

VIDEO GAME PLAYER MOTIVATION APPLIED TO PHYSICAL SPACES:
EXPLORING MOTIVATIONS IN PHYSICAL AND DIGITAL SPACES.

A THESIS

SUBMITTED THE THE GRADUATE SCHOOL
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE

MASTER OF ART

BY

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JULY 2017

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CHAPTER 1: INTRODUCTION

Motivation is a term psychologists use to explain behavior that is a result of important human needs – such as the need to eat or the need for community – being left unfulfilled (Dessler, 1986). However, there are a number of theories and models of motivations that explore different facets of how motivation works. Although these frameworks and models provide information about motivation in non-digital (or physical) spaces, many do not specifically address how these theories might be applied to a digital context. For example, one of the most renowned motivation theories is Maslow's Hierarchy of Needs (Pardee, 1990), which is a theory that lists physiological, safety, belongingness/love, esteem, self-actualization, and self-transcendence as needs that must be met for humans to be happy or satisfied (Maslow, 1943). However, Maslow's theory is grounded in the basic human needs and, therefore, does not effectively apply to more specific human contexts. For example, Maslow's theory is too broad and centered on basic human function to effectively apply to the things that motivate people to act in specific digital settings. Furthermore, Maslow's physiological needs — eating, drinking, breathing — cannot be met completely in a digital space, because physiological needs can only be met in physical spaces. In other words, general motivation frameworks often account for motivations that drive humans to stay physically alive but not the motivations that drive them in daily life.

Many researchers, game developers, and experience designers have explored how game mechanics are used in non-game environments as a means for engaging audiences in novel ways. However, few have explored what motivates people to engage with others and/or the environment in physical interactive spaces, such as classrooms, work settings, theater spaces, restaurants, or any other structured, goal-oriented place. In fact, although frameworks exist for

studying motivations in digital environments, there exist no similar models for exploring motivations in physical interactive spaces. At the same time, experiences that cross platforms and include narratives distributed across both digital and physical environments have become popular. For example, today's museum exhibit is no longer merely a physical space that visitors attend to view static artifacts or artwork. Rather, most museums also offer cross-platform digital experiences that provide depth and context meant to supplement the physical exhibit. The absence of a framework that can be used to explore user motivations across both the physical and digital components of a single experience (like a museum exhibit) is problematic. Although the physical and digital components are meant to work together to appeal to audiences as a cohesive experience, they are often designed and developed independently of one another (Rigby, 2014). This schismatic approach creation can result in a disconnect between the pairing between the digital and physical space, as well as the spaces being created and the motivations that drive people to interact (Rigby, 2014).

In the absence of a framework for specifically exploring what motivates people in physical spaces, it is difficult parse out what motivations, if any, overlap between interactive physical spaces and interactive digital experiences. In an attempt to address this question, this thesis applies a digital motivation framework to two interactive physical spaces. Quantic Foundry's Gamer Motivation Model, provides a lens through which we can identify what motivations that exist in the digital realm translate to interactive physical spaces like theater events or classroom environments. Quantic Foundry's framework of six overarching motivations provides a model of understanding what drives people to play video games and is based on the self-reported motivations of more than 200,000 gamers. Additionally, using game mechanics and strategies in physical spaces, like a classroom or a theater event, has become a popular way to

foster engagement among participants like students or audiences. Furthermore, there may also be similarities between the motivations that drive people to participate in interactive digital games and the motivations that drive them to behave a certain way in interactive physical spaces. For the purpose of this study, the phrases “interactive physical space” and “physical event” are used interchangeably to describe a space or event where people interact with stimulating variables (i.e., objects, other people, etc.) in order to achieve some ultimate goal (i.e, learn, be entertained, etc.). Specifically, this thesis explores two types of physical events or spaces: educational (i.e., a class, an orientation, training, workshop, etc.) and entertainment (i.e., a theater show, a comedy show, or a movie in a movie theater, etc.). The research presented in this thesis explores the motivations that drive participants in two different types of physical spaces through the lens of Quantic Foundry’s Gamer Motivation Model. In order to do this, data related to participants’ self-reported motivations for engaging in two different interactive physical experiences was collected.

Thus, the aim of this study is to explore motivations in interactive physical spaces through the lens of a digital motivation theory. By applying Quantic Foundry’s Gamer Motivation Model to physical spaces and events, this study contributes to the larger conversation about motivations in digital spaces and how they can be applied to and explored in physical spaces and events. Additionally, this study is intended to help build an understanding of how experiences that span across digital and physical spaces and events can be appealed to so that the cross-platforms experience is cohesive and seamless. Furthermore, this study uses Quantic Foundry’s Gamer Motivation Model because it is based on quantitative research, unlike other studies that use a single, personal experience of a player or qualitative data. Although this framework will be explained in depth later in this thesis, it is worth noting now that this

framework is comprised of six overarching player motivations. Quantic Foundry provides a description and several key mechanics, or rules and constructs for their relation to gameplay, for each motivation. For example, one of the overarching motivations is *social* which focuses on concepts like teamwork and interaction, expressed through mechanics like duels and matches (Yee & Ducheneaut, 2015).

This study will address four key research questions:

1. What are the similarities between the ways in which digital spaces and physical spaces motivate audiences to engage or participate?
2. How can digital motivation frameworks be applied to physical events?
3. How might Quantic Foundry's Gamer Motivation Model translate to physical spaces designated for entertainment and educational development?
4. How can an intrinsic model of motivation change the way we think about using game mechanics in physical spaces?

The chapters that follow outline a study designed to explore the effects of using an intrinsically based digital game motivation framework to measure motivation in two physical spaces. The goal of this study will be to apply and explore digital game motivations in physical spaces, and therefore begin a conversation about creating a framework of motivation which can transcend both digital and physical spaces. The following chapters provide the context and information needed to understand how this conversation might be started and continued with further study.

Chapter 2: Review of Literature

In order to understand the study of game motivations as they are applied to physical spaces, one must have a general understanding of motivation theory and the ways in which game motivations are already being used online and offline. Specifically in the context of this review, one must also have an understanding of the current conversation regarding applied game mechanics in two different types of spaces: educational and entertainment. Additionally, a deep understanding of player motivation models, specifically Quantic Foundry's Gamer Motivation Model, is necessary to contextualize the proposed study. This review of extant literature examines a brief history of all of these topics, as well as an overview of the current state of the art.

Introduction to motivation theory

At the most simple level, the term motivation describes behavior. More specifically, motivation is used to describe what drives people from one behavior to another, or what makes people take action. Since it became a subject of study in the 1930s, nearly every facet of general motivation has been studied and theorized (Graham & Weiner, 1996). Additionally, as society evolves and social importance shifts, so does the study of corresponding motivations.

In "Theories and Principles of Motivations," Sandra Graham and Bernard Weiner (1996) break down the development and study of motivational theories into three distinct periods. From 1930 to 1960 was the *The Mechanistic Period*, from 1960 to 1970 was the *Arrival of Cognition* period and the *Contemporary Motivation Research*, spanned from 1970 to 1990 (Graham & Weiner 1996).

During the early years of the *Mechanistic Period*, researchers focused on topics which were associated with the Drive theory of motivation. The Drive theory proposes that human

behavior is a product of unfilled needs. Before this concept was introduced, it was theorized that every human behavior was directly caused by human instinct (Graham & Weiner 1996).

The Arrival of Cognition Period was significant because of it shifted research focus away from mechanics and toward cognition. For example, prior to this period researchers believe that giving someone a reward would result in higher productivity. However, due to the introduction of the concept of cognition, researchers began to understand that the reward being given itself was not influential as much as the perception of that reward. During this period, the Drive theory of motivation remained influential, but was given less thought or attention (Graham & Weiner 1996).

The Contemporary Motivation Research Period was significant because motivation related to achievement was introduced at this time. The areas of interest were achievement needs, anxiety about failure, and perceptions of control. Researchers were also beginning to explore differences in achievement-based motivation. In other words, researchers were beginning to acknowledge and explore that individuals had different intensities of achievement-centered motivations. The concept of achievement in motivation was an area of interest throughout this period and still remains one in contemporary study of motivation today (Graham & Weiner 1996).

As society and technology have advanced and matured, so has motivation research. New digital elements have been introduced and whether they be digital hardware, such as smartphones, or software tools, such as social media, these elements are changing the social and motivational landscape. These digital elements have slowly built a new virtual world for users to interact, engage, and take action in. Because of this changing digital stimuli, the study of

motivation has also evolved. Motivation research now extends past physical spaces, and now much can be applied to virtual spaces as well.

Intrinsic and extrinsic motivation

The terms intrinsic and extrinsic motivation describe two types of motivation. Intrinsic motivation describes when an action is taken because of inherent curiosity or interest in the action, while extrinsic motivation describes when an action is taken because of outside influences or because it leads to an outcome separate from the action (Ryan & Deci, 2000).

The concept of intrinsic motivation was first studied and explored in animal behaviors. Some animals engage in behaviors that are exploratory, playful, or curious in nature without any external reward or outcome. Intrinsic motivation is an important type of motivation in humans as well. In fact, human behavior is very curiosity-driven and playful. This innate curiosity and drive for self-fulfillment is an important tool for growth of knowledge and skills (Ryan & Deci, 2000).

