agency to computers can have lasting effects on interpersonal and macro social spheres (Levy, 1997; Turkle, 2011). In the end, operating on simplistic ethical notions of games and play is not well suited to the processes and forms of gamification.

**Gamification of Culture**

Pressing issues concerning ontologies of play, the epistemological frameworks of gaming, and ideological issues plaguing the so-called separation of leisure and labor have led to a greater awareness that games and play exist as practices embedded in material culture.¹⁹ Games and gaming work “simultaneously as central nodes in the organization of contemporary leisure culture, computer-mediated interaction, visual culture, and information societies” (Simon, 2006, p. 64). When examined alongside these particular loci of concerns, gamification’s version of play does not exclusively represent a black box marketing methodology aimed at behavioral modification and surveillance, but as sign and symptom of a media saturated culture that has deep historical, cultural and technological roots. Gamification, like games, also represents “critical locations for understanding the role of digital technologies in mediating and constituting the social interaction and organization of

¹⁹ Material culture, here, refers to a distinct approach to cultural activity that emphasizes culture as a practical activity (Marx, 1997). In other words, culture is not stable history of ideas or meta-narratives but rather a diverse collection of practices embedded in everyday activities (Lefebvre, 1991). Materialism holds that all cultural processes are, to some degree, material processes (R. Williams, 1989). They involve actual constraints that are the result of heterogeneous times and spaces (Massey, 1992). The ability to engage in cultural production is based on a wide array of problems and conditions: who is allowed to communicate; how are people communicating; what technologies are available to whom; how and why are these technologies available? This short list of issues does not do justice to the wide array of approaches and problems embedded in a materialist approach to culture. However, they serve as groundwork for examining what many would claim is the primary goal in a cultural approach: examining the relationship between power and cultural production (Couldry, 2000).
subjects in late modern information societies” (Simon, 2006, p. 66). For example, Boellstorff (2006) states, “many games, and other forms of interactive media…that are less clearly game like, are taking on cultural forms in their own right… These cultures cannot be reduced to the platform, that is, the rules and programming encoded in the game engine” (p. 33). Like gaming, gamification also encompasses the meanings created through individuals and groups playing from both a productive and consumptive standpoint.

Malaby (2007) suggests that games are “dynamic and recursive” in that they reproduce their form over time and space, but also encode within themselves the pattern for change. Key here is that gameplay embeds the desire for control alongside the possibility for alternate, appropriated meanings. Malaby (2006) suggests that on the surface, games are a series of processes based on contrived contingencies; outcomes that, theoretically, can be contained and constricted through the rules of play (or perhaps, the rules in play) but also rely on open-endedness and subjective interpretation. “Contingencies” represent “that which could have been otherwise” (Malaby, 2006, p. 106). As Huizinga (1950) suggests, games are germination spaces for perpetual cultural recalibration that operate through a series of external relationships. Games contain, according to Malaby, the “fundamental quality of multilayered contingency that allows them both to mimic and constitute everyday experience (p. 107).” “Contrived” suggests that games are both ordered and disordered. Unlike bureaucratic rules and regulations, the contingencies created through ludic processes are not aimed to “reduce unpredictability across cases” (Malaby, 2006, p. 105). Rather, ludic processes “are about contriving and calibrating multiple contingencies to produce a mix of predictable and unpredictable outcomes” (Malaby, 2006, p. 106). This implies that gameplay,
from the standpoint of intent, encourages exploration and pathfinding as much as they require a player to abide by rules. Gameplay embodies a fluid system of control that relies as much on innovation as it does compliance. Malaby (2006) claims:

…the contrivance of these sources of unpredictability is achieved through various modes of control…these modes of control additionally include the architectural (encompassing the gamut of relatively non-negotiable and concrete constraints, from physical layout and landscape to the implicit code of online games), the cultural (the set of practices and expectations that are often implicit and taken for granted), and the economic (the familiar constraints of the market in all its forms). Games are distinctive in their achievement of a generative balance between the open-endedness of contingencies and the reproducibility of conditions for action (p. 106).

One key aspect of this open-ended approach to contingencies is that games promote multiple configurations across social and technological matrices. The multiplicity of outcomes and interpretations that games produce are subject to varied, culturally shared, meanings that are consistently decontextualized in the realm of practice. Thus games are a set of practice-based contingencies that are generative.20 For example, Molesworth and Denegri-Knott (2007)

20 Psychology describes generativity as a human “need, drive, concern, task and issue” that involves socially and environmentally transferring specific traits or characteristics from one generation to the next (McAdams & de St. Aubin, 1992). Jonathan Zittrain (2008) expands this definition to technology. He defines the generativity in terms of software or technology-related “generations.” He states, “generativity is a system's capacity to produce unanticipated change through unfiltered contributions from broad and varied audiences” (p. 70). Under Zittrain’s definition, generativity results when technologies enable users to generate, create or produce new content unique to that application. One key aspect of generativity is that content is generated without additional input from the designers of the apparatus in question. Key examples of generative technologies include open-
examine how gaming, and constructing meanings through play, is an act of consumption. However, rather than accumulating, hording and territorializing resources, gaming operates through complex, liminal activities that occupy a culturally productive position that tethers the practical activity of using goods with a malleable digital sandbox. Meaning-making in-game culture blurs the lines between producer and consumer, occupying a liminal space that encourages change, performativity and imagination (M. Molesworth & Denegri-Knott, 2007). Players adopt a “doing with” attitude, actively embodying both regulative, ritual-based contingencies and an imaginative “acting out” attitude that links the imaginative function of possibility with the practical function of “making real” (Molesworth & Denegri-Knott, 2007). This dynamism between consumption and production, the small and grand narratives of cultural performativity, accentuate both Malaby (2006) and Boellstorff’s (2006) claims that games may underline a renegotiation of the processes through which culture is coded and decoded in the digital age. Boellstorff (2006) states that

Most persons who participate in games and other interactive media…play more than one game…We are seeing the emergence of cultures of gaming on a range of spatial scales—some local, some national or regional, some global—shaped by a range of factors from language spoken to quality of Internet connection (p. 33).

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source software and hardware, most video games and the internet (which allows users to produce and sustain a myriad of content via the World Wide Web). Generativity, according to Zittrain, requires both technological and social actors.
Gameplay, then, is interpreted as a larger set of meaning-making practices that are conducive to the formation of a “game culture” shaping the landscape and definition of games. “Cultures of gaming” are the diverse and segmented practices embedded within a larger cultural milieu tied to certain modes of play behaviors as they are modulated by games and related technologies.

The decentering of gameplay as a ritual practice set apart from more serious social processes has resulted in a growing interest in the “gaming of culture.” Boelstorff (2006) maintains that “As [gaming] gains in significance, [it] increasingly affects the whole panoply of interactive media, from television to movies to cell phones to the Internet in all its incarnations. Gaming also shapes physical-world activities in unexpected ways, including the lives of those who do not play games or participate in interactive media” (p. 33). The gaming of culture is perhaps similar to what Baudrillard (1979, 1981) envisioned when he proposed that seduction and gaming were part and parcel to the (de)programming of reality. Gaming culture has been linked to many “non-gaming” practices. Key here are military research and simulation (Allen, 2011; Veen, Fenema, & Jongejan, 2012), ludic consumer practices as they relate to the expansion of neo-liberalism (Dyer-Witheford & de Peuter, 2009), and the search for play-centric education, which has seen a vast surge of interest in exploiting the “learning power” nestled in games, particularly as a subset of a so-called “participatory culture” that is driven (in part) by the expansion of computer games and playful, gamified applications (Squire, 2011). It might be said that the study of gamification contributes to the “gaming of culture.”
The culture around us is beginning to resemble a “play of the machinic unconscious” (Colman, 2012) or perhaps just machinic playgrounds: spaces where the datafication of everyday life incorporates game mechanics to feed, direct and influence collective and individual desires on an increasingly micro scale. The ambiguity of play leads to ambiguity in games. This is what often results in games being boxed into a magic circle that defies inherent ethical issues such as power or progress. However, the study of gamification demands that scholars dig between the polarities of power and progress. Gamification is about play, albeit a strange interpretation of it, and it is about power and progress. In a way, it is about games, as well. It affirms that games/play and power/progress are just a few sides of the same cultural prism, a prism that projects no ethics, no play, and no games beyond the spaces where it resides. What our “gamified prism” reveals is a different spectrum of contingencies for each source of light, each room and each experiment where it finds itself useful.

Conclusion

In this chapter, I have explored past interpretations of play and their relationship with gamification. I have focused on decentralizing play and games from their current moorings by suggesting that focus on games and play should be contextual rather than monolithic; both should be treated differently in different contexts, especially in regards to power and control.
I have also suggested that both games and play are ambiguous in their cultural outcomes, and that gamification should be viewed a set of cultural practices appropriating ludic activity.

Gamified design is comprised of embedding game logics and mechanics into non-ludic environments with the goal of creating and maintaining engagement with a system or groups of systems. As such, it is a set of practices concerned with producing material and social results not inherently concerned with play or playfulness as a free or spontaneous act.

The idea that players are not necessarily in control of the system has been suggested multiple times, including by early ludologists (see Caillois, 1961 on “games of chance”). Gamification certainly employs game-like qualities in the form of mechanics and logics. It also does attempt to inspire playful behavior, channeling the desires of users, although it does not produce the type of play often associated with both digital and analog self-referential, or perhaps finite, games. The design choices that exist in many examples of gamification—such as points, progression, levels, customized avatars and rewards—are game-like elements.

Gamification aims at making everyday tasks enjoyable in many cases. However, the intent behind these design choices means that gamified systems do not necessarily result in a self-contained game nor does it exist entirely within the boundaries of game culture. Gamification distributes game logics and mechanics through systems that do not have always have play in mind. Gamified environments do not focus on playfulness as a set of definite or self-referential outcomes. Playful behavior, in this manner, is similar to a human resource. However, this “resource” is a state of being that can be directed towards decidedly non-playful ends, such as efficiency and profitability in everyday life (faster work, healthier body, better navigation). In a gamified environment there is rarely a prince or princess to rescue or
a galaxy to save. There is no spontaneous yelling of “Tag, you’re it” or “Marco Polo!”

Rather, the formal qualities of gamification operate alongside a meta-narrative of consumption and production, embedding any playful aspects produced by the gamified system into much larger circulations of labor and capital not directly related to the gaming industry or the purchase and use of self-contained “games.” This meta-narrative leads to two distinct possibilities. The first is the creation of the “indebted man” (Lazzarato, 2012), or players whose everyday lives depend of a system of play for data, where gamified logics economize and indebt their datafied bodies. Going one step further, the second possibility is that gamification could be construed as a system of “machinic enslavement,” that modulates “pre-individual, pre-cognitive and pre-verbal components of subjectivity” (Lazzarato, 2006). In this case, the pre-verbal and pre-individual component being exploited is play—natural urges coded into simulations. Most gamified applications generate revenue not through the distribution of the app, but through the data generated by its use. Similarly, gamification in design software is aimed at increasing the user-friendliness of the interface or the simulative capabilities of system—both lead to efficiency and, by extension, profitability. As such, the formal qualities of gamification do not produce gameplay in the sense that “players” engage with a “game.” Rather, gamification creates players who engage with gamified environments in the context of everyday activity.

Gamification serves an overriding logic that does not always congeal with play as a free or open experience. Rather gamification serves the logic that pleasure is not happiness or healthiness in situ: pleasure keeps people happy and healthy no matter what their proximal or locational situation may be. Additonally, pleasure can be gained by ever-increasing
efficiency, so long as that efficiency is achieved through play. As such, play is seen in a much different light when gamified—it is a force to directed and controlled. Play, in the case of gamification, must be viewed as a form of power that affects the player’s relations with the world around them and the game logics. Power through play is a series of relations that involve the game having power over the player, the player overpowering the game and the relations between both redefining how the course of gameplay unfolds.

Because of this, gamification, in many respects, challenges some of the canonical conceptualizations of both play represented here. Gamified applications are not games, but rather collections of design practices that serve a rationale utilizing playful behavior as a power source. They do not necessarily follow genre formats and many times are undetectable without expertise. Gamification does not necessarily present a “different” or “new” set of social or material concerns when it comes to play; rather, it warps how play operates, and by extension destabilizes past definitions of what play actually might entail in the 21st century. Gamified design concerns networking players together through seduction in order to produce playful sets of contingencies not typically associated with “free,” “harmless,” or “ritualized” games as defined by Huizinga (1950) and Cailllois (1961). Gamification’s form of gameplay operates closer to the murky side of play—the ambiguous, Baudrillardian contract. It is seductive as much as it is ludic. It is consumerist, connective and controlling. The types of gameplay produced by gamified applications are closer to instrumentality, where the subject is increasingly naturalized into a networked, monitored protocological system. Gamification entails 1) utilizing parts of a game—the mechanics, rules and rewards—to increase the predictive capabilities and/or efficiency of much larger systems; 2) promoting repeated non-
coerced engagement within a set protocol for an end result outside of the gameplay itself; 3) recording player actions for the profit of the designer and the continuation of engagement with the system; and 4) tapping into the business of leisure and pleasure through harnessing playful desires (Zicherman & Cunningham, 2011; Zicherman & Linder, 2010). Different combinations of design choices, technology and modes of deployment serve to meet each of these conditions.

In conclusion, the scholarly focus on gaming and gamification has been one of definitions and outcomes. Namely, focus has revolved around what role games and gamification play in culture-at-large and how gamification can be used for one end or another. Following Baudrillard (1981) and Fink (1968, 1974), games play with ethics, history and life itself in increasingly ambiguous ways. Gamification is now far removed from Watts’ (1995) zen idealism, and as gamification becomes more prevalent it is time to focus on how everyday tasks and occurrences begin to resemble machinic playgrounds. Gamification plays with all boundaries: it expands across tasks, times, spaces and even species. Games, gamification and gameplay are all around us, hiding in places previously unseen. In the next chapter I explore how gamification occurs across many boundaries. Using case studies of gamified pet technology, I explore how gamification can operate on a cross-species wavelength. I maintain that gamification comprises an open-ended, generative network that plays with networked environments, nudging them towards a more seductive deployment of network architecture.
CHAPTER 3—Gamification, Power and Networks

Gamification plays with boundaries. It also creates and destroys them, redefines and solidifies them. The expansion of gameplay from distinct ritual spaces into a seductive context is one aspect of gamification’s built-in ambiguity—infinites games, pervasive games, and location-based mobile games, all seek to rupture the ritualized bubble proposed by Huizinga (1950) through a combination of rules, gamespaces, and technology that diffuse beyond the boundaries of life, education, work, economics and spaces previously untouched by game logic (Montola et al., 2009; Petridis et al., 2011; Stenros, Waern, & Montola, 2012; T. L. Taylor & Kolko, 2003; Thomas, 2006). Virality is an aspect of environments incorporating gamified systems—they infect adjacent areas via instrumentality. For example, the brain-training application Luminosity seeks to measure intelligence and track cognitive decline with age.

In a sense, gameplay has always been about expansion. Games may be contrived contingencies (Malaby, 2007), but part of the contrivance is that the outcomes of gameplay must be open ended in the sense that they can travel across boundaries. Many successful games in the 21st century are “persistent,” meaning that they combine elements of continuous virtual worlds with external media, including material products, social media, and locational media (Castronova, 2005; Lopes & Bidarra, 2011; Malaby, 2006). For gamification to work as a surveillance mechanism, a managerial apparatus or a generative mode, it must be expansive and adaptive—it must be ecological (Fuller, 2005). This implies that it exists alongside many contributing processes and networks which co-adapt to one another.
This chapter performs two main purposes: it grounds a variety of terms utilized in the next chapters, and it concretizes them with a current example of gamification when deployed in the environment surrounding pets and pet ownership. Covered here are several propositions about the excavation of gamification: that gamification engages directly in relationships concerning power/knowledge, that gamified applications are networks with distinct structures that determine their use and identity, that these networks exist within a ecology of subjects, spaces and objects, and that gamified design harnesses an evolutionary process spurred on by the desire to play. Each of these insights provide pieces of the framework used to guide the archaeological portions of this dissertation—conducted in the following chapter. As with most insights into gamification, this chapter begins with observations on how recent computer games paved the way for current deployments of gamification.

Advancements in computation allow for hyper-adaptive virtual worlds (Lopes & Bidarra, 2011). In adaptive environments, game mechanics are injected into a previously existing environment. Also rule systems and technologies are responsive, portable and connective. The shift towards mobile computing has provided marketers and managers with a platform for perforating formerly restrictive spaces. However, the social expansion of gameplay, and leisure in general, is historically linked with the proliferation of technology (Baudrillard, 1998a, 2005; Debord, 1995). One aspect of modern technoculture is the proliferation of machines that reproduce and combine simulacra and ludic machinations with everyday life (Giddings, 2007a, 2007b). Giddings (2007b) states,
The ambivalence of play and games has always entailed their machinations in the persistence and reproduction of social orders and hierarchies...as well as in their subversion or transformation. The symbolic, the authentic, and play can also be cruel and conservative. It has been argued that the magic circles circumscribing play, separating it from other everyday realities, have been thoroughly effaced in consumer society... (p. 393).

Gameplay becomes a commoditized “form of productivity...productive of enormous wealth” (Dovey & Kennedy, 2006, p. 101). Productivity and generativity are two sides of the same coin, a coin that gamification frequently flips. Part of defining a theoretical framework for examining gamification, and the gamified environments it creates, involves a radical shift from stable conceptualizations involving players, gamespaces and the gaming of culture. Tracing the ways in which play is reshaped by technology requires rethinking how we view it as a necessarily positive ethical pursuit. It also forces us to deal with technologies that serve as tools of coding and transmission. Games, instead of being self-contained systems, must be recast as adaptive, hybrid “code/spaces”\(^{21}\) (Kitchin & Dodge, 2011) that permeate everyday life.

I begin with a consideration of three gamified applications: *Games for Cats, Whistle*, and *Petcube*. Next, I examine gamification as series of procedures that are inherently rooted in knowledge/power dichotomies and biopolitics. Gamified design is part of larger discursive frameworks about space, leisure, materiality, capital, games and play. I then go on to suggest

\(^{21}\) Coded spaces are spaces where code is augmenting the space but does not define it; code/space, similar to hybrid space, is a space where removing the code eliminates the existence of the space itself (Kitchin & Dodge, 2011). Hybrid spaces may contain both coded spaces and code/space.
that gamified applications are situational. As an arrangement of material, digital and social entities, their form is tied to the changeable structure of distributed networks. These networks, be they arranged between pets and their owners’ technology or humans and their digital games, adapt to the ways game logics and mechanics reify or disrupt connections between people, technologies, environments and tasks. Identifying and analyzing a gamified system is an ecological (Fuller, 2005) pursuit—it involves tracing the shifting connections between human and non-human actors as they modify their trajectories. Fuller (2005) states that the term “ecology” is used to refer to media systems “because it is one of the most expressive [terms] language currently has to indicate the massive and dynamic interrelation of processes and objects, beings and things, patterns and matter” (p. 2-3). Media and information—it is questionable if one is truly separable from the other—are vast collections of intensities that viewers/users/players invest in. Media are material and immaterial, ordering and dis-ordering. In this manner, as the channels through which culture distributes, media in the 21st century truly represent a vast, contentious plane of mutually inclusive (although not always harmonious) environments (Fuller, 2005). As a form of design deployed via media, gamification represents a constantly evolving technical pursuit that dovetails directly with the evolution of technical objects, systems and environments. In the end, gamification’s primary concern is the constant alteration of environments in favor of seductive play. This is especially true in the case of gamified pet care technologies, which represent how gamification perpetuates its existence by altering an environment’s network for play, profit, surveillance, and control.
It’s Gaming Cats and Dogs

The primary purpose of exploring interspecies gamification is to note that any relationship or environment can be gamified. Interspecies gamification also provides a concrete example of just how viral gamification actually is. Finally, it serves as an empirical grounding point as I develop the theoretical framework around gamification. Humans sometimes forget that play is, as Fink (1968) points out, a primordial pursuit. Play is ambiguous, and it is not relegated to one species alone (Brown & Vaughan, 2009). As a cultural set of practices Fink’s “play world” is not relegated to the human realm—it is a mode of experience related to raw awareness of existence (Elden, 2008). From a biological perspective, play is a world-building activity for almost every mammalian species—animals play to learn, play to build, and play to socialize (Bateson, 1956; Fagen, 1981). Play, for animals, is just as much a world-building activity as it is for humans. It stands to reason that animals are just as susceptible to gamification as their human counterparts, with pets being a prime example. Pets can be both players and play pieces. In fact, the distinction becomes meaningless when we examine pets as a sort of liminal being on the outskirts of culture—the form and function of pets is a subject category always in play.

Baudrillard (2005) states that pets are an “intermediate category between human beings and objects”—they are living objects subjected to a “serial game,” a system of possession that reifies the notion that “everything that cannot be invested in human relationships can be invested in objects” (pp. 95-97). For example, dog and cat breeds are prototypes of modern genetic engineering—selectively bred for aesthetics and utility, breeds are literally a collectible “series” of animals. More importantly, breeds are also a collection
of changeable traits, thus functionalizing the dog into a metamorphic series of parts that can be used or invested in. Pets are both tools and companions. Haraway (2003), in her *Companion Species Manifesto*, points out that in this relationship, humans are also altered by pets. The relationship is reciprocal, and yet pets often receive the short end of the proverbial stick. They are unknowing denizens (or perhaps they are perfectly aware of their situation) in our structured human environments; they are antagonists and collaborators when it comes to humanity. They “fit in” without ever quite acquiring human capacities. They can be trained, punished, neutralized and annihilated depending on their ability to integrate into our society.

Increasingly, pets are consumers of technology and technologized play—they are both the objects of technological domination and users of technological objects. Shock leashes, automatic feeders, Astroturf indoor bathrooms and automated toys are everyday realities for many companion animals. The expansion of technical gameplay into the animal realm is evidence of the viral nature of gameplay and gamification—pets are generative of data and capital, same as humans. They are also potential players and playthings, a distinction that gets muddied when dealing with gamification.

*Games for Cats, Whistle and Petcube*

It took me aback to realize that my cat enjoys playing computer games. However, as my cat plays her feline-centric game (which involves swatting at moving objects and collecting points), I also realize that her life is, for the most part, better for it. The mobile computer, my so-called tablet, is equipped with a bright color scheme and haptic responses, enabling her to exercise a part of her being that was rudely taken from her by domestication. Long days in the same house must have taken a toll on her, judging from the zeal with which
she throws herself at the colorful fish-interface of the Friskies’ *Games for Cats* application. What I interpret as “joy” in my cat is one side of the proverbial gaming coin: games are fun, relaxing and stress relieving. Play is often considered sacred—a safe (if sometimes mischievous), self-contained place to exercise creative, social and analytical skills.

*Games for Cats*, released in 2011, is a mixture of games designed for a cat’s natural hunting instincts (Lacy, 2013). “As we started to see the surge of technology and play and a couple of early videos on YouTube [of cats swatting] after the first iPad launched,” Alison Colburn, assistant brand manager for Friskies, stated: “It dawned on us that it could be great synergy for what our brand celebrates and cats’ natural behavior” (Lacy, 2013). Friskies’ *Games for Cats* has spawned hundreds, perhaps thousands, of user-submitted videos and tens of thousands of downloads (Lacy, 2013). Animal enjoyment aside, there are deep-rooted questions that arise when we stop assuming gamification is relegated to a bounded discursive framework, such as the notion it only applies to humans.

Channeling Haraway (2003), issues of my cat’s “significant otherness” are called into question by gamification. Haraway (2003) approaches relationships with companion species as co-conditioning—one where similarities and differences are mediated by a slew of cultural and technological matrices. Through technology, namely a computer game, I have a glimpse into the commonalities of “being together” with my cat. However, those commonalities rupture when data comes into play: We both are netted by the data trawling in *Games for Cats*, but only the human counterpart produces capital, informational and otherwise, for Friskies by providing pleasure for their “other.”
For example, the bizarre consumerism of the “cat vs. game” scenario is further compounded by the fact that she is winning points by playing—as she swats she is accruing a codified, mathematical system of virtual currency she has no way of understanding. However, if she wanted to, she could post her scores online and compete with cats all around the nation. If she were a prodigy, I might post them for her. As if she cares. If I wanted to, I could also compete with my cat’s lightening reflexes and see how our scores compare (something I am not keen on doing since losing is not one of my strong suits). Either way, she just wants the fish—a simulated, hyperreal fish that she will never catch; one that never belonged to her in the first place. I began to notice something strange about *Games for Cats*. When I downloaded the application, it needed “access to my phone” and wanted to “integrate” with my social networking profiles. It allowed me to post to various social networking platforms on my cat’s behalf. While Friskies promised not to share my information with anyone, they never quite say what they are doing with my “anonymously collected data” or just how much of it they have. My cat’s play is fully integrated into a network of other information, information about me (and now, my cat). This information might allow Friskies to better understand, through so-called “meta data,” what my consumer identity might be. Friskies’ potential access to what sites I visit, what products I “like,” what I browse for and who my friends are is the price that I pay for my cat’s free application. Apparently, *Games for Cats* is more than just a game if it was ever a game, at all.

Dogs are also included in the gamified environment. *Whistle*, a dog activity-tracker that attaches to the dog’s collar, is also a location-based gamified application for managing human-pet relations (Empson, 2014). As pointed out by Sutko and de Souza e Silva (2008),
surveillance is often embedded into location-based applications—Whistle is no exception. Currently, Whistle remotely monitors dogs’ activities, allowing owners to check on their pets and map when their dog is active (Empson, 2014). However, the collar attachment’s Bluetooth functionality allows for a variety of features including geolocational services, social networking functionality and location-based advertising—functions which are currently in development (Empson, 2014). Still, the mechanics of self-archival, goals and points, all associated with gamification, are present. Pet owners can turn their dog’s daily life into a series of points, goals, and levels through activity monitoring. Gamified remote access to pet behavior goes further than just activity tracking.

Petcube, successfully funded by a Kickstarter campaign, is a cube that is equipped with a wide-angle video camera, microphones and speakers, a laser pointer and network connectivity (Brooke, 2013). The cube essentially turns the dwelling place into a pet panopticon; owners can use their mobile device to speak to their pet, activate the camera to observe their pet, and use a game-like interface with touch-screen haptic controls to play laser games with their companion animal. The Petcube, is designed to eventually integrate with products like Whistle, and even provides an open API for game and app developers to develop third-party devices and programs with the cube in mind (Brooke, 2013). Once again, as with almost all gamified devices, the Petcube features social connectivity, points and archival mechanics allowing owners to record, share and compete across social networks.

