

“Is *Bay Area Regional Planner* fun?” an analysis of game design in the face of urban  
planning

by

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## Abstract

Play is an integral part of learning. Games address the human need to play, but with a structure of underlying mechanics designers can use them to create much more. Detailed simulations, abstract stories, and compelling drama are only the tip of what designers can create within games. Most importantly, games can use their rules to create dynamic experiences that respond to their player's mistakes and successes in ways that other media cannot. This point is particularly compelling when considering how viable they are as a teaching tool. The Urban Planning field is constantly seeking new and creative ways to engage with community stakeholders and to solicit feedback, share information, and create lasting relationships. Games naturally fill these roles in childhood development, and continue into our adult lives, so we are left asking, "why shouldn't we try using games to engage with stakeholders?" Because it's hard. The ways in which games are used in community outreach must be as carefully designed as the games we play and communities we live in. We look to games that boldly dive into community outreach. *Bay Area Regional Planner* is a game that does so, being designed for a local community workshop in San Francisco. In order to understand the ways we can use games in the planning process, we must study *Bay Area Regional Planner* for both its successes and its failings. We pose the research question, "is *Bay Area Regional Planner* fun?" As I study the way the game unfolds, and unravel the workings of the designer's intent, I ask not just *if* the game is fun but *why* and *how*. Ultimately, the answers both surprise and inspire us to see what could come next – and how the result could prove valuable to the Urban Planning field.

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## Chapter 1 - Introduction

“*Yes, but is it fun?*” is a phrase often heard in conversations among those studying games. Games are a device, an outlet, a set of rules in which players can make their own adventures, tell their own stories, or explore unique worlds. However, as it always does, the conversation returns to fun. If a player does not find the game fun, they will cease to engage with it, and the game designer’s hard work will never come to fruition in the player’s hands.

*Bay Area Regional Planner* is a game about working with other players in order to decide a plan for the growth of the Bay Area of California for the next 20 years. Straight forward on paper, maybe, but more complex in practice. The question that must be asked, as with all games, “*is Bay Area Regional Planner fun?*”

The challenge in answering that question comes from how to define fun. Fun is subjective; each player is going to have a different perspective, and differing preferences on the gameplay, aesthetic choices, and opinions of the game. Therefore, in order to answer the question, a way to objectively categorize the subjective opinions of the game’s players must be created.

At this point, ludology can provide a clearer context for what constitutes fun, and through the work of researchers in this relatively young field, we can begin to see a clearer picture of what we are looking for. It is found in an almost 20-year-old framework known as “MDA.” Standing for Mechanics, Dynamics, and Aesthetics, MDA provides a system by which the designer can understand the user’s preferences in the game based on their reaction to eight Aesthetics presented as structure to the MDA Framework.

The following pages represent an account of game theory through history, and its intersection with contemporary planning practice. To begin, I present theories of game design,

particularly emphasizing the ones that have influenced this work most. At which point a recount of the history of games that have been influential to the field of city planning is presented. Then, I conclude the review with an argument for the selection of *Bay Area Regional Planner* as the basis of this research study and an overview of its mechanics, dynamics, and aesthetics. The methodology demonstrates the process used for collecting data and analyzing the outcomes of planning students engaging in gameplay, then presents a hypothesis of outcomes expected based on preliminary assessment. This hypothesis is then compared to the findings, and conclusions are drawn about *Bay Area Regional Planner* as a planning game.

## Chapter 2 - Background

What is a game? Is it a construct of leisure meant simply to entertain us, or is it something more? Is it an activity with rules and structure intended to make players compete for a high score? The answer is neither and both. According to Webster's dictionary, a game is, "[an] activity engaged in for diversion or amusement." The word's alternate definition explains games as "a physical or mental competition conducted according to rules with the participants in direct opposition to each other" (*Definition of GAME*, n.d.). For the purposes of this project, I explore the first definition within the methodology of the research. However, the second definition ties closely to one of the theories of game design that are explored in the following section. To understand game theory and extrapolate its use to planning, I must go back to the beginning.

For millennia, mankind has played games. Early dice games can be traced as far back as ancient Egypt (Smiley, n.d.). The Greek Olympics, American pioneers playing cards, and college students throwing balls into cups are all games. Through the ages, the mediums in which players play have grown and rules have changed. At their core, all games share two important characteristics. First, games have rules. Second, players have agency to choose their own actions within the limitations those rules impose.

Many other aspects are important in the design of games, but without those two characteristics, the end result is something other than a game. Tertiary to both characteristics is the basis of player motivation – the reason players "play" at all: because games are fun. This point is often one of contention, as every person has unique and different motivations, and will have different ideas on what constitutes fun. I will discuss in greater detail what exactly "fun" is, but for now the colloquial understanding of fun as entertainment suffices.

Not every game appeals to every demographic. A culture of its own has developed around games, and gaming industry leaders saw an opportunity to cater design to different preferences. Influential designers and developers began tailoring experiences to the demographics that would most likely be attracted to the games they produced. As such, not every person will enjoy every game, nor would they be naturally inclined to seek leisure in playing games as opposed to other means of entertainment. It is important, then, that we consider biases when learning about such strongly objective ideas, especially when those biases will determine the entertainment we choose to consume.

Technology has brought with it new opportunities and challenges, as well as an ability to grow the space game designers have to work within. This growth creates opportunities for games to explore new and fascinating content previously unknown. This growth also makes it increasingly difficult to define games as the literature moves further from games presented in physical form to those that exist solely as digital experiences. Almost anything, then can be a game; so long as there are rules, and the player is free to make decisions within the boundaries of those rules (Rollings & Morris, 1999).

Therefore, for the purposes of this report, a game can be defined as, “an activity structured by rules, whereby players are given agency to determine their actions within the rules structure.” Key to the player’s relationship to the game is the motivator – fun. Fun is the output of the system between the player and the game’s interaction. As Satoru Iwata once said, “...games are meant to be fun. Fun for everyone”(Iwata, 2005).

## **Theories of Game Design**

Game design is a relatively young field when compared to most other academic areas of study. It has not been since the end of the industrial age, and the dawn of the information age,

that modern game theory has come to exist as a field of study. For this reason, there is no unifying theory that Ludologists (those who study games) follow when designing games. There are, however, different theories on how to design games. Many of them cover different aspects of the design, such as designing for fun, the psychology of gaming, and how to structure games that are intended for multiple players. The following sections postulate three important schools of thought. The first is a typology of design for understanding how players interact with each other, player-to-player, and how that influences gameplay. The second is a philosophical stance of the importance of fun. The third is a framework for understanding player-game relationships and codifying what makes games fun for individuals.

### **The Three C's of Gameology: Competition, Cooperation, and Collaboration**

The first school of thought explored places a game into to one of three categories of player-to-player relationships:

1. Competitive – in which players compete against someone
2. Cooperative – in which players work together to best each other
3. Collaborative – in which the goal is to work together

Competitive games place players in diametric opposition to each other – as is the case in many of the classic games we know and love: *Galaga* and *Super Mario*, where players compete for high scores; or Chess, football, and *Super Smash Bros*, where players actively compete to defeat their opponent. Competitive games are also the category in which single-player games take place – those games in which players do not interact with other players, only the game and the game environment. In single player games, players do not interact with other players, and as such their actions can be considered neither cooperative nor collaborative.

Cooperative games are very different from competitive games. As Zagal strongly defends the case of the importance of collaborative games, he maintains that “cooperative games may have players share some resources or goals, but ultimately the underlying fact is that the players are competing.” He goes so far as to cite Eiji Aonuma, director of The Legend of Zelda series: (in reference to The Legend of Zelda: Four Swords Adventures) “although it’s a game that four players have to cooperate to solve puzzles, when you play it . . . , you actually end up competing a lot more in that game than you do cooperating”(Zagal et al., 2006).

The omission of a central portion of Aonuma’s interview is what Zagal uses to build his case against cooperative games. Cooperative games do fill an awkward space – not perfectly competitive or collaborative; they ask players to cooperate when they could choose not to. A cooperative game could in theory remain non-competitive and still not be a collaborative game. It is noteworthy that according to Zagal, games have historically only been seen as competitive or cooperative. Games that focus on collaboration were seen as cooperative, and his study demonstrates a discernable difference between games that are collaborative and games that are cooperative.

If the three categories of games are a spectrum, collaborative games lie in direct opposition to competitive games. While competitive games ask players to compete against each other, collaborative games require players to work together in tandem. In cooperative games, players may share desires, objectives, or some goals. In collaborative games, all goals, resources, and successes are shared by all players. In many ways, the only thing that makes a collaborative game a “game” is that players work together in competition against the game itself, as is sometimes the case in cooperative games.

Bay Area Regional Planner is a cooperative game. While it asks players to work together in a collaborative manner, there are a few aspects that keep it from being truly collaborative. The most important of these is the goals cards. The fact that each player has individual goals that run contrary to each other qualifies this game as cooperative. Players cooperate towards a shared goal, but their individual stake, and what they stand to benefit, can (and will) be different for each player.

### **The Philosophy of Fun Game Design**

A concept briefly explored earlier, “fun” is the single most important factor in game design. Since releasing Super Mario Bros. on home consoles in 1985, Nintendo has defended the philosophy that games should always be fun. To do this, Nintendo is constantly attempting to innovate in the gaming world. According to General Manager of Entertainment Shinya Takahashi, “The thinking that guides us is: what can we do to pleasantly surprise players? It’s not that we’re consciously trying to innovate; we’re trying to find ways to make people happy” (Stuart & MacDonald, 2018).