While intrinsic motivation is important in understanding human motivation, not everything people do is because of intrinsic motivation. Extrinsic motivation is an important reality in society. In other words, as a person gets older, intrinsic motivation will often become less actionable, because of the standards an adult must meet in order to live independently (Ryan & Deci, 2000). For example, getting a job or paying your taxes are not actions motivated by intrinsic motivations outrightly, rather actions one must take to safely exist. According to Edward Deci and Richard Ryan's Self-Determination Theory (2010) extrinsic motivation can have different levels of autonomy, or a feeling of choice. For example if a student is practicing an instrument because their parents or teacher want them to, that student is being extrinsically motivated in a way that does not maintain much autonomy. However, if another student is motivated to practice playing an instrument because they understand that skill will be helpful for

obtaining their dream job, they are still extrinsically motivated, but maintain a sense of autonomy (Ryan & Deci, 2000). This is important to consider as one begins exploring the effects of game mechanics in physical spaces, because most game mechanics are represented extrinsically, and often without much thought about autonomy.

Game motivations in non-game spaces

In the current discussion of game motivations in non-game spaces, the word *gamification* is often used interchangeably with the idea of using game mechanics to appeal to motivation. Gamification, or using game-like elements and dynamics in non-game contexts, attempts to appeal to game-related motivations in physical spaces (Deterding, Sicart, Nacke, O'Hara & Dixon 2011). However, gamification almost exclusively relies on extrinsic forms of motivation, which in a game context usually take the form of mechanics. These type of mechanics take the form of points, leaderboards, badges, etc. and feed into reward-based gamification by offering “rewards” such as a higher position on a leaderboard.

Reward-based gamification is one of the most common forms of gamification, even though it is not always effective. Because these reward-based mechanics appeal to people extrinsically, they tend to create a short term motivation. In other words, offering a reward for completing a task may result in more completion of that task for a short period but once the novelty of the reward wears off, so will the motivation to complete the task. Additionally, once rewards are offered in exchange for completing a task, people are more likely to view that task as work, and therefore will have less fun doing it. This will ultimately lead to less productivity (Pink, 2011).

To explore the potential for reward-based gamification, one must first explore the five most popular mechanics for motivation used in reward-based gamification. The five mechanics

are points, levels, leaderboards, achievements, and badges. A point system is used when the developer decides what behaviors are desired and assigns point values to those actions in relation to their importance. Levels help add value to the quantity of points that a user has accumulated and give participants a benchmark to help them track improvement or progress. Leaderboards also help assign value to points and levels by allowing participants to compare their results with others, helping create a competitive environment that can theoretically drive engagement. An achievement is a special reward that a participant can receive that is not determined by points. Outside of a direct game, one can think of an achievement as an extra credit assignment. In other words, an achievement can provide new incentive and exploration outside of the traditional point system. Badges are considered a display, often public, of some part of the gamified system. Simply put, badges represent success in a way that differs from points or achievements. By using these incentive systems in a physical space, the implementer hopes to gamify the space by rewarding a participant, and therefore motivate him or her to continue (Spector 2015).

As gamification has gained popularity in recent years, many frameworks and theories about how to most efficiently implement it have been developed. For example, Yu-Kai Chou (2015) defined gamification as simply making something game-like. Chou goes on to describe gamification in more depth, writing “gamification is the craft of deriving fun and engaging elements found typically in games and thoughtfully applying them to real-world productive activities (2015, page 8).” His framework, called the Octalysis framework, lists eight primary motivations for participation as the most universal gamification elements: meaning, empowerment, social influence, unpredictability, avoidance, scarcity, ownership, and accomplishment (2015). However, according to Charles Coonradt (2007), adding game-like

elements to non-game settings requires five attributes: clearly defined goals, scorekeeping, feedback, more personal choice of methods, and consistent coaching.

Ultimately, there are so many frameworks and theories about gamification and how to apply game mechanics successfully to real-world spaces that it is difficult to discern which ones are particularly remarkable. Many of these frameworks are published on blogs or by digital consulting agencies looking to capitalize on an industry trend. However, it is important to note that the majority of these frameworks and theories are based on professional experience, speculation, and extrinsic motivations.

In fact, very little empirical study has been conducted in regard to gamification in general. Most of the quantifiable information available about gamification is only as it applies to educational and workplace settings (Lister, West, Cannon, Sax & Brodegard, 2014). Although gamification can be applied to both physical and virtual spaces, it is specifically important in this study to explore the way it is used in physical spaces.

Game motivation in specific spaces

Because this study focuses on both educational and entertainment spaces, it is important to pay respect to how and why they have been studied relative to gamification. These types of spaces were specifically picked because of the focus often placed on them during gamification studies.

Educational

Gamification in education is currently a popular phenomenon. The education field is currently prone to using game mechanics in traditionally non-game situations. When discussing gamification in education, a distinction must be made between gamification and game-based learning. While game-based learning uses video games for educational purposes, gamification

uses game mechanics to motivate participation and learning in non-game spaces (Kingsley & Grabner -Hagen, 2015)

There are many publications about the use of gamification in education, however most of these publications address only some game mechanics and elements that could be used to enhance education initiatives. True, empirical findings regarding the actual effectiveness of gamification in education are scarce. It is important to note that most authors of publications about gamification in education still maintain that gamification has potential to be beneficial in educational settings (Dicheva, Dichev, Agre & Angelova, 2015).

Gamification in education has limitations that need to be addressed as well. First, gamifying pre-existing course material requires time and skills that a traditional educator may not possess. Furthermore, the education system as it currently stands is not specifically intended to support gamified educational courses. Many gamified education efforts depend on simple game mechanics like badges and achievements. These types of mechanics are not always meaningful to the students (Dicheva, Dichev, Agre, & Angelova 2015). This is in part because the extrinsic nature of these mechanics does not have a lasting impression on the students. While these types of mechanics could foster productivity for some students, once the students become accustomed to receiving the rewards, they might lose interest, causing productivity to wane (Pink, 2011).

Entertainment

Because games are often a form of entertainment, it is important to specify that entertainment in this context refers to the overarching category of anything recreationally viewed, traditionally with no game elements, for example, movies, interactive theater experiences, and comedy shows, to name a few.

Gamification in entertainment often also takes the form of alternate reality games. An alternate reality game (ARG) is a game or narrative delivered to participants through several forms of media (i.e., television shows, live events, social media, phone calls, websites, etc.) Some movies and television shows have an accompanying ARG created to market the movie or provide fans with content between seasons. For example, for the movie *Tron Legacy*, 42 Entertainment (a media production company) created an accompanying ARG to both market the new movie and as a testament to the movie's fan base. This ARG included websites, social media, physical press releases, puzzles, and a recreation of Flynn's Arcade from the original movie for participants to engage with (Flynn Lives, 2016).

These ARGs often include live or prerecorded performances from actors, as well as social media, traditional print media, or any other type of media (Evans, Flintham, & Martindale, 2014). Although these types of games do not always include badges or leaderboards, they do gamify the entertainment experience by engaging the audience and encouraging them to participate in a game-like experience.

Limitations of gamification

Despite the recent popularity of using game mechanics in non-game spaces, gamification does present its own set of limitations. The problems with gamification can be pinpointed by examining the limitations of reward-based motivational systems in general. In other words, gamification is a motivational system which rewards participants for taking action. This implies that gamification is primarily extrinsic, because it uses external rewards to motivate people to take action. In order to fully realize the limits of gamification, we must look at the limitations of extrinsic, reward-based motivation as a whole.

For example, when implementing a reward-based gamification system, it is possible that the new motivations will manipulate or change any pre-existing motivations that a participant may have. This becomes problematic if the gamification system is removed. If the system is taken away, the motivation will also be removed (Spector, 2015). Additionally, in a study conducted to explore gamification effects in health and fitness apps, Researchers found that many apps rely on digital rewards like badges and points being considered valuable by the participant while in actual practice this may not be true (Lister, West, Cannon, Sax & Brodegard, 2014)

In a study conducted by Edward Deci in 1969, it was found that offering compensation for completing a task makes people less willing to do that same task for no compensation. In other words, once a reward is introduced, people lose any inherent interest they might have had toward that action. In this study, Deci divided participants into two groups and asked each individual from each group to spend one hour using a Soma puzzle to recreated different puzzle configurations. Each participant did this for three days. On the first day, neither group was offered compensation, on the second day only one group was given monetary compensation for every successful configuration they replicated, and on the third day both groups received no compensation again. However, midway through each session Deci would halt the exercise and leave the room, telling participants that they could do whatever they pleased in his absence. During his eight minutes of absence, Deci documented what individuals from each group did while they were alone. On the first day there was very little difference between what individuals from each group did. The participants all played with the puzzle for an average of three and a half to four minutes.

However, on the second day, the group that received compensation played with the puzzle an average of five minutes, while the unpaid group stayed unchanged. During the third session, Deci told the previously paid participants that he would not be able to pay them for their efforts in this session. The consistently unpaid group actually played with the puzzles a little bit longer during the free period, while the previously paid group played with the puzzles a full minute less than the first unpaid session (Deci, Koestner, Ryan, 1999). Deci's study is significant because it implies that while introducing a reward will make people more interested in an activity, as soon as that reward gets removed, people are significantly less interested in that activity. Additionally, even though both the first and third session one group was not paid, because of the introduction of compensation in the middle session, participants were less interested in the third, unpaid session.