The primary mechanics used by gamified devices and applications—points, archival tools, avatars, leaderboards, social connectivity, location-based features, targeted rewards systems and network connectivity—are showing up almost everywhere, and they aim to
integrate human and nonhuman subjects into ludic, networked, generative spaces influenced by gaming logics. Watching my own cat swat at a screen, trying to capture a digital fish for hours and meowing piteously when the tablet is taken from her is eerily reminiscent of the common scenes of moral panic associated with humanity’s own complex love for games: It is a common dichotomy, and a false one, that games are harbingers of either Ray Bradbury’s *Fahrenheit 451* or Aldous Huxley’s *Brave New World*. Both are two different routes to the apocalypse, or “gameocolypse,” as game designer Jesse Schell (2010) terms it. We are either numbed beyond oblivion by simulations or too happy to care about consequences. Utopian or dystopian visions aside, the anecdotal kernel embedded in the practice of gaming cats and dogs confronts anyone who studies digital games: They highlight the paradoxical relationships between play/compulsion, production/consumption, pleasure/indulgence, machine/biological and leisure/labor.

Primarily, gamification points to the fact that the expansiveness of play is clearly linked to structures of power, capital and surveillance. Life and space have always been harnessed and integrated into disciplinary, social or political networks. However, game dynamics appear to provide the motivational force needed for populations to willingly engage with certain software applications. This ludic seduction is what makes gamification a desirable outcome for any party seeking to influence, monitor or categorize populations of “players.”
Gamification and Biopolitics

The first steps in constructing a framework for examining gamified applications like *Games for Cats*, *Whistle* and *Petcube* and others are understanding the conditions of their use: the production and modulation of both knowledge and power. Life, human or otherwise, and space have been increasingly integrated into biopolitical networks (Foucault, 1977, 1980, 2007a). However, games appear to provide the motivational force needed for a population to willingly engage with modern biopolitical networks, which increasingly take the form of software distributed via mobile devices. This ludic seduction is what makes gamification a desirable outcome for any party seeking to influence, monitor or categorize populations of “players” based on their activities within a gamified space.

Gamification works towards the generation of *biopower*\(^{22}\) via surveillance that produces modulations of power and knowledge. Surveillance is the primary method used for the purposes of producing biopower. Biopower fosters life or disallows it to the point of death by controlling knowledge about the body, distributing bodies through spaces and technologizing bodily functions. The mechanisms used to supervise and control the individuals’ bodies rely on discursive formations of the human body as a complex machine. Rather than directly controlling, repressing or concealing workings of bodies, biopolitical mechanisms strive to constitute and structure perceptual grids and physical routines into

\(^{22}\) Biopower can be defined as a collection of technologies aimed at managing humans as populations rather than as individuals. Foucault (1998) described biopower as “numerous and diverse techniques for achieving the subjugation of bodies and the control of populations” (p. 40). Foucault (2007a) expands this definition in *Security, Territory and Population*: “By [biopower] I mean a number of phenomena that seem...significant, namely, the set of mechanisms through which the basic biological features of the human species became the object of a political strategy...” (p. 1).
bodies by “mapping” them into “place.” Traditionally, this has been done through the tactical deployment of surveillance mechanisms such as the “spying” conducted by various governmental departments or, even more mundane, the use of census taking. However, technological trends such as data mining, ubiquitous computing, and social networking have moved surveillance trends away from centralized methods of information extraction to individualized methods of lateral and self-surveillance, or watching others and watching one’s self, respectively (Andrejevic, 2002; Whitson, 2013).

Lateral and self-surveillance are embedded into gamified environments. However, at the heart of gamification lies the deciding factor of play, which is what differentiates “players.” Knowledge about why players behave in a certain way is embedded into the mechanics of a gamified application from its inception and seductive motivational prompts are what lead to knowledge about players. For Foucault (1977), defining knowledge is largely about defining the power relationships that sustain and embody its various forms. Consequentially, knowledge is what allows us to define and manipulate different forms of power (Foucault, 1977). The power source for gamification, in this case, is the drive to play games—the desire to interact with a responsive system of challenges and rewards, hierarchies, rules and options. Foucault (2003) states that power can only be exercised over “collective subjects who are faced with a field of possibilities in which several kinds of conduct, several ways of reacting and modes of behavior are available” (p. 139). “In this game,” he continues, “freedom may well appear to as the condition for the exercise of power” (Foucault, 2003, p. 139). Knowledge is modulated through an arrangement of “prompts” that alternately steer and interpret player actions, or gameplay. What forms is a
cyclical relationship between playful behavior channeled, in part, via software (power) and the types of information produced and categorized by the players (knowledge). This “knowledge/power dichotomy” is the foundation for a biopolitical mode of governance (Lemke, 2011). By examining the relationships between bodies, social systems, technology and governmentality, Foucault (2010) argued that scholars could trace, or perhaps excavate, a genealogical history of objects or processes (such as gamification) as they relate to the production of knowledge and power.

Gamification has been categorized as an example of governmentality (Schrape, 2014). However, gamification itself does not operate as a distinct material or ideological element; rather, it exists through a series of media-based relationships that contribute to the production of certain types of knowledge and power. Archaeology and genealogy dovetail as methods to explore multiple points of convergence as gamification and related technologies become increasingly visible. As Foucault (1982) states, “something called Power…which is assumed to exist universally…does not exist. Power exists only when it is put into action” (p. 219). For Foucault, power “is not a renunciation of freedom, a transference of rights, the power of each and all delegated to a few” (p. 220). As such, power is positive and it exists only through the applied actions of agents. “A power relationship can only be articulated on the basis of two elements which are each indispensable,” Foucault states. “‘The other’” is actually “recognized and maintained to the very end as a person who acts” (p. 220). Power is generative, it does not necessarily dominate or negate: “faced with a relationship of power, a whole field of responses, reactions, results, and possible inventions may open up” (Foucault, 1982, p. 220). For Foucault, power is expansive and universal; for humans, it constitutes
domains of objects and discursive truths (Smart, 2000). Power is relative to knowledge, they inform each other. Put simply, power determines what types of knowledge or truths are allowed to exist within a given spatiotemporal point. However, power is not necessarily determinant of knowledge—they co-constitute each other. While power produces certain forms of knowledge, knowledge conditions what forms of power are deployed.

For example, Friskies uses knowledge about cat behavior to design and employ their *Games for Cats*. The games themselves operate as power—a productive force that encourages behavioral results (in this case, play). The power of the game is supported by a variety of techniques, or localized technologies through which power is harnessed, transmitted or altered (D. Taylor, 2011). Techniques, in this case, are the materials composing my touchscreen tablet, the code used to create the game, the visual and haptic interfaces through which code is implemented and so on. Of course, the example becomes more complex when we expand the picture. Assumptions, or “knowledge,” about cat behaviors are linked to a vast array of institutions that produce scientific “knowing” in different ways. Within these institutions, such as a school of veterinary medicine, power is also present in complex forms—it further conditions what types of knowledge about cat behavior become instantiated as truth and, by extension, what behaviors are eventually

23 Foucault (1993) identifies techniques as technological modes of dispersing or implementing power. It is important to note that by “technology” he is not necessarily referencing the popular definition, such as TVs or computer; rather, technologies are linked to the Greek *techne*, or ways of seeing or knowing. Foucault (1993) states, “One can distinguish three major types of technique: the techniques that permit one to produce, to transform, to manipulate things; the techniques that permit one to use sign systems; and finally, the techniques that permit one to determine the conduct of individuals, to impose certain ends or objectives. That is to say, techniques of production, techniques of signification or communication, and techniques of domination” (p. 203). While technologies such as mobile devices or computers certainly impinge on each of these categories, techniques conceptually imply many different forms of dissemination such as governmental institutions, laws, personal habits, language and art.
targeted by the game mechanics. It also may be the case that the media, which often personify pet behavior in inaccurate ways, also conditions my understanding of cat behavior, leading me to believe that she is “playing” with the application. She may be trying to kill it. In the extreme, killing may be a primary form of play for cats.

In any case, my cat’s so-called playfulness also produces knowledge about me through the surveillance mechanisms embedded in the application’s design. Thus we see that power is distributed through a vast array of institutions, people, and technology, not reserved for the state, the government or other “powerful entities,” per se. Power is inherent in a multiplicity of force-relations between things, people, structures, and ideas. Foucault (1980) states that the analysis of power “must not assume that the sovereignty of the state, the form of law, or the over-all unity of a domination are given at the outset; rather these are only the terminal forms of power” (p. 92). Power relations are exercised over and through human and non-human subjects, alike. Power is circulative with knowledge: Truth is a variable sociocultural system of ordered procedures that produces power relations while also guiding and distributing them. In this manner, any iteration of power is an epistemological position.

Gamified applications like Games for Cats channels power via networks; however, gamification itself rarely builds a “new” network. Gamified applications represent a reconfiguration of power; they alter networks by changing their form and function in favor of play, or at least playful behavior. Defining certain aspects of gamified applications involves identifying their abstract formal qualities, charting the relationships they engender, and mapping “surfaces of emergence” (Foucault, 2010) that allow them to be identified. This requires a search for contingencies rather than causes (Kendall & Wickham, 1999). Gamified
applications like *Games for Cats* represent a reconfiguration of power, one that is currently unfolding with unknown consequences. From the standpoint of the individual, it presents a biopolitical challenge. Spatially, the surveillance mechanisms embedded in gamified applications like *Petcube*, with its ever watchful cameras and laser-projection capabilities, suggests that the particular reconfiguration of power represented by gamified design is architectural—gamification alters the structure of networks in favor of play.

**Gamification and Network Architecture**

When examining gamified applications and their effect on the production of knowledge and power, it is important to recognize that they do not exist within a vacuum. Gamified applications exist as networks, and each has a certain structural quality that determines its specific use. A gamified application’s structural qualities influence how biopower is produced. They exist at the level of *architecture*. Architecture is typically thought of as the design and implementation of physical structures such as buildings. This is partially correct; however, architecture is also constitutive of networks, and more importantly, their structural qualities. To be clear, “network” is not a single structural form; in practice networks may have quite different architectures or topologies. In this case, quite literally, network architecture is the formation of different, interconnected spaces. In this

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24 Manuel Castells (2009a, 2009b) states that a “network” is not a metaphor for new social arrangements; it is a distinct spatial form that is defined by the connections it forges between different physical nodes or places. These connections comprise protocols that operate along with the points of interface between different networks. Latour (2005) critiques this interpretation, pointing out that “…network does not designate a thing out there that would have roughly the shape of interconnected points, much like a telephone, a freeway, or a sewage ‘network’… It qualifies its objectivity, that is, the ability of each actor to make other actors do unexpected things” (p. 129). Key here is that networks are not just material or spatial; they have emergent forms that embody connectivity and change. These forms contain a variety of actors and relationships that are social, physical and ideological.
context, architecture is also constitutive of different forms of power as it circulates through networked space. Foucault (1977) states that at its root, architecture serves “to act on those it shelters, to provide a hold on their conduct, to carry the effects of power right to them, to make it possible to know them, to alter them” (p. 172). In the context of media technologies and networks, architecture is a form of coded control (Levy, 1997). Thus, architecture, and by extent network architecture, is the totality of structural components, social and material, that constitute networks (Lessig, 2006). Network architecture comprises the formation of networks in both the digital and physical sense. Emphasizing the structural components of gamification as part of network architecture also emphasizes what game mechanics are used and why.

Specifically, network architecture is a constellation of agencies, each one supporting, connecting, pressuring, puncturing, undermining or stabilizing a set of structures. Like a building, network architectures shed and regain identities as time wears on them. Also like buildings they decay and endure, simultaneously. They are modified, added to and appropriated—they contain everyday life and, concurrently, are contained. These statements may sound abstract, but Latour (2005) frames “network” as a mode of transportation, the movement of meanings that, in turn, creates connections. Networks, therefore, exist as active structural components that objectify themselves through constant movement. Latour (2005) states,

network is an expression to check how much energy, movement, and specificity our own reports are able to capture. Network is a concept, not a thing out there. It is a tool to help describe something, not what is
being described. It has the same relationship with the topic at hand as a perspective grid… we need something to designate flows of translations. Why not use the word network… (p. 131-32).

The term “network architecture,” when describing gamified applications, should not be pinned down as a single set of things that constitute an object of research or a stable set of statements and actions. It is simply a term to denote the arrangement of structural components within a network. Everything has an architecture, but architectural design and theory figures prominently in games and game-like structures as the arrangements of gamespace (Aarseth, 1997, 2001; Elverdam & Aarseth, 2007). There is a network and then there are the structural qualities of the network that take form and, from that, function. Those structural qualities are network’s architecture—their arrangement determines the identity of the network. For example, gamified applications represent a multitude of approaches that share some similar formal qualities. These structural qualities often determine the identity of the application and its resulting use.

To explain this more clearly, I will return again to the example of *Games for Cats*. We can ask, “What is the architecture of the cat-tablet-game-institution network?” There is definitely an immediate list of nodes: the cat, the tablet, the game, the code, the haptic and visual interface, Friskies, and myself. There are also actions: tapping the tablet’s surface to catch the fish, plugging in the power chord to power the tablet, coding the application, designing the interface and, perhaps most importantly, laughing at (or maybe with?) the cat. However, in looking at how these all work together, there are some issues. Namely, there are multiple network architectures, and each one implies interconnection with even more
networks. The tablet is powered by a complex system of power grids, which are linked to private/public enterprises, and its components are a collection of high-tech modules created by scientific practice and assembled in various countries.

Each of these contingencies contains different power relations, different visibilities, and different surfaces of emergence. Any “master-pet” relationship is a complex one with a unique power dynamic that comes from interspecies relations. While there is no clear network architecture for the multitude of relations that encompass my cat’s playtime, focusing on a single set of repetitions may yield empirical results. When viewed at grand distances, the complexity of a network-oriented approach can be overwhelming. Latour (2005) notes that studying networks is “myopic;” it works best on a small scale, focusing on detail to discern emergent structures.

For example, examining the network architecture of Games for Cats starts with the game and the cat’s interactions with it; then we begin to see a clearer picture. In short, the game has a set of game logics—rationales for designing certain contingencies—that rest on the arrangement of individual game mechanics. For example, one logic is to encourage the cat’s engagement with the tablet by stimulating the cat’s instinct to hunt. The mechanic is a randomly moving object in a color the cat can see. The repetition of action, literally programming behavioral results through the cat-code-game interface reveals a pattern of interactions that highlight the structure of play (i.e., tapping the screen to “catch” a fish) and the underlying contingencies of the situated act produced by a set of mechanics. For example, the design of Games for Cats must follow a set of conditions that allow a game for cats to be made and used by cats. This requires a unique set of mechanics and contingencies based on
the instinctual behavior of the cat. The possible contingencies illuminated by the cat’s behaviors also reveal a second set of conditions that influence the underlying architecture of the application: Cats may understand games, but they don’t fully understand complex technologies. By adding competitive mechanics like scoreboards and versus play, there are also logics and mechanics that aim to engage pet owners. Both of these logics, play for owners and pets, contribute to the overall network architecture of the *Games for Cats* application, which exploits several heterogeneous motivations and activities to produce pet-based profit through surveillance mechanisms.

**Gamified Ecology**

Identifying the network architecture of an application is only one step in a framework for analyzing gamified applications. It examines the internal structures of the application, but excludes the exterior relations that the application interacts with. It is these external relations that give the application its identity. Gamified applications like *Games for Cats* exist within a larger environment, they are part of an ecology of subjects, relations, technologies and beliefs. These ecological interactions produce a wide set of affects, or disturbances, that identify the presence of gamified design when it is inserted into a previously existing environment. Myopic scholarship can be effective, but only focusing on minute examples of network architecture—like certain aspects of *Games for Cats*—leads to an issue of scale.
How can we make any generalizations about gamification if we can only look at it as a patchwork series of loosely bound relationships?

Gamification—as either life-as-play or a set of design practices aimed at control—has existed for quite some time. However, only now we are viewing its attendant disturbances, such as new modes of surveillance and new ways of enforcing efficiency and control outside of coercion. These disturbances are most apparent when one looks at surfaces of emergence rather than the resulting artifacts. In terms of the artifacts themselves, they are part of an overarching set of relationships. Fuller (2005) uses the term “ecology” to refer to this set of “dynamic interrelation[s] of processes and objects, beings and things, patterns and matter” (p. 2). From the standpoint of media, Fuller states that the relationship between materiality and information has been redefined. What is left in the place of this separation is a media ecology media that is inseparable from processes such as culture, capitalism, and nature, itself. The disturbance in everyday life linked to gamification are ecological processes that represent emerging trends in surveillance and gameplay.

Key to the idea of “ecology” (Fuller, 2005) is the idea that human and non-human actors contribute to an ecology of processes that evolve together. Ecology, in this case, is used according to the most basic definition; the interactions between actors and their environments. Ecology is useful “at a time when objects have explicitly become informational as much as physical but without losing any of their fundamental materiality” (Fuller, 2005, p. 2). It connotes that all components of networks operate with the creation, preservation and eventual destabilization of an environment, designed or otherwise. These components constitute a material generativity and affective capacity for the storage, use and
eventual disposal of increasingly large amounts of information Gamification, as many scholars (Paolo Ruffino, 2014; Whitson, 2013) have suggested, directs and controls certain social and spatial practices, but it cannot be viewed as solely structural-functional at the expense of recognizing its complexity. Rather, the architecture of gamification exists through (and helps generate) gamified environments with varying ecological conditions. These conditions are due, in part, to constant remediation (Bolter & Grusin, 2000), in which “new” technologies always contain the residual traits of previous media.

*Games for Cats*, for example, is not a new idea; it has only modified preexisting conditions of human-cat relationships via media technologies. Humans have been playing certain types of games with cats for a long time. If we take institutional knowledge about cats into account, adult feline play is relatively rare in feral cats (Beaver, 2003). Play behaviors are most often associated with kittens, and they contribute directly to learning social skills and hunting tactics (Beaver, 2003). However, housecat play is unique because the relationship between “owner” and “companion species” in the case of felines centers on keeping cats in a social, kitten-like phase for their adult lives (Beaver, 2003). Keeping my cat playful is largely a practice of keeping her indoors, thus ensuring that most of her hunting behaviors are relegated to household objects. My cat has an environment that produces within her an innate knowledge of what to do in situations that she understands. Playing with housecats is only possible through a tightly controlled environment, a technique of ownership that controls the network architecture of the cat’s environment—for example, keeping the cat in a hibernative state of kittenhood.
I also have beliefs and practices that result from the environments shaping what constitutes a “good” pet owner. I somewhat instinctively treat my cat a certain way. *Feline Behavior: A Guide for Veterinarians* (Beaver, 2003) even has a subject position for me: The “strong attachment owner,” of which I fall into the first sub-category—the “quality or status conscious owner,” an owner who feels their cat “is an expression of how this owner views himself or herself and reflects his or her good taste, as would other material possessions.” These owners feel that “the cat depends on them for love, affection, and care, and as a result, the animal is well groomed and only reluctantly left alone” (p. 6). I like my cat, and I treat her well because if I didn’t I would be a bad person—at least by my own standards. The environment in which I was raised imparted this to me, and I am only rarely conscious of my actions towards the cat. I am just nice because I would never knowingly be unkind. Part of owning her is playing with her. I would never think of it otherwise. This unknowingness is our collective social network; my cat’s environment and my own impinge on each other—they are usually synchronous. *Games for Cats*, in a way, ruptures this unknowing relationship. It leveled the playing field and, in an odd way, made me more aware that we are both players, of a sort, in a rather seductive game aimed at capitalizing on our reformulated relationship.

Technologies of play have evolved much in the same ways for cats as they have for humans. Lewis Mumford (1934) noted in *Technics and Civilization* that the development of games with the intent of automating play had a distinct role in mechanization, namely creating games that involved interchangeable parts. Cat toys are no different. Toys have evolved from the simple “object attached to a stick” to a hand operated laser pointer.
Automation of that resulted in the robotic laser pointer. Evidence of previous technologies and processes are present via *skeuomorphs*, or “details that were previously functional but have lost their functionality in a new technical ensemble” (Hayles, 2012). The “object” being chased is only present through concentrated light reflecting off surfaces, and the “stick” has been replaced with a more advanced technological ensemble (an automated, randomized machine controlled by a simple computer program). However, many laser pointers still retain the signifying shape of a mouse, the same mouse that used to be attached to the end of the string.

Despite skeuomorphism, the automated laser pointer is different because the function no longer requires direct human agency to move the laser. In fact, many models are timer or motion-sensor operated, coded to react in the presence of the cat or turning on at a designated interval. Gradually, humans adapt to the implementation of consistently automated functionality—as long as that functionality still retains similarities with past iterations of pet ownership. Similarly, humans are better able to deal with changing processes and ecologies as long as some internal consistencies remain the same. Technology and life work together, in the case of *Games for Cats*, within a complex social set of relations that span and connect many divides. However, at each point in the network that constitutes playing with my cat, power and knowledge are generated and exchanged. Superficially, gamified applications like *Games for Cats*, *Whistle*, and *Petcube* do not represent a radical or revolutionary change in either games or pet care. From the standpoint of the human-pet-technology network, interspecies gamification represents a growing interest with automating pet technology. However, when we move outside of this smaller network, we begin to see a change in the
overall ecological conditions of pet ownership. In the case of Petcube, owner-pet proximity is changed. In the case of Whistle, which reduces the dogs daily life to a series points, goals, and competitions, the dog’s actions become points that denote healthy activity. In the case of Games for Cats, my cat’s mental acuity is tested while my information is added to the growing pile of big data. Each change is linked to larger movements for connectivity across the globe. Gamified applications like Games for Cats represents a certain modulation of power within the larger scope of these changes, one that subtly alters ecologies and networks in favor of play.

**Gamification, Technogenesis and Environment**

The ecological processes by which gamified applications gain identity, including gameplay, surveillance, and seduction, also sustain their ever-changing uses and forms. The final step in this framework for analyzing of gamification involves acknowledging that knowledge/power, network architecture and ecological relationships are co-agential in a larger process of change, or perhaps evolution. Media ecology sustains an evolutionary drive that depends as much on the social environment as it does the technological objects that support it. Media is the product of societal and technological changes, but is also causes them. In other words, media causes and stabilizes disturbances in everyday life. Society must absorb the disturbances of media, and they do this by appropriating and utilizing more media
to negate or offset disruptive effects. Doing so, of course, creates more ripple effects which require, inevitable, more media.

This concept seems complex at first, but it can be simplified by viewing the process as a result of technogenesis, or “a theoretical framework in which technical objects are also seen in evolutionary terms as repositories of change” (Hayles, 2012, p. 85). The capacity for change is inherent in technological objects themselves. Technogenesis assumes that human attentional and sensorial capacities are partially produced through technological environments (a process called “epigenesis”). In turn, epigenesis produces new possibilities for the emergence of “technical beings” through concretization of technical objects and ensembles (Hayles, 2012). Hayles (2012) states that “technical objects embody complex temporalities enfolding past into present, present into future. An essential component of this approach is a shift from seeing technical objects as static entities to conceptualizing them as temporary coalescences in fields of conflicting and cooperating forces” (p. 86).

Concretization involves innovations that resolve conflicting requirements within an environment. So, gamification causes disruptions that only more gamification can solve. Additionally, as gamification becomes more entrenched, people will adapt and appropriate it forcing changes in the design and deployment of gamification, itself.

Technological environments “produce” humans in the same manner that humans produce tools. According to Simondon (1992; 2007), the tendency to become a single unit is always interrupted as it moves towards an indivisible state. The individual subject is never an a priori supposition. Simondon believes that individuals are produced by technics. However, this mode of production does not cease, but seeks more connections over sets, series and
combinatorial forms. The individual is a repository of potentiality for change—it coagulates fluidities, borrowing from other individuals or sets in the course of an ongoing process (Simondon, 1992). This means, first, that there is no preformed subject or individual, just a set of potentials that can unfold into a variety of possible forms, networks or technical systems. So, as much as gamification may produce efficient players, players will also alter and change the gamified systems that they inhabit—as potentials unfold, they create new sets of potentials.

Individuals do not attain any coded form except in the actual process of unfolding—individuation is this process. An individual is never finalized; within each unit or set, there are always untapped reservoirs of potential for change, alteration and requirements for unlocking potential. These requirements can be temporo-spatial, social, technical, symbolic or (usually) a combination of all factors. Hayles (2012) states that concretization:

integrates conflicting requirements into multipurpose solutions that enfold them together into intrinsic and necessary circular causalities… Detaching a technical element from one individual— for example, a transistor from a computer— and embedding it in a new technical ensemble or individual— for example, importing it into a radio, cell phone, or microwave— requires solutions that move the new milieu toward greater concretization…technical objects are always on the move toward new configurations, new milieu, and new kinds of technical ensembles. Technical ensembles…create technical individuals; they are also called into existence by technical individuals (pp. 88-89).
Gamification directly relates to this process, except it uses game mechanics as the primary means of altering the technical ensemble. For example, instead of removing a technical element from an ensemble—like removing a transistor from a computer—gamification removes a *game mechanic* from a *game*. Replacing the technical element into a new “technical object”—like placing the removed transistor into a keyboard—would be, in the case of gamification, adding the individual game mechanic to a formerly non-ludic *network architecture* (i.e., pet maintenance). This initiates a contextual change in the network by introducing *game logics* into the receiving network.

The gamified technical ensemble that results from combining game mechanics and non-ludic networks is a *gamified environment*. Like other technical environments, a gamified environment produces distinct technical individuals. Gamified applications produce *players* that operate within a specific set of ecological contingencies. Technical individuals also help to produce their own environments by altering technical ensembles to suit individual needs; thus, individuals alternately are called into being and call into being by their environment. While technical individuals can be objects or applications, perhaps the best example of technical individuation is the creation of a “player.”

Players are very similar in nature to Simondon’s (1992) conceptualization of “individuals.” In different gamespaces players are different characters, objects and affective forces—still, they (mostly) commit to engage the required mechanics in order to generate directed, favorable outcomes within the context of the game they are playing. It is the malleable player, the human who plays, that holds the primary value for exploitation. The player, also, is the only one who can bring “a game” into being. Players, quite literally,
generate and sustain the logics of a game by playing it. They are evolving with the game while also submitting and diverging from the ludic contingencies in play. Players are always already under construction in gamified environments—their mutually initiated, short-lived identities are only visible during the process of play, itself an endless process of becoming a “player.” Players are dependent on the ecology of play to sustain their identities, and they are inevitably linked to and evolve with their environment. However, unlike an intrinsically-oriented game, the player in gamification is linked to a vast number of ancillary networks. Additionally, the links to these networks must be maintained indefinitely—the gamified player cannot stop playing. If life is play, then to end play they must, essentially end life. This is an extreme example, but it serves to illustrate that as gamification creates new environments geared towards play, removing play from the environment will effectively end the environment itself.