But fun for whom? Fun is an objective concept, and varies from player to player. Ultimately, it is up to the player to decide what fun is to them. Fun can often be boiled down to anything that causes joy for the player. To some, that may be winning or conquering challenges. To others, fun is a chance to engage with others in a regulated way. For others still, it’s an opportunity to do things beyond the boundaries of their abilities. Since fun is objective, it is up to each player to decide what it is. Many of the games explored in the following pages are evaluated based on the author’s perspective of fun.

In the 21st century, technology has allowed us to make countless changes to how players are able to interface with games. These advances mean that games can share more information

than they were able to 30 years ago. Compare the interactive visual novels, educational tools, simulation software, and even a virtual economies created in games of today to video arcades of the 1980's and 90's. The differences become striking when *Pac-Man* is compared to *Detroit: Become Human*.

However, what separates games from movies, books, and other media is that players engage with games, and the games engage back (Salen et al., 2004). A connection is established between player and game that lasts only as long as the player decides to maintain it. The motivating factor, or factors, that drive a players' decision to continue playing the game is fun. Shigeru Miyamoto, creative director at Nintendo, sees fun as a sense of accomplishment – and a part of what has motivated his design vision for the company (*How Shigeru Miyamoto Designs A Video Game* / *SCHOOL OF GAME DESIGN*, n.d.).

Fun, the concept of joy from an action or reaction to stimuli, is such a personal idea. It would seem that everyone has a different idea of “fun.” For a gamer, the sense of satisfaction derived from besting an opponent is fun – to someone not attuned to videogames, shooting hoops, playing guitar, or riding a bicycle might be fun. Each individual user has a different opinion of what constitutes fun. What is important is that in a game's design, the essence of the players' actions must provide feedback the players will consider fun. For example, in poker, the desire for different outcomes can be “fun.” To one player, the idea of winning or having the perfect hand constitutes fun, but to his opponent, gathering information and finding his opponents “tell” drives his sense of fun.

Eventually, all players have to stop playing a game and engage with the physical world again. The factors that motivate them to continue playing are the triggers for their individual fun



experiences, and each may have different factors. Without the presence of games engaging players and players engaging back, the defining characteristic of a game ceases to exist.

### **The MDA Framework**

Established at a Game Design conference in 2004, MDA is a framework that helps designers understand how players interact with their game – specifically their perceptions of “fun.” MDA is an acronym for Mechanics, Dynamics, and Aesthetics. MDA represents a two-way relationship between designer and player. The designer views the relationship from the Mechanics end and are responsible for creating and calibrating the mechanics at play. The player, on the other hand, views their relationship from the Aesthetics end. As (Hunicke et al., 2004) describes, the aesthetics are broken up into eight categories, maybe more, depending on what aesthetics players prefer. These eight subcategories represent what players consider “fun.” From this reasoning, two conclusions can be drawn.

First, games are, at least in one sense, a sum of the aesthetics that players favor. For this reason, each game will have more than one aesthetic present in its design no matter how much it attempts to distill itself. Second, these aesthetics can be used to evaluate what players find fun about a game. The second conclusion solves a previously unsolved piece of the puzzle – how do you definitively answer *is any game fun?* Once we understand what pieces come together to make a game fun, we can begin to establish a clear picture of what makes a specific game fun, in the case of this project the game *Bay Area Regional Planner*.

The MDA Framework codifies player psychology in a way that allows us to not to answer *IS* it fun, but *HOW* is it fun. This distinction is perhaps more important, because while the eight aesthetics described in the MDA framework are objective, player opinion remains subjective (Walk et al., 2017). Therefore, regardless of what conclusions could be drawn without

it, opinions between readers may vary on what “fun” means to them. Providing a defense for which ways the game is fun is just as important as answering the research question.

## **A History of Games and Planning**

The history of planning in games is drastically longer than it would appear at first glance. Even in the formative years of planning theory and the creation of the profession, game makers were not far from developing these concepts into games. Game makers use design to create abstractions of the world that gives players a creative way to interact and engage with concepts the designer chooses. In the case of planning games, creators have done so for more than 80 years in some way or another (*Do not pass go*, n.d.). The following is a chronology of games considered in preparation for this research study.

It is important to note that in the history of games, there are many significant events. However, as an industry, most games have little to no effects on the games that follow it in the chronology. The history of games, can best be understood by comparing it to a splash and the ripples that follow. Each game is a splash and the effects they have on the industry are the ripples. In many cases, there are few ripples. There are, however, a few games that were fundamentally formative to the industry as a whole, and changed the way that creators designed games, as well as the way players interacted with them. Those games are given special attention, and their effects are noted.

The following chronology is organized by the release year of each game. Each game is presented as a brief history, its effect (if any), and lastly, a justification as to why it was not chosen for the research study being conducted. The criteria for evaluating the games is based on its incorporation of multiplayer, the level of collaboration v. competition, and its relevance to urban planning.

The games analyzed in the following chronology are represented below. The games that have a large impact on gaming, or that are of particular importance are bolded for clarity.

- **Monopoly (1935)**
- **Sim City (1989)**
- Carcassonne (2000)
- Puerto Rico (2002)
- EVE Online (2002)
- Ticket to Ride (2004)
- Power Grid (2004)
- **Minecraft (2009)**
- **Cities: Skylines (2015)**
- **Bay Area Regional Planner (2015)**

## **Monopoly**

The framework for the game that would eventually become *Monopoly* began in 1903 with Elizabeth Magie (Pilon, 2017). She had developed a game known as *The Landlord's Game*, a game that she would self-publish and distribute for the better part of thirty years, until 1932. It was in that year that Charles Darrow first played *The Landlord's Game* at a dinner party, and was so enamored by the game that he recreated its assets and rules to make Monopoly. After several years of high sales numbers, The Parker Brothers purchased the rights to the game from Darrow in 1935, and the game's patents from Magie.

The game was originally created as a tool intended to teach the benefits of de-monopolization (Pilon, 2017). However, those sets of rules have been lost to time, and all that remains is the highly competitive game in which players attempt to monopolize the real estate

market. While Monopoly has gone through a myriad of changes over the years, most of them have been aesthetic. The core rules of the game remain the same as they have for more than 80 years not.

While Magie may have intended for the game to be educational, the man credited with its creation, Charles Darrow, certainly did not. Even today, *Monopoly* cannot hide its connection to policy planning. *The Landlord's Game* is designed around public policy, a field with deep roots in city planning. The relevance to topics that planners deal with today such as property development, real estate, and infrastructure all remain relevant to urban planners.



**Figure 2-a: Players gather to play on a modern game board**

*Monopoly* is a well-known board game, having earned its place in many family's' collections. As a result, generations of people have grown up either playing this game, or listening to others argue about it. Skill, strategy, and luck are all tested as players compete

against each other to establish their own monopolies. While many of the games that follow *Monopoly* historically have little influence on the greater culture, let alone each other, it is worth noting that *Monopoly* is one of the few games in the chronology that has broad reaching ripples.

In fact, for more than fifty years, *Monopoly* maintains its own monopoly on the planning game field. This fact only changes with technology, and the advent of the personal computer. *Monopoly* is certainly a game worthy of study. However, since Magie's original rules for a more collaborative game are lost, the game fails to meet one of the most important criteria for study in this research project. It is solely competitive – perfectly competitive, in fact. Players act solely in their own self-interest as they compete for control. The game remains fun, if friendships can survive, and it certainly manages to keep captive audiences for hours or even days at a time. Due to the competitive nature, and changes made by Darrow from *The Landlord's Game*, *Monopoly* is not best suited for study here.

Under the lens of the MDA framework, there are a few interesting things to note. In *Monopoly*, the competitive rules of the game cause players to act against each other, which creates a narrative of personal victory over another player. It also creates challenge the same way. The more strategic and lucky your opponent is, the higher the challenge and the greater the reward for success. Also noteworthy is that like many other board games, *Monopoly* offers very little in the realm of self expression through its rigid, abstract rules.

## **Sim City**

In 1989, Will Wright created a game that would go on to spawn countless spinoffs, ports, and sequels, and would simultaneously create a genre that was defined by the game for more than twenty years. The genre is city builder and the game is *SimCity* (*SimCity* (1989), 2011). Wright was a young developer and programmer, who had limited success with the Commodore

64 prior to founding Maxis in 1986. Maxis, which would later be bought by Electronic Arts, is the game development studio famous for the *SimCity*, *Spore*, and *The Sims*.

*SimCity* is a game with no win condition, meaning there is no end goal. The player is charged with managing the growth and prosperity of a city indefinitely. They do so by assuming the role of mayor. Players create infrastructure, zone districts, and balance the city's budget. At the time, the concept was revolutionary and held a monopoly on the genre of "city builder" until Will Wright left Maxis and Electronic Arts in 2008 (*Kotaku - Will Wright Leaves EA, Does Something Stupid - Ea*, 2009). After almost two decades, *SimCity* was without its creator at the helm.