In a similar study, Mark Lepper and David Greene identified young students in a elementary school who spend their free period drawing. They then split the children up into three groups; reward, unexpected reward, and no reward. When the children were dismissed to free period, they were asked by teachers if they wanted to draw. When a student decided to draw, based on which group they had been placed in, would either receive a promised certificate, be surprised with a certificate, or receive nothing. In other words, one group of children were expecting a reward, one group was not expecting a reward but was given one, and one group was not expecting a reward and did not get one. As this study went on, the students who grew to expect rewards began drawing less often and for less time (Lepper, Greene, & Nisbett, 1973). This is because expecting a reward, and therefore completing the task in exchange for said reward, turned the once enjoyable act of drawing into work. This could be because expecting a reward soon becomes synonymous with completing an action in exchange for compensation.

This subconscious agreement of exchange implies the loss of a certain amount of autonomy (Pink, 2011). In other words, once a reward is introduced and expected, the person completing an action is no longer doing it solely for themselves, rather completing the task at the will of the person giving the reward. This becomes problematic when we consider the way gamification focuses primarily on extrinsic motivators and mechanics to inspire action.

In fact, according to Gamification @ Work (2013), “some businesses are taking a ‘chocolate covered broccoli’ approach, simply adding points, badges and leaderboards to their applications and calling it ‘gamified’” (2428). This indicates a misunderstanding of how to use game mechanics in a non-game setting, as well as a misunderstanding about the best practices for implementing game mechanics into professional settings (Kumar, Herger, Deterding, Schnaars, Landes & Webb 2013).

Game motivation in digital spaces

One of the earliest systems of motivation personas for online communities was developed by Richard Bartle in 1996. Bartle created a taxonomy for the four player types and even went on to describe what drives them to play-and how to use that knowledge to balance an online community. He reported finding four archetypical player types: achievers, explorers, socialisers, and killers (Bartle, 1996). This player type taxonomy has since been used to develop new frameworks for player motivation studies. Bartle’s taxonomy paved an important path for creating player motivation models because he was the first to create personas for common types of players. For instance, Nick Yee cites Richard Bartle’s taxonomy as inspiration for his study which led to his Gamer Motivation Model.

Quantic Foundry developed and refined a Gamer Motivation Model, created partially based on Bartle’s player types, which was comprised of self-reported data from approximately

200,000 gamers from different countries around the world. This iterative model was created by Quantic Foundry in 2015 (Yee & Ducheneaut, 2015). However, this model has been an ongoing project of Quantic Foundry's cofounder, Nick Yee. Before the company was founded, Yee had developed early versions of the model. Although parts of the model have remained consistent, such as the *achievement* and *social* (formally called *relationship*) aspect, the model has changed from having three overarching motivations - *achievement*, *social*, and *immersion* - to the current version with six overarching motivations (Yee, 2007).

The current Gamer Motivation Model is broken into six primary clusters, with each cluster including two similar motivations. In other words, while there are two very related sub-motivations that are ultimately different, they will be grouped under one overarching parent motivation (see table 1). When considered this way, there are actually 12 different motivations, grouped in twos. The six clusters are *action*, *social*, *mastery*, *achievement*, *immersion*, and *creativity*. These six categories represent the six most common motivations of users who play online or digital games (Yee & Ducheneaut, 2015) and are described in the following section.

Gamer Motivation Model						
Overarching motivation	Action	Social	Mastery	Achievement	Immersion	Creativity
Sub-motivation 1	Destruction	Competition	Challenge	Completion	Fantasy	Design
Sub-motivation 2	Excitement	Community	Strategy	Power	Story	Discovery

Table 1: Quantic Foundry's Gamer Motivation Model is made up of six primary motivations, each with two sub-motivations (Yee & Ducheneaut, 2015).

Using the gamer motivation model to analyze motivation in physical spaces

Of the many frameworks and theories that exist for online and player motivations, this study focuses on only Quantic Foundry's Gamer Motivation Model. This framework is used here because of its empirical nature. Quantic Foundry's Gamer Motivation Model was created with survey data collected from more than 200,000 online game players. Many of the other existing frameworks are based on solely professional opinion, experience, or hypotheses. Quantic Foundry's Gamer Motivation Model is made up of six overarching categories, which are broken up further into a total of 12 categories. In order to understand the method of analysis the researcher used, knowledge of this framework is necessary. The categories that make up the framework are listed and described:

Action.

Destruction and *excitement* are the two motivations that make up this overarching motivation category. The *destruction* subsection appeals to players who are interested in being agents of chaos and destruction. This type of play would be more likely to enjoy destruction for destruction's sake. They are interested in having a large array of weapons and explosives to experiment with. For example, a player interested in destruction might enjoy games like *Call of Duty* and *Battlefield*; however when faced with a game with less opportunities for destructive behavior like *the Sims*, this player would likely try to find inventive ways to kill his or her Sim. Similarly, the excitement subsection of this motivation appeals to people who are interested in a fast-paced and intense experience. These people are looking for excitement just for excitement's sake. They are also generally interested in action-packed, intense games, as well as incentives for rapid reaction times. This type of gameplay can be found in a range of different games like *Halo*, *Street Fighter*, and *Injustice*.

Social.

This cluster is broken down into two sub-motivations: *competition* and *community*. The *competition* motivation appeals to players competing with other gamers. *Competition* is most likely to happen in games that feature duels, matches, and team-vs.-team objectives. This type of motivation can be found in games like *Starcraft*, *League of Legends*, or specific elements of *World of Warcraft*. Combat is not necessarily the primary source of competition. Rather, being given credit as the best at what you do for a team, or in comparison to others, is also appealing to someone driven by this motivation. For instance, obtaining a high ranking among friends can be a driver for a player who is driven by *competition*. The second sub-motivation of the *social* cluster is *community*, which involves socializing and collaborating with fellow players. The players who are driven by this motivation are likely to enjoy conversation and group work within a game. Games that appeal to players who are driven by *community* are games like *Portal 2* (when played with a friend), or *Mario Kart* (at a party or gathering). To someone who is motivated by *community*, playing games with a group of people is considered part of their social maintenance. In other words, they might play games in order to maintain their social circle (Yee & Ducheneaut, 2015).

Mastery.

The *mastery* motivation cluster is made up of the *challenge* and *strategy* subsections. The *challenge* subcategory appeals to players who are interested in gameplay that depends on skill and ability. These people are interested in putting time, effort, and practice into a game in order to polish their skills. They are interested in completing the most difficult levels and bosses a game offers. These types of player might be interesting in a game in which it takes many tries to advance, such as *Dark Souls*. The *strategy* subcategory of the *mastery* cluster appeals to gamers who are interested in gameplay that requires careful planning and decision-making. This

motivation will appeal to gamers who like to think through the outcomes of the decisions they make within a game, whether that decision is how to manage resources, or how to maintain a long-term *strategy*. A player interested in *strategy* might be interested in a game like *Fire Emblem* or *Civilization*.

Achievement.

While the *achievement* motivation might seem similar to *mastery* upon first glance, there are a few important distinctions that separate them. For instance, *mastery* focuses on *strategy* and *challenge* - meaning a person who is motivated by *mastery* would be primarily interested in building skills and becoming good at the gameplay itself. People who are attracted to the *achievement* motivation would be more interested in the outcomes and products of the gameplay. The two sub-categories that make up the *achievement* cluster are *completion* and *power*. The *completion* motivation appeals to players who want to be thorough in their completion of the game. Their primary goal is to complete everything the game has to offer – every mission, collectible, map, or trophy. Games that appeal to a player who is motivated by completion will be one which offers unlockable features, or collectibles, like collecting costumes in *World of Warcraft*. *Power* is the second facet of the *achievement* motivation cluster. Players who are driven by *power* are specifically looking for power in the context of whatever game they are playing. They find fulfillment from a game when they have become as powerful as the game will let them. This might include finding tools or weapons to help them achieve this. Because collecting items and weapons can often be a large part of *power*, the two motivations usually work together. However it is possible for a player to do one without the other. For instance, a player may only have interest in collecting costumes without relating it to *power*. While another

player might focus using strategic planning to become more powerful (Yee & Ducheneaut, 2015).

Immersion.

The *immersion* cluster is composed of two subcategories: *fantasy* and *story*. *Fantasy* appeals to gamers who are looking for gameplay that allows them to become someone else, and/or somewhere else. This motivation appeals to people who are interested in having a person/character/alter ego in an immersive alternate world. Not only do these people enjoy taking on a persona in a new world, but they also enjoy exploring every facet of that world. These types of players enjoy games with vast maps like *Skyrim* and *Fallout*. The *story* section of this motivation cluster appeals to player who are interested in elaborate storylines and well-developed characters. Players who are motivated by the *story* subsection of *immersion* are interested in taking time to learn about backstories of characters. This type of gameplay can be seen in games like *Dragon Age*, *Mass Effect*, and *BioShock*.

Creativity.

The *creativity* motivation cluster is composed of the *discovery* and *design* sub-category. *Discovery* appeals to gamers who are interested in asking themselves “what would happen if...?” They are interested in captivating worlds and gameplay that they can break into, dissect, and alter. In many cases, a person who is interested in this subset of *creativity* will play the game in a way it was not intended to be played. For instance, a person interested in *discovery* might move to the edge of a map just to see what happens. The *design* subset of the *creativity* motivation cluster appeals to gamers who are interested in expressing themselves as individuals. These types of players might put a lot of time into customizing their character’s appearance. People who are interested in *design* prefer games with robust customization tools. Understanding these

motivations and their characteristics is crucial to understanding how they might be applied to non-game or non-digital environments.