Petcube, for example, redirects the idea of pet maintenance away from locational presence, creating a new environment for both the pet and the owner. Former technical ensembles used for pet maintenance may have been a ball or a chew toy deployed in a distinct geographic area. Petcube simulates former “pet toys,” thus creating a new technical ensemble of play. The alteration has direct consequences on the evolution of the pet-owner relationship. Pets may be drawn to the cube because of the stimulus; however, it is difficult to imagine that they relate the cube with their owner. Thus the object alters their former play environment. Owners, as long as they are engaged in play via the Petcube, extend their ability to be a player to areas outside the immediate vicinity of the pet. This shift in environment produces effects on both the owner and the pet, causing a possible shift in the
relationships both parties have with one another. Inserting new objects into an environment changes that environment and the relationships that exist within it. These altered relationships produce further dynamics—the process of epigenesis tied to technics eventually results in altered individuals, though the process many take time and many iterations of altering an ensemble. In other words, both individuals and ensembles inform and modulate a series of unfolding potentials where constant evolution sustains the technical process. Skeuomorphic elements cushion any form of future shock related to this process of unfolding potentiality; yet they only conceal the fact that pet maintenance will involve different “players” in the far future.

In Games for Cats, In order to have a critical point of entry for the gamified epigenesis of the cat-play ecology, we should consider a few major technical developments: networked computers, databases, and virtual interfaces. First, Friskie’s Games for Cats, as with most gamified applications, is aimed at generating profit. However, rather than shipping individual units, or playthings such as the traditional laser pointer, Friskies profits through circulating data, namely information about the pet-owning subject. The game collects data through a network and then stores it in a database. So while the game is supposedly free, the gamified environment generates profit via play. One of the key reasons why Games for Cats exists is that it evolves via a technological and social environment that accepts computers and games as “natural.” I never consciously asked what the function of the virtual fish, an obvious skeuomorph, was. The technological ensemble of Games for Cats, itself a game-like apparatus, was concretized enough so that I had no issue understanding it. To me, the coding was only slightly different from what I do for leisure normally; it was something easily
accepted—why would my cat be any different from me? The “object” was on the space of the screen, a simulacrum, but it was still “there” for the cat to play with. However, the extent to which Friskies was data mining my cat’s playtime indicates the network architecture differs greatly from the analog model of playing with a cat. In the future, platforms like Petcube and software like Whistle might also evolve into different dog-oriented ecologies, each one with different modulations of play and ownership.

**Conclusion**

Pets, so close to us yet so different from ourselves, engage in play much the same as we do. Like our play, their play is ethically variable, situational, and most importantly, economically and socially generative. Pets are monitored and integrated into a networked environment where play behaviors become a form of currency. Activity, engagement and docility are commended, recorded, archived and displayed. Houses in which privileged pets and humans share a habitus become machinic playgrounds for humans and non-human companions. All ecological changes wrought by gamification alter existing network architectures.

This chapter explored theoretical concepts behind the changes gamification brings to identities, environments, and circulations of power. In short, gamification offers slightly different opportunities in spaces and subjects, revealing the possibility of different forms of play. In turn, play offers an altered set of interactions with our world. Play changes individuals, and in doing so, it creates new ensembles, driving the evolution of environments where it is situated. Gamification utilizes play to set new subjects and ecological conditions.
It is important to note that only a select and privileged population of pets will ever experience *Petcube* or *Whistle*. While some animals are players by default, others never have entry to the game. Different socioeconomic situations and cultural values can block pets from “playing” in gamified environments. More importantly, pets must produce some type of capital to sustain gamification. While games are expansive, they are also selective. They serve to create series, teams, levels and rule-bound spaces. Game mechanics are not always inclusive or free, and game logics almost always work towards the goal of clearly defining groups of people for the purposes of orderly play. While there are always chances for disruption and resistance, being a “good sport” often means playing by the rules for the good of the team, whatever that may entail. The creation and surveillance of players is what makes gamification useful and profitable, and technological advances can make gamespaces out of almost any space, object or being. Play, it seems, is a biopolitical process and gamification makes full use of its governing possibilities in a myriad of ways. These models of selection are rooted in the sorting and governance of populations and, more importantly, bodies.

In the next chapter I argue that gamification, while seeking a form of governance over bodies, does not play out in a disciplinary fashion. Gamified applications are part of seductive, ludic biopolitics that focuses more on distributed control of players as variable, incomplete individuals rather than maintaining stable, disciplined subject categories. Gamification changes the game of surveillance and governmentality, shifting the dial away from traditional, centralized governmentality and towards control-centered, network-based, seductive protocol. I explore the development of gamified healthcare applications and the protocol that enables them. From the development of international health protocol, aerobics,
and physical education to the wearable networked devices that purport to make players healthier, gamification reveals that epigenesis first requires bodily transformation. In order for individuation to occur, gamification must first stake a claim in the biopolitical governance of bodies. In the next chapter, I examine how the body of the player becomes the focus of gamified surveillance. The body, as it engages with a productive negotiation with game mechanics, is the primary generator of gamespace. In the case of gamification, the gamespace houses the network architecture of seductive surveillance and profitable classification. The inner working of the player’s body, driven towards progressive efficiency, becomes the primary producer of gamified capital and the primary target for control.
CHAPTER 4—Gamified Health and Bodies

In this chapter, I explore the synergy between biopower, health protocol and wearable technologies—specifically health tracking devices—associated with gamification on an individual scale. I explain how biopolitics and gamification work together towards a “quantified self” (Whitson, 2013). I start with an analysis of gamified fitness applications to explore the historical convergence of wearable computing, games, and health protocol. In this first section, I provide a historical overview of wearable computers, fitness protocol, the development of international health protocol, and the use of games in physical education. I suggest that we are witnessing a shift in the ways that bodies are managed, from “massified” bodily fitness to individual “digital enclosures” (Andrejevic, 2007) that encourage users to monitor themselves for the sake of prizes, points and rewards. In turn, data is distributed and used by a wide array of parties. Second, I look at the “Quantified Life” movement and proceed to examine how quantified living, a practice enabled via data-driven health protocol, serves to further biopolitical interests. I explain how movements like “Quantified Living” serve to further ideological support for control on the individual level. Finally, I analyze how gamified technologies and applications enable the player to exist within the event of the game being played, utilizing their own body as a play piece and kinesthetic or biological activity as currency.

I argue that the “healthy subject,” formerly a stable part of a population defined by the state, is now a docile body, subject to the techniques that bring it into being. I also argue that play, in this case, operates as a mode of technological transferal that aids in the adoption of otherwise contentious technologies largely dealing with surveillance (Elllerbrok, 2011).
Most recently, the digital enclosure (Andrejevic, 2007) has been noted as the primary means of extracting useful data from technology usage. In this model, top down surveillance by state organizations is supplemented by lateral surveillance and market research conducted by private organizations. To some degree, denizens of the digital enclosure do the work of watching themselves and others rather than a centralized governmental authority. Nowhere is trend more apparent than the quantified life movement and its catalyst, gamification.

While gamification biopolitically operates across many levels, I have singled out the field of health monitors and wearable technology as the most visible examples of biopolitical gamification. Wearable technology is rapidly being cast as the harbinger of an “always on” society, where human bodies and perceptions are constantly monitoring and being monitored by technology (Andrejevic, 2007; Turkle, 2011). The idea of “the self” is posthumanized as the body becomes a functionalized set of pieces or parts (Katz & Marshall, 2004) that can be technologically objectified, modified, modulated and monitored. Meanwhile, physical education and wearable technologies have respective histories that are intertwined with games and play; however, the standards by which the body is monitored are direct results of decidedly non-ludic international health protocol. All of these diverse approaches to biological monitoring combine in gamified health monitors to produce the ideal “healthy player,” and individual whose digitized body and movements feed into a much larger framework of health.
Wearable Technology, Health Protocol and Games

Gamification begins with the creation and maintenance of players. However, players in a gamified environment contribute to a much larger set of processes that include non-ludic outcomes. One of these processes is the collection and use of data to create more effective customer models for a variety of social and economic simulations (Pias, 2011). Games innately quantify and contextualize players’ actions within a (game)space. However, gamified systems utilize the contextualizing mechanics to quantify players behaviors in a variety of spaces and for a multitude of purposes, including the production of capital. Each “player” in a gamified environment contributes to an ongoing, living social simulation driven by “big data.” On the individual level, many bodily processes can be gamified, contextualized, monitored and monetized. Most gamified applications are geared towards monitoring individuals’ bodies on a massive scale, and the collection of metadata often targets health.

For example, CLUE, a reproductive tracker, is an app that tracks women’s reproductive health practices, including birth control, mood, and menstrual cycles. Reproductive trackers account for some of the “most used” applications on mobile phones (Steel & Dembosky, 2013), and they usually contain gamified elements. CLUE, for instance, offers self-monitoring as a reward mechanic. Self-archival, in the form of player dossiers,

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25 Big data, when applied to customer, product and services, centers on the data produced via “everyday life” (Boyd & Crawford, 2012). It is grounded in the idea that more is better and even seemingly extraneous data can be useful in a large context. In this case, everyday life entails basic actions that previously were not subject to intensive surveillance such as spatiality, hygiene, sleep habits, domestic life, family interactions, media consumption, consumer decisions and daily fitness/health. These are only a few examples.
achievements and inventories, have been cited as effective game mechanics even though they do not constitute or even directly support gameplay (Medler, 2011). On trackers like CLUE, women can record moods, meals and notes and many reproductive trackers also double as fertility monitors. Period trackers involve interactive interfaces, and some also contain a social element. Many reproductive trackers have colorful avatars, emoji-style visual representations and detailed, colorful interfaces. However, CLUE has been praised by users for its no-frills modern interface, which operates more like a playful inventory menu than a young girl’s secret diary. Regardless of what design is utilized in creating the “feel” of the application, they are all designed to motivate use: All of the reproductive trackers, CLUE included, provide a colorful, longitudinal history of an individual woman’s everyday reproductive experiences. They promote self-driven contextualization via mechanical objectivity.

26 Medler (2009) states, “player dossiers should present gameplay data in context to gameplay and provide an interactive system for players to gain insight or enjoyment from analyzing the data…In order for a player dossier system to validate motivations using gameplay data it must present that data to players in a coherent and meaningful way.” Player dossiers are forms of self-archival that relate personally generated gameplay data back to the user using statistical visualization methods. While some player dossiers only list achievements, showing detailed play data also validates play as a connected series of persistent and meaningful actions. Similar to tallying points to determine and winner, self-archival mechanics push players beyond gameplay in situ. Data persists after games are completed, and contextualize the actions taken after a play session or game is done. In this manner, gameplay data creates a persistent, playful presence over many games and play sessions.
Figure 1: A screenshot of CLUE’s interface as it appears on the iOS. Individualized reporting generates a monthly readout displaying the contingencies of a woman’s reproductive cycle including fertility, diet, mood, sexual activity and personal experience. The data that is generated by CLUE is also used by third party clients who provide the revenue for CLUE, since it is a free application (Source: www.helloclue.com).

Each reproductive tracker is, superficially, a gamified self-surveillance mechanism. However, surveillance operates on different levels, and gamification touches on almost all of them. Games naturally involve self-surveillance and archival; however, multiplayer games represent lateral surveillance mechanisms and the data collected via gamification represents the digital enclosure (Whitson, 2013). Women watch themselves and compare themselves to a normalized model of the reproductive practice, but their data is not their own. Who else does the data go to?

According to a study undertaken by the Financial Times, it goes to countless third parties, including insurance companies and cottage-industry “data brokers” whose sole purpose is to collect and market metadata (Steel & Dembosky, 2013). The study showed that
almost all of the major health applications, including reproductive trackers, reported data to varying third parties. As Steel and Dembosky (2013) state, “iPeriod will soon have the capability to target ads at a very fine level. So a woman who records in the app that she gets headaches before her period could soon receive an ad for a pain reliever at just the right time of the month.” (n.p.) Other beneficiaries include insurance companies who could use data against people to charge more for coverage of “abnormal” women (Steel & Dembosky, 2013). Women can also participate in social media via some reproductive trackers and in doing so, they are contributing to the creation of a finely tuned simulation comprised of many women’s collective reproductive experiences by also submitting the extraneous social information embedded in their existing profiles. The sample size provided women using reproductive trackers is much larger than any health protocol produced prior to big data.

A primary function of health monitors is to supposedly provide a much larger model of health, including women’s reproductive cycles (Steel & Dembosky, 2013). Health tracking is generating a large amount of data for many companies so much so that it has spawned a cottage industry of companies to deal with it (Steel & Dembosky, 2013). What is key, however, is how and why people are motivated to participate in the digital enclosure. The answer, in part, is play and its empowering, surveillance-oriented contextualization of events and choices. Health applications like reproductive trackers contain game mechanics that promise a degree of playful self-actualization. However, this self-actualization is based on previously established standards of normalcy based on internationally recognized health protocol and the use of games in skill-based learning. Exploring both in the context of wearable technologies provides clues to the current configuration of applications like CLUE.
A Playful History of Wearable Technologies

Mobile health applications like CLUE can be analyzed from the convergence of wearable technology and gamified health protocol. Both wearable computers and fitness protocol have roots in the 1960s. However, the popularity of gamified fitness has only gained traction in recent years with the uptick to the wearable technologies market. The development and expansion of the wearable technology market is in turn driven largely by the gaming and fitness sectors. This is no accident. Wearable technology like head-mounted displays (HMD), by way of targeting aids and on-body surveillance equipment, was first funded and researched for predominately military-oriented technologies, an institute with a marked interest in game theory and physical fitness. The connection between games, simulation, and the military has been mentioned numerous times (Allen, 2011; Donovan, 2010; Dyer-Witheford & de Peuter, 2009; Murphy, 2008; Payne, 2012; Smith, 2010; Veen et al., 2012). Since aviator Alberto Santos-Dumont, inventor of the fixed-wing aircraft, commissioned the first wristwatch in 1907, wearable technology has been developed from simple chronology to tracing the internal and external rhythms of everyday life. Wearable computing devices that aid in both self-quantification and temporo-spatial tracking generated revenue of over $110 million in 2012 (Walker, 2013). In 2015, the end-of-year projected

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27 In 1967, Bell Helicopter experimented with head-mounted displays with input from servo-controlled cameras as part of tests for several early camera-based augmented-reality systems. In one, the head-mounted display was coupled with an infrared camera that would give military helicopter pilots the ability to land at night in rough terrain. An infrared camera, which moved as the pilot's head moved, was mounted on the bottom of a helicopter, making the pilot's field of view that of the cameras—in short, the display simulated the helicopter's multi-angled point of view allowing a human to simulate “being” the technology he or she is intended to use (Sennerston, 2010).
sales are $1.8 billion for health wearables and $3.1 billion for smart watches, a new trend that shows a 474% increase over 2014 (CEA, 2015). However, we have been making memory transference and storage a business since Vannevar Bush (1945) proposed the idea of a desk-sized “Memex” in his article “As We May Think.” Almost inevitably, it seems the history of wearable technology and surveillance collides with gaming at an early stage. In 1966 Claude Shannon, computer scientist and foundational scholar in the field of communication, and Ed Thorpe, economist, mathematician and game theorist, revealed the first truly wearable computer—a small, hand controlled input device with an attached hearing aid designed to game the system while playing Roulette. The system was a cigarette-pack sized analog computer with four push buttons. A player used the buttons to indicate the speed of the roulette wheel, and the computer then sent tones via radio to the attached hearing aid (Thorpe, 1969). Since then, wearable technology, with a variety of metrics for self, lateral and top-down surveillance, has become a major market player.

Cybernetic implants, while still on the research level, have already been pioneered by researchers like Steve Mann (2001), who uses visual implants to augment his vision while also performing individual counter-surveillance of his surroundings by recording and even altering them through coded optical inputs that can toy with the UV spectrum. Problems concerning wearable technology where surveillance is rebounded back at traditionally

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28 Bush (1945) is the first person documented to mention the serious possibility of augmented memory. “Consider a future device for individual use, which is a sort of mechanized private file and library,” Bush wrote, “It needs a name, and to coin one at random, ‘memex’ will do. A memex is a device in which an individual stores all his books, records, and communications, and which is mechanized so that it may be consulted with exceeding speed and flexibility. It is an enlarged intimate supplement to his memory.”
panoptic entities (e.g., corporations, law enforcements agencies and governments)—a practice known as “sousveillance”—have manifested multiple times in Mann’s life. In 2002 his cybernetic gear was ripped out at a Canadian airport, causing him to soil himself (Guernsey, 2002). In a Paris McDonalds, he was reportedly attacked by employees who did not believe that his implants were attached (Biggs, 2012). Once again, his implants were ripped out coining the term “McVeillance”—surveillance policies where people do not have the same right to use monitoring technologies as large corporate or governmental entities (Mann, 2012).

Despite Mann’s research, industry drivers before the wearable technology consumer boom were mostly gaming, health, and military related (Walker, 2013). Smart clothing, hand-worn terminals and heads-up displays have been researched since the 1960s. In healthcare, wearable monitors have been in development even longer. The primary difference between older renditions of wearable technology and new “smart” technologies is network connectivity, interactivity, and location awareness. Developing wearable products for the consumer market is an expansion of mechanical objectivity into the biological and spatial realm. In short, the development of new metrics and equipment, such as multisensor combinations, improved batteries, and low energy data transmission (e.g., Bluetooth) has mapped and modulated the schematized internal systems of the body as it moves through space. In the near future, harvesting human energy to power devices (Walker, 2013; Xu, Yang, Zhou, & Liu, 2013) means the market has room to grow.

The primary market drivers for the current wearable’s market are telehealth life monitors and consumer medical devices aimed at geriatric care, scalable sports and fitness
monitors aimed at athletes, augmented reality games and infotainment, industrial heads up displays and a host of military applications including the so-called “Future Force Warrior” program which sought to provide “smart” exoskeletons, including fully connective monitoring systems and real-time heads up displays, to soldiers by 2032 (Walker, 2013). One of the primary market drivers for visualization-based augmentation, or “smart” headgear, is gaming (Walker, 2013). Gamers, or people who game frequently, also have a reputation for early adoption and large install bases. Google Glass and Oculus Rift, two head mounted displays, are both currently available to the public and have seen reasonable cross-consumption between gaming and industrial markets (Walker, 2013). However, the most conspicuous wearable market for the average consumer is healthcare-related, and the most popular devices are gamified.

Gaming culture has had a long and tenuous romance with wearable technology. Apart from Shannon and Thorpe’s “gaming machine” designed to cheat at Roulette, home consoles have spawned a variety of wearable peripherals. The Wii U, Nintendo’s current console, features a host of free-standing haptic peripherals such as wireless steering wheels, infra-red targeting guns and body sensors such as the Wii Fit sensor board, which measures inertia, weight, and body position for fitness purposes. Nintendo has engaged in creating, promoting or licensing a long line of wearable products for gaming. The Power Glove, a notorious example of a wearable technology released in 1989, was supposed to serve as a type of data glove that allowed for three dimensional controls based on hand movements. The Power Glove represents a large collection of wearable, cyborg-esque gaming peripherals developed during the height of eight and sixteen bit consoles (e.g. the NES and the Sega Genesis) such
as head-mounted infrared targeting displays and weight-sensitive mats. While Steve Mann may have pioneered the first integrated cyborg headsets for research purposes, gaming culture in the 1980s paved the way for non-integrated technology that resembles and mimics embedded research prototypes.

![Figure 2: The Power Glove was notoriously inaccurate for controlling NES games. At the same time, it also demonstrated that 3D movement harnessed for game control was possible. Later iterations of kinetic, 3D motion controls were successful, most notably for the best-selling Nintendo Wii console (Source: Wikimedia Commons).](image)

In the wake of wearable gaming peripherals, the market has been flooded by wearable, gamified products that do not market themselves as “a game.” Nike+ is Nike’s move to enter the wearable technology market and represents a complete ecosystem for tracking physical activity through space. A sensor for shoes and sensor-laden wristbands connect to the phones or iPods via Bluetooth. Motion, location, steps, and general caloric burn are measured and logged through a series of algorithms and then translated into activity-based currency. Players set goals, track progress and share their personal archives. The information is displayed in a personalized mobile panel, hosted on the cloud, which allows
for social connectivity, group challenges, and remote or direct competition. The *Fuelband*, Nike’s tracking bracelet, even includes a basic mood tracker (Shu, 2014).

*Fitbit*, another wearable bracelet, takes a similar approach. Accelerometers and gyroscopes embedded in a pod or bracelet calculate caloric burn, steps taken, and physical activity based on the ways in which the wrists, shoe or torso move through space during kinesthetic activity. *Fitbit* bills itself as the everyman’s approach to wearable fitness technology, with a stand-alone platform in the form of a bracelet or clip-on sensor that communicates with a phone or desktop computer via a dashboard application. The *TomTom Multisport*, a smart watch with GPS, heart rate monitor and accelerometer, tracks the internal rhythms of the body in addition to movements through space. Each one of these devices provides the substance for a variety of mechanics, points, and their connective nature allows for social competition and cooperation. The plethora of gamified fitness applications has led Apple to create an integrated health dashboard for all of the mobile fitness products that displays the information from various applications and sensors on either a wearable smart watch, an iPhone or both (Prigg, 2014).

What all gamified fitness apps do is create a set of contingencies based on pre-established fitness protocol. Contingencies are possibilities created through games that postulate a series of play outcomes. For example, in the case of *Fitocracy*—a popular gamified workout tracking application—social expression, community, and conspicuous consumption of fitness as a product work to maintain a key balance between self-quantification, spectacle, and surveillance. *Fitocracy* allows players to play their own workout routines as a character they create, converting their body into an avatar that can gain
levels, powers, and costumes based on inputting their gym routines. These routines are converted into quests and narratives. Players can also form social groups and compete with one another to complete workout related quests. Player communities in *Fitocracy*, especially when it comes to cooperative or competitive sharing, are the key to continued engagement and application popularity—in this case over a million users (Crook, 2013). While applications, devices, and technological convergences drive the market, the user-end of wearable tech is increasingly game-like for two primary reasons. One is the usefulness of motivational mechanics and the other is a historical propensity towards game-like series and structures embedded in the discourse of healthcare itself.

**Fitness Protocol and the Denial of Pleasure**

It is important to remember that the summation of gamified healthcare is not necessarily the materials, such as sensors and hardware, but rather the social mechanics that are needed to create a set of contingencies that facilitate convergence. Whatever information sensors or users generate becomes a common community language and currency—self-quantification operates as a form a social capital and conspicuous consumption. Players cultivate fidelity with the gaming event by mastering themselves *as part of a “game” that is billed as productivity monitor*. Be it heart-rate, miles, steps, or even moods (Shu, 2014), if it can be measured and integrated into a network then it can be converted into points and rewards for adhering to the expected contingencies. Each of these devices is almost exactly the same with a few unique design considerations. Each also has a similar logic—the
individual body, as a gamified network, becomes the instrument of play and the boundaries of the network become gamespace.

Conspicuous play, enabled through “leaderboard” style mechanics, serves as a motivator for collecting data through activity. Usually data collection involves a gamified body generating “healthy” protocol via devices that monitor and prompt activities based on the individual player’s actions. However, not all protocol is good protocol—in a way, the data generated by players is only as good as the metrics used to interpret data, and inaccuracy has been documented by several consumer groups (Bilton, 2014). This inaccuracy can largely be attributed to the ways in which the metrics used for current gamified health applications are nearly five decades old—the metrics used to sustain the game mechanics utilized in applications like Fitbit are the same used to create the first scalar fitness system.29 Gamification has not created any new metrics, rather they have altered existing metrics and brought the concept of play back into the realm of fitness. As such, the data’s usability concerning widely-used metrics has not been altered, but the mode of generating the data has.

In the case of fitness and wearable tech, the historical convergences began in the 1960s—the dawn of the then-burgeoning “network society” (Castells, 2009a). Kenneth Cooper, in 1968, created the first variable fitness program with his book, Aerobics—a scientifically formulated set of series that any person could supposedly alter for his or her own bodily niche (Markula & Pringle, 2006). The concept of modular, scalable fitness is primarily linked to supporting the aims of governmental organizations to better the health of

29 Aerobics is perhaps the most common example. Invented in 1968, aerobics was one of the first programs that converted physical health into an algorithm (Markula & Pringle, 2006). For example, if a person of a certain age, sex and height does a requisite amount of activities, that person can be deemed “fit.”
entire population segments—such a large undertaking must have a way of sorting data while also predicting what sort of data will need to be sorted. In order to accurately gauge the health of populations, certain standard measurements, such as heart rate and caloric burn, were established. The 1990 Conference on Exercise, Fitness and Health, an enormous gathering of health professionals, scholars and governmental representatives, did just this with the “objective” formalization of the “complex” relationship between fitness and health (Bouchard et al, 1990). Over 62 papers from the conference were published, as well as multiple guides. As a whole, researchers sought to standardize practices concerning fitness-related education.

Linking fitness to cardiovascular health was established as a primary objective for the health of all population segments. It also established the link between fitness and epidemiology, while officially classifying obesity and cardiovascular as primary risk factors in the ongoing stability of society, at large (Dishman, Heath & Lee, 2010). The conference also led to the Second International Consensus Symposium on Physical Activity in 1992, classifying obesity as an epidemic (Dishman, Heath & Lee, 2010). As a result of a variety of measures enacted by institutional forces, the relationship between fitness and health was “expressed as positive, direct and logical: increased physical activity leads to improved health” (Markula & Pringle, 2006). However, protocol also washes over individual differences and forces people into categorical sets, effectively decoupling fitness from play or sports. However, removing pleasure and individuality from the fitness equation has largely led to a decline in fitness in the U.S., despite constant programs aimed at promoting scalar fitness protocol as an “easy” way to monitor health.
The simplicity of variable scales put forward by international academic organizations are off-putting, with 150 to 300 minutes of “moderate intensity activity” or 75 minutes of “vigorous-intensity” exercise being recommended per day as a “medium” level of physical activity with “substantial health benefits” (Dishman, Heath, & Lee, 2010)—metrics that almost all wristbands, smart devices, applications and fitness trackers operate from. The simplicity and scalability of fitness protocol also sustains their virality and adaptability: they are easily converted into levels, series and points that can be contextualized depending on the desired contingencies and logics. It is for these reasons also that the international “standard” of fitness is directly connected to countries (specifically, the U.S.) that have a history of actively promoting liberal governance, biopolitics and computing. Foucault’s (1989) *la clinique*, as it were, is literally next door. At any rate, the metrics by which gamified monitors operate are adopted from the standardized protocol from government agencies. However, protocol cannot be implemented without people behaving protocologically; it is always behavior that sustains and implements affective protocol (Galloway, 2004). So, while fitness protocol was intended to make health easier to monitor, it did not provide any intrinsic motivation for people other than getting “fit,” which is a rather vague standard.