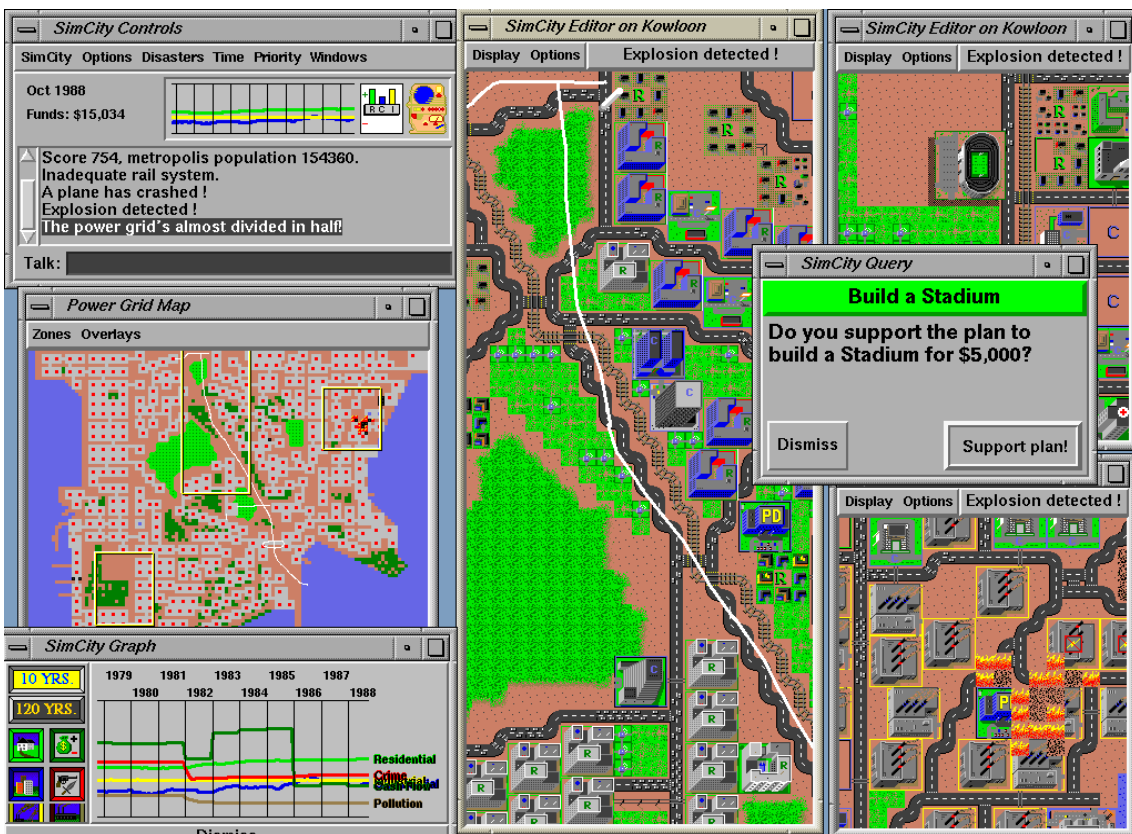


Figure 2-b: User Interface for *SimCity(2000)*

In the years that followed, the city building game genre floundered, seeing no major releases until 2013 when Maxis released the ubiquitous *SimCity(2013)* – a game titled after the

original entry in the franchise. The game's release was not well received. Fans and critics alike were distrustful of the online game modes, as well as frivolous limitations on what players could do (*EA apologises over "dumb" SimCity launch - BBC News*, n.d.).

As a planning game, *SimCity* succeeded where many have not. It defined a genre and tackled complex city planning problems (Adams, 1998). But, there is a major flaw which many critics of the series have cited: players have complete control as mayor. As a single-player experience, the choice to give players complete control makes sense from a design standpoint, but in reality, urban planners are beholden to many entities, and their plans do not always come to fruition. The single-player aspect of the game is also an important factor in the decision not to use *SimCity*, as this project is interested in the social aspect of gaming, and eliminating one of the aesthetics of fun in the MDA Framework is an undesirable setup.

What *SimCity* lacks in fellowship, it does make up for in submission and expression. As the player assumes complete control of the development and planning of their city, they have the ultimate means of self-expression in their ability to determine what they want to do with their city. This power fantasy leads to players' submission as they invest time in the game, and that investment turns into pastime.

## **Carcassonne**

*Carcassonne* is the first, but not the last, of the games in this chronology that have very little tangible impact on the field of games beyond their release and existence. The existence of *Carcassonne* is important and formative, but it does not have an impact on the games that follow it.

A tile-based game originally published in 2000, *Carcassonne* has almost nothing to do with urban planning and everything to do with good game design. The game operates in a turn-



based pattern, with each player placing a new tile at the start of his or her turn. The tile system allows players to develop and build the world as they play, while at the same time requiring them to build according to guidelines. However, player interests are not always diametrically opposed, and sometimes, players can find themselves politicking the actions of other players to persuade them to act in the best interest of another player – not dissimilar to the planning process. It is these interactions that are particularly interesting, as they challenge the rules of collaborative and competitive gameplay.

*Carcassonne* is complex, strategic, and necessitates long-term strategic thinking. In many ways, it is a perfect game to study. However, *Carcassonne* is primarily a competitive game. A competitive game can offer many learning opportunities, but in competitive game situations,



Figure 2-c: A fully assembled set of *Carcassonne* tiles



players will often focus on winning instead of the concepts the game intends to impart (Zagal et al., 2006). That is why the focus of the study could not be *Carcassonne*. Despite all this, the nature of the conflicting relationships it forces the players into in order to continue playing is worth consideration as it draws parallels to *Bay Area Regional Planner's* Goal cards – which can see players attempting to achieve opposing goals in the same city.

Self-expression and fellowship are standout Aesthetics in *Carcassonne*. Through playing with each other, players have the ability to build a map that could be the result of their combined vision, or of their concerted efforts to inhibit each other. In this way, fellowship and self-expression play off of each other, and their resultant Aesthetics are because of the dynamic relationship players have with each other in shaping the flow of gameplay.

## **Puerto Rico**

Like *Carcassonne*, the impact of *Puerto Rico* does not extend beyond its release. It did not change or pioneer any new fields in tabletop gaming, and while an interesting case, it has had no lasting impact on game design for urban planning.

First published in 2002 by Rio Grande Games and created by Andreas Seyfarth, *Puerto Rico* is a multiplayer tabletop game that asks players to assume the role of governors during the colonial era of Puerto Rican history. The game is incredibly complex, and includes an intricate economy, government, and resource management that impacts player decision making. Each player vies for position on the island in an attempt to export goods, perform services, and build infrastructure.

*Puerto Rico* is an interesting case study in just how complex a tabletop board game can be. It is rich, interesting, and provides players with a deep experience. However, it is not a compatible fit for this research study because *Puerto Rico* is a competitive game (Zagal et al., 2006). No matter how it is viewed, the ultimate goal of the game (much like *Monopoly*) is to



**Figure 2-d: *Puerto Rico* fully set up**

win. Challenge and discovery are resultant themes in *Puerto Rico* because of its challenging gameplay dynamics and many resources to manage. The opportunity the game provides to discover and learn about the workings of an economy through that challenge results in player discovery.

## EVE Online

*EVE Online* is not directly related to contemporary planning. It is, however, a very interesting case study in economics. *EVE* has a very robust economy, more active and realistic than can be found most MMO's, including *World of Warcraft* (2004) and *Warframe* (2013). *EVE*'s economy has been operating since 2003, and has grown into a system so complex that it requires a master's degree in economics to understand (Fine, 2002). It is unregulated by developers or governments, and is instead completely regulated by the player base (Reeves & Read, 2009).

The existence of *EVE Online* is important for one reason – it illustrates the potential of players to create their own experiences. The players of *EVE Online* managed to create and regulate a large market economy without outside interference. The player base collectively solves problems and perfectly illustrates the potential for limitless goods that players have



Figure 2-e: *EVE Online* user interface

(McGonigal, 2011). What *EVE Online* lacks is that it does not connect to any other contemporary planning issues. While its economic power is fascinating, it lacks collaborative nature in its gameplay to make it useful as a planning tool. It is also incredibly difficult to design a research study similar to this one that can fit into the world of *EVE Online*.

From an MDA game design perspective, *EVE Online* offers a nearly boundless potential for player discovery, both in game world, and conceptual. Set on a cosmic scale, the game offers a vast universe to explore, and with incredibly deep mechanics, it begs players to dive into what it has on offer. By learning the game's systems, players engage with a gameplay loop of discovery. The more players learn, the more they seek to understand and the more they continue to learn, like the Ouroboros.

### **Ticket to Ride**

First published by Days of Wonder in 2004 and created by Alan Moon, *Ticket to Ride* is a game that sees players take control of rival rail companies who are trying to establish a trans-continental railroad. Each player competes for resources and the ability to establish a foothold in multiple cities from coast to coast. The game places a huge emphasis on the value of transportation, and how transportation must connect in order to serve the needs of the population.

As a game, it comes very close to being a teaching tool, as it does relay some messages that are integral to transportation planning. But, as with other examples before, the competitive structure of the game acts against its ability to teach. Perhaps if the game were adapted to see players create the most efficient rail network, or other challenges of a collaborative nature using the game's resources, it could be pertinent. However, at least in the base version of the game, *Ticket to Ride's* competitive design is the largest limiting factor that keeps it from being a valuable planning teaching tool. That is why it was not chosen for study as part of this research



project, though it would be worth further study by another research project better suited to it. What most games examined in this study share is that most create challenge and fellowship through competition. *Ticket to Ride* is no exception, and offers similar experiences.