This review of literature gives an outline of what motivation is and how it has grown as a subject of study. Additionally, it is now clear that the purpose of this study is to apply and explore an intrinsic game motivation model in the context of two non-game, physical spaces: a classroom and an interactive theater event. Understanding motivation as a general concept and also the way it has been studied in online and offline, game and non-game spaces can add to the understanding of how one seamless framework for motivation on and offline could be utilized and valuable. This review of literature also hopes to inform the methodology of this study, by stressing the importance and distinction of an intrinsic model of motivation.

Chapter 3: Methodology

This study aims to explore how a digital motivation framework can be applied to physical events. In order to study any potential parallels between motivations in physical and digital places, the methodology of this study consists of a survey developed for a digital space administered in a physical place. However, the term “physical place” is broad and all-encompassing. Unlike video games, which are categorized by genre, there are no pre-existing categories for different types of physical spaces. Categorizing these different types of spaces is important because not every physical space is the same. Both the structure of the space and people’s goals vary space by space. For example, while someone’s personal home and the grocery store are both physical spaces, a person’s behavior, goals, and conduct would be different in each space. Understanding different types of spaces is crucial to understanding people’s motivations in those spaces, as well as how those motivations could apply to motivations in digital spaces. Because there are no pre-existing categorizations of physical spaces, the researcher determined the most common types of physical spaces.

In order to determine the most common types of physical spaces in which people interact, a design thinking exercise was conducted. In this context, a successful interaction could be considered when people interact with each other as well as physical objects to achieve a goal. An example of a goal in a physical space would be ordering food or mailing a package. The goal of the design thinking exercise was to understand what kinds of physical situations or spaces we commonly encounter and how they can be classified. In order to do this, five second-year Emerging Media Design and Development graduate students were recruited to engage in a design thinking exercise called “saturate and group,” in which many ideas and pieces of

information surrounding a topic are simply written down, or otherwise displayed. From there, each idea or piece of information can be analyzed for patterns and grouped accordingly.

Participants were asked one question — *What is an example of a physical place you might go and interact with people or things in that environment?* — and they were given three minutes to write as many answers as they could think of on Post-It notes. Answers were collected and grouped into four categories representing different types of spaces. These four types of spaces included recreational (e.g., laser tag, mini golf), educational (e.g., class, orientation, training), transactional (e.g., BMV, checkout aisle), and entertainment (e.g., theater, comedy show). For the sake of time, only two of the categories – entertainment spaces and educational spaces – were studied. These two overarching types of spaces were chosen for their feasibility, as well as their contribution to the conversation of digital to physical motivations. In other words, these spaces were appropriate for this study because these types of spaces are already subjects of research and interest regarding using game elements in non-game spaces.

Next, a specific event within each type of physical space was examined according to the following criteria:

- For the educational physical space, the researcher chose to study an Emerging Media Design and Development class titled, Emerging Media and Design Thinking, in the Department of Journalism at Ball State University. This class was chosen because of its interactive nature, meaning this class relies heavily on project-based, group work. This is important because it provided the most potential for observation. This class involved 15 students who worked with each other and their professor to present and discuss class projects.

- The second physical space was an entertaining space, the *Rocky Horror Picture Show Shadowcast* at Ball State's Emen's theater. The *Rocky Horror Picture Show Shadowcast* is considered a live, interactive theater experience. A shadowcast performance is characterized by a group of performers that act out the movements and words in sync to a film as that film is being shown behind them simultaneously. During the *Rocky Horror Picture Show Shadowcast* audience members are actively encouraged to engage with performers through call-backs (when a phrase is said in the performance and the audience responds with a verbalized phrase or noise) or through the use of props.

Data collection

Two researchers recorded data from these two events by means of observation and survey. The researchers attended all three of the aforementioned events and took ethnographic, observational notes. All participants were observed in every case except the *Rocky Horror Picture Show Shadowcast*. Due to high attendance, a 30-seat section of the audience was chosen for observation.

During observations, researchers looked for behaviors associated with all motivations from the Gamer Motivation Model by Quantic Foundry: *action, social, mastery, achievement, immersion, and creativity*. For example, while observing the Emerging Media Design and Development class, the research recorded instances of class members doodling on notes. This behavior would be associated with the *creativity* motivation because it implies a need to express or customize notes.

Gamer Motivation Profile survey

Up to 15 participants who engaged in any of these behaviors were asked to complete a modified version of the Gamer Motivation Profile survey used by Quantic Foundry to develop

the Player Motivation Framework. The survey was copied from the Quantic Foundry website and modified in order to fit the context of the respective event rather than video games. Two versions of the survey were developed: one for the Emerging Media Design and Development class and one for the *Rocky Horror Picture Show* Shadowcast (*see Appendix A to see both the original survey and the modified version used for this study*). The surveys took about five minutes to complete.

Because the Gamer Motivation Profile survey uses language specific to online games, the wording of the questions was changed for each new type of space. For example, one question from the original survey asked participants: *How much do you enjoy the following game elements and activities?* Then, they were asked to rate activities like blowing things up, using guns and explosives, gameplay that requires good timing on actions a moves, or helping other players, etc. They were asked to rate on a scale from 1 to 5 how much they enjoyed that activity. In the survey there are two additional questions: 1) *How important are the following game elements and activities to you when you play video games?* and, 2) *How often do you do the following things when you play video games?*

The survey then asked the participant to rate all prompts on a Likert scale from 1 to 5. In total, there are 48 prompts for participants to consider, and the examples listed earlier help display how and why some questions needed to be rewritten for each space. Specifically, every instance of the word “gameplay,” “game,” and “player” was removed and replaced with the appropriate word relative to the new space. For example, the prompt “helping other players” was changed to “helping other audience members” for the *Rocky Horror Picture Show* Shadowcast, and “helping other classmates” for the Emerging Media Design and Development class.

In addition to changing game-specific words to fit the new context, the survey was also modified so that the content of each question was appropriate for the space studied in this thesis. For example, the Gamer Motivation Profile survey asks participants to rate their enjoyment of using guns and explosives in an online game. Not only is this question inappropriate for assessing a live theater experience, but it also implies dangerous and illegal activity. In cases like this, some liberty was taken in changing the content of the question in an effort to make it more appropriate, while also maintaining the integrity of the original question. For instance, “using guns and explosives” was changed to “using distracting or destructive props and tools” for the *Rocky Horror Picture Show* Shadowcast, and “using destructive materials” for the Emerging Media Design and Development class¹. However, an effort was made to keep the wording of the surveys as close as possible to the original Gamer Motivation Profile survey. Words and content were only changed when deemed absolutely necessary, usually because a question had insidious implications in the new context, or because specific words were no longer appropriate in the spaces studied for this thesis.

Data coding and analysis

Observational data was coded using a system developed directly from the Gamer Motivation Model. The researchers simply looked and noted behaviors reflective and consistent with the motivations in the model. Both the primary researcher and a research assistant independently coded each observation to establish inter-coder reliability. Table 2 provides an overview of this coding scheme. Likert-scale responses to the modified Gamer Motivation

¹An example of using destructive materials in a classroom setting would be using fire during a chemistry lab. However, this question lost context because this type of class did not have any destructive materials. This is discussed further in the limitations section of the discussion.

Profile survey were averaged across participants to quantify perceived tendencies toward specific motivational behaviors.

Motivation	Definition	Example
Action <i>Destruction (1a)</i> <i>Excitement (1b)</i>	Interest in explosions, chaos, action, fast-paced activities, and thrills.	As part of a callback, an audience member yells “slut” at an actress at the interactive theater event.
Social <i>Competition (2.a)</i> <i>Community (2.b)</i>	Interest in competition, socializing, collaborating, community, chatting, and interacting with other people.	A student leans over to talk to a peer while watching a presentation in class.
Mastery <i>Challenge (3.a)</i> <i>Strategy (3.b)</i>	Interest in practicing, challenges, advanced levels of difficulty, planning ahead, and making critical decisions.	A student asks a question to affirm their understanding of class subject matter.
Achievement <i>Completion (4.a)</i> <i>Power (4.b)</i>	Interest in collecting every resource/collectible, completing every task/mission, becoming powerful/successful, and acquiring advanced and powerful resource/tools.	And audience member is careful to respond to every callback at the interactive theater event.
Immersion <i>Fantasy (5.a)</i> <i>Story (5.b)</i>	Interest in taking on a persona or character, pretending to be somewhere else, in-depth storyline, and complex characters.	An audience member comes to the interactive theater event dressed as a character from the <i>Rocky Horror Picture Show</i> .
Creativity <i>Design (6.a)</i> <i>Discovery (6.b)</i>	Interest in expression, customization (of both physical representation and surroundings), exploration, and experimentation.	A student doodles elaborate drawings on her notes during class.

Table 2. Created using Quantic Foundry’s Gamer Motivation Model (Yee & Ducheneaut, 2015).