International health protocol led to individualized health care practices. However, by making fitness a state-encouraged individual pursuit, health protocol also strips the

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30 Individualized practices are part of an algorithmic system aimed at individuals tracking their own activities and plugging those activities into a functional matrix that determines activity levels. Aerobics is a key example—it places the onus of health on a single subject’s adherence to a set of standardized protocol.
activity of its affective relationship with pleasure, play and community.\textsuperscript{31} Health related fitness was separated from so-called “skill related” fitness, with the aim to disassociate “fitness” from the concept of games and sports (Markula & Pringle, 2006; Werner, Thorpe, & Bunker, 1996). Health protocol also aimed at making quantification of health the duty of the exerciser, rather than the physician, trainer, or coach. Thus, fitness since the 1960s, as sovereign powers see it, is a regulated individual pursuit in which “average” people utilize the metrics provided to pursue and predict their own bodily data based on a modular scale (Markula & Pringle, 2006).

These scalable series predominately started as a means for controlling the cost of healthcare, with the idea that citizens falling into a certain bracket of activity are risks to the wellbeing of the state. In the case of fitness, skill and health are synonymous, with health being defined as “being alive with no major health problem” (Markula & Pringle, 2006). However, removing mastery and skill from exercise also removes a certain amount of motivation. Since the creation of fitness protocol, sedentarism in highly mechanized societies has increased dramatically—in fact, without suggesting causation, sedentarism has been on the rise since the 1960s, the same decade non-ludic health protocols were put into practice (Brownson & Boehmer, 2005). While work conditions and the built environment both have something to do with the “epidemic” (Brownson & Boehmer, 2005), it could also be postulated that removing the direct rewards from physical activity, like winning or losing,

\textsuperscript{31} Theorists George Herbert Mead and Marcel Mauss both claim that ritual play precedes exchange, and therefore is a precursor to any type of community. Gamified applications like Fitocracy encourage and sustain fitness communities via play (Crook, 2013). They also promote international protocol, thus restoring the playful, communal aspect of fitness.
and replacing it with vague missives about possible fitness does not necessarily account for motivation.

Previous to the 1960s, “fitness” was not even an applicable concept (Markula & Pringle, 2006)—sport was undertaken for pleasure. Interestingly, in response to decoupling fitness from play and pleasure, health education has been exploring the ways in which skill-based fitness through gameplay can be accounted for in the confines of modern, scientized health protocol (Mortazavi et al., 2014; Werner et al., 1996). Since fitness protocol became standardized, games have become more important for teaching fitness-related skills, while also imparting the sense that fitness can and should be linked to individualized and collective “fun.”

**Games for Understanding and Gamification**

Education has a long history studying play and games as a mode of embedding social structures, knowledge and skills. In Latin, “ludus” refers to games/festivals/sports/play (Bonner, 1977). Stretching back to ancient Rome, “a ludus” was used to refer to a training school for elementary school-aged children (Bonner, 1977). Additionally, a ludus was a school for gladiators—a training ground for physically conditioning warrior-class slaves for the brutal games they were required to take part in if they wanted freedom(Kyle, 2007). The schematized concept that play is required for skill-based knowledge can be largely attributed to advances in physical education research, and its interest in ludology, occurring during the 1980s (Werner et al., 1996). One result has been “exergaming,” an “expanding option” for physical education and fitness in which the scalable algorithms developed for fitness are combined with skill-based challenges and minigames (Mortazavi et al., 2014). Currently, the
algorithms used to predict fitness outcomes in exergaming are still directly tied to the fitness-based directives adopted by the ACSM in 1975 (Markula & Pringle, 2006), utilizing heart rate and mileage as the benchmarks for a successful workout (Mortazavi et al., 2014). The development of exergaming is a primary example of how research into games for health eventually gives birth to gamified applications promoting a ludic version of biopower. The result has been the creation of a popular educational model, Teaching Games for Understanding (TGfU).

In physical education, the body and kinesthetic activity is viewed as the primary means of gaining knowledge about the physical world (Werner et al., 1996). In 1982, with the obesity epidemic just beginning to gain attention in the U.S. media, Bunker and Thorpe (1982) proposed a “tactical” model for teaching fitness and sports in secondary school. The model proposed that life skills, kinesthetic activity and play are progressively and positively linked. TGfU assumes that “the games teaching emphasis be placed on understanding the logic of play imposed by the rules of the game, and that appreciation of the tactical structure of play be learnt before highly structured technique teaching was proposed” (Stolz and Pill, 2006 p. 38). Stolz and Pill (2014) state:

Since its inception as a model, the TGfU approach has been the subject of significant attention from theoretical research, advocacy and practical perspectives…the TGfU model has been the catalyst for a global movement involving games teaching that has spawned a diverse array of derivations around the world (p. 36).
In TGfU, students are exposed to progressively more difficult “minigames,” which are then followed by tactical quantification of possible outcomes (Turner & Martinek, 1999). Gameplay, in this case, is viewed as a primary mode of motivation for implementing and concretizing various kinesthetic and cognitive toolsets. Like earlier fitness directives, it used games on a sliding scale based on age and gender, primarily. Different games were viewed as having value for different populations of subjects depending on social norms. Girls and boys are frequently separated and have differential scales applied to the skillsets that are deemed appropriate for different genders, and age groups within those genders (Kennard, 1977). However, the concept of the sensor-based “minigame” as fitness protocol is recent—full-body motion-based gaming systems are being explored by gaming companies (e.g., Nintendō’s *Wii Fit*).

Mastery of game mechanics in physical education is the primary mode of motivated skill-based competency according to TGfU, and it also is key in the development of a properly “educated” subject. Stolz and Pill (2006) note that since 1969, true “physical education” is not just linked to sets of movement; rather, the student must understand how they, as a player, work within the game of fitness. Mauldon and Redfern (1969) suggested that physical educators “should not call a person educated who has simply mastered a skill and presented a new approach for games teaching” (Stolz and Pill, 2006). According to Stolz and Pill (2006), the “new” approach to fitness education contained three elements: “(1) game categories to group games of similar nature so that teaching for conceptual and skill transfer

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32 Even with the shift towards individualized digital fitness, this still holds true, with a host of wearable monitors directly targeted at “active” women (Rao, 2014).
between similar games could occur; (2) game analysis by players so that players were prompted to develop game appreciation and understanding; and (3) structured situations for player experimentation and problem solving” (p. 38). Each one of these criteria can also be applied to the gamified applications currently flooding the market.

Applications must involve categorically applied mechanics, and mechanics must encourage self-analysis in the context of play and the creation of novel situations that keep the gamified system interesting and the players motivated. Increasingly, gamified applications involve an ecosystem of devices and software that communicate with one another. Games, points, and categorized data flow seamlessly between devices, games and players. Gaming, then, should be seen as a viable set of fitness technologies since the 1960s. “Universal” fitness protocol, made exclusively for producing and computing data that leads to the categorization of populations, also finds its roots in the 1960s, as do wearable computers.

All of these networks have been in constant co-development: TGfU is a motivation-oriented educational technique; fitness protocol is a technique for measuring and predicting fitness over large swaths of bodies and territory; and wearable computing is a technique of observation, quantification and prediction. All three are inherently biopolitical techniques. When techniques serve similar logics, they tend to converge (Foucault, 2007a). Gamified health apps, which combine the surveillance of wearable devices, scalar fitness directives, and progressive and pervasive game mechanics, are evidence of this convergence. Gamified applications such as Fitocracy, Nike+ and Fitbit stand at the forefront of motivating people to engage in monitored protocological behavior for biopolitical purposes.
In the end, health protocol’s matrix-like sets of fitness goals translated easily into the game-like functions utilized in most gamified health apps. Using semi-accurate caloric deficits and possible health outcomes, the deficits become the points while the possible outcomes become goals and levels. Tracking through data provides the mechanics for gameplay, with different tasks representing different “levels” of fitness activities. For example, Fitocracy players can gain levels by performing the most efficient number of exercises in a “correct” progression. Efficiency is the primary goal for both health protocol and gamified health applications.

Ubiquitous computing and protocol-oriented fitness programs began at the forefront of the information revolution. Consequentially, we see them both converging in the form of gamified health applications. However, chronological coincidence does not always mean there is a direct causal link between games, fitness, ubiquitous computing and, now, gamified wearables. Understanding how monitors, health protocol, and games work to produce subjects lies at the heart of exploring links between gamification and biopower. Convergence has as much to do with discourse as chronology. As a discursive formation, gamification (fitness related or otherwise) shares many similarities with the “quantified life” movement, which values an arrangement of data-centric surveillance to produce a participatory digital enclosure, one that actively works to map the kinetic potential of bodies into a much larger, data-driven framework.
Quantified Living and the Quantified Subject

The so-called “Quantified Life” movement—a “way of life” where practitioners use technology to monitor their body and daily tasks on a biological, temporal and spatial scale—holds many similarities with gamification (Whitson, 2013). Quantified living largely stems from the ongoing “big data” revolution (Bradley, 2013), as everyday life becomes increasingly networked and technologized (Hansen, 2004). The major advances in storing and transmitting data through wired and wireless networks in the first decade of the 21st century have led to surplus of meaningful, meaningless, and attention-starved data.33

A centralized route to processing this data is extremely difficult, as the U.S. National Security Agency (NSA) has found in their increasingly expensive mission of keeping the global population’s metadata stored for “safekeeping.” For instance, the NSA data center in Utah has been a collective focal point for both ire and admiration (Bamford, 2012a), with Greenpeace even stationing a large blimp over the facility stating: “Illegal Spying Below” (Mullin, 2014). The organization needs several thousand “zetabytes” of storage to process multiple “yottabytes”—a septillion bytes, the highest magnitude of bytes yet coined—of information at a budget of $10.8 billion per year (Bamford, 2012b; Sandvik, 2013). Even

33 The “attention economy” (Simon, 1971) is an information-rich economy where the amount of data produced exceeds the collective parsing capacity of those who produce it. Herbert Simon (1971) states, “in an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence, a wealth of information creates a poverty of attention…” (p. 40-41).
then, officials note it is hard to “find” an individual, leading leaders to question the efficiency of the operation (Angwin, 2013).

The issue is that the data is often not contextualized as it is transferred. Gamification helps alleviate this issue by acting as a ludic parsing agent, inviting and seducing players to categorize and parse their own data for consumption, such as women who use reproductive trackers. This is not to say that gamification leads to NSA surveillance, but it does provide a solution for the anger and suspicion that accompany many attempts at widespread surveillance. If an organization “takes” data, it creates a coercive and hostile atmosphere. However, if the techniques for surveillance are built into an application as game mechanics, it helps to alleviate suspicion by giving players the illusion of choice—if they choose to play, then surveillance is simply part of the game.

Gamification acts as an active sorting mechanism for quantified life; it is a way to shift the datatified management of our everyday life to the level of individual computing: We, the users and players, do and report most of the work in watching ourselves (Hulsey & Reeves, 2014). The health applications described above turn health into a game of self-management. The sorters of data are the producers—the players who start a game of fitness. Nike+ and Fitbit both require a large amount of player effort in tracking, arranging, and posting the data generated. This data is then hosted on web portals for personal archival and public display. This pre-sorted data is ripe for plunder, and has already been contextualized by players.

A form of distributed labor, known as “techsourcing” (Jacobs, 2012), turns humans into motivated data sorters. Data-driven motivation, promoters of quantified living suggest,
will make everyday life more rewarding, healthy, and fulfilling. Gary Wolf (2010),
considered a major proponent of quantified living, states:

We step on a scale and record our weight. We balance a checkbook. We count
calories. But when the familiar pen-and-paper methods of self-analysis are
enhanced by sensors that monitor our behaviour automatically, the process of
self-tracking becomes both more alluring and more meaningful. Automated
sensors do more than give us facts; they also remind us that our ordinary
behaviour contains obscure quantitative signals that can be used to inform our
behaviour, once we learn to read them (Wolf, 2010).

Quantified living is basically about making good on the promise of cybernetics, a true co-
generative relationship with technology on a close individual and collective basis. The
primary goal of quantified life is to use technology—particularly the affective, reflective and
mnemotechnic aspects of ubiquitous computing—to apply the lenses of “mechanical
objectivity” (Datson & Galison, 2007) to everyday life in increasingly minute scales. For
example, Pantzar and Shove (2005) point out that heart monitors allow people to see
themselves differently:

They allow us to “see” our own heart … and in seeing, allow us to make
adjustments in what we do: They allow us to quite literally tune our own
engine. The results are made evident through longer term record keeping—a

34 Mechanical objectivity is the set of dovetailing scientific apparatuses and technologies, like the microscope or
the Doppler radar, that aim to scientifically and “objectively” visualize the natural and social worlds (Datson &
Galison, 2007).
personalizing of the medical record. As such heart rate meters have the potential to re-define the meaning of being well (p. 5).

With the help of sensors, quantified living attempts to modulate life in concert with the digital feedback our body produces as it moves through space and time. This data represents the seductive element of objectifying one’s self through mechanical objectivity. Objectification, in one sense, concerns attempting to deduce an “objective” examination of the body’s internal rhythms by displaying them to the user. In the other sense, the internal rhythms of the individual body are realized as digital objects, which can be displayed and used for gaming, competition, social capital, and varied modes of surveillance.

Many fitness trackers do just this. For example, Basis health trackers are outfitted with multiple built-in sensors for temperature and strategically placed pressure points for measuring pulse, which also leads to accurate sleep tracking down to amount of time spent in deep sleep (Phillips, 2014). All activities recorded on the Basis health bands are quantified as “habits,” which constitute the point-based rewards system (Phillips, 2014). Additionally, prototype bands like the Basis Peak and Microsoft Band are including sensors that track galvanic skin responses, electromagnetic signals, light-based 3D movement sensors that reveal external and internal movement (for heart rate and a 3D picture of kinesthetic activities) and sweat composition (Ghose, 2015).

The Atlas Sensor, which combines light-based sensors with biological monitoring, have initiated the Motion Genome Project (MGP), which aims to
anonymously track the movements of thousands, or possibly millions, of fitness devotees to build a living map of fitness practices (Cheredar, 2014). Users attach their devices to their arms or legs, devices that measure sweat, repetitions and even the type of exercise being done. This is then linked to age, gender, goals and so on. The “fitness DNA” of players is linked to their location, age and even the types of exercise they are performing. This data is then stored and analyzed to create a predictive set of algorithms to guide others on how to reach their desired level of fitness. The Atlas Sensor website claims the MGP aims to “constant improve our algorithm” in tracking the body and predicting the effects of certain motions. Google Glass is integrating eye tracking technologies into the Mark II model, with an API that allows for specific application development, including sport and health-related activities (Calderone, 2014). In short, since the advent of wearable computing, humans are approaching a technological state in which even the most minute bodily functions—such as eye movements, heart rates and galvanic skin responses—can be recorded and displayed.

**Quantified Living, Big Data and Gamification**

The record and display of human bodily functions requires a market environment that sustains the purchase and use of surveillance-oriented devices and applications. Rajat Paharia (2014), founder of Bunchball, a gamified workflow management system, states that the new economic model addressed by gamified design is one of attention. What grabs and holds attention in this economic model is data, and “if big data and motivation had a lovechild it would be gamification”
(Paharia, 2014). For Paharia (2014), gamification represents a way of “architecting virality”—insuring that information and engagement, the two primary tools of quantified living, “spreads” evenly over a variety of economic and social sectors. Gamification, in short, provides the seductive motivational apparatus for surveillance and datafication at the level of the individual.

Gamification is more than a vast collection of networks. As I stated in the previous chapter, variable scale is a key aspect of gamified environments. For instance, a gamified environment can span an entire city, a shopping mall or simply the length of the body. The networks that gamified applications alter can be as small as the wrist moving in conjunction with a gyroscope and digital counter, which then quantifies and displays the resulting mobile data to a variety of devices. The architecture of a gamified environment, much like a game, must be able to produce variable scales and series. It also must be able to produce an environment that requires constant evolution, a never-ending teleology that shifts according to the mechanics.

Part of the genesis involved in sustaining a gamified environment involves creating players, a distinct subject category. The player-as-subject is an individual subject position that is inhabited by anyone who enters into a ludic space. Players become ethically entwined and responsive to the contingencies put forward by the logics and mechanics of the game (Sicart, 2009). For Miguel Sicart (2009), games are an “encounter” (Goffman, 1961) in which players don a changeable ethical “skin,” one that requires a certain mode of “fidelity” with the system of rules that the event proposes. This ethical skin works as coat of many colors, a costume that allows a single body to become a multitude of subjects depending on
what game is being played (Sicart, 2009). In short, the player is actually many different individuated subject positions—a multitude of ethical “players” embodied in one person who engages in a multitude of rule systems. Depending on what these rule systems require, the player almost always seeks fidelity and eventual mastery of the system. The motivation for occupying the complex subject position of “player” is simple—the pleasure arises from what T.L. Taylor (2006) describes as the “joys of instrumentality,” a process of becoming an embodied tool for progression through the game’s mechanics.

The instrumentality of being a player allows bodies to adapt to new events, game-related or social. When it comes to surveillance and managerialism, play acts as the “soft edge” of surveillance technologies (Ellerbrok, 2011), allowing them to colonize social structures and communities without friction. This soft edge results in a quantified self, a subject position born out of play and materialized through data and networks. The quantified self is both the logic of gamification and its primary selling point as a mode of data processing (Bradley, 2013; Hesse, 2008; Singer, 2011; Whitson, 2013). Gamification, in the context of creating quantified populations, creates only semi-stable subject categories. When quantifying the self in the context of gaming, the “event” or “encounter” that embeds the contingencies of gameplay is always shifting. For example, points comprise a set of levels in Nike+ and Fitbit, these levels represent a different part in a series, one which the body plays an integral role in producing the data needed to advance each series. Each shift produces data, and the data produced by players as they log their own information identifies them as active, unstable subjects who evolve alongside with technology while publicly documenting and displaying their ongoing epigenesis. In short, gamified applications are primary example
of the global shift towards digitally managing populations on a bodily level, rather than as large, stable categories. For example, CLUE uses technics on a ludic level to digitize reproductive subjects (i.e., women) in terms of their capacity, behavior and so-called “normaley.”

Quantified life techniques, when deployed in a playful manner, hasten the epistemic changes already upon us concerning the body as a vessel for health by hastening the adoption of formerly contentious technologies (Ellerbrok, 2011). However, because these changes are packaged as a “game,” players are less likely to seriously interrogate their experiences. Already, in-game monitoring and research has raised ethical questions pertaining to ludic modes of surveillance (N. T. Taylor, 2008) and players are often not aware of what rights they are signing away when they accept end-user license agreements, or EULAs (Chee, Taylor, & De Castell, 2012). An openness towards wearable sensors—and an openness towards technology being with, on and even in one’s body and at all times—must be present in order for one to submit to complete self-quantification, whatever that open-ended state may be. Self-quantification is a game we play with ourselves, one that we are aware of as we play it. How our play interacts with other entities should be the primary places of interest. Openness must have a motivational force behind it. In order for acceptance of any protocol, it must first be practiced (Galloway, 2004).

Galloway (2004) points out that “protocol is a result of protocological behavior, not the cause of it.” In this manner, the ambiguity of play and the logic of games combine into a fuzzy network with its own built-in motivational apparatus—whether sad, frightening, whimsical, dangerous, violent or funny, games are always engaging and arousing. The
network of play is more than game culture, it is also the environment, technical or otherwise, in which play occurs. It was the heart rate monitor, which was colonized by game dynamics and not the other way around. In the context of gameplay, a heart-rate monitor is just another type of controller or feedback mechanism. It is the monitors themselves that allow players to “see” themselves within the contingencies of the game, yet often the monitors and controllers are the invisible support for any gamified environment. It is this invisible support mechanism, however, that does most of the work as a technology of the self and a technology of self-subjugation.

Healthy Players and Healthy Subjects

The combination of games, fitness and big data in the 21st century has less to do with chronology or linearity and more to do with affective relationships: Games, wearable technologies and fitness protocol all aim to create docile bodies\textsuperscript{35} in one way or another. In the case of gamified wearables, it is the creation of players that is the primary directive. However, the player-as-subject is a changeable one, and the docile bodies produced by games are always incomplete. Rather than the terminal state of “subject,” players are individual\textsuperscript{36} units. The player’s body, subjected to technique, becomes a subject of discourse.

\textsuperscript{35} Foucault (1977), in \textit{Discipline and Punish}, describes a docile body as one “that can be subjected, used, transferred and improved” (136). The relationship between movement, transference and alteration stems from techniques and disciplinary methods: “These methods, which made possible the meticulous control of the operations of the body, which assured the constant subjection of its forces and imposed upon them a relation of docility-utility, might be called disciplines” (137).

\textsuperscript{36} Individuation is, according to philosopher Gilbert Simondon (2007), the effect rather than the cause of subjectification, or the formation of an individual subject. To be clear, this viewpoint suggests that it is not the form of a subject that is important, but rather the process by which that subject is formed that is of utmost importance. Simondon (1992) states that individuation is the attempt “to understand the individual from the perspective of the process of individuation rather than the process of individuation by means of the individual.” In short, like protocol, individuation is a process of unfolding—it is open, connective and mutable.
something that can be “altered, used, transferred and improved” (Foucault, 1977). However, players inhabit multiple bodies—they are a repository of potentiality for change. This means that, before a gamified application, there is no preformed subject, just a set of potentials that can unfold into a variety of possible forms through gameplay. The creation of players, sometimes many players with one body (or one body with many “skins”) is the primary goal of gamified applications—players are a population willing to produce, sort and submit data so long as there is the presence of a game.

For the purposes of surveillance in gamified health applications, players do not attain any coded form except in the actual process of unfolding through gameplay. This means that, like a player is never finalized; within each unit or set, there are always untapped reservoirs of potential for change and alteration. In the context of different gamified applications, players are different things—still, they (mostly) commit to willingly engage the required mechanics in order to generate directed, favorable outcomes within the context of the game they are engaged in. However, in any game “there is no one way to skin a cat,” and the idea of players navigating contingencies of their own accord, in unique patterns, towards a mutually desired (and officially designated) reality with little to no oversight is a managerial dream—one that has not gone unnoticed by both gurus of the quantified self and governors of the quantified masses.

It is the player, the bodily actor within a gamified environment, who holds the primary value for exploitation via biopower. The player’s actions, via gameplay, are the primary means of sustaining the (game)space where surveillance occurs. As stated in Chapter 1, the body of the player is the only agent who can ensure that seductive power, and control,
contuse. The player, through gameplay, is the only one who can bring the protocol of “a game” into being. For example, the data generated by players using Fitbit and Nike+ is only useful so long as they willingly engage with the mechanics. Players, quite literally, generate and sustain the protocol of a gamified application by playing it. In this manner, play can be a continuous set of actions over a series of games or gamified applications—play as a sustained state of doing, since players are always “in play,” aids in the production of gamified ecologies. Players will always respond to the gamespace as long as they still want to play. It is only a matter of negotiating what logics are generated by a mutually adopted set of protocol. In this way, play and gamification are primary catalysts in the self-managerial revolution and the key mode for making a profit through surveillance: They are the gateway to the docile body, the body that can consistently be improved. As a population, they are customizable, observable and mostly cooperative.

Foucault (1977) recognizes that technology, in a myriad of forms, aids in the production of individuals and docile bodies. In the case of gamification, both technologies and techniques help those bodies acquire an identity, a coded structure and a playful ethical subject position through the use of game mechanics and protocol. According to Foucault (1980), any technique or technology that abets self-transformation in terms of identity within a certain formation of power, discursive or otherwise, is a “technology of the self.”37 It is important to note that technologies of the self are not practices that transform discursive

37 Foucault (1988) states that technologies of the self are any methods that “permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection or immortality” (p. 18).
structures or technical systems, rather, they allow individuals with these formations to make an ethical choice about how they operate within the confines of the agreed upon (or forced) set of contingencies provided. If play is the pre-individuated reservoir from which the player springs, then games are the technologies that players use to modulate their own ethical positions, or “skins” (Sicart, 2009) within the context of play.

Users of applications like Fitocracy, for example, utilize the mechanics of the game, which encourage community-based fitness, to redefine their own fitness projects in concert with the actions of others. They recontextualize their workout as quests, and their physical progression as leveling. In addition, Fitocracy contains RPG-like mechanics that focus on leveling—tracking and rewarding a player for constant self-transformation. Players gain perks, abilities, and points as they work out, complete exercises, or encourage other players. that they can display to the community as they complete their workout. They become an actor playing a role in the game. However, their actions are directly linked to outcomes situated in the everyday task of monitoring and maintaining their health. They are not playing a character; they are playing themselves as a multitude of characters across a wide ecology of gamified applications.

Another primary example, and one that has been covered in depth, is exercise. Foucault (1977) states that at the center of any serialization of time (or space):

One finds… ‘exercise.’ Exercise is that technique by which one imposes on the body tasks that are both repetitive and different, but always graduated. By bending behavior towards a terminal state, exercise…assures, in the form of continuity and constraint, a growth, an observation, a qualification (p. 161).
Serialized repetition, scalable modes of engagement, and segmented levels are all forms of exercise, and whether they are aimed at fitness, play or both, they ultimately operate as technologies through which self-transformations occur with a system without necessarily altering the system. In this manner, play is a form of exercise, and it also encourages individuation. Like exercise, play is skill-based, it requires mastery and if it is done correctly, it also has embedded within it self-referential motivational apparatuses. Health may be one of these motivational sources, but the other, more effective sources, stem from the arrangement of protocol.

Openness towards accepting new protocol while still maintaining a specific state of doing has other, problematic, advantages beyond the creation of players for the biopolitical purposes. Play is a cultural “practice and public legitimation tool that encourages the acceptance of otherwise contentious technologies” (Ellerbrok, 2011). Jennifer Whitson (2013) points out that gamification, fitness, and wearable computing, as a set of affective technologies, serve the purposes of self-quantification on a massive scale. Whitson (2013) states:

What is important about digital games is that the rules are not only formalized, they are completely hidden from players by the black box of the game software… the work involved in interpreting and maintaining the rules (and thus the system of social order) is taken entirely out of the players’ hands, and is instead reliant on algorithms (pp. 165-166).

For Whitson (2013), one thing that separates gamification from games is the apparent lack of negotiation when it comes to protocol. Like fitness and health, scalable series allow for
increased flexibility when it comes to quantification, but decreased flexibility concerning the power subjects have to alter the protocol they are producing. Players (or ludic exercisers, perhaps) must adhere to the standards by which they are judged if they wish to succeed on any level. However, game mechanics can easily be overwritten, modified or ignored. For example, people can cheat by playing against the game or exploiting certain mechanics for personal gain or, in some cases, to push the gameplay forward into a new phase (J. Kücklich, 2009). For example, shaking a FitBit monitor will cause the sensor to assume the player is walking, when in reality they are simply moving their hand back and forth. Publicly, their profile shows a large amount of activity for which the player is rewarded. In reality, they are simply overriding protocol by exploiting the abilities of the sensor embedded in the FitBit armband for accruing social capital and rewards. Still, what cannot be overwritten is the desire to play and the seductive promise of mastery and instrumentality that comes from playful behaviors. These seductive motivations, driven by mechanics, provide the ideological backdrop for the increasing penetration of gamified applications.