**Figure 2-f: *Ticket to Ride* game board**

## **Power Grid**

Published by Rio Grande Games in 2004, created by Friedemann Friese, *Power Grid* sees players take control of a company trying to establish a market control, much like *Ticket to Ride*, but this time on electrical infrastructure. Players pay to connect cities to their infrastructure network, and a maximum of three power companies can be located in each city. Each player increases their infrastructure to provide better service and grow their network by purchasing higher quality production facilities that use different resources. The goal of the game is to

ultimately control the largest, highest producing power company in the country (either Germany or the United States; the game comes with a reversible map).



**Figure 2-g: *Power Grid* game board**

The game faces issues similar to other competitive games. In fact, *Ticket to Ride* and *Power Grid* share such a similar structure and are both designed around infrastructure in such a way that some gamers would call them *clones*. However, *Power Grid* does provide players with a chance to manage infrastructure needs and to develop better infrastructure over time (at cost to them). Ultimately, *Power Grid* was not chosen because of its focus on competition, like *Monopoly* and *Ticket to Ride*. This focus on competition, however, does drive interactions like those observed in *Monopoly*, where the challenge of the game is dependent on the players in opposition to you, and as a result, the gameplay dynamics are going to be based strongly on the challenge of players interactions.

## **Minecraft**

It is hard to deny the impact *Minecraft* has had on the gaming community. First released in 2009 by Mojang Entertainment and later bought by Microsoft, Minecraft is a game about blocks. An entire world is rendered in blocks when the player first starts the game. In their own world, players are able to interact with their environment, and reshape it however they choose. Each player becomes an explorer, architect, and planner. Players can join forces, battle each other, fight dragons, trade with non-player characters (NPCs), or any other action the player chooses to undertake.

*Minecraft* affords a high level of power to its players. It is also highly customizable. Written in Java Script, players can edit the source code and program their own rules into the game. Some multiplayer “servers” set players to a specific faction in a large ongoing battle, while others increase the stakes of survival and require players to manage more than health. This freedom is part of what has made the game so successful.

In the 10 years since *Minecraft* came out, most triple-A developers (major game developers) or game publishers have incorporated a “crafting” system into their games. A crafting system is one that allows players to gather resources in the game world and turn those resources into equipment. In some cases, this could be weapons, shelter, food, or other items. Crafting systems differ from game to game. For example, one franchise that changed following *Minecraft* was *The Legend of Zelda*. In both of the *Legend of Zelda* releases since 2009, (*Skyward Sword* (2012), and *Breath of the Wild* (2017)) systems where players could craft food, and upgrade gear through collecting various resources were included.

The question must then be asked, “why is *Minecraft* relevant in the case of a tabletop game?” As with *Monopoly*, and *SimCity*, *Minecraft* has had a profound and undeniable impact on



the world of gaming. It has sold millions of units, and at this time, is one of the most formative games of the generation. *Minecraft* sparked an independent games renaissance.



**Figure 2-h: A player's in-game home**

From under the lens of MDA, *Minecraft* stands out in several key ways. The endless ways to play the game create plenty of opportunity for new discovery and for expression through building. Multiplayer experiences can be a formative opportunity to create social networks and for fellowship as players craft their own narratives in pursuits of the game's almost limitless to-do list. The unique, blocky design is an aesthetic unlike any other, creating a unique sensory experience for players.

*Minecraft* is an example of the potential that players have to self-organize and create (McGonigal, 2011). There was not a game before, and there has not been a game since, with



such potential. This potential has been harnessed in classrooms to engage young students through lessons about math, spatial reasoning, and pattern recognition, but it has not taught planning. Though it is a watershed moment in the industry, *Minecraft* is not a planning game. It does not address the concepts of contemporary planning practice.

### **Cities: Skylines**

2015 marked a monumental year for the city-builder game genre with the release of Colossal Order's *Cities: Skylines*. While many fans of the city building game were disappointed by the release of *SimCity(2013)*, *Cities: Skylines* was released to both critical and fan praise. *Cities: Skylines* managed to evolve and develop the genre in new and innovative ways, with patches, updates, and downloadable content being released in regular intervals by Colossal Order. One such release occurred as recently as March of 2020.

*Cities: Skylines* uses many tools familiar to fans of the city-building games. It operates from third-person perspective, in which the player assumes the role of mayor-developer. The player sets zoning regulations, creates districts, connects utilities, paves roads, and ensures that the city grows and thrives. The game also uses a physics engine that allows players to see the impact that their development has on the natural world around them, from water and air pollution to deforestation. Economy and environment are tied together, as well as the needs of the citizens of the city. The limits of city design are as endless as the player's imagination.

Of note is that academic studies involving the use of *Cities: Skylines* as an educational tool have found it to be a valuable in first-year urban planning classes, as it exposes students to many concepts of the planning process (Bereitschaft, 2016; Haahtela, 2015).

*Cities: Skylines* is a game worthy of study; however, it was not chosen for the proposed research study based on one important factor. The game is single-player, meaning that there is no collaboration in the planning process. It is important to note that *Cities: Skylines* certainly warrants more study from the planning community, but it is not the best candidate for this research study.



**Figure 2-i: Player's city in *Cities Skylines***

What *Cities: Skylines* does offer is submission and expression, much like its predecessor *SimCity*. Players have means of self-expression in their ability to determine what they want to do with their city. This power fantasy leads to player submission as they invest time in the game, and that investment creates a feedback loop.

### **Bay Area Regional Planner**

It is apparent that *Bay Area Regional Planner* is the focus of this research project. However, as we look back to games that have been influential to or are influenced by planning, it is key that *Bay Area Regional Planner* is given the same treatment as the games in its pedigree.

Just as justification is given for why other games weren't chosen, so too should justification be given for why it was chosen.

Designed as part of a local community workshop in 2015, and self-published in the same year, *Bay Area Regional Planner* showed a marked difference from all of the games that come before. First of all, it was designed to be used in the public engagement process – not retrofitted to be used as a teaching tool like *SimCity* had been.

As it had been designed specifically for public engagement *Bay Area Regional Planner* could tailor its experiences in a way that makes player interactions further the design intent. To better understand what I mean, think back to *Carcassonne*. *Carcassonne* offers opportunities for players to share in the process of designing their tile based world, but the focus on competition in its design ultimately made the concept of working together less attractive as each player could theoretically build apart from each other. *Bay Area Regional Planner*, on a mechanical level, is able to walk the line between cooperative and collaborative. The cooperative aspects represented in goal cards that are intended to put players at odds with each other. More importantly, the collaborative aspect of the game requires players to work together despite their differences for a common good. Thereby reinforcing the game's core value of compromise.

The aesthetics of *Bay Area Regional Planner* will be explored in greater detail in the Methodology. However, the challenge of player's needing to be in complete agreement, collaborative gameplay, as well as the intent for the game to be used in public engagement and education were the most compelling reasons to study *Bay Area Regional Planner*.

### **How to Play:**

The players' goal is to shorten commute time, increase housing stock, and achieve personal goals individualized to each player at the beginning of every game. "The bay area is

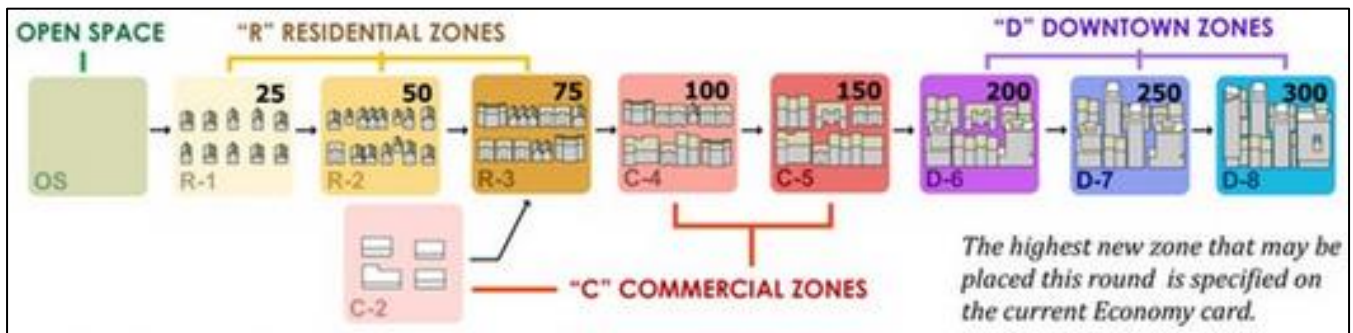
expected to add over a million new jobs in the next 20 years, putting pressure on housing costs and traffic. Rent is unaffordable and people are being displaced to areas outside the region, but still have to commute in to work. To handle the projected growth and make up for lost time, the region will need to add over 2 million new homes in the next quarter century.” - *Bay Area Regional Planner* introduction (*Bay Area Regional Planner - California Rail Map*, n.d.)

*Bay Area Regional Planner* takes place over a 25-year period of growth between 2016 and 2038 and is comprised of 12 turns, each of which represents roughly 2 years’ time. Players do not have individual turns, but share a single turn collectively. All decisions made in-game must be agreed upon by all players, not a quorum.

To begin the game, players shuffle the economy deck, place it face-down, place commute counters on their color-coded locations on the tracker, set the median rent to \$2200, and evenly distribute the deck of goals cards among themselves (see Table 2-1). In most instances, all 13 goals cards will not be used, unless players opt for a more challenging experience. Each player’s goal cards contain two policy objectives. Individual player success is determined by the player’s ability to complete these objectives at the end of the game. See figure 2-1 for examples of goals cards.