Chapter 4: Results

The goal of this study was to apply a digital game motivation framework to physical spaces in order to explore digital game motivations in physical, traditionally non-game spaces. In order to do this, an intrinsically-based gamer motivation framework developed by Quantic Foundry designed to elicit feedback about how important and enjoyable specific activities or actions are in the context of a digital game experience. However, for the purpose of this study, items in the survey were modified in order to elicit responses about physical spaces, such as a class or theater space. Additionally, several items addressed the frequency with which people engage in certain activities or actions during those experiences.

Tables 3 and table 4 display each motivation, sub-motivation, and the items that were designed to measure them. In other words, each of the 48 items were grouped according to the motivation they represent, and each item group is labeled with the motivation and sub-motivation that those items are meant to measure. Table 3 displays the items used in the modified survey at the *Rocky Horror Picture Show* shadowcast grouped according to the motivation the item was meant to measure. Additionally, the average response from audience members who took the survey are displayed in the table. Audience members ranked each item on a scale from 1 to 5 based on the item's enjoyability, importance, and how frequently they participated in those behaviors at that event. After the items and the responses were grouped according to motivation, the responses were averaged both per individual item and also as an item group. In other words, the researcher averaged the Likert-scale responses to the modified Gamer Motivation Profile survey to quantify participants' self-reported tendencies toward specific motivational behaviors. One overall average rating (on a scale from 1 to 5) was found for each sub-motivation. Table 4

displays the same types of information but relative to the Emerging Media Design and Development class.

The researcher attempted to apply the Gamer Motivation framework to two physical spaces, one in an educational setting and one in an entertainment setting. More specifically, the research collected data in an Emerging Media Design and Development class and at a *Rocky Horror Picture Show* shadowcast performance. In order to apply this framework, a modified version of the Gamer Motivation Profile survey was administered to participants in each space. In order to analyze the results of this survey, all questions were copied from the Gamer Motivation Profile survey from the Quantic Foundry website. Next each question was categorized according to the motivation it is intended to measure (See Table 3 and Table 4). For example, the question “How important is making an effort to get every collectible item in the event or show to you when you attend a live, entertainment-based event or show?” was categorized as a measure of achievement, and more specifically within that parent motivation, *completion*. A second coder analyzed the prompts using the same method as the primary researcher to establish inter-coder reliability. There was 91.7% agreement between the two coders regarding categorization of survey prompts and responses. This grouping was done with responses from both the *Rocky Horror Picture Show* Shadowcast survey as well as the Emerging Media Design and Development class version of the modified version. However, Tables 3 and 4 show detailed accounts of which questions were determined to measure each motivation. In each table, average ratings for each question is also displayed. In addition to the average, the researcher also found the mode from all responses to the survey questions corresponding to one sub-motivation. Following is a report of the results of this methodology.

<i>Rocky Horror Picture Show</i> Shadowcast survey responses		
Motivation	Item	Average Rating (on a scale of 1-5)
Achievement		
Completion	Making an effort to get every collectible item in the event or show.	3
	Completing all possible missions and achievements in the show	3.3
	Finding hidden locations, characters, and artifacts	3.7
	Hitting every possible call back/engagement during the show	3.7
Power	Becoming as powerful as possible	3.3
	Acquiring powerful artifacts	3.3
	Optimizing the traits of your character and skill of your engagement	3.8
	Accumulating large amounts of in-show resources / currency	3
	Making progress of engaging as quickly as possible	3.5
Action		
Destruction	Engagement that gives you the opportunity to destroy things or make a mess	3.4
	Using distracting or destructive props and tools	2.6
	Being an agent of chaos and destruction	4
Excitement	Engagement that is fast-paced and intense	3.5
	Engagement with constant action and excitement	3.8

	Engagement that requires quick reaction times	3.8
	Engagement that gives me an adrenaline rush	3.9
Social		
Competition	Being highly-ranked regarding your engagement	3.3
	Dominating the other audience members	3.3
	Competing with other audience members	3.1
	Going up against other audience members in competition or matches	3.2
Community	Helping other audience members	3.4
	Chatting and interacting with other audience members	3.3
	Grouping up with other audience members	3.8
	Working towards a common goals with other Audience members	3.8
Mastery		
Challenge	Taking on difficult challenges that may take many tries to succeed	3.4
	Engaging with the show at the highest level you can	4.1
	Taking the time to practice and master the engagement	3
	Engagement that requires precise movements or callbacks	3.8
	Engagement that requires good timing on actions a moves	3.8
Strategy	Finding new ways to play engage more effectively	3.3

	Engagement that requires a lot of thinking and planning	3
	Engagement that involves logic puzzles	3.1
	Engagement that requires careful decision making	3.3
	Engagement that involves problem solving	2.8
	Engagement that requires long-term planning a strategy	3.7
Immersion		
Fantasy	Pretending that I am someone/somewhere else	3.1
	Taking on the role of another character / person	3
	Being immersed in another world/space	3.6
Story	Characters with interesting backstories and personalities	4.1
	An elaborate storyline	3.9
	Getting to know all of the main characters and their backstories	4.1
Creativity		
Design	Having many customization colors, styles, skins, and options for dressing to attend	3.7
	Put a lot of thought and effort into my character creation process	3.6
	Put considerable time into customizing my characters	3.7
Discovery	Try out many different things to test what the show/performers lets me do	3

	Experiment with objects in the show just to see what happens	3
	Take the time to discover glitches and bugs in the show	3.2
	Explore the show/narrative world just for the sake of exploring it.	3.9

Table 3 shows which items in the survey were meant to elicit feedback about which motivation. Additionally, Table 3 displays the average response for each question that was administered as part of the survey at the *Rocky Horror Picture Show* shadowcast performance.

Emerging Media Design and Development survey responses		
Motivation	Item	Average Rating (on a scale of 1-5)
Achievement		
Completion	Making an effort to get every bit of information or resource out of the class	4
	Completing all possible awards and achievements in a class	3.9
	Finding hidden locations, characters, and artifacts	3.3
	Getting every possible star / achievement / award in a class	2.9
Power	Becoming as powerful or successful as possible	3.3
	Acquiring powerful resources and artifacts	3.7
	Optimizing your stats and traits	3.1
	Accumulating large amounts of in-class resources / artifacts	3.4
	Making progress of developing skills as quickly as possible	4.1

Action		
Destruction	Blowing things up or being destructive	3.3
	Using destructive materials	2.3
	Being an agent of chaos and destruction	2.4
Excitement	Classes or labs that are fast-paced and intense	2.9
	Classes or labs with constant action and excitement	3.4
	Classes or labs that requires quick reaction times	2.7
	Classes or labs that give me an adrenaline rush	3
Social		
Competition	Being highly-ranked in your class	3.3
	Dominating the other classmates	1.9
	Competing with other classmates	2.4
	Going up against other classmates in competition or matches	2.4
Community	Helping other classmates	3.2
	Chatting and interacting with other classmates	3.7
	Grouping up with other classmates	2.8
	Working towards a common goals with other classmates	3.7
Mastery		

Challenge	Taking on difficult challenges that may take many tries to succeed	3
	Completing the class at the highest difficulty level	3.3
	Taking the time to practice and master a class/lab	4
	Classes or labs that require good timing on actions and moves	2.9
	Classes or labs that require good timing on actions and moves	2.9
Strategy	Finding new ways to complete the lab more effectively	4.4
	Classes or labs that require a lot of thinking and planning	3.4
	Classes or labs that involve logic puzzle-like questions and problems	3.6
	Classes or labs that require careful decision making	3.1
	Classes or labs that involve problem solving	3.7
	Classes or labs that requires long-term planning a strategy	3
Immersion		
Fantasy	Pretending that I am someone/somewhere else	1.1
	Taking on the role of another character / person	2.1
	Being immersed in another world/space	3.5
Story	Meeting characters with interesting backstories and personalities	3.6
	An elaborate storyline	2.7

	Getting to know all of the main characters and their backstories	2.8
Creativity		
Design	Having many customization options in regard to my appearance	2.9
	Put a lot of thought and effort into my professional / academic appearance	3.1
	Put considerable time into customizing my outfit, school supplies, lab supplies	2.5
Discovery	Try out many different things to test what the lab lets me do	3.5
	Experiment with objects in the lab just to see what happens	3.5
	Take the time to discover glitches and bugs in the lab or class	3.3
	Explore the lab or class just for the sake of exploring it.	3.5
Table 4 shows which items in the survey were meant to elicit feedback about which motivation. Additionally, Table 3 displays the average response for each question that was administered as part of the survey at the Emerging Media Design and Development class.		

Survey Results

Achievement: completion and power

The *achievement* motivation is broken into two sub-motivations, *completion* and *power*. The overall average *completion* motivation rating for participants surveyed at the *Rocky Horror Picture* was 3.4. The average *completion* motivation rating offered for the Emerging Media Design & Development class was 3.5. Furthermore, the average *power* motivation rating for participants surveyed at the *Rocky Horror Picture Show* was 3.4. The average motivation rating offered during the Emerging Media Design & Development class was 3.5.

Action: destruction and excitement

The *action* motivation is broken into two sub-motivations, *destruction* and *excitement*. The overall average *destruction* motivation rating for participants surveyed at the *Rocky Horror Picture* was 3.3. The average *destruction* motivation rating offered for the Emerging Media Design & Development class was 3.3. Furthermore, the average *excitement* motivation rating for participants surveyed at the *Rocky Horror Picture Show* was 3.7. The average *excitement* rating offered during the Emerging Media Design & Development class was 3.