**Conclusion**

In this chapter, I identified gamification’s biopolitical leanings. Gamification shares a history with other biopolitical endeavors, including national fitness endeavors, fitness protocol and health-related pedantry and education. At the same time, it also shares a concurrent history with the development of wearable technology. Each of these categories also shares a history with games and gaming. The failure of non-ludic health protocol results in wearable, gamified technologies and application becoming a market driver for the
adoption of formerly contentious surveillance technologies. These technologies, via gamification, provide self-archival tools and aid in the large scale monitoring of fitness and activity.

If play acts as a harbinger for contentious technologies, then play also disguises what these technologies might be. Game algorithms are easily discernible to players who master the game itself. Reeves and Reid (2009) point out that game interfaces do indeed “sharpen” behavior within a certain context, meaning that players are more efficient, but this sharpness is what allows players to master and discard gaming protocol in favor of new experiences. In essence, what Whitson (2013) is worried about—the “hidden” protocol of play—is actually the primary weapon used to combat or alter protocol. Mastery, in the case of gaming, often leads to actions that change the game—actions such as modding (Owens, 2011; Simon, 2007a; Sotamaa, 2010) and cheating (J. Kücklich, 2009). The same is the case in fitness, with those who “master” exercise routines choosing to “hack” or “mod” their bodies with diets, supplements and altered fitness programs and goals (Wolf, 2010). These mastery-based behaviors alter and add to protocol rather than succumb to it.

What is less discernible, and more ominous, is the affective relationships that gaming “algorithms” have with supporting technologies, such as sensors. The issue is that players are often hyper-aware of the mechanics they are engaging in while playing, but less aware of the technological implementations (like controllers, monitors and sensors) that allow them to become players (Kirkpatrick, 2009). While this is untrue in many aspects of gameplay (i.e., hardcore or competitive play), it should be noted that in gamified design the interface is specifically designed to become invisible (Zicherman & Cunningham, 2011). In order for
bodies to become digitally contextualized via gamified ecologies, designers must alter spaces where bodies move.

The redesign of entire environments is a primary object of gamification’s ideological desire: All bodies must become players and all spaces must superficially be spaces where a game can be played. This brings gamification in direct contact with the spaces it alters and the spatiality of players who exist through gamified environments. Players cannot exist without gamespace, and gamification must create gamespaces that permeate everyday life in order to profit from monitoring bodies. In short, it is not a solely a player’s body that produces data—it is the movement of a player’s body through space that provides the contingencies needed to supplement quantified living. Moving forward, it is imperative to catalogue and critique gamification’s influence on the spaces where people conduct their daily activities. Key to this influence is the ways in which gamification alters spaces by deploying gamified interfaces aimed at altering non-ludic spaces in favor of ludic outcomes.
Biopolitical gamification is primarily able to monetize the movements of the body via spatial surveillance. In the case of health and fitness monitors, it is the movement of the body through space that generates data. Contingencies are embedded in a gamified environment via game mechanics to direct bodily movements towards a certain logical conclusion. Gamification’s contingencies are always embedded within a gamespace because, like games, gamification’s primary method of operation is productive gameplay in the form of plabor. However, this plabor is not localized—it is directly networked into the wider processes of everyday life. Like LBMGs, which utilize the networked nature of hybrid space to collapse boundaries between quotidian and ludic spaces, gamification take the process one step further by directly linking the resulting gameplay back into wider networks of capital. This leads to the creation of new spaces, ones where gameplay, surveillance and seductive control overlap for the purposes of production.

While computer games require players to respond to minute haptic controls, gamification’s “controls” consist of everyday activities—e.g., exercising, shopping and pet care—mediated through a spatially-oriented graphical user interface (GUI). Gamification

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38 As noted in Chapter 1, gamespace implies the material and social conditions of play as they pertain to spatiality (J. Dovey & Kennedy, 2006). It is sustained by the constant co-construction of a playful space by players interacting with game mechanics, logics, content and controls (J. Dovey & Kennedy, 2006; T. L. Taylor, 2009). Game-spaces include rules for navigation, the game’s content as it is displayed spatially, the space in or on which the game is played and the location hosting gameplay. Gamespaces are also simulation-oriented spaces, which rely on projection and probability via contingencies to exist (Malaby, 2007).

39 In this chapter, GUI is used to refer to any visual, icon-based system for controlling software as opposed to a text-based command-line interface (CLI). GUIs, in computer games, are commonly referred to as heads-up displays (HUDs) that contain menus, minimaps, inventories and status bars. Sometimes a HUD is considered to contain all elements of a game’s primary visual navigation/control system. However, in gamified applications,
utilizes spatial computing—which involves the digitization of spatial data via *geographic information systems* (GIS)—in combination with gamespaces designed for the purposes of monetized surveillance. Gamification decontextualizes physical and digital spaces to drive monetized gamespaces that feel immersive, pleasurable and natural. By doing this, gamification produces a vast set of living simulations enabled via mobile interfaces. Behaviors that were formerly modeled via mathematics are now performed by living beings in real time. Rather than using outright probability to predict behaviors, the data generated by players becomes the basis for simulation in real time. This data provides the capital that supports gamified environments and ensures the continued production of gamespace.

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the term GUI is still used to describe the visual interface. This is most likely a result in the discursive differences between games and gamification described in previous chapters. In order to simplify term usage, I refer to any icon-based visual control system, whether it is production-oriented or ludic, as a GUI.

40 Physical space *appears* external to the coded spaces of software environments. In physical space, natural laws are (mostly) non-negotiable above the quantum level. Physical space could be the contours of a hand gripping the game controller, the expanse of pixels on a screen and the internal components within a game console. Most importantly, physical space enables the power network supporting the city that, in turn, contains the living room where the game console is plugged up. Most non-computational technologies, like a building or an automobile, primarily exist through physical space. Physical space is a series of material relationships, comprised of biological and non-living processes, which allow for the formation of other relationships.

41 Digital spaces are generated and sustained by computation. “Natural” laws, such as gravity, are simulated in digital spaces. E.g., gravity in a digital space, along with everything else, is negotiated through digital code. However, digital spaces and computational code do not escape the long arm of materiality. For example, the electrons that arrange and transmit information on a hard drive have weight and light itself is the physical medium enabling all digital media (Kittler, 2010). Therefore, digital spaces are not mutually exclusive to physical space—there is no great divide. Physical space enables the perpetuation of coded digital spaces while coded digital spaces actively expand and alter the possibilities inherent in existent physical space (Kitchin & Dodge, 2011).

42 “Interface” is a new media concept that refers to a collection of technologies that allow a user to interact with the digital or computational system (Gane & Beer, 2008). As a concept, “interface” is a collection of practices and technologies that enable or constrain new media usage. Interfaces include screens, peripheral devices like mice and keyboards, sensors, GUIs/HUDs, sprites/avatars, maps and locational notations. They primarily assist in the navigational aspects of software usage, allowing users to connect with and explore the enablements and constraints embedded within a program’s network architecture.
The histories of technologies that currently inform gamification’s developmental course—early games, geographic information systems and spatial simulation—provide it with certain characteristics. The respective genealogies of gamification and gaming, in the case of spatiality, splits at the point of computational simulation: While games are spatially self-referential and thus simulative in nature, gamification uses game mechanics to feed player data into profitable, full-blown simulations (Paolo Ruffino, 2014; Whitson, 2013). This chapter explores the gamified “ludic interface” (Fuchs, 2012)—a type of ludic interface that involves direct monetization of everyday activities—as network architecture centered on seductive spatiality. In short, this chapter positions historical collusions of early game GUIs, GIS precursors such as radar, and basic spatial simulations as linchpins in the development of modern gamification, and the creation of gamespaces where big data can thrive. I will (1) examine relationships between early GUIs, computer games, and gamification; (2) explore the relationships between radar technology, GIS, and gamification;

43 “Simulative” (Myers, 1999) refers to processes that embody simulation-like properties but does not advance to the state of a complete simulation; most simulative processes need at least some user input to function. Games are a primary example—they cannot play themselves. Simulations on the other hand, need no further input once they are put into motion, as they mostly attempt to model actual phenomena. Games are a primary example—they cannot play themselves. Simulations on the other hand, need no further input once they are put into motion, as they mostly attempt to model actual phenomena.

44 Fuchs (2012) states that ludic interfaces represent a subset of interface design. They comprise any interface that supports play and they can be applied to either digital or non-digital phenomena. For example, Gane and Beer (2008) state that, from the standpoint of new media theory, ‘the interface’ is a concept linked to media usage rather than a collection of specific objects. This is primarily because the objects used to interact with new media are constantly changing and being remediated. Like Gain and Beer, Fuchs points out that the ludic interface is a conceptualization, and it includes anything that allows a player to visualize the rules of the game, navigate the gamespace, judge possible actions, interact with the mechanics of the game and understand their role within the game. The ludic interface is used as a broad concept that refers to the GUI/HUD, the haptic controls and the medium or delivery mechanism of a game synchronizing with a player to advance play. The ludic interface supports the game content and narrative by facilitating player engagement.

45 The ‘gamified ludic interface’ is a ludic interface that capitalizes on the surveillance of everyday activities such as exercise, shopping and pet care. Like the ludic interface, it is a concept that refers to a collection of objects and software that allows players to interact with a gamified environment.
and (3) trace links between early digital games, gamification, and simulation-based spatial software by analyzing modern gamified applications that rely on spatially-situated game mechanics. Finally, I parse how gamification uses (or misuses) gamespace in order to embed seductive protocols within quotidian spaces via network architecture.

Analyses in this chapter cover early GIS technologies (e.g., radar), spatial simulations like *Game of Life*, and the development of early computer games such as *Nimbi, Pong* and *Spacewar*. I examine these historical examples in juxtaposition with modern, location-aware gamified applications such as *Strava, Foursquare* and *Ingress*. These analyses are used to construct a genealogical history of gamification from a spatial standpoint; they provide insights into gamification’s alterations of everyday spatiality by examining how gamification borrows aspects, or signatures, of past technologies.

Gamified applications that alter space use a combination of ludic interfaces, surveillance, and spatial simulation that expands the scope of gamespace to encompass everyday activities for the purposes of biopolitics, surveillance, and capital. Gamified spaces—and their monetization of players as they move through space—utilize approaches of early GIS such as radar by tracking both objects’ and players’ actions in space. Like radar, gamification spatially identifies and contextualizes the movements of players and related objects. However, gamification also imitates early computer games by using digital objects,

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46 *Pong* refers a number of ball-and-paddle games created for cathode ray tube (CRT) monitors, not just the popular Atari console version of the game, which used a TV as a replacement for a CRT monitor/oscilloscope. The first iteration of *Pong*, called *Tennis for Two*, was created in 1958 by William Higinbotham (Donovan, 2010). It was created as a marketing ploy for the U.S. Department of Energy.

47 Digital objects an object only relate to the software system that creates them. They are graphic representations that do not correlate to ‘actual’ or physical objects. One example is a badge awarded for an achievement in a computer game. There are no real “badges.” Radar, on the other hand, codes for actual objects (like a plane or submarine) and then digitally represents those things.
such as badges, avatars and points, to seduce players into performing ludic actions via bodily activities such as exercise or travel.

While gaming consoles developed in the direction of paid entertainment, gamification thrives on the idea of free entertainment at the price of data that, in turn, drives profitable simulations. As such, gamification is used to generate data for social and spatial simulations, producing a model of everyday activities on a massive scale (Whitson, 2013). In this respect, geolocative gamified applications are more like early GIS systems: rather than solely tracking player-generated, self-referential objects (like the path of a spell cast in the direction of a goblin), GIS and GPS seek to track, simulate and contextualize actual objects—such as a ship, plane or person—as they move through space.

For example Strava, a location-aware biking application, requires players to map their routes and competitively follow others’ routes. Times are recorded and players can compete against past times on any given route by any given player. Players form clubs and compete for leaderboards. They also share their biking-related information, and they accrue social capital within the community by sharing this information. They also provide revenue to Strava (and other parties) by virtue of their playful behaviors. The outcome of Strava’s style of gamification is usually a very detailed map of a person’s biking life as a variety of minigames, each with their own rewards and motivations. In the case of Strava, players are cyclists and their mode of social capital is literally interactive cartography. Their age, likes, dislikes and social network is attached directly to their life as a cyclist. This also identifies Strava as a data-driven apparatus which utilizes digital objects to ensure and track actual player movements. In turn, this informs consumer predictions on the part of those consuming
the data produced. *Strava* tracks a live spatial simulation, much like GIS systems; however, instead of computational models, biological actors become a living model used in a consumer-oriented simulation.

Players participating and fueling spatial simulations that rely on digital and physical objects provides the basis of many location-aware mobile applications, including gamified ones like *Strava*. Gamified applications often combine the tracking capabilities of radar, the algorithm-centric concerns of spatial simulation and the delight inherent in iconic, responsive GUIs to create seductive network architecture in spaces where there previously was none. These spaces, which are simulation-oriented gamespaces, work as data generating spaces that help to model futures by influencing and tracking play patterns. To do this, gamified applications draw from a number of previous media technologies.

**Gamification, Gamespace and the GUIs**

Gamified applications, like all media, follow the process of remediation (Bolter & Grusin, 2000) since its network architecture contains signatures of media systems that preceded it. Because they involve tracking and contextualizing movements through space, gamified applications refer back to previous media that involves representing spaces and manipulating spatiality, such as spatial simulations, radar and early computer games. These media are precedents to gamification’s spatial functionality, which is primarily the creation and maintenance of monetized gamespaces geared towards the surveillance of bodies and objects as they are in play. Part of examining gamification from a spatial standpoint requires
examining early interfaces that informed the design and implementation of gamified environments.

Applications like Strava use game-like GUIs to drive ludic interpretations of everyday spatiality. Gamespaces, analogue and digital, are mediated by a variety of interfaces. Conceptually, interfaces can be a number of things, such as a haptic controller. However, in the case of digital games, the most recognizable interface is the GUI, which gives gamespaces an architectural structure and an aesthetic, sensuous appeal. GUIs in games come in many different forms, and even those games that include minimal GUI elements use that absence to increase the overall quality of the architectural space—whether opaque or transparent, all games utilize GUI elements. These elements can include tools for manipulating and viewing maps, avatars, currencies, player characters, inventories, objects and available actions. GUIs in digital games and gamification immediately respond to user input. They are visually arresting and they control every aspect of how a player interacts with her or his environment. GUIs provide the contextual information needed for navigation and the seductive motivation to explore and perform tasks. As de Souza e Silva (2006) states, “every shift in the meaning of an interface requires a reconceptualization of the type of social relationships and spaces it mediates” (p. 262). This is especially true of the ludic interface which is both the “driver and product” of games and gamification (M. Fuchs, 2012). The gamified ludic interface, while inspiring delight in the player, also serves the purposes of

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48 Similarities between games studies and architectural studies have been noted. Aarseth (2001), in his essay Game Studies, Year One, states “Like architecture, which contains but cannot be reduced to art history, game studies should contain media studies, aesthetics, sociology etc. But it should exist as an independent academic structure, because it cannot be reduced to any of the above”.

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generating capital in the context of data used for complex economic, biological and social simulations.

Like LBMGs, the GUI of a gamified application is often linked to a mobile device, such as cell phone and/or a location-based sensor. Many fitness applications combine a playful, responsive GUI with movement sensors and global positioning systems (GPS) to sustain the game logics that produce useful, monetized data concerning everyday activities. For example, when users of Fitocracy—a social workout application that is also a location-based network of fitness enthusiasts—check into locations and list their exercises and caloric burn, they are creating a playful “map” of their own fitness routine that serves the interests of various consumer organizations. Gamified GUIs mediate monetized gamespaces by encouraging players to move in certain ways towards certain locations, much like a quest. The GUI is what allows players to interact with the game mechanics on a visual level. This deep combination between space, user and interface was first developed in LBMGs, which also utilized location-aware sensors to toy with players’ practices concerning co-proximity, navigation, community and sense of privacy (Licoppe & Inada, 2010; Sutko & de Souza e Silva, 2008). Spatialized gamification is largely an instrumentalization of the mechanics and practices pioneered in the creation of experimental LBMGs. As noted in Chapter 2, the mobile interface provided a key conditionality in the development of gamification from advergaming.

Gamified environments are a set of ludic and often mobile interfaces, which includes GUIs in addition to haptic interfaces such as controllers and touch screens, that utilize playful network architecture (via game mechanics) to spatially situate and direct players in fueling
spatial and social simulations. The GUI of gamified applications, when used with a mobile device, contextualizes everyday spaces into gamespaces by motivating player movement through physical space. Additionally, gamified applications employ the simulative, control-oriented qualities of digital games to monetize ludic spatiality in the form of data. For example, the rewards application Shopkick utilizes badges and points to direct the movements of shoppers to specific stores, offering rewards when shoppers check in at certain locations. It provides the mechanics needed to motivate certain types of monetized navigation; in turn, players give valuable information about what types of rewards will motivate consumers to alter their movements through space.

Gamification relies on two methods to render its specific iteration of gamespace functional: The first method capitalizes on seduction and delight by using a ludic interface that architecturally “frames” spaces in favor of seduction; the second method involves monetizing reframed space by using gameplay actions to provide data for complex social, economic and spatial simulations. The technologies that inform modern gamification and games are similar in the early years of spatial computation and interface development. Radar, like gamification, tracks physical objects by representing them digitally. Additionally, the radar screen (CRT monitor and oscilloscope) enabled computer games to display digital objects where there was formerly text—visual displays, like the CRT monitor, enabled icons to be used for computing. Gamified applications also utilize digital objects and icons, and often, as is the case with Ingress, the digital objects are embedded directly into physical spaces. As stated in Chapter 1, since both gamification and games produce gamespaces, their
technological predecessors are similar. The first visual computers—
and by extension the first GUIs—used *en masse* in the United States, Canada, Europe, Russia, and Japan were arcade games and, later, home consoles (Donovan, 2010). While the term “heads-up display” (HUD) is often preferred when designing game GUIs to avoid confusion with production-oriented software, games represent some of the first icon-based control systems for digital computers (Donovan, 2010; Gere, 2006). As such, the visual aspects of ludic interfaces precede the modern, production-oriented GUI. Computer games used icon-based systems for controlling software that predated the Xerox *STAR*, the first widely available productivity-related GUI released in 1981, by nearly four decades. For example *OXO*, an adaptation of tic-tac-toe, was developed in 1952 (Donovan, 2010). It is well known that the development of the GUI played a large part in the proliferation of personal computers (Gere, 2006). Before Macintosh’s system of icons embedded with an operating system, domestic computer users had to go through the laborious process of learning thousands of textual commands. It is lesser-known that the ludic interface informed the creation of production-oriented GUIs based around a desktop metaphor.

The development of the GUI actually overlaps with the advent of both computer games and personal computers—researchers and entrepreneurs observing the arcade craze,

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49 Visual computing refers to any type of computer that uses non-textual visuals to relate information (Fichtner, 1999). Visual computers include any computational device that has a visual readout that can display more than text or code.

50 Tetris was invented in a Soviet research lab circa 1984; interestingly, Tetris went “mobile” for Gameboy in capitalist regions but Russia (and the game’s creator, Alexey Pajitnov) did not benefit until many years later (Johnson, 2009). As closed off as the Soviet Union was, good games always prove to be universal *and* mobile. Tetris is an infectious game, and it managed to transgress ideological, cultural and economic iron curtains. However, it was still met with suspicion; some critics saw Tetris as a “plot” to distract American youth with useless mental exercises (Johnson, 2009), which reinforces the idea that games and play can be construed as transportation mechanisms for contentious policies, habits and technologies (Ellerbrok, 2011).
which began with Sega’s electro-mechanical game called *Periscope* in 1966, saw how quickly the average person can learn and respond to a computer through gameplay (Donovan, 2010; Loftus & Loftus, 1983). Steve Jobs and Steve Wozniak, who worked for Atari during their formative years, were especially observant of how arcade game design (specifically the use of iconic visual cues) influenced the ways in which people used computers (Hanson, 2013). After leaving Atari they developed the Lisa interface, one of the first fully-functional GUIs designed for popular consumption. While Lisa was a commercial and technical failure, Macintosh—Lisa’s spiritual successor—was considered revolutionary. Games and the development of GUIs entwine at many different levels, a point often belabored by computer game historians. However, at the earliest stages of research, GUIs and games repeatedly collided. During the 1960s and 1970s the Xerox Palo Alto Research Center (Xerox PARC)—which developed the first productivity-oriented GUI in a research context—and Stanford’s Augmentation Research Center (ARC)—which developed the haptic peripherals used to control GUIs such as the mouse and keyboard—both experimented with game-oriented research methods (Engelbart, 1968; Gere, 2006). In the case of ARC, this funding was provided partially by military institutions, which had been experimenting with using icon-based systems for computational controls since the advent of radar (see Engelbart, 1968). Like computer games, the GUI and its peripherals are literally the demilitarized “soft edge” (Levinson, 1997) that precluded the cultural appropriation of games, computers and simulation (Crogan, 2011). In the case of modern gamification, the GUI serves as the seductive framework that mobilizes players within gamespace. While many early LBMGs were facilitated via text message, this predated the smart phone with a full graphic layout.
Gamified applications such as ingress come equipped with beautifully textured spatial layouts.

In the case of Macintosh, computing became a playful interaction with a visual interface inspired by arcade games, which was intended to make using the computer “fun.” GUIs and HUDs, whether playful or quotidian, are more than static representations. However, as many scholars of the interface have noted, it is increasingly difficult to separate a space from the interface that defines its use, because interfaces also produce space (Baudrillard, 2005; de Souza e Silva & Sutko, 2011; Dourish, 2001; Dourish & Bell, 2007, 2011; Manovich, 2002). This is especially true with gamification; the interface determines what actions can be taken in a (game)space and why those actions are important. This includes the surveillance of spaces; who or what is monitored is embedded in the interface of all gamified applications and displayed by the corresponding GUI. For example, Strava draws attention to the routes and times other bikers take via its GUI, making competition on a route a primary focus of players who employ it as a biking application. This spatial monitoring links directly to early GIS technologies, namely radar and spatial simulation.

**Radar Games: Spatial Monitoring and Spatial Play**

Radar is the precursor to both early games and early visual computing, including the GUI. There was no technology before radar that accounted for digital representations corresponding directly to physical objects. Each digital representation, in the case of radar, is moving through representational space. In turn, all spaces also corresponded to physical spaces. Before radar, there were panoramas and stereoscopes that could represent movement,
but these movement-oriented mediums were rudimentary projection-based technologies that preceded television and cinema (Huhtamo, 2012, 2013). In other words, the representations in panoramas only corresponded to the narrative they served. They did not directly represent reality; they interpreted events via an artistic medium. The computer screen and everything represented on it, including this text and the GUI that enables me to write it, are not projections or physical objects—they are digital objects that correspond to the logic of the programs I use.

Digital objects, the basis of most computer games, HUDs and GUIs, are functions generated by computer programming—they are the simulacra that fuel simulations (Baudrillard, 1981b). The correspondence between digital object and digital space is the primary way in which a GUI differs from a radar readout (Gere, 2006)—physical objects and spaces were tracked first while self-referential digital representations came after. This is also why visual computing was implemented after radar. Before game developers could employ realistic game physics and real-time movements, technologies had to compute and represent actual physics. Gamification is unique because it combines two formerly separate approaches. Before gamification, physical objects were tracked by spatial technologies like radar; however, these technologies did not influence the movements of physical objects—i.e., they did not provide a purpose for movement, only a real-time record. Alternately, digital objects are self-referential—user input is the sole method of initiating movements and movements only affect the digital spaces they are tied to. However, gamified design uses digital objects and spaces to influence, track and represent physical objects moving through space—objects such as bodies and capital.
In the case of the mobile technologies that facilitate gamification, the GPS-enabled device aids in creating objects, guiding objects and tracking objects (Gordon & de Souza e Silva, 2010). Gamification does more than just guide, it uses a screen filled with digital and physically represented objects to influence basic reasons for why movement occurs and the context for tracking this movement. Like LBMGs, which create inject gamespaces into non-ludic spaces, gamification also visually alters the ways in which space is represented using simulative process. By injecting digital objects and physical representations into the rhythms of everyday space via the screen or monitor, gamification draws heavily from both early computer games and spatial technologies like radar.

The Cathode Ray Tube (CRT) monitor of the radar allowed the visualization of early computer-based games, such as Pong, in addition to the eventual design and production-oriented GUIs (Donovan, 2010; Gere, 2006; Lowood, 2009). Gamification shares more ontological similarities with early GIS technologies and spatial simulations than it does with early games and gaming technologies. Arcade and computer games took a self-referential, transmedial approach to computational aspects of play where players bought one unit (a game). Playing the game did not produce any profit; all actions taken during the course of the game refer only to the game itself. In gamified environments players become agents in an active, living simulative space. Tracking and predicting player actions through designed gamespaces are what creates data and capital.

While the ludic interfaces of early gaming consoles and arcade machines are both drivers and products of the widespread cultural appropriation of computing as game devices (vs. military uses), the visual-spatial aspects of computer games and their GUIs are also
linked to radar technology. For example, the *Cathode Ray Tube Amusement Device* was a missile simulation game developed in 1947 based on radar technology—it electronically simulated tracking and destroying represented missiles (Donovan, 2010). *Tennis for Two* (c. 1958), *Pong*’s predecessor, was created by modifying an oscilloscope, a radar-based CRT technology (Donovan, 2010; Lowood, 2009). However, instead of having the monitor track physical phenomena identified via sonar or radio frequency, researcher William Higinbotham decided to alter the machine to track virtual objects created and transmitted by a computer (Donovan, 2010; Lowood, 2009). In both *Pong* and *Tennis for Two*, the “ball” denoting the digital object was knocked back and forth with control knobs—it had no correspondent in physical space. The edges of the screen, which contain lines usually representing location and/or frequency, were appropriated to represent “paddles” (Lowood, 2009). They served as the sprites indicating the location of the player’s game piece, the digital paddle. In this case, the iconic gamespaces and GUIs of *Tennis for Two* and *Pong* were based on a repurposed radar display (an oscilloscope) imbued with game mechanics.

*Tennis for Two* was not created solely for amusement. Rather, it was a visual example used to inform the public about the power of computers. While computers were popularly considered arcane math or war machines, the game allowed the public to glimpse the power of digital representation and then interact with digital objects at a fundamental, playful level. Computers were not arcane machines or harbingers of nuclear destruction; they could be fun. While it was not necessarily gamified, like most early games *Tennis for Two* was linked to marketing: It was funded by the U.S. Department of Energy to promote atomic power and sway public opinion. Visually, *Tennis for Two* represented the fact that computers could be
just about anything, including a gaming device. Also, the spatial focus of the radar screen translated easily into a gamespace once imbued with a ludic interface—a point researchers noted. Today, the same stands true for spatial technologies; many locational tools such as Google Maps are being used to provide spatial data for both LBMGs and gamified applications. Increasingly, spatial technologies are being used to provide game-based public services. For example, Google purchased the gamified social navigation application Waze—which was integrated with Maps—for over one billion dollars in 2013 (Wasserman, 2013). It turns out that complexity and newness can be mitigated with good old-fashioned fun and games.