**Figure 2-k: Economy Card**



**Figure 2-j: Zoning Tiles**

Each round begins when the top card of the Economy Deck is revealed. The economy card

Goal Cards per player				
# of Players	2-3	4	5-6	7+
Cards per Player	4	3	2	1

**Table 2-1: Goal Card Distribution**

(Figure 2-k) determines the maximum value by which a tile can be upzoned, as well as the total number of housing units necessary to fill the new housing demand. Players must then collectively decide on up to six tiles to upzone for the turn. Players are not required to upzone all six tiles, but are not able to “bank” upzonings for future use. Only six tiles can be upzoned each turn, and any unused are lost. Once players have chosen tiles, the tiles are upzoned to the next highest zoning use. Zoning progression follows the chart

depicted in Figure 2-1. Tile density is on a spectrum that ranges from open (undeveloped) zone, to downtown zone (highly developed). Each zone has a total number (in thousands) that it can house.



**Figure 2-1: Example Goal Cards**

After players decide which tiles they will upzone, and all relevant changes have been made, the calculation phase begins. In this phase, players determine whether median rent will rise or fall based on the total number of surplus units created. For every 25,000 units surplus, rent is decreased by one space, and commute time in all counties is decreased by one space. For every 25,000 units in deficit from the turn’s goal, rent is increased by one space, and commute time in all counties is increased by one space.



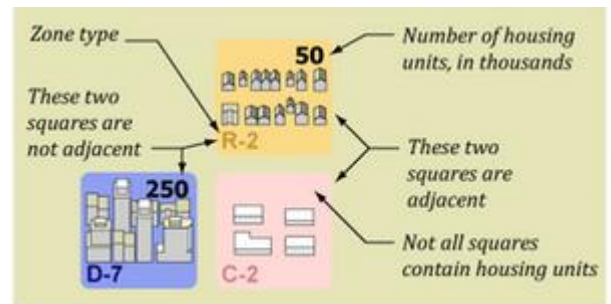


**Figure 2-m: Commute Time Adjustments**

Commute time is the most complex aspect to be adjusted. See Figure 2-n below In addition to the effect housing surplus or deficit has on travel time, three other factors must be considered. Factor number one states there is no effect on travel time by upzoning that took place on or adjacent to an existing Downtown (D) zone.

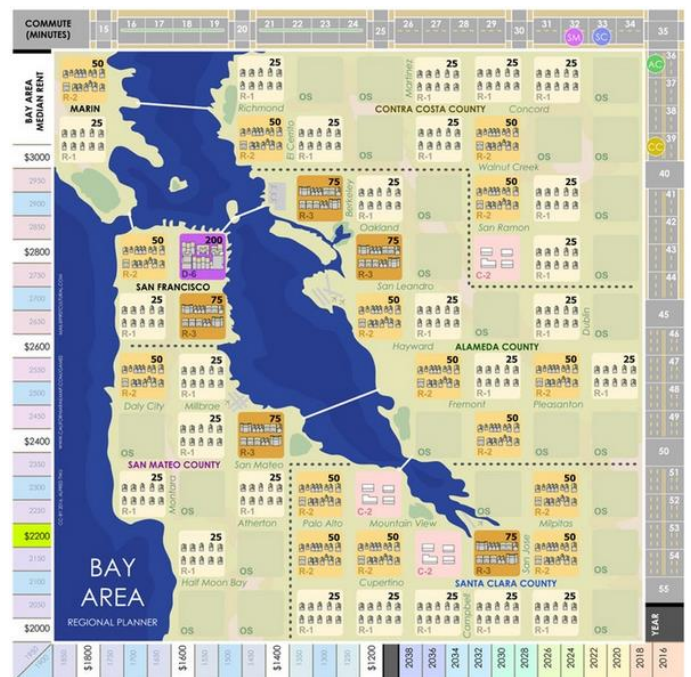
Factor two maintains that each upzoning on or adjacent to an existing Commercial (C) zone, but not on or adjacent to an existing D zone, increases travel time by one minute in its corresponding county.

Finally, each upzoning that is not on or adjacent to a C or D zone increases travel time by 2 minutes in its corresponding county.



**Figure 2-n: Rules Clarification**

The process repeats itself for rounds 2 through 12. However, if for any reason any travel time marker rises above 55 minutes, all players lose the game immediately. Each player can also individually lose the game if they fail to complete any of the goals cards they possess by the end of the game.



**Figure 2-o: BARP Game Board**

**Sample Turn:**

*Author Note: It is common practice in the instruction manuals of most games to provide a sampling of how the game is played, with fictional characters filling the roles of would-be players. In order to make clear who is speaking, and filling which roles, the fictional characters are assigned names. The following is a sample turn in which four fictional characters, Mark, Allison, Dustin, and Mary, play a single turn of Bay Area Regional Planner.*

To begin a game, Mark, Allison, Dustin, and Mary reveal the first card of their economy deck. They reveal a “Standard Economy” card. In order for them to meet the growth requirements for this turn, they will need to increase housing stock by at least 100,000 units. Mark suggests that they try to generate a housing surplus early to help reduce rent costs for when they have to meet greater economy demands later.



**Figure 2-p: Selected Upzoning Tiles**



**Figure 2-q: Game Board after sample turn**

Allison and Mary concur, but Dustin is worried. One of his goal cards is to keep as many open space tiles as possible. So, after voicing his concern, the four of them decide to upzone only existing residential properties, and to not change any open spaces yet.

Figure 2-r shows the six tiles they select to upzone, as marked in red. After they upzone the properties, they generate a surplus of 50,000 housing units, thus reducing the median rent by \$200. They also reduce commute times in all counties by 2 minutes.

Then, they examine the additional rules for commute times. In San Mateo County, they increase commute time by 2 minutes because the upzoning did not occur on or adjacent to an existing C or D zone. They repeat this process for Santa Clara County, which increases by 3 spaces total; Alameda County, which increases by 2 spaces; and Contra Costa County, which increases by 4 spaces. The adjusted travel times are calculated for each county, and the turn ends. Mark, Allison, Dustin, and Mary have successfully completed their first turn in *Bay Area Regional Planner*.

## **Design Intent**

In February of 2020, Alfred Twu and I were fortunate enough have an opportunity to conduct two interviews to discuss his process in designing *Bay Area Regional Planner* and what he anticipated the outcomes of gameplay to be. The interviews took place over two phone calls, with the first occurring prior to conducting the focus groups, and the second after the conclusion of the focus groups. In doing so, I was able to compare his anticipated player responses to the actual values. The dialogue shared here is also compared to what Twu has published on his website, which I considered when putting together the original literature search.

I began our first interview by inquiring if Twu drew inspiration from other games as he designed *Bay Area Regional Planner*, as well as his motivations to create the game. He



explained that he was inspired by the Yes In My Back Yard (YIMBY) movement in the Bay Area in late 2014, and wanted to design something that could get players to consider each other's points of view. However, he had not looked at or drawn inspiration from other games in his design process.

Elaborating on his remarks on his desire to create a game, I asked if Twu had any previous experience designing games. While he did not have any prior experience, he went on to explain he had made a prototype for what would become *Bay Area Regional Planner* that dealt with a gentrifying neighborhood and planning decisions made by players. He quickly realized that the issues he was interested in necessitated a regional view, and thus the vision for *Bay Area Regional Planner* was born.

His goal was to create a game that could demonstrate the technical accuracy of the challenges in engaging community stakeholders. When asked if designing for "fun" during the gameplay was part of his design, he clarified that, "no, it was always about making something technically accurate."

In learning from his mistakes, and having created since then, Twu shared what he believed were his key takeaways from *Bay Area Regional Planner*. One, while gridlock is technically very accurate in the real engagement process, it does make it hard to continue playing a game. In response, *North Berkeley*, another of Twu's games, implemented a timer. If players couldn't come to a consensus before the timer ran out, unintended side effects would occur. Two, player interactions are always the most fun part of playing a game.

The most informative portion of our conversations were when we discussed theory of game design. When asked if he had done any research on game design or had any knowledge of game design theory, again he responded, "no." Mr. Twu, by his own admission, had no formal

training in game design, and had not sought out any theories on game design. However, he described his guiding philosophy on city building games. “There are two types of narrative,” he explained. “The empire building narrative, and the mission or survival narrative.” The empire building narrative being the narrative primarily used in simulation games like *SimCity* where the player accumulates power, wealth, and resources. In contrast, the mission narrative puts players into a world with predesigned goals, and sets the player out to accomplish them. In his assessment, *Bay Area Regional Planner* uses a mix of both types of narrative to shape player experience.

Prior to our second interview, I sent a copy of *Mechanics, Dynamics, and Aesthetics* to Mr. Twu so he and I could compare his design process to the one described by MDA (Hunicke et al., 2004). He had two major thoughts about it when we sat down to talk in our second interview. The first was that he designed from the Aesthetics he hoped to have and worked upward, designing the rules and mechanics after he decided what outcomes he wanted. There is a fundamental flaw with designing from this perspective. It is the designer’s responsibility to shape Aesthetics and create their desired outcomes by creating Mechanics that encourage Dynamics to result in desired outcomes. The designer must consider what Aesthetics will result from the Dynamics their Mechanics encourage, but by focusing on design from the Aesthetic level, the Mechanics can end up underdeveloped.