Social: competition and community

The *social* motivation is broken into two sub-motivations, *competition* and *community*. The overall average *competition* motivation rating for participants surveyed at the *Rocky Horror Picture* was 3.2. The average *competition* motivation rating offered for the Emerging Media Design & Development class was 2.5. Furthermore, the average *community* motivation rating for participants surveyed at the *Rocky Horror Picture Show* was 3.6. The average *community* rating offered during the Emerging Media Design & Development class was 3.4.

Mastery: challenge and strategy

The overall average *mastery* motivation rating for participants surveyed at the *Rocky Horror Picture* was 3.6. The average *mastery* motivation rating offered for the Emerging Media Design & Development class was 3.2. Furthermore, the average *strategy* motivation rating for participants surveyed at the *Rocky Horror Picture Show* was 3.2. The average *strategy* rating offered during the Emerging Media Design & Development class was 3.5.

Immersion: fantasy and story

The overall average *fantasy* motivation rating for participants surveyed at the *Rocky Horror Picture* was 3.2. The average *fantasy* motivation rating offered for the Emerging Media

Design & Development class was 2.2. Furthermore, the average *story* motivation rating for participants surveyed at the *Rocky Horror Picture Show* was 4. The average *story* rating offered during the Emerging Media Design & Development class was 3.1.

Creativity: design and discovery

The overall average *design* motivation rating for participants surveyed at the *Rocky Horror Picture Show* was 3.7. The average *design* motivation rating offered for the Emerging Media Design & Development class was 2.8. Furthermore, the average *discovery* motivation rating for participants surveyed at the *Rocky Horror Picture Show* was 3.3. The average *discovery* rating offered during the Emerging Media Design & Development class was 3.4.

Observational Data

Observational data was collected during both the Emerging Media & Development class and the *Rocky Horror Picture Show* theater event. Observational notes were recorded by both the primary researcher and a secondary researcher. The observational data collected was coded using a system developed directly from the Gamer Motivation Model. Both the primary researcher and a research assistant independently coded each observation to establish inter-coder reliability. In addition to this system of coding the observational data, the research also looked for emergent themes not related to the motivations in the model. From these observations seven key themes emerged.

Themes common to both events

Three themes were observed during both the interactive theater event and the educational classroom setting. The first was that *there were predetermined, clearly defined facilitators in each space*. In other words, in both spaces, there were “authoritative” figures who informed

people of the rules and expectations of each space. While this seems like an obvious statement, specifically in the classroom setting because that is the definition of a class (student and teacher), this theme is significant because it was consistent in **both** types of spaces. This could imply that this theme would be consistent in other types of physical spaces as well, even some less obvious ones. This theme was observed during the *Rocky Horror Picture Show* Shadowcast event when the event actors came on stage and told the audience the rules of the event. They explained what the expectations were, what was considered inappropriate, and the order in which the events would take place. In the case of the Emerging Media Design & Development class, the professor asked specific questions to foster and facilitate conversation. The professor also communicated when it was time to move on to a new activity in class.

Second, during both events, *participants often adopted either leader or follower roles*. Some participants would act with confidence, inspiring or directly encouraging others to do the same. In turn, other participants would react to or mimic the actions of the leaders. This was observed during the *Rocky Horror Picture Show* Shadowcast event when participants who had prior experience with the shadowcast would complete callbacks or gestures with confidence. In other words, audience members who had attended the event previously would have a better, more confident understanding of the interactions and expectations between the audience and performers. While these seasoned audience members would act as leaders, the other, less experienced participants would catch on and eventually join in. In the case of the Emerging Media Design and Development class, during team presentations some presenting team members would not talk, allowing their partner to dominate the presentation. One group member volunteered their group to present before consulting their partner.

The third key theme observed in both events was that *phones and social media were present more often than not*. During the *Rocky Horror Picture Show* Shadowcast event, audience members were observed taking pictures, videos, posting on Instagram, using Snapchat, and using their cellphones for the flashlight feature on multiple occasions. In the Emerging Media Design & Development class, students also used their cellphones and browsed Facebook during class.

Key themes from the Emerging Media Design & Development class

In the classroom setting *the professor facilitated most conversation and fostered ideas of collaboration*. In other words, the professor took special care to encourage students to work together and collaborate. For example the professor specifically suggested a scenario in which two groups might want to collaborate. He was also observed directing and facilitating conversation and asking questions meant to provoke conversation, as well as steer the conversation toward the next topic.

Additionally in the classroom setting, *students were occupied with presenting their projects*. In some cases, students were even distracted by their presentations. For example, in many cases, students were observed fidgeting with and preparing their presentations rather than paying attention to other presenters.

Key themes from the *Rocky Horror Picture Show* event²

In the theatre setting, *audience members were focused on interacting with each other and the performance*. On multiple occasions, people were observed physically touching each

² Because of the limitations of this location, the use of some traditionally used props were banned from this performance of the *Rocky Horror Show* Shadowcast. The banned props included rice, water pistols, candles, confetti, toilet paper, toast, card, hot dogs, and prunes.

other, talking to each other, and pointing out the behaviors of others and performers. In this setting, the actions of the participants indicated that they were more interested in the other people present than the movie itself. All of the audience members observed came to the event with at least one other person. More commonly groups of audience members were observed attending together. These pairs and groups would talk, whisper, giggle, and point out others on multiple occasions. They also engaged in activities that involved physical contact, such as hand holding, kissing, dancing, and cuddling (i.e. just being so physically close, they were touching).

In the theatre setting *there was also an “initiation” for new participants*. People who self reported as first-time viewers were marked as “virgins” – indicated by a red “V” drawn on their foreheads in lipstick – and encouraged to participate in an initiation event. This initiation consisted of all of the “virgins” coming onto the stage and completing a series of actions. These actions were seemingly arbitrary in nature, but did prime the new participants for the kinds of actions that would be expected of them during the actual performance. These actions were a series of callbacks and lewd gestures.

Chapter 5: Discussion

The goal of this study was to apply an intrinsic digital game motivational framework to two physical spaces in order to explore digital game motivations in a physical space to see if frameworks applied wholly in digital spaces have any credence in physical spaces. The outcome of this study would hopefully begin a conversation about the potential for a seamless motivational framework that spans across digital and non-digital spaces. This study aimed to address four guiding questions:

1. What are the similarities between the ways in which virtual spaces and physical spaces motivate audiences to engage or participate?
2. How can digital motivation frameworks be applied to physical events?
3. How might Quantic Foundry's Gamer Motivation Model translate to physical spaces designated for entertainment and education development?
4. How can an intrinsic model of motivation change the way we think about using game mechanics in physical spaces?

In order to address these questions, Quantic Foundry's Gamer Motivation Model was applied to an Emerging Media Design and Development class and a *Rocky Horror Picture Show* shadowcast performance. These two spaces – one educational and one entertainment – represent two common physical spaces in which people commonly interact for a particular purpose. Observational data was collected at each event and a modified version of Quantic Foundry's Gamer Motivation Profile survey was administered.

The first of the three notable observations that emerged from both the Emerging Media Design and Development class and the *Rocky Horror Picture Show* shadowcast was that there was a predetermined and clearly defined facilitator in not only the classroom setting where it might be expected, but in the theater space as well. In other words, there were authoritative leaders in each space. These people were responsible for directing people and defining the expectations in that space. Second, participants in each space often adopted either a leader or a follower role. Simply put, some participants took initiative and made moves first, while others waited and followed the direction and lead of the more assertive participants. The third theme was that phones and social media were present more often than not. People in both spaces had their phones with them and were seen using social media on multiple occasions. In the chapter that

follows, the research questions will be explored and discussed based on the themes presented by the observational data and results from the modified survey.

What are the similarities between the ways in which virtual spaces and physical spaces motivate audiences to engage or participate? Virtual spaces and physical spaces both motivate audiences to engage or participate by using mechanics to appeal to different types of motivations. Mechanics in this context is any element that helps a person interact with a space or complete a goal in a space. In other words, mechanics are simply the individual steps or tools one would use in a space. For instance, mechanics that exist in the *Rocky Horror Picture Show* shadowcast are the narrative of the movie itself, the performers, the props, etc. Mechanics in physical and digital spaces can have differing levels of similarity. Mechanics like a narrative, competition, or destructive props could be found in spaces both on and offline. However, in online spaces, implementing these props is different because the mechanics do not have to have any physical manifestation. In a physical space, there must be some physical presentation of a mechanic. For example, in the Emerging Media Design and Development classroom, the professor acted as the physically embodied mechanic of facilitation. Because these mechanics are found in both kinds of spaces, both digital and physical spaces are purposefully designed whether the designer is fully conscious of it or not. In other words, in each type of space, there exist certain mechanics available to participants. Regardless of whether designers of these spaces are conscience of every mechanic, they still present different possibilities to participants. Understanding and exploring the types of mechanics that are generally found in different types of spaces, both on and offline, may help someone who is designing a digital or physical experience understand what motivations are being appealed to, what mechanics will be expected in that

space, and how they can change or manipulate that space using mechanics. For example, if it is understood that a narrative is a mechanic at a theater event, and this mechanic appeals to the *story* motivation, it becomes clearer what the expectations of that space will be and therefore the behaviors. Once a designer uses this lens to critically break down the elements and mechanics in a space, it becomes easier to understand how to manipulate them to achieve a specific goal. This would give the designer more control over the space and help them better predict how people will engage with that experience.