While early computer games emerge from radar display technology (via the CRT monitor and oscilloscope), games and radar technologies differ on a functional standpoint: Radar technology is meant to monitor and represent physical spaces and actual objects as they move, while computer games are meant to create spaces through which a player moves. In the case of gamification—which uses game objects to provide purposeful movements and then records these player movements through physical space—basic radar and early computer games’ signatures are present. However, instead of creating spaces, gamification draws from radar’s monitoring functionality to create and track objects in physical space. Digital objects such as badges, location markers or obstacles are used to motivate players to move through physical space so that they can be contextually tracked.

Radar straddled the gap between analog and digital media (Gere, 2006). Before the 1960s, radar was based on analog radio transmissions and sonar visualized via an oscilloscope; it was largely an electro-mechanical technology. Researchers such as Claude
Shannon, who worked in computing, often worked with radar-based applications, as well. Shannon, mentioned in Chapter 4 as being partially responsible for the first wearable computer, was also integral to the development of missile navigation systems and spatial simulation (Crampton, 2010). Shannon’s interest lay in computing probability, and his work with predictive radar guidance systems led to the combination of analog radar with computational technologies (Crampton, 2010). In part, Shannon’s digitization of the (previously analog) radar led to the creation of modern Geographic Information Systems (GIS) that enable the current state of interactive, mobile cartography such as Google Maps (Crampton, 2010). His work on radar guidance systems allowed for the real-time calculation of moving objects in space using radio frequencies and rapid computation.

Shannon’s work also changed the way radar worked: Now radar systems could also guide an object, rather than just track a trajectory. This task required an on-the-spot computational model for rendering Tobler’s (1970) first law of geography for guidance of a high-speed object: “Everything is related to everything else, but near things are more related than distant things” (p. 236). Shannon’s work in virtualizing the radar and creating reactive navigational systems led to modern GIS systems that recognize signal-based inputs from a moving object, such as Radio-frequency identification (RFID). These advances also allowed researchers to input virtual coordinates into a radar-based tracking system visual representation and mapping—and this system’s basic idea was also employed to create the

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51 E.g., his interest in gaming led him to help produce a portable computer that predicts roulette outcomes () and his research into artificial intelligence involves chess (Jorgensen, 2009).
52 Shannon’s research actually precedes and informs Tobler’s law. Tobler (1970) developed the law in 1970, while using computational simulation to predict the population growth of Detroit. It was Shannon’s work on missile guidance systems that enabled modern geographic studies, which makes heavy use of GIS/GPS.
The first iterations of Pong. The combined representational display and tracking abilities of both the radar and the computer contributed to the creation of LBMGs that also generate, guide and display digital objects and objectives.

GIS, in tandem with global positioning systems (GPS), also facilitates most gamified mobile applications, including location-based social applications like Foursquare (de Souza e Silva & Frith, 2011) and Ingress (Hulsey & Reeves, 2014a; McGonigal, 2011). As of now, most radars are actually virtualized—that is, the computer interprets sensors’ data, rather than an actual, mechanical radar (Crampton, 2010). Almost all cell phones hold radar’s remediated signature, as they allow for real-time tracking of objects’ and users’ locations in space.

However, whereas digital games create digital spaces, gamification borrows from tactics employed by LBMGs, digitizing and altering quotidian physical spaces while still monitoring the movements of targeted physical objects through that space. Unlike LBMGs, gamification then feeds the gameplay directly back into wide networks of capital and control. While Pong was self-referential, gamified applications like Foursquare utilize Pong-like mechanics—namely the generation and manipulation of digital objects acquired by visiting strategic locations. The result has been surveillance-oriented applications like Foursquare, which combine the seductive visual elements of game-oriented GUIs with tracking-oriented technologies. While gamified ludic interfaces hold the remediated signature of the radar and early playful GUIs, visual interfaces only represent one aspect of its profitability. The other end of gamification’s popularity is its ability to contextualize the data it helps to create by tracking purposeful movement taken to achieve ludic objectives during gameplay. It does this
by relying on spatial simulation and modeling, which also link back to early computer games and their iconic, visual representation of spatial information.

**Mathematical Marketing: Spacewar, Nimbi and Simulation-Based Spatial Software**

From the standpoint of early computing and computer games, radar’s CRT monitor provided the computer with a way to visually represent coded objects through a spatial GUI. Visual aesthetics, specifically for gaming and simulation, created the epistemological conditions necessary for the social appropriation\(^5^3\) of visual computing (Fichtner, 1999). The modified CRT monitor combined with the surveillance and tracking capabilities of radar technology allowed researchers to construct gamespace as coded space.

Previous to the GUI all interfaces were command line interfaces, which treated digital games as logical processes enabled by coded text. Early explorations of visually seductive computer games were created to test and market the capabilities of a computer’s processing ability—gamespace as an aesthetic product was ignored in favor of creating advanced logical simulations. This line of research changed with *Spacewar*, a game that pioneered the use of a complex, striking and interactive ludic interface to drive playful behavior. Key to this advance was the use of a visual interface that reacted to players, thus forcing moves, rather than simply representing movements. Players had to avoid or shoot incoming objects in order to progress. While there are many ways to win, some sort of movement or action is required by the game mechanics. While *Spacewar* contained no true AI in the sense of a decision-
making tree, the randomized movements of “enemies” in the game presented an immediacy that, up until that point, was lacking. The pace of *Spacewar* was frenetic, and movements on the part of players and the computer were nearly instantaneous. The speed at which *Spacewar*, the first “bullet-hell” game, forced players to react was hitherto unheard of.

By 1960, the Massachusetts Institute of Technology (MIT) was home to the Artificial Intelligence Laboratory (Donovan, 2010). The laboratory had a custom computer, the TX-0, which was somewhat smaller than a room-sized mainframe. The TX-0 was accessible to students and could be operated during off-peak hours (Donovan, 2010). The computer attracted an engineering undergrad organization called the Tech Model Railroad Club (TMRC). The TMRC referred to themselves as “hackers” rather than “hobbyists” or “researchers” (Moore, 2005). A “hack,” according to the TMRC, was a clever feat of design or programming ingenuity. The TMRC and other hackers spent their nights punching code into strips of paper to create programming tools, music, and game-like AI routines (Donovan, 2010). What resulted was a visually seductive game—*Spacewar*—that could be played between human and computer, with the computer providing the aesthetic and simulative aspects of play (interactive objects moving through space) while the human player provided the input necessary for the continuance of the game.

*Spacewar* (c. 1962) was one of the first computer games to achieve national distribution. It was included as a test program on every PDP-1 computer sold. This version of *Spacewar* was created to test and display the functionality of a GUI through gameplay. By the end of the 1960s, *Spacewar* became a cult activity in university computer labs across the U.S. and it inspired researchers and students to further explore the complexities of visual
human-computer interaction (Donovan, 2010). Even though the hackers who created and modified *Spacewar* could sense computer gaming’s commercial possibilities, the game could only run on hardware costing thousands of dollars (Donovan, 2010). As computer components fell in price, both *Spacewar* and *Pong* became harbingers of the first wave of game consoles in the U.S., Japan and Europe.

![Image of Spacewar running on the PDP-1](image)

**Figure 3**: *Spacewar* running on the PDP-1. The stacks of paper cards to the side were required to run and alter the program. This version of *Spacewar* was the first mass-distributed computer game. Its immediate similarity to a radar screen is noticeable (Source: Wikimedia Commons).

While *Spacewar* utilized its ludic interface to explore human-computer interaction in the form of a spatial game, *Nimbi* is an exploration in spatial probability and player

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*Nimbi* is one of many Nim-playing computers created in the 1950’s and 60’s. Nim is a mathematical strategy game that originated in China, and it is one of the oldest games in the world (Jorgensen, 2009). It involves two players taking turns removing objects from distinct heaps containing different amounts. On each turn, players must remove at least one object; however, they can remove as many as they want as long as they come from the same pile. Whoever is the last to take an object wins. In a variation known as *misère* play the goal is to force the opponent to take the last remaining object.
simulation (Jorgensen, 2009). *Nimbi*, was a public relations endeavor released in 1962; it was an attempt at creating an “indestructible” game, that is, no mathematician or player could “beat” its code via predictive calculation (Jorgensen, 2009). In short, *Nimbi* (based on the ancient game of Nim) was an attempt at creating an unhackable, unbreakable set of coded protocol that imitated a human player. Nim, similar to Chess, is considered a “mathematical game”—a game that produces useful algorithms—that was of particular interest to mathematicians and computer scientists (Jorgensen, 2009). Researchers such as Claude Shannon and Herbert Simon utilized mathematical games in their work to understand machine and human intelligence. Chess was so important for them it was called the “Drosophila of AI” (Jorgensen, 2009). Nim is categorized as an impartial game.

In impartial games, it is the space of the game that matters, and not the movements of players. In short, Nim makes the set of allowable moves dependent on the position of gamespace in relation to players. Nim, as a mathematical entity, produces algorithms that redefine a “game” as a position taken between two players (Conway, 1974). It produces a locational gamespace depending on the size of the piles where objects are drawn from. These mechanics are mimicked by many LBMGs—often, more than just the location of other players is required to play. Location-based games utilize the resources available at certain locations—i.e., the “size of the pile”—to drive the movements of players.55 Of course, other players can also be a resource. Even still, if that is the case, it is the amount of players present in space with will influence movement. Numerous Nim-playing machines were devised, and

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55 *Ingress* is a key example of these mechanics—players move based on the distribution of nodes in their area. They attempt to triangulate connections between nodes that will harvest the most resources for their faction.
Nim itself accrued a long mathematical history (Jorgensen, 2009). Nim fell out of favor as Chess dominated the field of “game-playing machines” (Jorgensen, 2009). It was dismissed as a class of game that attempted to “devise algorithms which can be used to ensure a win” and it was dismissed as “mathematically trivial” (Jorgensen, 2009, p. 46). While Nimbi never generated the publicity it was meant to, it did demonstrate that a computer could imitate an actual player which changed the way games were implemented—no longer did a human face off against the game (as in Solitaire) it was challenged by the computer itself.

Nimbi demonstrated that the algorithms produced by Nim could be used to simulate a human opponent and it informed the evolutionary simulations conducted by mathematician John M. Conaway, a key researcher in agent-based simulation (Jorgensen, 2009). Nimbi was a software program that simulated a second human player, and played against the human rather than always choosing the optimal combination to win. Thus, it could not be “outwitted” and produced randomized results that simulated a human opponent. However, Nimbi only simulated the logistics of space as mathematical. Unlike Spacewar, it ignored the qualities of an interactive, seductive ludic interface.

Instead of a CRT or oscilloscopic display, Nimbi used a text-based IBM console and a game board that represented the gamespace. Its failure has much to do with the fact that it did not provide the immediacy of games like Tennis for Two or Spacewar. Still, Nimbi embodied the search for a game that both defines and defies the basic precepts of computational simulation: It sought to simulate a logic game that defied further simulation, thus imitating a human player. However, Nimbi was also partially gamified: Like Tennis for Two and Pong, it was deployed as a public relations apparatus to highlight the capabilities of computers.
Advergaming is entwined with earliest examples of computing, including the reasoning for producing computers games to begin with.

Beyond marketing, *Nimbi* also follows gamification’s central proposition: in order for a digital game to produce capital via play it must deny the trappings of finite games—the game cannot be “beaten.” Rather than an actual game, *Nimbi* was a game-based simulation used for research and marketing purposes. Its commercial failure rested on the fact that it was not visually stimulating, and as a result it was not taken up by researchers or consumers. While *Nimbi* was a commercial failure, many early computers were shipped with Nim-playing software based on its design (Jorgensen, 2009). These later computers added a GUI-enabled ludic interface to the game to motivate players to engage with Nim-playing software.

While *Nimbi* itself is an interesting side-note in computer game history, its primary importance lies in the fact that it preceded advanced cellular simulation—a precursor to agent-based modeling\(^{56}\) used in almost all modern simulation-based games and game-based simulations. As stated before, gamification seeks to unify these formerly separate categories. Evolutionary simulation games, including *Game of Life*, contain many of the same algorithms generated by a match of *Nim*—both are generated via combinatorial game theory, or CGT, where moves are spatially represented as a “game tree” (Pearl, 1984). In addition, the spatially oriented “no win” tactics of *Nim* are similar to the infinite game mechanics used in gamification: like *Nimbi*, the computer always wins in a gamified environment by

\(^{56}\) Agent-based modelling involves imbuing cells, or cellular automata (CA), with certain properties and then observing how the CA navigate and interact within a simulated space (Gilbert, 2008). It is the precursor to advanced geosimulation tactics (Itzhak & Torrens, 2004a), game design (Gilbert, 2008) and modern, digital architectural design (Parisi, 2009).
manipulating the space in which the game takes place (rather than directly manipulating the location of players).

For example, Google’s *Ingress* is an experimental, gamified mathematical simulation that utilizes aspects of agent-based modeling (Hodson, 2012; Hulsey & Reeves, 2014a; Kolb, 2013; Lewis, 2013; Roy, 2012). *Ingress* solves difficult algorithmic problems with player data associated with directing pedestrian traffic and improving the efficiency of location-based advertising (Gildea, 2012; Gold, 2012; Hindman, 2013; Hodson, 2012; Hulsey & Reeves, 2014a; Kolb, 2013; Lewis, 2013; Roy, 2012). In order to solve issues of human movement from a computational standpoint, *Ingress* utilizes the “no win” tactics of *Nim* by creating spatial uncertainty—a sense of ignorance in terms of what resources are located in a space—in players who must track down, obtain and defend resources that are generated on physical locations and displayed on a mobile, location-aware GUI. Live simulations like *Ingress* help to illuminate decision-based probability by using actual players, rather than theoretical actors (or cells) who take a set course of action based on a predetermined model. *Ingress* generates resources in certain locations and then tracks the combined movements that players take to retrieve them. Eventually, patterns emerge that can help to predict future movements. Humans are unpredictable—by creating situations where spatial uncertainty is a primary game mechanic, gamified applications like *Ingress* can provide useful data on how humans get to and from certain physical points in real-time. *Game of Life*, a later iteration of algorithmic, CGT games like *Nim*, provided the backdrop for the creation of spatial modeling, the primary tool for using data produced by location-based gamified applications.
The CRT monitor that allowed interactive ludic interfaces such as *Spacewar* and *Tennis for Two* also supported spatial simulations such as *Game of Life*, a major precursor to all current modeling simulations, large-scale gamified applications and simulation-based games such as *Civilization, Sim City* and *The Sims* (Aarseth, 1997; Galloway, 2006). Hackers at the TMRC were interested in how humans could interact with software via ludic interfaces. Researchers who created *Nimbi* were primarily interested in how computers could simulate human players in uncertain spaces, where there are constant choices to make and paths to be considered. However, some mathematicians saw in video games the ability to visualize and predict advanced evolutionary simulations. One such researcher was John H. Conway, who created the *Game of Life* in 1970 (Itzhak & Torrens, 2004a). Artificial Intelligence, or the study of independent decision-making by computers, was a hot topic in the 1950s with Alan Turing and Herbert Simon furiously attempting to impart some degree of intelligent processing to computers by experimenting with mathematical games and CGT. What resulted was the creation of *cellular automata* (CA), which acted of their own accord based on rules and contingencies set up by the researchers (Itzhak & Torrens, 2004a). CA was the first true exploration of spatial simulation, in which computers were used to determine a future reality by exploring combinations of evolutionary events via sets of game mechanics.

Hardware capabilities and prohibitive costs bottlenecked research during the 1960s and public interest in CA declined (Itzhak & Torrens, 2004a). A revival of interest in CA happened in the 1970s starting with the presentation of the computerized version of *Game of Life* (Itzhak & Torrens, 2004a). The game, which visualizes self-reproducing, recursive “life”
via simple game mechanics, was originally a simple set of rules used to study the spatial
dynamics of populations (Itzhak & Torrens, 2004a). Conway used simple rules because the
game was originally played via pen-and-paper. He settled on two end-states for the simulated
cells—alive or dead. Life or death occurred according to three distinct rules based in spatial
arrangement: Cells lived, died, or were reincarnated based on their proximity to living or
dead neighbors. For “survival” the cells had to position themselves between two living
neighbors. To be “born” a dead cell must be surrounded with at least three living cells.
“Death” can occur with either overcrowding or loneliness; a live cell can be crowded out by
dead or dying neighbors, or it can die because it has no neighbors at all. The simulation game
was simple due to the fact that computational power in the 1970s was minimal compared to
today. However, as computation increased, the cells could be imbued with ever-increasing
functions and layered with other cells representing different functions. These functions can
be abstract (such as “cell type n only ‘lives’ when next to cells of x ‘color’ in sector 12”) or
complex (such as “cell type n only ‘buys’ ‘shirts’ of x ‘color’ within y radius of sector 12”).
The first rules only have to do with how/when a cell lives or dies within a location. The
second rules seek to simulate a location-bound purchase. Simple functions are used to guide
the game-like portion of Game of Life; in other words they are used to render certain results
like shapes and patterns. Complex functions are used to represent real-world social or
economic actors, such as an individual with certain traits buying a shirt in a certain area. The
digital organisms followed an evolutionary algorithm based partially on game theory similar
to Nim (Conway, 1974). The simple rules produced population dynamics that were complex,
unpredictable and often unexpected (Aarseth, 1997). The position and rules attached to the
initial cells determine the outcome of the cellular formation, similar to stem cells. However, as each generation forms, the ability of the researcher to predict what life forms will appear gets more accurate, not less. In other words, the model becomes more predictive—despite the fact that new behaviors are constantly occurring—as the simulation portion of the game becomes complex.

The rules of *Game of Life* can be tweaked by the researcher or player, usually to account for complex “hard” and “soft” agents, but the concept remains the same: emulation of life and death through imbuing a system with agential properties and allowing it to play itself—with the results of the game being recorded and then sublimated to actualized physical-spatial designs. *Game of Life* is a spatial simulation that plays itself with some input from the user. *Game of Life* demonstrated that replicating and predicting unique forms of life formed from cells following simple sets of game mechanics was possible and effective. By watching larger patterns as they coalesce over different generations, each individual cellular construct in *Game of Life* can be accounted for before it forms. In other words, games produce predictable results even when the agents themselves are unpredictable. This is the basis for agent-based modelling. Making sense of big data is dependent on game mechanics and the algorithms they produce—the algorithms produced by combinatorial games are the basis for heuristics, which inform all model-based simulations (Gilbert, 2008; Pearl, 1984). Rather than utilize simulated cells, gamification uses the basic predictive concept of *Game of Life* and applies it to living players. For example, *Ingress* utilizes player data to predict where

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57 *Hard agents* represent stable structural agents (such as a building) while *soft agents* are more unpredictable biological agents (such as humans, insects or animals). Both are imbued with particular properties and then “set free” to trace a multitude of interactional possibilities.
and how players will move in any given situation. They do this by providing hard structural agents, such as the location of resources, and watching how players move to obtain these resources. Following in the footsteps of Nimbi and Game of Life, Ingress seeks to create a living set of CA made of players. By recording and tracking player movements, Google will eventually be able to better predict pedestrian traffic and customer responses to location-based advertising. This predictive model becomes more accurate as the player base increases, despite the game seeming more chaotic.

The automata in Game of Life and other spatial simulations form Multiagent Systems (MAS), which deploy variable functions into a simulated space to present the “soft” components of a space—i.e., its population of players as represented by CA. Human individuals are represented in MAS models by “free agents” that carry within the function differentiated algorithms that “carry the economic and cultural properties of human individuals” (Itzhak & Torrens, 2004b). Gamification borrows from MAS; however, instead of “cells” imbued with behavioral properties, gamification introduces living players into the altered gamespace of everyday life and then tracks their reactions and movements: Rather than simulating model humans via cells, gamification utilizes actual humans (and their bodies) in a vast, living simulation aimed at producing and predicting protocol. Not only do gamified applications provide the protocol for behavioral efficiency (such as faster coordinated navigation in the case of Ingress), as players perform these actions the game is better able to predict future actions based on the same set of mechanics.

While Game of Life shares an ontological background with computer games, it does not represent the same ideological or epistemic concerns as computer games (Aarseth,
Also, as noted, the aesthetic concerns of traditional computers take the forefront in design. The differences between *Game of Life* and a traditional game show that games are inherently different from simulations, which are always game-like, but do not involve play (Myers, 1999). Gamification utilizes recursive evolutionary modeling to harness the predictive capacity of game-based algorithms. Simulation games simply tell a story, one that is controlled and tweaked by the player. For example, CA-based design methods are often used in historical simulation games like *Civilization* and city planning games like *SimCity*. *The Sims*—a popular CA-based simulation game that involves managing the lives, spaces, and social interactions of simulated humans—has been utilizing mechanics derived from the *Game of Life* and other explorations of evolutionary AI since its inception at the turn of the 21st century. In many regards, the gamification of everyday life reflects the situation of *The Sims*. Entities that design and implement gamified spaces for players aim to observe how players, which are basically living *Sims*, react in different situations. Living players, who act the part of CA, are invited to explore and use a gamespace to reap rewards such as points, badges, content and levels. Gameplay, facilitated by a ludic interface, is the primary mode of motivation for the cells (i.e., players) to move about in the created gamespace. If enough

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58 *Game of Life* is an example of ergodic literature, or literature that require nontrivial effort to traverse or navigate that text (Aarseth, 1997). *Game of Life* is a primary example of Aarseth’s (1997) notion of “story-living,” a narrative that is somewhat self-perpetuating. While *Game of Life* will operate by itself once set in motion, it requires the player to define the rules by which the simulation runs. Tweaking these rules results in different generations of life forms and ecosystems generated over the course of play. *Game of Life* represents the thin line between simulations and games. In *Game of Life*, one plays *with* the simulation, rather than engaging in the simulative process itself. Both simulations and games are referred to as “fictionings of the future” by Crogan (2011). Galloway (2006) refers to historical simulation-based games as algorithmic reformulations of the past. In all cases, simulations and games are only slightly different—one is “serious” and the other “playful...” A game requires constant input in order to create a narrative, while a simulation only needs rules to project probable outcomes. Gamification lies somewhere between the two.
cells are active, then the formation of new players, and their eventual actions within the
gamespace, can be predicted over time.

Gamified spatial simulations like *Ingress* work in concert with a seductive GUI to aid
in mapping gamespace through rule-oriented movements. The contextual data of tracking
player movements through space can also be manipulated via game mechanics, as we see in
*Game of Life*. *Game of Life* represents the opposite end of the cybernetic loop that began by
interactive GUIs and surveillance-oriented GIS systems like radar—it is a simulation that
produces predictability on a large scale, but on a smaller, cellular level it relies on seemingly
random combinations. For example, when a player zooms into a small section of *Game of
Life*, the interactions between CA seem frenetic and unpredictable. However, when zooming
out one can see that *Game of Life* almost always produces a predictable pattern on the large
scale. This is what makes gamified applications useful to marketers and researchers who
collect data from applications like *Ingress*.

Gamification relies on seductive mechanics mediated by GUIs to project randomness
to players, thus motivating them to produce the data that, on a large scale, is predictable. For
example, players who log into *Ingress* will see new portals, new players, and new obstacles.
The seemingly randomized logic behind cellular behavior in *Game of Life* represents a direct
link to the maintenance of protocol through creating protocological behavior. In the case of
spatial simulations case, coded CA explore spatial contingencies before people do. *Game of
Life*, by instantiating a visual MAS via a ludic interface, is a precursor to the “life hacking”
techniques embedded in modern gamified architectures such as fitness monitors—it aims to
explore and display *all* options players can take before they become actions. Games and
gamification cannot exist without the biological principle of play; simulation, on the other hand, utilizes game theory and mechanics but it exists without play. Rather, simulation focuses on interplay—or the interactions between modeled agents. For example, in *Game of Life*, game mechanics themselves drive simulative functions of the system. Once set in motion, CA will not stop until they either die out or reach a state of inertia.

![Figure 4](image.png)

*Figure 4: Game of Life running on an early computer, circa 1970. Left to run, the screen will eventually fill with a thriving digital 'world' complete with autonomous cellular agents (Source: Wikimedia Commons).*

Humans are not quite as tenacious as automata; they require a reason to interact with hard agents such as game mechanics and software systems. While *Game of Life* is technically a simulation after the rules are set in motion and cells begin to live and die, gamification relies on the movements and motivations of living players to sustain the life of the application and environment. This is why gamification requires a seductive ludic interface in
the form of a GUI, often supplemented by tracking mechanisms provided by GIS. Players must be motivated by self-contextualization over the course of play while also providing structured spatial data to the parties funding the gamified system. The recorded results of play in gamespaces often have the same usefulness as a simulation—they contribute to increasingly accurate of models of playful possibility.

A mentioned in Chapter 3, the network-altering practices linked to simulation and gamification lack outright force in the transmission of knowledge and the modulation of power (Galloway, 2006; Galloway & Thacker, 2007b). While coercion may still be present in some forms of protocological control by setting limits on possible behavior (Galloway & Thacker, 2007a), as both Huizinga (1950) and Caillois (1961) have noted, coercion cannot coexist with play. A correctly implemented simulation must freely model all possible futures; coercing variables in simulation erases the use-value of that simulation since it presents a biased view of what might happen in a given time and space (Pias, 2011). Similarly, you cannot force a player to play a game because play cannot survive under coercion. While some games may be used, such as in education, they do not necessarily result in play. Force erases ludic protocol by removing the contingencies needed for play; force subsequently terminates gamespace, as well. Gamified environments are forceless, affective and protocological spaces of control whose end result is the production of data for successful modeling. All gamespaces rely on both simulative properties and seduction as modes of non-coercive power, primarily via the architectural processes involved in seduction.
Gamespace and Seductive Network Architecture

Ludic interfaces and GUIs are designed to motivate engagement with games and software based on architectural principles (Aarseth, 1997, 2001; M. Fuchs, 2012; Kitchin & Dodge, 2011; Silver, 2009). They embody and direct the agency of players within their respective simulative spaces. Like social space, “social interfaces” enable spatial relations of production (de Souza e Silva & Frith, 2011). For example, Foursquare and Ingress are both simulation-driven locational applications; however, players must engage directly with the ludic interface of their respective applications in order to interact with each other via gameplay. Foursquare, in its original format, is a different gamified application than Ingress. In it, players could publicly check in at locations and add users who also frequent the same locations. Players could get badges for discovering new places and receive reports on how many times they visited a location. They could also compete with friends for check-ins and badges. Additionally, players who spent time in specific locations can be crowned “Mayor,” creating friendly competition. The Foursquare API also drives other gamified applications

Social space rearticulates the proposition space is not an abstract mathematical entity—it is socially constructed and consists of physical, social and material relationships (Lefebvre, 1991; Soja, 1989). Social theorists who deal with space advocate a variant approach to interpreting modernization, one that does not that focus exclusively on connections and disruptions as they occurred in time; rather, social processes are seen as occurring through both space and time, with each affecting the other (Soja, 1989). Henri Lefebvre (1991), states that even mathematical space was subject to the social understandings of people at a certain time in place: “If space is a product, our knowledge of it must be expected to reproduce and expound the process of production. The ‘object’ of interest must be expected to shift from things in space to the actual production of space...” (pp. 36-37). Lefebvre views space as integral to the circulation and reification of the capitalist system, specifically space acts as a key player in the circulation of power. He argues: “(Social) space is a (social) product [...] the space thus produced also serves as a tool of thought and of action [...] in addition to being a means of production it is also a means of control, and hence of domination, of power” (Lefebvre, 1991, p. 26).
such as Cashsquare, a Monopoly-like game that allows players to “buy” real-world locations and then generate digital cash based on check-ins at those locations.