The second thought Mr. Twu had was a list of which Aesthetics he thought would be most integral to the player experience. In his opinion, four Aesthetics stood out: Narrative, Fellowship, Expression, and Challenge. In Chapter 5, a comparison of the outcomes Mr. Twu predicted, and his response to the survey responses to them is presented.

According to Twu, key to the game's design was that players would have to sacrifice goals throughout the course of the game. The "compromise" in the game would come from players' goal cards putting them in opposition of one another. However, the reality that both player groups faced ended up being different than the result Twu anticipated. However, he shared a similar opinion to the focus groups in that ultimately, the goal was to get the group to consider the goal cards they had as a shared single unit, rather than as individuals with opposing goals. Also, in order to get the full experience, every goal card needs to be in play, otherwise the game experience will not have the same level of challenge as it was designed with – a position that will be challenged by the findings in Chapter 6 as we look at what future iterations of *Bay Area Regional Planner* could look like.

The confusion that player groups have regarding Marin County's inclusion on the play map is intentional as well. When abstracted into a square, Marin County fits into the space, and is very much a part of the Bay. Marin County is well known for its scenic beauty, and the game rule was intended to honor its significance. The context of Marin County is lost outside of the Bay, though, according to Twu. Context is so essential to *Bay Area Regional Planner* that he expressed that the players having difficulty with Marin County having valid playing spaces and the challenges they did not face from a lack of personal bias are a result of not living in the Bay Region.

Other aspects of our interview are best shared separated from the literature review in Chapter 5, as Alfred Twu's design intent and perception of player experience are compared to the observations offered by the sample groups.

## Chapter 3 - Methodology

The methodology of this research project is intended to be the framework of the research that finds the answer to the posed research question. In the case of this project, the question is very simple. “Is *Bay Area Regional Planner* fun?” An answer can be reached through an analysis of “fun” game design and a deconstruction of *Bay Are Regional Planner*. These are presented in tandem with a literature review, and an observation of players interacting with the game. These observations are supplemented by a follow-up survey, and a focus group. See Appendices C and D.

The project breaks ground into a territory that has only emerged following the rise of the home console in the 1980’s. That territory is gamification, which is the use of video game elements to improve user experience and user engagement in non-game services and applications (Deterding et al. 2011). Since it is an emerging field, research in game design for practical purposes, those beyond the gaming industry, is not a well-researched topic. The argument can be made for the development of a growing field of study and its potential for urban planning could either be astronomical or insignificant. However, because of the potential that games have, the benefits of using them far outweigh the drawbacks. Without exploring the benefits, there is little chance that we could discover the potential of gaming.

This project could serve to further two distinct fields that historically have not been related. This project is a chance to better the future of both fields by bringing a grounded and dignified research study to game design, and an energetic nontraditional research study to urban planning. Understandably, there will be those who disagree with the decision to investigate games in an academic study. As Gary Alan Fine puts it:

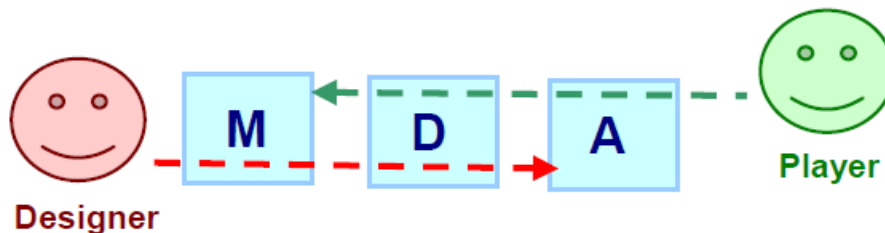
Sociologists who study leisure often find themselves attacked on two fronts. First, they are accused of not being sufficiently serious about their scholarly pursuits. Second, they are accused of alchemically transforming that which is inherently fascinating into something as dull as survey research tapes (Fine, 2002).

Consider that every research field was once brand new. Copernicus was burned for his claims and Marie Curie died for her research. The project proposed could revolutionize the way that we as planners consider games. It can also change the way that people interact with urban planning.

### **Mechanics Dynamics Aesthetics (MDA)**

To understand the methods employed in this research study, a fully realized understanding of the Mechanics, Dynamics, and Aesthetics Framework is essential. A summary of the system follows this introduction, leading into the methods used to conduct the research study, and concluding with a breakdown of the study conducted.

As mentioned, MDA is a system employed in the study of game design. Ludologists, people who study games, use the framework as a baseline for understanding what outcomes players are most interested in with games. In this system, game designers build games with Mechanics, which influence Dynamics, and ultimately create Aesthetics. However, players view games from their Aesthetics, and the Aesthetics shape their Dynamics with the game's Mechanics. This relationship is best described by Hunicke and company in their original paper on MDA, and is depicted in Figure 3-a.



**Figure 3-a: MDA Player v. Designer Perspective**

Because it is able to account for both Designer's intent, and player's perspective, MDA has been identified as one of the preeminent models of game design for a decade and a half. The most valuable part of the MDA model for this study is that the Aesthetics of the game are not the window-dressing of the game, rather the aesthetics are the way the game conveys "fun" to the player, and if successful, creates a feedback loop that keeps players engaged in gameplay. Hunicke and Company describe their reasoning for the usage of aesthetics: "In describing the aesthetics of a game, we want to move away from words like 'fun' and 'gameplay' towards a more directed vocabulary"(Hunicke et al., 2004). They add "How do we know a specific type of fun when we see it? Talking about games and play is hard because the vocabulary we use is relatively limited." Their response to these issues is to break "fun" into a taxonomy. "Fun" can be the result of any combination of eight (possibly more) Aesthetics. These Aesthetics are:

- Sensation: Player pleasure from sensory input provided by the game, such as in an open world game with cutting-edge graphics
- Fantasy: Players enjoying the role-playing aspect of a game, playing pretend in a fantastical world.
- Narrative: Player's enthrallment with the game's plot, where the game is being used as a storytelling device.
- Challenge: Player experiencing joy in the triumph over obstacles.
- Fellowship: Players using the game as a method of socialization, either as a communication device or as a method of building relationships. Fun comes not from gameplay, but from the people it is played with.
- Discovery: Player finding pleasure in the exploration of the game. This could be the lore of a game universe, or the navigation of a world.

- Expression: Player’s experience with the game as a method of meditation or means of exploring feelings otherwise impossible outside of the medium.
- Submission: Player’s experience is as pastime, either through investment in another aesthetic, or choice to commit resources to game for returns.

The value in dividing the “fun” into a taxonomy like this is that it allows for Ludologists to understand not just “if” a game is fun, but also “how.”

### **Methods**

Five methods are employed in this Methodology. The first method is the literature review, which provides the basis for understanding of game theory. Encompassed within the literature review is an interview with *Bay Area Regional Planner* creator, Alfred Twu. The second method is observation, which is used as I observe the gameplay interactions between players in *Bay Area Regional Planner*. Third is a sample survey. This is how I will retrieve quantifiable information from the players, which will be used later. Then fourth, I employ the use of a focus group – this is to follow up on observations from gameplay and responses to the survey, and to illicit deeper understanding from player motivation. Fifth, I conduct a data analysis of the information collected by the sample survey.

To begin the methodology, I conducted a literature search. In studying two historically unrelated fields, one still in its early years, there was a struggle to find a system that was going to suit this research project. The Mechanics, Dynamics, and Aesthetics Framework was the result of this search. The resulting methods, and the design of the survey and focus group, are based on the structure that it provided to the project. The literature review phase also informed what limitations the project would have. This revealed itself primarily in that while game theory has many students, it has few academically recognizable works that lend credibility to it, a fact

which is only compounded by its young age. Second, because of the limited scope that game theory has been studied within, there are few studies conducted between games and planning in practice. These factors culminated in the literature review conducted, which is an amalgamation of research from planning, game design, psychology, and education.

From the start, it was clear that if I was going to answer the question, “is *Bay Area Regional Planner* fun?” that groups of people would need to play the game in order to solicit their input. Participants will take part in a limited game of *Bay Area Regional Planner*. The gameplay will be limited by time, as participants will be participating as part of their involvement in PLAN815 and PLAN660. During play, the lead researcher and advising faculty member will observe players’ actions as talking points in focus group sessions, and will share in the findings section in reference to predicted outcomes.

After participants play *Bay Area Regional Planner*, they will complete a follow-up survey directly afterward. This will stay constant between both groups. The survey, attached as Appendix C, will gauge player’s perception of the eight Aesthetics on the MDA Framework on a Likert scale.

I will compare responses individually between players and between the two groups over all. Specifically looking for which of the Aesthetics players score highest on the Likert scale, and deviations between the two groups based on scores. I will also consider open-ended responses left by participants, and bias based on preset goals cards that will be distributed to students. Hypotheses about outcomes, and specific outcomes studied will be illustrated in more depth in the Research Study and Findings sections.



## Chapter 4 - Research Study

Before conducting the study, it was important to set expectations for the outcomes. As the research question is very short, and can be answered with a one-word response, I knew it was essential to dig deeper into the results and ask the “but why” question. This, “but why?” philosophy has driven the design of the survey, and the content that the focus groups hones in on.