How can digital motivation frameworks be applied to physical events?

Space-specific behaviors are taught to people at a very young age and reinforced throughout life. Working in conjunction with this expectation, many physical spaces are built around unspoken, pre-existing structures. In other words, people are primed for a space by being taught how to behave there. In turn, spaces continue to be created in a way that supports and complements that behavior. This indicates that physical spaces are constructed primarily with tradition in focus. Understanding this can help one understand why certain motivations scored highly in each space. The top motivations in each space do indicate what is most important to participants, but they also indicate that participants had an expectation of focus on those types of motivations. In other words, while participants scored some motivations higher than others, those are the types of motivations they expected to be important in that setting because of prior priming. However, because of this understanding of what kind of motivations are going to be appealed to, certain types of events attract different types of people. Because a student expects a classroom to focus on experiences that correlate with the *completion* and *strategy* motivation, the

student would not engage in that space unless they are in some way interested in having those motivations appealed to.

This theory can help with the understanding of how a digital motivation framework can be applied to physical events because it indicates that some motivations will have more context and importance in some spaces than others. For instance, because the participants are primed to put importance on the *story* motivation at a theater event, it is easier to predict what kinds of experiences and interactions they are going to value: ones that have to do with in-depth plots, interesting characters, and other narrative related mechanics. On the other hand, motivations like *competition* might be considered less important because there is less context for it. Competing with other audience members is not something a traditional audience would be primed for in that setting.

By using the Gamer Motivation Model to analyze physical events, it becomes easier to predict what kind of motivations are already being appealed to in each space. It also becomes clear what motivations might be considered taboo or lose too much context to be considered important. This knowledge could be used as an important tool with designing physical spaces. When constructing a physical space, the designer would need to think about how to set up a space and define expectations for those spaces in a way that will clearly cater to motivations in a purposeful way. In other words, applying this model to physical spaces could help someone predict what motivations participants will already be primed for and which ones they may have an unexpected opportunity to appeal to. This theory helps explore some key differences in the way people are motivated on and offline. Specifically, because digital spaces are relatively new, there is less expectation for how we build these spaces. This makes it easier for a creator to manipulate those spaces, change those spaces, and appeal to more motivations in those spaces.

This theory can also be applied to the concept of gamification. In order to use game mechanics in physical spaces more purposefully, a designer should consider what motivations are already being appealed to because of the preexisting expectations of certain types of spaces and what intrinsic motivations could be appealed to by the use of game mechanics. For instance, in a classroom setting, rather than adding a leaderboard or point system, a designer should think critically about what mechanics will appeal to intrinsic motivations that are not already being reached in that space. It is likely that a leaderboard or point system would only appeal to people who are interested in the *power* or *completion* motivation, but as this study indicates, people are primed for those motivations in that space already. Adding more mechanics to appeal to those motivations would be redundant. Instead a designer would need to think about what motivations might not be appealed to in that space and determine how to effectively and purposefully implement mechanics to activate those motivations. Using a digital framework in a physical space to determine what motivations are and are not being appealed to could help build a framework that is seamless across digital and physical platforms. Thinking about motivation intrinsically and understanding that people are primed for certain physical spaces can help a designer understand how to be mindful of the mechanics they use. Furthermore, this understanding could also help a designer manipulate a physical space by adding mechanics that appeal to motivations which might have been otherwise overlooked.

In order to use this knowledge about physical spaces and create a successful framework for motivation that transcends physical and digital spaces, discussing the three themes observed at both events is key as well. These themes are mostly likely indicative of requirements for creating a “successful” physical space. In this context, a “successful” physical space could be considered a physical space where the participants feel comfortable and are able to complete the

intended goal or interaction. Understanding these three themes could be helpful when building a space that is comfortable and easily navigable for participants. Furthermore, understanding the importance of these themes in physical spaces can help anyone trying to create a seamless, digital to physical framework, because they outline requirements for a physical space. These themes would need to be critically considered and used as tools to bridge the gap between physical and digital spaces.

How might Quantic Foundry's Gamer Motivation Model translate to physical spaces designated for entertainment and educational development?

In each of the two spaces, different motivations proved to be more important. The motivations of *story*, *excitement*, and *design* were the top-three averaging motivations at the *Rocky Horror Picture Show* shadowcast, while *strategy*, *competition*, and *fantasy* were the three lowest-averaging motivations for the interactive theater event. This indicates that people who attend an interactive theater experience like the *Rocky Horror Picture Show* shadowcast may be motivated by experiences that are fast-paced and exciting, have in-depth storylines, and allow for customization. This is supported by observational data recorded during the events. For example, many people were dressed up as characters, thus indicating an interest in the *design* motivation. Participants were also encouraged by performers to be loud, make obscene gestures, and generally create an energetic and fun environment. This type of behavior is indicative of the *excitement* motivation. The importance of the *story* motivation is perhaps the most obvious in this setting - every participant was there with the goal of watching a movie and simultaneous live performance of that movie. Participants followed along with the narrative, dressed as characters from the movie, and cheered during important plot points or at the introduction of key characters.

However, the motivations that were considered least important to participants were *strategy*, *competition*, and *fantasy*. These motivations deal with experiences that involve careful problem solving, competing with others, and imagining being in a different place or world. Again, this is supported by observational data in that very few behaviors associated with these motivations were seen.

While the theater event had three most and least important motivation, the Emerging Media Design and Development class setting had a different set of top and bottom motivations. *Strategy*, *completion* and *power* were the top average for EMDD, while *fantasy*, *competition*, and *design* were the three lowest averaging for the EMDD class. This means that students participating in the Emerging Media Design and Development class reported motivations related to careful problem solving, completion, and becoming powerful as the most important. These students also reported that motivations related to *competition*, being someone or somewhere else, and customization were of least importance. However, in the classroom setting there is less observational data to support the reported importance of these motivations. This is partially because of the less interactive nature of the setting and partially because there was less verbal communication. In other words, because it was a class setting, for a majority of the time, participants were sitting and watching presentations relatively passively. However, students were observed being very occupied with their own projects, often fidgeting with their own project rather than listening to the presenter at the time. This theme that emerged from the observational data does support that students who participated in the Emerging Media Design and Development class were particularly invested in self-propulsion and personal success - which would support the heightened importance placed on the *completion* and *power* motivation.

How can an intrinsic model of motivation change the way we think about using game mechanics in physical spaces?

An intrinsic model can change the way we think about game mechanics in physical spaces by emphasizing the importance of inherent and internal motivation and drive rather than external influence and mechanics such as point systems and leaderboards. My study supports the value of this emphasis because my study demonstrates and confirms the degree to which intrinsic motivations like *achievement*, *mastery*, etc. are elemental to people's' expectations and experiences in classroom spaces. Similarly, my study demonstrates the degree to which intrinsic motivations like *story*, *excitement*, and *design* are elemental to people's' expectations and experiences in entertainment spaces.

Limitations

It is important to understand the limitations presented by this study and their effects on the findings and possibilities for future research. The first limitation presented by this study is the reliance on self-reporting. The modified survey was administered to participants and it was left up to them to answer the questions. There is no way to know for sure if participants answered the questions honestly and accurately. However, this is a limitation that the original survey had as well. The issue of potentially unreliable self-reporting was not the only limitation associated with the modified survey.

When the original Gamer Motivation Profile survey was modified for both physical spaces, they were changed as little as possible. This was done to keep the wording of the modified surveys as close to the original as possible, in hopes of getting the most accurate and applicable responses. However, in changing individual words and not whole contexts of a

question, some questions became confusing or lost relevance. For instance, in changing the item “using guns and explosives” was changed to “using distracting or destructive props and tools” for the *Rocky Horror Picture Show* Shadowcast, and “using destructive materials” for the Emerging Media Design and Development class. However, it is unclear what a destructive material might be in either of the physical spaces. In other words, the item was changed just enough to fit the new context, but as little as possible in order to reflect the original closely. This resulted in items and questions that were not relevant to the space, or did not make sense to participants. This often resulted in participants not answering a question at all, rather than giving it a low rating on the Likert Scale.

Another limitation relates to the observational data. While gathering observational data, the driving motivation was often unclear, or there may have been more than one driving motivation. For example, when observing two audience members using their phones, it was unclear if it was because the participants wanted to be social, or if perhaps taking pictures, or looking up trivia about the movie. In short, it was close to impossible to truly know the intent of the audience members and the honest motivation for their actions by solely observing them.

Conclusion & future work

The aim of this study was to to apply and explore digital game motivations in physical spaces, and therefore begin a conversation about creating a framework of motivation which can transcend both digital and physical spaces. Little research has explored what motivations drive people to engage with others and/or the environment in physical interactive spaces. This becomes problematic when creating an experience that transcends digital and physical spaces. In order to explore whether or not people are driven by the same motivations on and offline, this

thesis applies a digital motivation framework, Quantic Foundry's Gamer Motivation Model, to two interactive physical spaces. Quantic Foundry's Gamer Motivation Model serves as a lens through which we can identify what motivations that exist in the digital realm translate to interactive physical spaces like theater events or classroom environments.