Interestingly, Foursquare recently abandoned many of its core game mechanics and split into two separate applications with disastrous results. In a massive 2014 update, Foursquare’s development team changed the game-like aspects of its application. They created a new social application called Swarm to appeal to people’s social networking impulses. This left Foursquare, while still hosting some game mechanics, to become more focused on location-based advertising and searches. Gutting the social game mechanics of Foursquare is turning out to be a mistake. Users who enjoyed the game mechanics are abandoning the application in droves. Interestingly, the lack of game mechanics in the “new” Foursquare has reduced the motivation to use it (Hu, 2014). The part that seductive mechanics play in an application’s success becomes starkly apparent when a gamified application attempts to abandon them.

In the original Foursquare, nobody really won, but the mechanics were aimed at continually driving social and spatial traffic. In both its iterations, Foursquare is aimed at social networking while Ingress uses gameplay to solve complex locational problems. The network architecture of each ludic interface determines what types of gamified activities players participate in. While a Foursquare player and an Ingress player might be the same biological individual, and the spaces they play in might overlap, they are radically different agents in iterations of gamespace. The network architecture of each ludic interface creates a separate player tied to irreconcilable gamespaces that may cohabitate but never coexist.
Because gamified ludic interfaces rely on finely tuned design choices to produce biological and spatial capital in the form of data, architectural analysis serves as a starting point in examining the construction of gamified environments. Architectural theory is important in the development of modern software and game design, and game design engines are equally contributing to revolutionary approaches in architecture (Cruz & Colletta, 2008; de Kerckhove, 2001; Levy, 1997; Paterson, 2007; Schmitt, 1999; Vella, 2007). For example, games utilize architectural principles to design levels while architecture itself uses game mechanics and game-like MAS to design and test 3D spaces before they are erected (Paterson, 2007; Vella, 2007). Because game engines, such as the Unreal engine, are able to structurally represent architectural spaces and then fill those spaces with active agents, they are ideal to test structures out as “games” before construction commences (Vella, 2007). One might say that architecture itself is being gamified from the inside out—it relies on the ludic properties of game engines and mechanics to generate and test designs used for non-ludic outcomes.

The emergence of digital, “deconstructive” architecture in the form of spatialized interfaces is paramount to the creation of heterogeneous spaces (Johnson-Eidola, 2005a). In other words, digital architecture—via game engines and mechanics in addition to quotidian software—determines strategies present in a space before that space is implemented. Architecture and spatial arrangements are frequently designed around technology, rather than the other way around. Additionally, spatiality is increasingly mediated and influenced via the presence of digital applications that coincide with the spaces inhabited—a process known as “net locality” (Gordon & de Souza e Silva, 2010; Gordon & Manosevitch, 2010; Gordon,
Schirra, & Hollander, 2011). These digital-physical spaces, known as “hybrid spaces,” are created when the digital, social, and physical aspects of a space are so entwined that they cannot be separated (de Souza e Silva, 2006). If they are altered, then the space itself is altered, as well.  

Interfaces, especially GUIs, are the architectural framing techniques of digital and hybrid spaces (de Souza e Silva, 2006; Silver, 2009). Like architecture, interfaces territorialize digital spaces physically, digitally, and discursively (K. Dovey, 1999; Johnson-Eidola, 2005b). In all design-related disciplines, architecture serves as a meta-discipline—it plays a major role in producing and modulating rhythms in the everyday lives of individuals (Lefevbre, 2004). Its reach extends to the design of software, specifically software that represents or embodies space, such as GUIs and HUDs. As noted in previous chapters, everyday life increasingly involves a collision and collusion between ludic, digital and physical spaces (de Souza e Silva, 2008; de Souza e Silva & Hjorth, 2009). However, physical space is increasingly dependent on software for implementation, support and general use value (Dourish & Bell, 2007, 2011). Space and code are increasingly inseparable (Kitchin & Dodge, 2011), and this is the rule rather than the exception in gamified 

60 An example of a hybrid quotidian space is an international airport. If digital representations of objects and spaces are removed, such as air-traffic controls, the airport is no longer functional. However, any gamified environment that relies on geolocative technologies is hybrid. Removing those technologies removes the basis for the game mechanics and logics, subsequently destroying the game and the gamespace.

61 Framing involves altering code within a space. Designed structures “frame” spatial perceptions. The architecture of a space tells the “narrative” of that space, and in the case of physical structures, we read these frames as spatial texts (K. Dovey, 1999). The literal and figurative meanings of architecture converge in the concept of framing. As a noun, a “frame” is an established structure or order. As a verb, “to frame” denotes creating borders, striations and ways of seeing. Framing is a concretization of spatial identity; however, framing also implies the alteration of coded structures within a space. Framing through design physically alters space, spatial perception and any movements, digital or physical, through the space. Architectural framing is a way of altering all structure-oriented spatial codes, whether that code is physical, digital or hybrid. For architecture, a designed structure’s iteration of power is channeled through framing.

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environments—the architectural qualities of a gamified ludic interface determines what connections players can make within a gamespace.

Issues concerning the role of design and network architecture are particularly relevant in understanding why certain iterations of gamification are successful while others are not. The network architecture of a gamified space determines how, when and where a player is allowed to circulate within a given space. Mechanics—which provide affordances and constraints that encourage and reward efficiency—act like walls, corridors and doors. They herd the player towards sets of goals and provide choices on how to reach it. Like architecture, gamespaces have an odd relationship with power—they run parallel to the realm of disciplinary power structures yet they actively engage in a form of procedural control.

Gamification occupies the same positions as architecture when it comes to the circulation of power—“power through”62 rather than “power over.”63

One key conceptualization of “power through” is seduction: the “highly sophisticated” mode of sublimating the desires and interests of the subject with regards to control (K. Dovey, 1999). It is most often associated with advertising spaces (Baudrillard, 1981a) and gamespaces (Galloway, 2007). Perhaps because of its game-like nature and

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62 “Power through” in an exercise in control that uses design to produce spatial frames simulating freedom of choice (K. Dovey, 1999).

63 “Power over” is typically the most widely studied from of power in sociology. Power over includes “force” and “coercion” (K. Dovey, 1999). Force implies the overt use of power to strip a subject of any means of noncompliance. In the case of physical structures, force manifests itself as either confining structures (prisons, asylums and refugee camps) or exclusive structures (fortresses and gated communities). However, in the context of architectural design, it is people who exert power over others through architecture. Similarly, coercion is defined as the threat or possession of force to ensure compliance (K. Dovey, 1999). There are also more subtle forms of spatial coercion linked to the Latin coercere, which means “to surround” (K. Dovey, 1999, p. 10). In this manner, observing space is a form of coercion. Still, when designing for spatial coercion through surveillance, surveillance is the primary coercive mechanism. Architecture supports surveillance, again granting ‘power though’ rather than exerting ‘power over’.
ambiguous morality, seduction is viewed negatively by many architectural critics. K. Dovey (1999) employs a quote by cultural critic Steven Lukes (1974) to excoriate seductive power:

Is it not the supreme and most insidious exercise of power to prevent people, to whatever degree, from having grievances by shaping their perceptions, cognitions and preferences in such a way that they accept their role in the existing order of things, either because they can see or imagine no alternative, or because they see it as natural… (p. 28).

Seduction operates by channeling desire as a “natural” resource. Seduction is about longing for beauty; however, like Narcissus’ myth implies, seduction is also about transferal of human agency and (eventually) life to a series of objects and simulations that affirm our perceptions (McLuhan, 2003). Objects and simulations frame life and beauty, holding it in evaluative stasis even as “the original” fades; thus, all designed objects have seductive potential.

Seductive power can be modulated through the *Utilitas* (commodity) and *Venustas* (delight), two canons of architecture laid out by the Roman architect Vitruvius (Bruegmann, 1985). Commodity deals with how structures meet the end they were designed for. However, structures are also judged based on the values of the ends themselves. For example, while Auschwitz may have been a triumph of design efficiency, it will never be considered a triumph of *Utilitas*. Bruegmann (1985) states that one aspect of commodity implies functionality, while the other implies moral and conceptual formations: “both spring, and spring inevitably, from the link which architecture has with life” (p. 3-4). However, the most powerful and intangible architectural link to seduction is *Venustas*—the element of “delight.”
Delight and seduction, in this context, are positive forces that are attuned to affect, play, and sensuality (Grosz, 2008). Delight is playful—it is a world-building activity that does not rely on coercion. Seduction and delight are also commensurate with desire, or generative power without force. For example, Bruegmann associates Venustas with desire and a search for beauty.

The productive tensions embedded in Utilitas and Venustas illuminate the spatial aspects of Baudrillard’s (1979) concept of both seduction and simulation as dovetailing concepts: Seduction and simulation occupy the same cultural “space.” Both are rooted in desire: simulation in a desire to know the future and seduction in a desire to live the present. Like simulation, seduction has no stable form; rather, it inexplicably works with or against established order based on its own logic. Acting as the gatekeeper of possibility, seduction and desire borrow from commodity to obscure or illuminate what is possible. However, seduction is also actively modulated, directed and actualized through the commodification of possibilities. Seduction is self-referential and steeped in the human urge to be pulled in and guided by the signification of beauty and completion (Baudrillard, 1979). Like simulation, seduction neglects force—desire is necessary for seduction, simulation, reproduction and play. In gamified hybrid spaces, both commodity and delight are leveraged for control, rather than force. The ludic framing of everyday spaces create gamespaces the require mechanics to operate—in turn, mechanics must have players to manifest. For example Foursquare, after it abandoned its cherished game mechanics, no longer provides the ludic framing device it once did. While commodity is still present in the new application, seductive delight is absent. The result is a decrease in player motivation to engage in social and spatial actions through the
application. The playful, seductive and profitable world *Foursquare* once gifted to its users has become decidedly quotidian and may cease to exist altogether.

*Foursquare* is in danger of losing its primary meaning without play. Similarly, Jacques Derrida (1966) points out that playful qualities of language allow the formation of “the event,” and that events themselves require play to maintain any meaning. Linguistic aspects of culture, then, are a series of very serious games that are being played. This same viewpoint is echoed for spatial formations, which embody structural agency, by architectural theorists like Brian Tschumi (1996), who points out that architecture is the physical embodiment of the event—network architecture informs and frames the physical, non-discursive aspects of designed spaces. It is the architectural qualities of games, and thus the architectural qualities of desire, that frame play. Somebody didn’t give *Foursquare* the notice. The network architecture of games also allows us to reject the actual in favor of what is possible and visa-versa.64

Play and desire are always generative; thus, desire and play naturally beget more structures, more games, more objects and inevitably, more complexity. More complexity, in this case, is not always synonymous with more freedom. However, as Hays (2009) points out, architectural freedom (like “freedom” in a gamified environment) is a matter of perception. Seductive design choices are aimed to create delight as expressed through spatial arrangement, and thus it commoditizes and controls spatiality via sleight of hand. In other words, seduction obscures commodity with delight, while channeling delight to produce new

64 Huizinga (1950) states games act as ritualistic explorations of cultural possibilities that appear to be “outside” of culture. However, a better term would be “parallel to culture.” Games explore and channel play, and the possibilities it contains, as a sort of cultural laboratory.
forms of commodity. Seduction, which is epigenetic, is based on the transformative process of channeled desire. For example, once an Ingress player completes and goal, new goals are created based on that completion. As the player progresses, the levels and goals of Ingress change to meet her progression, providing a never-ending negotiation of prolonged desire. Over time, the physical spaces will change to support this negotiation, and the user’s perceptions of these spaces will be altered, as well. Dourish (2007) points out, one aspect of ubiquitous computing is the tendency of physical paces to mold themselves in support of informational infrastructure, rather than the other way around. Seductive network architecture, whether inscribed through a ludic interface or a building, always implies that a game can be played. However, seduction stops at implication. Seduction is not the game; it only signifies the possibility of a game (Baudrillard, 1979). For example, Foursquare does not identify itself as a game; rather, it is a location-based social application. Still, there are numerous game-like elements in Foursquare—ones that utilize seduction to circumvent the quotidian nature of social apps while still marinating non-game status. Adding numeric values to friends, adding titles and progression to the player’s account, and adding the use of avatars and icons all smack of game mechanics. Foursquare’s commodity values are providing the possibility of a game to players, while also removing itself from the ideological aspects of gaming (a separation from “reality”). It utilizes seductive design as a potentiality, not an ultimatum—the mobilization of play is the primary goal of game mechanics. The player, acting on desire to actively consume and commoditize space, is enabled to play. Motivation and desire, in the case of gamified environments, is more than just a marketing
goal or a cognitive *clin d’œil*: It is a necessity for actualizing the potential of seduction on a spatial level via the ludic interface.

In the previous version of *Foursquare*, players could compete for expertise on a specific location (a “mayor” is a person who has checked into a space more than others). The social capital imbued by a mayoral badge only pertains to other players of *Foursquare*. The social capital and game capital accrued by players in the battle for mayorship was the primary seductive mechanic that encouraged multiple visits to a location. The badge signified expertise, and it also made a person recognizable as an expert on a specific location. The mechanic was aimed at directing other players to seek information from the “Mayor” of a location if that player was present, and thus increased the rate at which a *Foursquare* player could create new connections. The mayoral badge was an integral part of *Foursquare’s* former gamified ludic interface—it was directly tied to both the GUI of *Foursquare* and the spatial mechanics the GUI represents and facilitates. By embedding a badge-oriented mechanic into locations, *Foursquare* creates a separate context for visits to that location. What was once a coffee shop or museum becomes a node for accumulating points. Points for players translate into economic capital for the designers of *Foursquare*. By offering location-based mayoral badges, a store can theoretically drive traffic to its geographic location by utilizing the mechanics of *Foursquare*.

The mayor badge is just one example of how gamification must pull, rather than push, players into action. Gamified applications must also keep players in action. Seductive network architecture suggests that almost any space can *become* a gamespace if the right frames are applied. The ludic interface, as it applies to gaming and gamification, always
contains some form of seductive architecture—after all, playful protocol always generates more playful protocol (Galloway, 2006). Seductive architecture drives the design of the GUI and the creation of the hybrid (game)space; it also sustains game mechanics embedded within the space, thus ensuring the space’s continued existence. Players, if they are to remain players, must be able to engage with game mechanics and serve the logic they represent—all player activities must embody the game via instrumentality. Without mechanics, gamified spaces are merely quotidian spaces and gamified apps are reduced to services. In this situation, players become users and gamified hybrid space ceases to exist. Gamification must produce play, and play is necessary to support “players” as a subject category. Because players are the primary means of producing capital and data, seductive mechanics must always be present to draw players into the game space and reward them for participating—players must desire to become instruments of the game. Gamified applications use seduction to create a gameplay where there previously was none, and this is the key: Humans, in the end, are always for play. Gamified design’s use of seductive architecture seeks to give people more of what they want. As opposed to drudgery, gamification presents an altered version of everyday life. But gamification is fragile: Without mechanics it does not exist. Foursquare’s changes and subsequent decline are a stark representation of how a game space is not able to survive once seduction ceases to exist. Utility, it appears, is not enough.

In this manner, seductive architecture, operating via the gamified interface, always embeds the potential to alter an environment in favor of play. Foursquare and Ingress players can just as easily navigate spaces for quotidian rewards; however, they choose instead to use gamification to transcend the ordinary, to alter and upend quotidian spaces.
The answer to why this extraneous layer is needed has vexed biologists, metaphysicians and social scientists: *why* play? Gamified design and the resulting applications embody this question because they attempt to harness ambiguity for the purpose of clarity and promote desire for the purposes of control. Gamified design uses ambiguity in order to drive its living simulations. Because of seduction’s complicit relationship with playful desire, seductive ludic interfaces induce the evolution of gamespace. Without seductive frames, the mechanics of *Ingress* and *Foursquare* hold no power. The usefulness of gamified design relies on its ability to suspend players in a playful, behavioral, and spatial loop, to keep bodies in motion within space. For these purposes, it borrows directly from spatial simulations like *Game of Life*, whose evolving world reveals the ways in which protocol generated through gameplay will develop. These protocols ensure the creation of gamespace.

**Gamespace: Desire, Space and Simulation Collide**

Gamespaces always inhabit the liminal spaces between what is actual and virtual—there is constant tension produced via the player discovering what can be altered within a space. Gamification relies on playful actualization as its business model—it produces capital by mapping players’ collective behaviors by converting everyday spaces into spaces where simulation is a foregone conclusion. Thus, gamified spaces are gamespaces, albeit modified ones. Gamified environments host gamespaces that tend towards complete monetization and full-blown simulation using living actors. A gamespace is determined by its network architecture, not its ethics. The primary difference between gamified spaces and traditional gamespaces is simple: **gamified spaces always seek to alter existing spaces by modifying**
possibilities, while traditional gamespaces create new spaces and possibilities. For example, a utilitarian social space like a dog park exists before Ingress; however, gamified applications grant new, gameplay-oriented contexts to these spaces for the purposes of monetized simulation. While an LBMG might also alter the dog park, the park takes on an entirely new meaning distinctly related to the game. Ingress, beyond gameplay, produces useable data. Ingress makes the park a central resource node, a space that hosts embedded mechanics that identify the space as gamespace. Rather than simply being layered onto the park, Ingress decontextualizes the park itself for players, who may or may not be there to walk their dog—but it does this to complete a goal beyond that of a game.

Games are self-referential in their use of seductive architecture; Spacewar and Pong both aid in producing new spaces that only have meaning in the context of gameplay. However, the seductive architecture in the gamified environments of Ingress, Strava, and Foursquare transforms quotidian spaces into playful ones by way of motivating playful behavior. These applications do not have their own spaces outright, they merely alter the purpose that each player has within their previous space. While the physical context of the space still exists, that space cannot sustain players without the embedded game mechanics.

In reality, gamespaces are, and have always been, spaces where the possibility of gamification exists. Because play, as covered in Chapter 2, has the ability to take many forms, it stands to reason that at any point it can be monetized as a motivation-oriented resource. Ingress, for example, is very close to a game. Without surveillance and locational data mining for the purposes of simulation, it would simply be a gamespace. Locations, like the dog park, would be decontextualized in the service of self-referential play. However,
Google’s aims exceed self-referentiality—the spaces where nodes are placed are strategic. They are monetized and simulation-oriented. Gamespaces expand network architectures where ludic connections can be formed. Gamification (re)actualizes already existing connections in favor of play—i.e., space is converted and then expanded upon in favor of playful interactions. *Ingress* and *Foursquare* both convert everyday social interactions and movements into context-driven actions. The new contexts in spaces that host gamified mechanics are gameplay-oriented, such as collecting resources or competing with friends for check-ins and badges. However, gamification also channels play towards non-ludic outcomes—in short, gamified applications continually use data generated through gameplay to produce capital and inform real-world decision making. The game mechanics that harness play as a state of being (e.g., surveillance) are also spatial mechanics that aid in reworking a space’s network architecture (i.e., gamespace).

*Strava*, for example, is a social biking gamified application that relies on aesthetic, simulated space to thrive. Its playful interface aggressively reframes the player’s riding experience via seduction and ludic framing. Ward (2014), a cycling blogger and self-identified “*Strava* cycling addict,” states his cycling experience was irrevocably altered via game mechanics. Specifically, Ward cites mapping his actions in coordination with others led to a new perspective on his hobby. He was able to track his own progress by monitoring other players’ times via lateral surveillance.65 This live mapping process encourages riders to

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65 Ward (2014) states, “I discovered one of *Strava*’s many clubs. I could join and compare my performance against other members. I should have just ignored it, and continued as before. Stupidly, I didn’t, and too late I realised (sic) that my regular, innocent fix of data about my day’s bike ride had actually been a gateway drug to
modulate their behavior based on the location-based digital information tagged by other players. Players also create narratives based on the frames generated by locational information which is, in turn, generated via play (J. Dovey & Kennedy, 2006). Both perception and narrative contribute to the overall network architecture of Strava. This is a key example of why symbiotic architecture is necessary for gamification: Without gamespace, Strava and its hybrid riding spaces cannot exist. Playful, competitive hybridization changes both the act of cycling and the everyday spaces in which cycling occurs via recorded movement through gamespace. Like all gamified hybrid spaces, Strava embodies the possibilities inherent in gameplay by leveraging space. As a gamespace, it also models how capital can be produced via playful mobility.

Strava straddles both simulation and gaming in a manner that utilizes space, self-archival, digital rewards, predictive mechanics and competition to produce a wealth of information of biking cultures across the globe. Inevitably, Strava also increases the predictive capacity of consumer simulation based on spatial data: Where people bike, what groups of people bikes together, the demographic stratification of these groups, the equipment they share with the app and the general daily social habits that identify Strava players as “bikers” are all integrated into a massive database. Some of this data is fed back to bikers, allowing them to monitor themselves and others, but most of it is used to improve the predictive capabilities of the system. This may be internal (for instance, providing

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something far more addictive – a big, shiny league table in which the position of your name is determined by how many miles you’ve logged. Usually as competitive as a cabbage, I suddenly wanted to be top of the league. Now, instead of merely uploading my data, comparing it with the previous day’s and then logging off until my next ride, I have become obsessed not just with my own performance, but those of the other 60-plus members of the club.”
meaningful updates based on player usage), but it also has the ability to reach much further than the application itself. Like other gamified applications mentioned in Chapter 3, such as MapMyFitness, Strava can easily provide a wealth of targeted locational and personal data on individual bikers and small, location-bound groups. In turn, Strava also creates and manipulates the social mechanisms these groups operate by bringing Strava to the forefront. Thus, it also retains the capacity to change the spatiality of these groups by altering the use of the software and the ways in which space is represented digitally and physically.

For Strava, Foursquare, and Ingress, location is inseparable from identity—in the collective map created by these applications players embody a living simulative space. Without players actively creating, exploring and differentiating gamespaces, games and gamification cannot exist. One major ideological aspect of gamification is that play should be an “everyday” state of being—people construct gamespaces and their identities within them as they go about everyday life. Everyday spatiality is a vital component of gamification’s use value—the mapped, charted movement of virtual-actual bodies and entities through space-time serves as the basis for biopower (Foucault, 2007a), simulation (Pias, 2011) and the “uneven spread” of capitalism itself (Harvey, 2006). Gamified spaces like Strava are modified gamespaces—they are spaces in which play has the possibility of occurring. Also like gamespaces, they are also spaces in which play is actualized. If we apply this to gamification’s conceptual grounding, “life-as-play”, then all spaces are possibly gamespaces and all gamespaces can be monetized. Gamification and games both have a part to play in reframing everyday spaces. Both rely on gamespace, and gamespace relies on the contextual
actions of players. However, while games can be free, gamification requires that gamespaces produce constant capital through play.

Gamespaces, converted from quotidian spaces, are the end result of gamification’s efforts to spatially harness desire, design, and simulation. It is the collective mortar that holds the bricks of mechanics, logics, and players together. Players, in order to exist, rely on mechanics. Mechanics, in turn, rely on the continuity of gamespace. For example, Ingress augments quotidian city space with resource nodes, which must be controlled by players. These nodes previously existed in physical space: they are monuments, statues, restaurants, and dog parks. However, their quotidian meanings are altered by Ingress’ mechanics—because locations are subsumed into a battle for resource control, they create a networked space where players find context in their movements and actions. In turn, these contextual movements fuel Google’s advanced simulation, which creates capital. Gamespaces rely on seductive network architecture to motivate players, forcing them to adjust to constant changes in the gamified environment. The more players adjust, the easier it is to predict the ways in which adaptation is possible; just like in Game of Life, chaos and complexity yield more accurate results.
The process of creating monetized gamespaces that double as living simulations lies between the seduction of gameplay and simulation-oriented modeling and surveillance. Gamespace can produce a myriad of rapid, procedural experiences and affective qualities that make simulations inherently ludic—a player in Ingress must find the quickest routes to nodes, routes that change depending on the locations and actions of other players. Tactics can be repeated based on the player’s mental model of Ingress’ map, but even master players do not yield exactly the same results on subsequent attempts to find and link nodes. Gamespaces evoke a preoccupation with the immediate consequences of future actions. Play results in a mindset and general state of being that is attuned to possibility rather than what is currently actualized (J. Dovey & Kennedy, 2006; Sutton-Smith, 1997). Thinking ahead is a requirement for all games, the human players must always be in the process of simulating
possible outcomes in order to make a move—not inferring the future probability of an enemy player’s movements usually results in a “Game Over” screen.

This future-mindedness is the progenitor and result of simulations and games (Baudrillard, 1979). In turn, it also begins to answer the question posed early in the introduction of this dissertation, “why play?” Why use an ambiguous act, so divested from control, for the purposes of control? The short answer is that play, when harnessed and directed by games, produces useful algorithms (or mathematical functions that use probability to solve problems). Algorithms inform the development of protocol on computational and evolutionary levels; they power Google searches and they control the ways in which DNA combine. They are also the basis for any successful simulation. Because play produces a wonderful array of algorithms when parsed through game mechanics, it is a perfect technique for driving a living simulation, with players acting as models. This provides a method for gamified app developers to “solve” a problem using gameplay. Essentially, gamification is game theory removed from “theory” and inserted into everyday life. Gamespace provides the context for how and why these algorithms are produced. In gamified environments, players walk a fine line between simulation and gameplay—a line that gamified applications gleefully appropriate for capital. Baudrillard (2001) saw Kasperov vs. Deep Blue as an exploration into the troubling connections between play and simulation, with the computer opponent doomed to play at the best of its simulative abilities: It could only move based on the best possible future. Similarly, as humans are forced into increasingly simulation-driven frameworks, life itself becomes a negotiation of extremes used to yield a set of probable futures.
Like *Nimbi*, gamification seeks to create an unbeatable game out of everyday life, one in which the context and results are forgone conclusions. The drudgery of play in this manner is not apparent to players, who experience something new with each play session; however, to those with the ability to see the bigger picture, gamespaces produce fertile grounds for effective and profitable simulations. However, games are also self-referential in their future-mindedness. Once a finite game ends, the process is reset. Gamification does bank on finite manufactured futures: It strives to create a reality where any future is already accounted for through gameplay. In a counter-logical fashion, gamification uses game mechanics to divest movements and spaces from quotidian origins to better predict the paths that everyday life produces. *Ingress*, after all, is an exploration in predicting how and why pedestrians move in the ways that they do, and *Strava* seeks to account for the collective behaviors of bikers. Pias (2011) notes that, ironically, the more divested from reality simulations are, the wider and more useful their models of the “real” become.