“But why is it fun?” is the first end of the question raised. As fun is a subjective idea, as I reviewed in the literature, it must be addressed exactly what makes *Bay Area Regional Planner* fun, and in what way is it fun. The MDA Framework has proven to be resilient when answering such questions, as the taxonomy it designed allows us to demonstrate through survey responses which of the game’s Aesthetics contribute most significantly to each player’s experience. As a result, the highest scoring Aesthetics are the most fun components of *Bay Area Regional Planner*. Conversely, the lowest scoring are the least fun.

“But why does it matter?” is the second invisible question raised. In defense of the decision to study game design I offer two points. The first, that understanding the relationship between the player and the planning game is valuable. If we are to correctly engage with citizens through games as a medium, we must understand their successes and their shortcomings. The intent is to set a precedent for how planners should consider games in this space, and how to evaluate them, rather than demonstrate the exact value of *Bay Area Regional Planner*. Games such as *Bay Area Regional Planner* are designed with public engagement in mind, and prioritize different ideals than games designed for serious fun.

The second counter-point I offer is, “why not?” An investigation into a growing field that may prove beneficial in understanding an alternative method of community engagement could prove valuable. As planners, it is our responsibility to pursue the public good, and the young

field of game design may help us in that pursuit. While this project could be shrugged off as only of “tangential” relevance to planning, it is my belief that a better adjective would be “experimental.”

### **Hypothesis**

It may come as no surprise that it is the hypothesis of the researchers that the answer to the research question, “Is *Bay Area Regional Planner* fun?” is “yes.” Based on experience playing *Bay Area Regional Planner* and the response from groups I have played with in the past, it is my hypothesis that the focus groups will find *Bay Area Regional Planner* fun.

How to answer this is based on the Likert scale used in the survey. Anything below a 3 is not fun, and anything above a 3 is fun. However, a “disengaged” margin surrounds the median score on the Likert scale. A rating between 2 and 4 may be inclined towards or against a “fun” rating, but because the respondent did not rate it highly enough, an average score in the range of 3 cannot be considered conclusive.

This hypothesis is of the overall rating of fun players will answer on the survey, not of each individual Aesthetic. I was aware that not all of the Aesthetics in the MDA Framework will be as engaging during gameplay, and so here is offered a prediction on what I anticipate the outcomes will be for each Aesthetic separately, in addition to the overall outcome hypothesis above.

Predictions for the Aesthetics are as follows:

1. Sensation: As an Aesthetic, Sensation relates to sensory information, and is primarily used as a guide based on players’ perceptions of graphics and sound. In videogames, this is often used to describe “immersiveness.” However, in the case of *Bay Area Regional Planner* as with many other board games, this Aesthetic does not stand out beyond the game elements. It

is worth noting, however, that *Bay Area Regional Planner* has graphics designed by the creator, an artist. With these factors in mind, I hypothesize that players will not rate Sensation highly as an Aesthetic.

2. Fantasy: Often associated with Role-Playing Games (RPG's) Fantasy as an Aesthetic describes player's suspension of disbelief, and their willingness to play into the role they are cast as. Among all eight Aesthetics, this is perhaps the most personal to the player, as their willingness to participate in this way is entirely up to them. For this reason, I predict that I will see a large mix of both low and high scores, culminating in an average score around the median.
3. Narrative: Similar to Fantasy, Narrative as an Aesthetic is related to how the player perceives their relationship to the game world. It differs, however, in that the Narrative explored by the player is crafted by the designer, and the designer has more control over how the players engage with the game as an unfolding story. In some cases, the game's designer chooses to entirely omit Narrative, and leaves players to create their own. *Bay Area Regional Planner* takes a mixed approach to Narrative, setting up a structure, but opting to let player interactions tell the story of the development of The Bay over a twenty year period. Based on the mixed approach taken, and how players may or may not buy into the concept of the game, I predict that there will be a large mix of both low and high scores, culminating in an average score around the median. Additionally, I predict that players will share similar rating scores for both Fantasy and Narrative per respondent.
4. Challenge: Player's perception of difficulty over the course of gameplay is central to how they will rate Challenge as an Aesthetic. Per player, one of two outcomes is likely to happen. If the player indicates that the game is too hard, they will likely rate the Aesthetic lower than

they would if they believed the game is too easy. However, players are still unlikely to rate the Aesthetic as “fun” if challenge does not sit in a “happy medium” of challenging them to stay engaged, but does not become frustrating in difficulty. Randomness in the Economy cards drawn, and player’s goals cards, will be influences in how the player ends up experiencing the game’s difficulty. For this reason, I hypothesize that Challenge will, overall have a rough median score in the range between 2 and 4. However, if players face added difficulty in the randomness of the Economy deck, overall score may decrease for that respondent section. Specific Goal cards may also contribute to a lower overall score from the player, based on perceived difficulty of the assigned goal.

5. Fellowship: The idea of games as a social medium may not come as a surprise, especially for those who lived through Hasbro’s “Family Game Night” promotional materials. However, from a design standpoint, some games are more conducive to players interacting with each other and building relationships. Considering that *Bay Area Regional Planner* was designed to be used as part of a Community Development Workshop, and to force communication between players, the game was designed with this Aesthetic in mind. As such, I predict that players will rate Fellowship highly as an Aesthetic.
6. Discovery: Discovery is the Aesthetic that most closely relates to educational games. While player driven, Discovery is about revealing or teaching new information, or teaching concepts in ways not yet explored. Considering that *Bay Area Regional Planner* was designed with education through serious fun at its core, this Aesthetic should be rated highly by players. For this reason, I predict that players will rate Fellowship highly as an Aesthetic.
7. Expression: Often referred to as self-expression, the Expression Aesthetic refers to the player’s relationship to the sense of control or artistic outlet players can achieve through the

game. Expression Aesthetic heavy games are often “sandbox” style games, where they player can build what they want – as in SimCity. Depending on the Economy cards players get in their game, they could find the game to be a somewhat fulfilling means of self-expression within the role of city planner. For this reason, I believe that there will be a relatively similar scores among each respondent section. The overall score that the player’s rate this Aesthetic are hard to predict, but I hypothesize that they will sit on the low to median end of the spectrum.

8. Submission: In terms of game Aesthetic, Submission means the willingness of the player to surrender to the game, and play for the sake of play. It is the most nebulous of Aesthetics, it can be used to describe the game as a form of pastime. A player’s attraction to this Aesthetic will be based largely on their desire to simply “play” at all. For this reason, I have designed a question that relates back to it within the survey that asks if the respondent plays games as a pastime outside of the test environment. It is my prediction that players will not rate Submission highly as a “fun” Aesthetic in the game design. However, I expect that those who respond yes to playing games outside of the experiment will rate Submission higher as an aesthetic overall

### **Study Conduct – Group A**

Group A’s study was conducted as part of PLAN815. Class began at 7:00pm, and the class instructor, Greg Newmark, introduced the lead investigator and included a brief synopsis of what was expected during the evening. Rules were read to the students from *Bay Area Regional Planner’s* instructions, and the students were allotted approximately one hour of play time due to time restrictions. Group A was composed of a mix of men and women, at a ratio of about 2-to-1 men to women, and ages ranged from 22 to 29.

During play, students faced the most difficulty during the early turns of the game. Unsure of the implications of each of their moves, and how they would affect the region, the group moved with trepidation. However, as students gained more experience and comfort with the game's systems, proceeding turns took less time. Additionally, as more students became comfortable and familiar with the rules, more of them engaged with it.

An important observation that is particularly worth noting is that in Group A, the rule dictating Marin County was not to be developed was bypassed. Though given the full rules from turn one, the explanation of the rules and subsequent re-readings of the rules did not clarify, except in small text, that players should not upzone in Marin County. As a result, Group A took advantage of this oversight and upzoned both tiles in the county to D-6 downtown zones.

With the oversight of Marin County giving them an advantage, Group A was able to complete years through 2030 with little resistance. Following gameplay, they completed a survey, the data from which is presented in Chapter 5. Afterward, a focus group was conducted. The responses to questions and ideas posed by both groups will be presented in more detail in Chapter 5. For now, I offer a brief detail of the key thoughts that Group A offered.

When asked about how their individual goal cards impacted play, the group responded in majority that they felt as though they were not individually working toward their goals, but rather the group had a sort of "to do" list where all of the goals were shared among all players. They also noted that they were not convinced of the reality of the game's portrayal of life in the Bay Area, stating that the nature of the game felt transactional in purpose, and that because it was a game, they could not be convinced of the realism of any of their actions. Group A also had very mixed views on how challenging the game was, with a few of them arguing that it would be too

dense to play with “non-planners,” and others saying that because they did not find it difficult enough, they thought it would be hard to keep other players engaged long-term.

### **Study Conduct – Group B**

Group B’s study was conducted as part of PLAN660. Class began at 9:30am, and the class instructor, La Barbara James Wigfall, introduced the lead investigator, and a brief synopsis of what was expected during the class. Rules were read to the students from *Bay Area Regional Planner’s* instructions, and the students were given the remainder of the class period to play the game, approximately one hour and fifteen minutes. Demographics of Group B presented different demographics, with the course consisting entirely of young (18-25) men.

Similar to Group A, the students faced the most difficulty during the first three to four turns of the game before they familiarized themselves with the rules. Group B consisted of seven students, entirely male, and perhaps because of their prior experience playing games, had little difficulty establishing their strategy for the game. Notably, the players in Group B quickly established a few pseudo “leaders” who engaged with other players, ensuring that others’ goals were being met throughout the game. However, one of the students who acted in this capacity did not achieve both of his goals due to an oversight on his part.