In summary the results of this study indicated that motivations scored higher in importance, enjoyability, and frequency depending on what type of space was being studied. For instance, the *story* motivation was prioritized by audience members at the *Rocky Horror Picture Show shadowcast*. However, in the Emerging Media Design and Development class the *mastery* motivation was considered the highest priority. This indicates that in different types of physical, interactive spaces, people are driven by different motivations depending on the space. Furthermore, people will have different expectations depending on the type of space.

These findings contribute to a larger conversation about motivations in digital spaces and how they can be applied to physical spaces. Additionally, these findings help build an understanding of how cross platform experiences can appeal to different motivations and drive people in a way that is cohesive and seamless, even across digital and physical spaces.

In order to create a seamless, digital to physical framework of motivation, it would have to be understood that people have different expectations and priorities for different physical spaces. Understanding how to determine and manipulate these expectations and the associated motivations would be a powerful tool in creating more successful, appealing physical spaces. Additionally, understanding the requirements for a successful physical space is important when considering a framework that might bridge a digital and physical space. This study brought to light three of these themes; there is generally a predetermined facilitator, some participants are leaders while others are followers, and phones and social media are an inevitability.

Understanding the importance of these requirements and the ability to determine and manipulate motivation and mechanics in a physical space could help a designer create a physical space that potentially fosters a relationship between a physical and digital space. In other words, this combined knowledge could give someone the tools and power to create or manipulate a physical space so that it not only appeals to any motivations they see fit, but that it also has a clear relationship and tie to a digital space. Using this knowledge could help someone build a seamless experience between a physical and digital space by creating two complimentary digital and physical spaces. Additionally, the previously mentioned requirements could be used as tools for a seamless transition between those spaces. For example, a designer could create a complementary, well manipulated physical and digital space. Then the designer could use the requirements as tools by establishing a clear facilitator who would be responsible for directing people from a physical space to a digital space or vice-versa. This could take the form of an actual person “present” in each type of space, or simply repeated, instructional imagery. Additionally, identifying and fostering leaders in each type of space could be helpful for getting followers to participate. Finally, using phones and social media as a tool in this transition would be helpful for creating a seamless experience between digital and physical spaces. Not only are phones and social media an important starting point for the transition between physical and digital, but people are using them more often than not anyway. These requirements for a successful physical space could be helpful in creating a bridge between digital and physical environments. These requirements, as well as all of the previous findings and implications of this thesis, could also be considered for the foundation of a seamless framework of motivation between digital and physical spaces. This knowledge creates a foundation for many different future areas of study. For instance, one could study how motivations compare in different spaces

with consistent participants. One could also study a group of people primarily driven by a specific motivation to get an idea of if motivations change in different people depending on the space. There are a magnitude of ways the findings of this study could be broken up and studied in future work, and therefore add to the conversation about bridging digital and physical spaces and events.

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Appendix A: Original and modified survey questions

Survey: Original

How important are the following game elements and activities to you when you play video games.

- Making an effort to get every collectible item in the game
- Pretending that i am someone/somewhere else
- Taking on difficult challenges that may take many tries to succeed
- Becoming as powerful as possible
- Characters with interesting backstories and personalities
- Acquiring powerful weapons and artifacts
- Completing all possible missions and achievements in a game
- Having many customization colors, styles, skins, and options
- Playing the game at the highest difficulty level
- An elaborate storyline
- Finding hidden locations, characters, and artifacts
- Getting to know all of the main characters and their backstories
- Optimizing that stats and traits of your characters / cities / army
- Getting every possible star / trophy / unlock in a game
- Taking the time to practice and master a game
- Being highly-ranked on leaderboards
- Accumulating large amounts of in-game resources / currency
- Dominating the other players
- Finding new ways to play the game more effectively
- Making progress of leveling up as quickly as possible

How much do you enjoy the following game elements and activities?

- Gameplay that requires a lot of thinking and planning
- Gameplay that involves logic puzzles
- Blowing things up
- Competing with other players
- Taking on the role of another character / person
- Using guns and explosives
- Gameplay that requires careful decision making
- Gameplay that is fast-paced and intense
- Gameplay that requires good timing on actions a moves
- Helping other players
- Chatting and interacting with other players
- Going up against other players in duels or matches
- Gameplay that involves problem solving
- Being immersed in another world/space
- Grouping up with other players
- Gameplay with constant action and excitement
- Gameplay that requires quick reaction times
- Gameplay that gives me an adrenaline rush
- Gameplay that requires long-term planning a strategy

- Being an agent of chaos and destruction
- Working towards a common goals with other players
- Gameplay that requires precise movements on the controller

How often do you do the following things when you play video games?

- Try out many different things to test what the game would lets me do
- Put a lot of thought and effort into the character creation process
- Experiment with objects in the world just to see what happens
- Take the time to discover glitches and bugs in the game
- Put considerable time into customizing my characters / cities / spaceships
- Explore the game world just for the sake of exploring it.

Modified Survey: Rocky Horror Picture show shadowcast (entertainment)

How important are the following game elements and activities to you when you attend a live, entertainment-based event or show?

Not important at all, Extremely important (1-5)

- Making an effort to get every collectible item in the event or show.
- Pretending that I am someone/somewhere else
- Taking on difficult challenges that may take many tries to succeed
- Becoming as powerful as possible
- Characters with interesting backstories and personalities
- Acquiring powerful artifacts
- Completing all possible missions and achievements in the show
- Having many customization colors, styles, skins, and options for dressing to attend
- Engaging with the show at the highest level you can
- An elaborate storyline
- Finding hidden locations, characters, and artifacts
- Getting to know all of the main characters and their backstories
- Optimizing the traits of your character and skill of your engagement
- Hitting every possible call back/engagement during the show
- Taking the time to practice and master a game
- Being highly-ranked regarding your engagement
- Accumulating large amounts of in-show resources / currency
- Dominating the other audience members
- Finding new ways to play engage more effectively
- Making progress of engaging as quickly as possible

How much do you enjoy the following interactive theater elements and activities?

Not at all, A great deal (1-5)

- Engagement that requires a lot of thinking and planning
- Engagement that involves logic puzzles
- Engagement that gives you the opportunity to destroy things or make a mess
- Competing with other audience members
- Taking on the role of another character / person

- Using distracting or destructive props and tools
- Engagement that requires careful decision making
- Engagement that is fast-paced and intense
- Engagement that requires good timing on actions a moves
- Helping other audience members
- Chatting and interacting with other audience members
- Going up against other audience members in competition or matches
- Engagement that involves problem solving
- Being immersed in another world/space
- Grouping up with other audience members
- Engagement with constant action and excitement
- Engagement that requires quick reaction times
- Engagement that gives me an adrenaline rush
- Engagement that requires long-term planning a strategy
- Being an agent of chaos and destruction
- Working towards a common goals with other Audience members
- Engagement that requires precise movements or callbacks

How often do you do the following things when you go to theater experiences?

Never, Always (1-5)

- Try out many different things to test what the show/performers lets me do
- Put a lot of thought and effort into my character creation process
- Experiment with objects in the show just to see what happens
- Take the time to discover glitches and bugs in the show
- Put considerable time into customizing my characters
- Explore the show/narrative world just for the sake of exploring it.

Modified Survey: Emerging Media Design and Development Emerging Media and Design Thinking class (educational)

How important are the following elements and activities to you when you attend a class?

Not important at all, Extremely important (1-5)

- Making an effort to get every bit of information or resource out of the class
- Pretending that I am someone/somewhere else
- Taking on difficult challenges that may take many tries to succeed
- Becoming as powerful or successful as possible
- Meeting characters with interesting backstories and personalities
- Acquiring powerful resources and artifacts
- Completing all possible awards and achievements in a class
- Having many customization options in regard to my appearance
- Completing the class at the highest difficulty level
- An elaborate storyline
- Finding hidden shortcuts, knowledge, and artifacts
- Getting to know all of the main characters and their backstories
- Optimizing your stats and traits
- Getting every possible star / achievement / award in a class

- Taking the time to practice and master a class/lab
- Being highly-ranked in your class
- Accumulating large amounts of in-class resources / artifacts
- Dominating the other classmates
- Finding new ways to complete the lab more effectively
- Making progress of developing skills as quickly as possible

How much do you enjoy the following class/lab elements and activities?

Not at all, A great deal (1-5)

- Classes or labs that require a lot of thinking and planning
- Classes or labs that involve logic puzzle-like questions and problems
- Blowing things up or being destructive
- Competing with other classmates
- Taking on the role of another character / person
- Using destructive materials
- Classes or labs that require careful decision making
- Classes or labs that are fast-paced and intense
- Classes or labs that require good timing on actions and moves
- Helping other classmates
- Chatting and interacting with other classmates
- Going up against other classmates in competition or matches
- Classes or labs that involve problem solving
- Being immersed in another world/space
- Grouping up with other classmates
- Classes or labs with constant action and excitement
- Classes or labs that requires quick reaction times
- Classes or labs that give me an adrenaline rush
- Classes or labs that requires long-term planning a strategy
- Being an agent of chaos and destruction
- Working towards a common goals with other classmates
- Classes or labs that require precise movements or actions

How often do you do the following things when you attend class / complete a lab?

- Try out many different things to test what the lab lets me do
- Put a lot of thought and effort into my professional / academic appearance
- Experiment with objects in the lab just to see what happens
- Take the time to discover glitches and bugs in the lab or class
- Put considerable time into customizing my outfit, school supplies, lab supplies
- Explore the lab or class just for the sake of exploring it.