Simulation actually needs to be divested from reality to produce a more realistic model because simulations process reality as integral (Pias, 2011). Gamespaces embody this function, and like *Game of Life*, they consistently produce evolutionary algorithms that can be converted into future capital. From an evolutionary standpoint, Stephen J. Gould (1996) states that simulation, play and games are valuable because:

Evolutionary potential for creative responses requires that organisms possess an opposite set of characteristics usually devalued in our culture: sloppiness, broad potential, quirkiness, unpredictability, and, above all, massive redundancy. The key is flexibility, not admirable precision (p. 44).
Gamification, through its use of gamespace, thrives on creating abnormal, creative, redundant and unpredictable actions. Gamification relies on quirky redundancy to track and trace the evolutionary paths of players as they proceed with individuation via gameplay. Altering spaces in favor of desire produces behaviors, but the behaviors are only useful when there is a collective space to contain and contextualize them.

**Conclusion**

This chapter explored how gamification alters, frames and constructs gamespace through simulation and seductive architecture. It also proposed that gamification straddles two formerly separate categories, games and simulation, in order to create living, monetized gamespace that work to harvest and monetize data. It utilizes two primary methods: seductive delight imbued via the gamified interface and simulation-oriented surveillance of gamespace. It also draws from predictive simulations like *Game of Life* and movement-oriented games like *Spacewar*.

Because of its focus on producing capital, gamification draws from simulation. Gamification’s debt to delight and aesthetics is skin-deep. Using an interface to embed game mechanics into everyday spaces motivates players in performing certain behaviors. At its core, gamification uses a GUI to help guide living players into acting as cellular automata, or agents for whatever simulation the gamified application’s logic serves. Rather than stubborn interiority, the hallmark of finite games like *Spacewar*, gamification generates knowledge and power by altering everyday spaces into gamespace.
Gamification’s ability to colonize quotidian space in favor of simulation marks it as a possibly dangerous technology; at the same time, the discourse surrounding gamification rejects force and domination. One thing is clear: Gamification only survives via the movements of players. These movements, like the cells in *Game of Life*, create and sustain monetized gamespaces. The question remains, still: “Why play?” In Chapter 2 we saw that play is rather difficult to pin down; it inherently resists control. Gamification, as noted in the introduction, attempts to nullify this by using “anti-gaming logics.” But will these measures be enough to sustain a game that is not quite a game? In the conclusion, I address what the future of gamification might be. While gamespaces can be profitable, they are also inherently unstable. Gamification shies away from acknowledging itself as a game. Rather, it only uses small components, strategically placed, to motivate end-state behaviors. At the same time, when play becomes an outcome, ambiguity and unpredictability will ensue. How gamification deals with this ambiguity will determine its future as a set of effective design practices. This dissertation answered four key questions about gamification: (1) what place does gamification hold in relation to games and play? (2) What are the conditions of knowledge/power that enable gamification? (3) How is gamification materially and socially instantiated through gamified applications and uses? (4) What are the historical precedents to gamified applications and gamification, in general? Each of these questions leads to a much larger one: “What is gamification and why is play singled out as technique for control?” In the introduction to this dissertation, I proposed that gamification is a new take on everyday life, one that embraces playful-but-serious surveillance and introduces new
protocological mechanisms that seeks to redefine the categorical position of “player” as a commoditized subject that relishes control rather than resists it.

Gamification seeks to achieve non-disciplinary control by introducing game mechanics into non-ludic environments. The dissertation chapters have covered the discursive formation of gamifications in relation to games and play (Chapters 1 and 2), the theoretical lenses through which gamification can be examined (Chapter 3), how gamification monitors bodies, turning them into players (Chapter 4), and how it reframes the network architectures of quotidian physical spaces into monetized gamespaces (Chapter 5).

Currently, almost all research on gamification has focused on its definitional, practical or ethical concerns (Bogost, 2011; Dragona, 2014; M. Fuchs, 2014a, 2014c; McGonigal, 2011; Raczkowski, 2014a; Raessens, 2014; Paolo Ruffino, 2014; Schrape, 2014). However, scholars and practitioners know relatively little about the possible effects or consequences of gamification. Apart from a few attempts to historicize gamification (M. Fuchs, 2014b; Raczkowski, 2014a), research has yet to produce a definitive account of a practice that is anything but “new.”

This dissertation looked at gamification from a variety of angles concerning games and play. I constructed a genealogical history of gamification problematizing the more complex and vexing questions concerning gamification in relation to play, games, power, discipline, surveillance, and control. Enacting, designing and criticizing gamified applications is only one side of the equation. The other side of gamification involves play, a subject that is conspicuously ignored in much current research into both games and gamification. Play is, in many respects, a black box (Sutton-Smith, 1997). In practitioner-
oriented research, play is treated as fuel—the motivational force that drives players to
generate data (Zicherman & Cunningham, 2011). In ethical accounts, it is pure and positive
force that is being perverted (Bogost, 2011). However, play is far from positive or
motivational; it is also more than a natural, generative act. As suggested in Chapter 2, play
embodies epigenetic change. Looking at how play can disrupt, decontextualize, reframe and
even destroy systems bent on control, seductive or not, is paramount to understanding the
limitations to gamification. Harnessing play is rather like controlling lightning—it can be
done, but at great risk. Cultivating a better understanding of play may result in a better
method for designing and implementing gamified applications, rather than just focusing on
game mechanics, motivation or profit. Each chapter worked to examine gamification through
specific lens in order to divine what gamification entails and why play is used to skirt
disciplinary boundaries for purposes still utilizing surveillance, control, and simulation. With
this in mind, I sought to unify the current disjointed atmosphere concerning gamification in
media and game studies.

In Chapter 1, I examined how game studies literature can be used to stake out ground
for the study of gamification in terms of reality, simulation, power, ritual, and science. On the
one hand, gamification is treated as not having anything to do with games—it is an ethical
perversion (Bogost, 2011; Dragona, 2014; Schrape, 2014). On the other, it is lauded as using
games and play to circumvent intolerable labor and living conditions (McGonigal, 2011). It
is also a tool used for motivation, surveillance, and control—something proponents of both
approaches agree upon (Burke, 2014; M. Fuchs, 2014a; McGonigal, 2011; Paharia, 2013;
Whitson, 2013; Zicherman & Cunningham, 2011). I extricated gamification from this status
by applying critical game studies literature to propose that both games and gamification utilize power, control and production. Reattaching gamification to games and gaming provides a clear mode of studying it from the standpoint of game studies.

In Chapter 2, I examined the discursive formation of gamification in relation to play. Additionally, I laid out the history of gamification as a unique concept, and linked its development to the adoption of advergaming and LMBGs. Gamification currently holds a marooned status in game and media studies. It also clarifies gamification’s position in regards to play: Gamification is not a perversion; it merely focuses on often overlooked aspects of play—those aspects that deal directly with power, control, and progress. Instead of taking play at face value as decidedly free-wheeling act occasionally directed by rules, I pulled from multiple sources of literature beyond canonical ludologists to demonstrate that play has the ability to be just about anything (Baudrillard, 1979, 1998a; Spariosu, 1989; Sutton-Smith, 1997). It can be free, but it can also be controlling; it can be lucent or it can be Dionysian; it can build, but it can also destroy (Baudrillard, 1979, 1998a; Fink, 1974; Spariosu, 1989; Sutton-Smith, 1997). I resituate play as an ambiguous act informing everyday life.

Gamification does not eschew or pervert play, it simply acknowledges the aspects of play that concern power and progress. It skirts the boundaries between play, labor, and life. It is because of this boundary-skirting that gamification should come under close examination by game studies scholars. Gamification’s successes can be accounted for by viewing play as a liminal pursuit, one that is always tangential to what humans do but never a focal point. This ambiguity is what has allowed gamification to produce so much capital; players, who
may not even view themselves as such, are driven by mechanics to do what is natural: They play. I stated—alongside Sutton-Smith (1997) and Baudrillard (1979, 1998a, 2001)—that play itself is an ambiguous act, one that changes with the situational aspects of its deployment. At the same time, play also works to redefine situations: It creates new variables and contingencies for players to encounter and engage with. It is linked to both progress and power, and yet it has a curious, outlying relationship with both. It is this ambiguity in play that gamification exploits. However, gamification also relies on the boundaries between life, labor, play, power, and progress; the very boundaries it attempts to eradicate, thus creating a discursive quandary for itself. What happens when the boundaries between leisure, life, and labor are successfully overcome? This quandary is at the core of answering two prevailing meta-questions posed in the introduction to this dissertation—“What is gamification?” and “Why Play?” Gamification seems to be working towards an outcome—destroying the boundaries between labor and play—that would successfully eradicate its usefulness.

In Chapter 3, I looked at how gamification utilizes power in the form of network architecture to effect the subjects and environments it alters. I use the example of pet care to show that, when gamification is introduced, it redefines relationships, practices, and the situational context of actions in the course of everyday activities. By demonstrating this, I address the epistemological positions gamification creates—how and why it produces knowledge about subjects and environments. Contrary to traditional marketing logic, which only studies preexisting subjects and practices, gamification seeks to alter the environments where it is deployed. To address these issues, I argued that gamification can be viewed through a theoretical framework that emphasizes power/knowledge, network architecture,
and epigenesis. By adopting a framework that analyzes conditions of power, networks between human and non-human actors, and changes in both subjects and environments, I suggest that gamification is an ecological technique, or a technique that changes or remakes the identity of a network or space, aimed at both control and surveillance through the co-evolution of player and game.

When introduced into an environment, gamification changes knowledge categories and the conceptualizations of power. For example, my cat’s relationship with her owner and technology was reinvented when she was introduced to Games for Cats. Additionally, my own position as owner was brought into question: like my feline companion, I was also playing Friskies’ game. At the same time, it also turns subjects into players who can be reinvented every time a new game is introduced. Gamification tampers with entrenched circulations of power and knowledge where it is deployed. In doing so, it alters network architectures, inspires new protocological behavior, and reframes the environments in which it is deployed. In converting cats into players, Games for Cats creates new knowledge categories for both cats and owners, thus altering the network architecture of human-pet play. In addition, gamified applications alter the environments in which pet care happens. For example, Petcube expands pet-care from a direct interaction into one where remote care is a possibility. These changes in knowledge and environment alter pet and human behaviors, and the protocol by which pet care takes place. In turning subjects into players, gamification inspires a playful and disruptive instability in arrangements of networks and actors in an environment.
In the case of pet care, it gives pets and owners equal standing as players. It also exploits former positions of “pet” and “owner” by mining data on everyday life based on previously established categories—it gives marketers a tool for control and surveillance by literally redefining the process by which these categories are formed. However, when introduced into a formerly stable environment, gamification begins the process of epigenesis: biological, technological, and social actors are redefined. They must adapt to the new conditions of the gamified environment. Games and players are inherently unstable and tumultuous categories of existence. Players are constantly evolving subjects; they undergo a new process of individuation with each new game and play session. At the same time, players are reliant on the rules set forth by the game to maintain their categorization as “player.” They must undergo new processes of individuation, ones that never settle into a single pattern or mold, while also maintaining their instrumental status in the game.

Subsequently, the game mechanics must change, as well. Gamification creates its own epistemological issues: At which point do the former categories such as pet and owner—so valuable for the monetization of data—become obsolete? Despite this issue, gamification focuses on creating players to redefine, categorize, and surveille populations.

In Chapter 4, I support this claim by examining how gamification alters protocol within healthcare and physical fitness in search of producing healthy players. I argue that gamification is a biopolitical apparatus, one that seeks to manage and categorize populations. However, this categorization is never finalized; rather, it only serve as a set of mechanics that usher in new categories—a never-ending progression of levels and games that a player must master. I looked at the historical convergence of international health standards, wearable
technology, and games in physical education in order to trace how gamification alters modern health protocol. I also maintained that gamification’s primary goal is to motivate and facilitate multiple layers of surveillance in name of “health:” Players monitor themselves and others while also reporting their own pre-contextualized data to a variety of interested third parties. Gamification is not just about personal mastery, it is about mastery in general.

Identifying gamification as a biopolitical technique that operationalizes games as technologies of the self helps to advance previous arguments linking gamification and governmentality (Schrape, 2014). Gamification is not coercion, a point that is often overlooked in critical treatments of the practice (Dragona, 2014; Whitson, 2013). Because gamification urges players to willingly categorize themselves in the context of the game mechanics, gamified health protocol is a heavily diffused apparatus. Rather, it redistributes the onus of surveillance to the players themselves. Additionally, gamified health applications serve as non-threatening catalysts for accepting invasive technologies. By placing play at the forefront, gamification motivates players to support practices (such as wearing health monitors) that may have previously been seen as invasive. Gamified health applications motivate players to adopt devices and applications to form their own identity in the context of gameplay. Not only do they provide meaningful data to third-parties, they also provide a mode of intensive self-surveillance in the form of playful self-archival and lateral surveillance—thus shifting focus away from possibly invasive monitoring to play.

Finally, in Chapter 5, I positioned gamified applications within a playful history of space and simulation. This chapter maintained that gamification produces a vast set of living simulations in which players play the part of cellular automata in order to create and test new
modes of spatial protocol through maintaining monetized gamespaces. *Strava* and *Ingress* both seek to create two types of living simulations: The riding habits of the biking community and the decision-making process of pedestrians, respectively. I also analyzed the concept of hybrid space (de Souza e Silva, 2006) as a conditionality of gamification unique exploitation of gamespace.

The primary tool gamification uses to create these gamespaces is seductive architecture—a set of spatial and simulative design standards embedded in the interface of gamified applications that motivates players to engage in the simulation by embodying delight and commodity. For example, *Strava* provides a number of tools to help bikers quantify their daily activities as they pertain to biking by creating a competitive environment through GPS tracking. In turn, these results are also shared with third party entities interested in, among other things, the daily habits of bikers in specific geographic areas. In order to illustrate this process, I analyzed how gamification pulls from the history of spatial technologies such as radar (which sought to represent objects in physical space), graphic interface design (which sought to regulate how humans interact with computational technology), early games (which prized fluid human-technological engagement) and spatial simulation (which focused on the predictive capacity of rule-based protocological behavior) to create new modes of simulative spatiality—spaces that alter, monitor and direct the everyday activities of players who engage with them. However, by converting spaces into gamespaces, gamification is toying with the idea that spaces have any sense of permanency. While gamification seeks to model quotidian futures with certainty, it also creates a space where uncertainty must always be present and the future relies solely on the mechanics used
to sustain it. In other words, it is the mechanics that create the future being modeled. When mechanics change or shift, so do possible futures and models.

In addressing the two meta-questions—“What is Gamification?” and “Why use play for control?”—I reiterate two major points recurrent throughout these chapters. First, gamification initiates epigenesis using play—it sets off changes in environment, subject, and knowledge, and requires constant adaptation on the parts of players and game. Gamification require co-adaptation, when players adapt and master one set of mechanics and related technologies, the game mechanics must also change in order to ensure the continuance of play. Nothing kills a game faster than boredom. Thus, gamification invites and relies on instability in its mechanics and methods for control. It does this by adopting play, an unstable and ambiguous act, as a control mechanism. Second, because of its reliance upon play it is also doomed to self-obsolescence—gamification cannot obliterate the boundaries it relies upon without altering itself. Changes in the balance between life, work and play will also force gamification to evolve.

This partially answers the question, “Why play?” concerning the use of play for surveillance and control. First, gamification creates the ability to literally control the perceptual environment where surveillance is deployed; it adds a ludic lens to the reasons why certain actions occur. This provides much-needed context for the data produced—the data is no longer interpreted, it is also pre-contextualized based on the provided mechanics. Through game mechanics, the environment is forced to evolve based on the logic gamification demands. However, one of the primary rules of epigenesis, covered in chapter 2, is that while the environment does cause changes in technological and biological actors,
these changes also decontextualize and reframe the very environmental conditions that
inspired the changes. Epigenesis, from a socio-technical standpoint, is a circular affair.
Neither environment nor actor stays the same, and changes in one actor or space cause
adaptions in the other ad infinitum. So, while Strava, Ingress or Games for Cats may change
their respective environments through game mechanics, those mechanics themselves produce
changes in players in their attempt to tactically master the game. This means that
gamification places itself in a race with players to provide continued challenges and
motivations—if the player base evolves, then the gamified application must also alter course.
Foursquare found itself hard-pressed to maintain its game mechanics when its base went
from fifty thousand to fifty million users (Foursquare, 2014). As opposed to updating their
game dynamics, Foursquare developers stripped the mechanics, and their player base (now
converted to a user base) is in decline. Attempting to degamify, or use other controlling
tactics, to hold an environment in stasis defies the nature of play and games.

Gamification, as mentioned in the introductory chapter, is suffuse with “anti-gaming”
logics: Attempts at controlling and quantifying the playful behaviors of gamified subjects by
eliminating their ability to win or complete the game. Anti-gaming logics reveal gamification
for what it is—a mode of seductive control that epitomizes the Baudrillardian seductive
contract and a complicity with extreme forms of simulation. In attempting to model the
future, gamified applications must ensure that all monitored and monetized spaces resist
those chaotic impulses of players to continually destroy and rebuild their gamespaces. There
is no cycle of winning and replay; there is only continuous play that is aimed at a single
outcome. Even Ingress, which embraces the chaotic movements of players, is subject to
game-breaking cheats such as the drive-by hacking of portals, where players forgo pedestrian tactics for holding small territories in favor of automotive guerilla warfare. Using cars to capture territory in Ingress interferes with Google’s goal of collecting pedestrian information. However, no matter how many tweaks Google makes to Ingress, players will find a way to alter the game in their favor.

**Contributions to Research**

This dissertation contributes to research in Media and Game Studies by filling a gap in critical work on gamification. It does this by (1) clarifying misconceptions about gamification’s relationship with games and play, (2) situating gamification as a media-based technique that relies on playful epigenesis, and (3) suggesting that gamification is designed to work as factor in altering subjects and environments in favor of play. However, it also makes a contribution by examining why gamification may not work in the way it is intended and analyzing the issues that arise from attempting to toy with long-set boundaries between life, leisure, labor and play.

As I argued, gamification and games are alike in many ways—in fact, they exist along a spectrum. In terms of gameplay, gamification simply favors play that is geared towards efficiency. Additionally, the bodies of players must be directly involves in production that is directly linked to non-ludic or quotidian practices. In other words, gamification simply utilizes gameplay as a technique for monetizing and monitoring everyday life. Gamification, like games, needs the monitored bodies of players moving through monetized gamespace in order to alter environments where it is used. In order for
gamification to continuously maintain gamespaces, it requires some sort of motive force on the part of both actors and environments. In the case of gamification, this motive force is seduction through play. However, gamification, like games, is not a surly governmental technique; it does not rely on force or coercion to inspire protocological behavior. Rather it employs seduction and reward to entice humans (and animals) to don the mantle of “player” and engage in directed individuation through playful, surveillance-oriented tasks—everyday tasks formerly separated from the self-referential goals of gaming. If the boundaries between life, labor and play are destroyed by gamification, then gamification will necessarily—as computer scientist Richard Bartle (2012) stated—evolve into a game. Bartle stated that gamification hesitates at “becoming” a game. At the same time, he hoped that it would eventually progress into one. He argues that gamification’s true definition concerns turning all processes into a game, rather using games to support a process.

Gamification’s hesitation stems from a desire to control. Anti-gaming logics support this control-based discourse: The game cannot progress too far or it will, as most other games do, become an arbitrary pursuit subject to change based on the agreement of the players. In short, play and games are very relativistic pursuits. Gamification strives against arbitrary play by straddling the line between games and simulation—it claims to model quotidian futures through the creation of gamespace. Gamification maintains, on the surface, to inspire play for a purpose. However, any purpose play has must be linked to absolute ambiguity. Throughout this dissertation, I have presented theorists that maintain play and games are at the root of all our human pursuits. Language, art, economics, and society all come from the desire to play. However, the blade of play cuts two ways: As Huizinga (1950) noted, games and play are
also a laboratory of social change. Gamification uses play to bolster non-arbitrary quotidian processes rather than break them down. However, play *is* arbitrary. By ritualistically separating play from everyday life, humans are able to assume that social processes, ethics and reality are more than a set of arbitrary protocol. Eliminating the boundary between everyday life and games reveals, for better or worse, that all social processes are “finite games” that can be changed, cheated and discarded (Baudrillard, 1979, 1981a, 1981b, 1998a; Carse, 1987; Fink, 1974). This is the final point that Carse (1987), Fink (1974), and Baudrillard (1981b, 1998a, 2001) envision: life-as-play necessitates the elimination of constancy.

Watts (1995) believed that life-as-play is possible. Bartle (2012) believes gamification is a misguided attempt at making this theoretical proposal come true. However, all ludological theorists point out that if life is to become the embodiment of play, then we as humans must admit that all we have ever achieved in our short history as a conscious species is the creation of a series of ever more complex finite games in service of the infinite one (Carse, 1987). This mystery, an existence that freely alters its own mode of being, is the benchmark for artificial intelligence for Alan Turing and an impossible exchange for Baudrillard. What it requires is the opposite of what gamification seeks to accomplish. All of these theorists believed that play is a release from control, not an embodiment of it. In hitching itself to the idea of play, gamification has committed a fatal error: It has built its own obsolescence in an attempt to eliminate the ambiguity through exploiting it.

Epigenesis and seduction require sustained play. They need the seeking, chaotic actions of humans and the technologies they create to inspire changes and reactions. *Ingress,*
as an example of spatial gamification, needs players to react against the environment it creates via game mechanics in order to create meaningful data. In turn, players even slightly performing outside the boundaries set by Google ruin the data it intends to collect and analyze. Because gamification sets narrow boundaries for players, it will always encounter the reactive end of epigenesis: it will need to change its mechanics. However, constantly changing or updating mechanics is not a long-term option in gamification. Issuing new mechanics that serve as anti-gaming logics will not change the tide of players who react too much, who push too far against the rules set forth. When these tactics are exhausted, Ingress will cease to be a tool for data-collection. Ingress will either be eliminated or evolve into what it was meant to be all along—a game that produces self-referential data only applicable to the gamespace. In the end, all future iterations of gamified applications will have to increasingly account for the technologies they support, such as wearable technologies. While gamified technologies may alter environments and practices such as fitness protocol or spatiality, they also must deal with the chaos play creates—they too will need to change mechanics constantly to account for shifts in the material conditions support play. When mechanics change, so do their logical outcomes. Gamification is in a precarious epigenetic dance with play, one that it will inevitably lose. By its very nature, play is slippery when it comes to control. This is why Carse (1987) maintains that only finite games are won or lost; infinite ones cannot be quantified in a manner that results in a stable end-state.

This dissertation looked unflinchingly at play in the case of gamification. Gamification, it turns out, is an attempt to control play. However, if game and media studies are to proceed in targeting gamification for analysis, they must begin to look at play in all its
ambiguity. Media studies must acknowledge the aspects of play that are embedded in all media technologies and assume that these aspects always hold the potential for gamification. Pigeonholing play as the foregone result of games oversimplifies it. Games are synonymous with protocol, and protocol is produced via protocological behavior. In other words, there is no “chicken-and-egg” question concerning control, games and play: play always comes first. Gamification, like games, seeks to direct and modulate playful behaviors. While games themselves hold a place in everyday life as integral activities, gamification seeks to make everyday life a game-like activity.

**Limitations and Future Research**

This dissertation is by no means the ending argument on gamification or play. Its limitations are extensive, mainly because gamification is constantly changing along with the technologies and environments that sustain it. The effects of gamification, in terms of looking at efficacy or design practice, are not included here. Most likely, gamification will ensure a host of unintended issues and consequences. Also, this dissertation avoids the assumption that gamification works in the way it is intended to. I wrote this as neither a denouncement of gamification nor an endorsement. I simply offer a snapshot of a rapidly changing process, one that embraces epigenetic change. Gamification requires co-adaptation between players, environments, technologies, and mechanics at a rate that makes it difficult to gauge its effects or effectiveness. This snapshot is a blurry picture of a rapidly moving subject, an attempt to define a process that has, thus far, escaped definition. However, the definition offered here may not apply in the coming years. Because of constant epigenetic
change, the rate of evolution for gamification exceeds that of other, more stable, subject areas dealing with media (such as cinema, television, and radio). Just like gaming, which is always a rapidly changing field, the study of gamification requires constant catch-up. Both areas of study, games and gamification, deal with subjects that are evolving. However, because of the dearth of critical, media-related research on gamification, these limitations do not outweigh the benefits of this particular study.

Future research into the ontological and epistemological questions raised by gamification needs to be undertaken in detail, and they must include play. Play, as pointed out by Sutton-Smith (1997), is frustratingly difficult to pin down as an area of research. We can identify it as a set of behaviors, but gaining any type of meaning has thus far eluded researchers in almost all fields. Play is often avoided by researchers because it presents an integral ambiguity to research, a fact that is disconcerting to many scholars (Sutton-Smith, 1997). Game studies does not hold the moniker “play studies” because games, for the most part, are much easier to define as objects of research. While steps taken by Voorhees (2013) in defining gameplay as key area for analysis are promising, play still seems to take a backseat.

Future research must also take the fine line between games and gamification into account as more and more applications skirt the line between the two practices. Already, game consoles are gamifying the act of gameplay by offering badges, trophies, self-archival tools, rewards, and levels to people for playing multiple games. In turn, gaming companies and console-makers get in depth data about the habits of players (M. Fuchs, 2012; Mosca, 2012). In other words, gaming is becoming gamified. This was, of course, a foregone
conclusion. If gamification seeks to create game-like processes out of everyday activities, why would gaming be spared?

Play, in the end, is a difficult research subject to broach. It has only been handled, in terms of media and game studies research, by scholars noted throughout these chapters (Baudrillard, 1979, 1981b, 1998a, 2001; Malaby, 2007; Sutton-Smith, 1997; T.L. Taylor, 2006; T. L. Taylor, 2009). This is partially due to the fact that the study of play always leaves questions that cannot be answered. Play, or the ontology of play itself, remains debated. However, this does not mean we must shy away from it. As hinted at by biologists, philosophers, sociologists and historians, play is the glue that holds our fragile humans processes together. Language, art, economics, science and life itself are attributed to play. As Huizinga (1950) points out, ludology is not about finding play in everyday life—it is about finding everyday life in play. As such, the study of games, gamification, media, and life itself must always, inevitably remain for play.
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