In contrast to Group A, it was explicitly explained to the players in Group B that the rules stated that they were not supposed to upzone in Marin County. The extra clarification on this part of the rules did put them at a disadvantage to Group A, but ensured a more accurate response to the game.

Despite this addition to protocol, the players in Group B were able to successfully pass through 2040, completing the game, and achieving all but one of their goals. Following gameplay, they completed a survey, the data from which is presented in Chapter 5. Afterward, a

focus group was conducted. The responses to questions and ideas posed by both groups will be presented in more detail in Chapter 5. For now, I present a brief detail of the key thoughts that Group B had to offer.

As a social medium, Group B stated that one of the most experience defining factors for them was that they had shared goals they worked toward. Much like Group A, they saw the challenge not as a singular attempt to achieve their own goals while playing, but to collectively achieve all of the goals on their combined list. Group B also struggled with commute times more than Group A, especially due to a misstep on turn one. This was formative to their experience for the turns that followed, and shaped what their focus was through the middle of the game. The students in Group B mentioned that the responses they had to playing together might have a gender bias since the group was comprised entirely of young men. However, most of their conversation came back to the design of the game, and an ongoing dialogue on what aspects of gameplay they would have liked to see changed. While not as dismissive of the difficulty of the game as Group A, Group B asserted that over the course of playing two or three times, the game would cease to be as challenging as it had been. Their thoughts on what could be changed to improve the game are shared in comparison to the designer's opinion in Chapter 5.

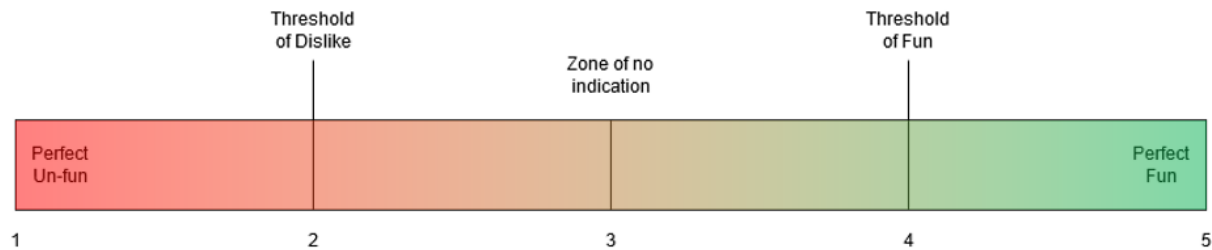


## Chapter 5 - Findings

Before I can elucidate on what was discovered through focus group and survey in the research project, I must begin this report of findings by reiterate a few key points of information.

First, the entirety of the survey, focus group, and discussion with *Bay Area Regional Planner's* creator, is based on the Mechanics Dynamics and Aesthetics Framework from Hunicke. The MDA Framework is a way to understand and interpret how players interact with the game's Mechanics, and that ultimately fun is subjective – the subjective opinions of each player are understood as the Aesthetics that most closely resemble players' experiences.

Second, I will be referring to a Model Scale of Fun (Figure 5-a) created to evaluate player responses in this study. Since the Model Scale of Fun is a reflection of the Likert Scale used in the player survey, two versions have been created. One representing the Likert Scale from 1 to 5, and the second displaying the evaluation scale from -2 to +2 (Figure 5-b).



**Figure 5-a: Model Scale of Fun**



**Figure 5-b: Adjusted Model Scale of Fun**

The Model Scale of Fun will be incorporated in further detail as I discuss the responses recorded through the survey, but they are included here to prime the discussion of the reported values in the survey. As I discuss these values, the most noteworthy change from the Likert Scale to the new Model is that of the placement of a zero on the axis and detractor values. In the survey, a response below a 3 on the Likert Scale was considered an indication away from fun, and was therefore replaced with a negative value instead of a positive value below 3. The reasoning for this is that on the Likert Scale, the 3 represented a “no strong opinion” option, and anything below that was a response indicating that the player did not have fun with that particular aesthetic. For purposes of displaying that information graphically, it made the most sense implement this change to how the data would be depicted.

The following collection of passages report on the findings of the research study described in Chapter 4. I begin with a display of all that was found among the aggregate data with charts describing the larger relationships, then narrow focus towards what conclusions can be drawn from correlated information in the data. The questions are raised of what Aesthetics display correlations, as well as what impact gender and age have on responses.

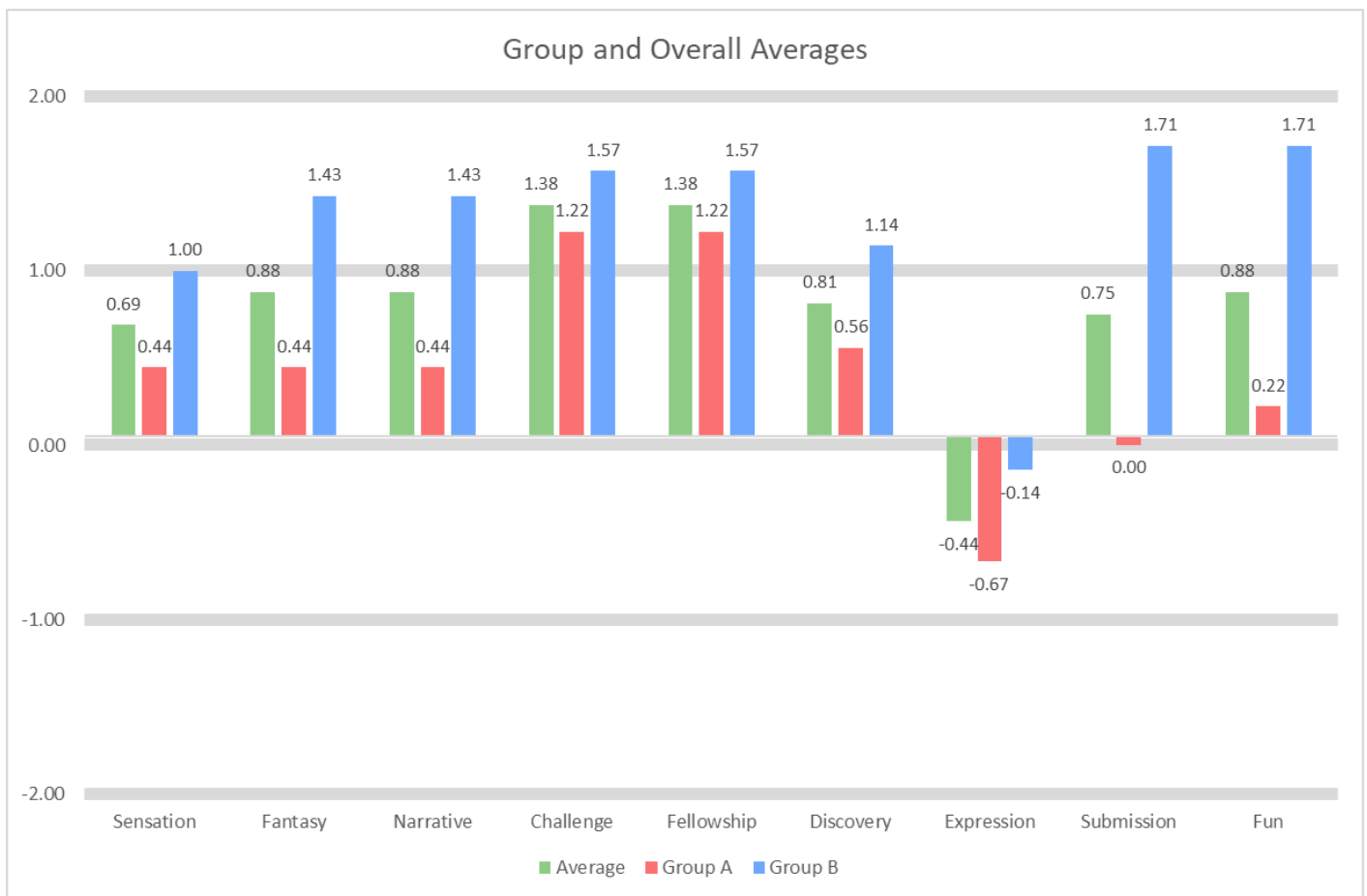
The data collected from the surveys is then recontextualized by the comments of the players in the focus groups, as comments from them provide further context for what players were thinking while they were playing. Comments from a second interview with Alfred Twu are shared in defense of his design intent, comparing and contrasting what players thought of the game to what he intended the result of the experience to be.

And last, I answer the research question, “Is *Bay Area Regional Planner* fun?” as the report transitions to Conclusions and ruminate on the results.

## The Data

The aggregate data from the survey distributed are attached in Appendix E. For reference, the survey distributed, which also acts as a key to understanding that data, is attached as Appendix C. When a “group average” is referenced, it is meant as the geometric mean of the scores provided by respondents to that particular survey question.

Figure 5-c depicts the group average scores to the survey questions for each Aesthetic in the MDA taxonomy. The responses here show a general positive response among players in each group, with a few exceptions. Overall, Group A had significantly lower average scores than Group B. In fact, Group A only rated two Aesthetics with an average rating of 4 or higher (adjusted value 1 or higher), which were Challenge and Fellowship.



**Figure 5-c: Group and Overall Aesthetic Averages**

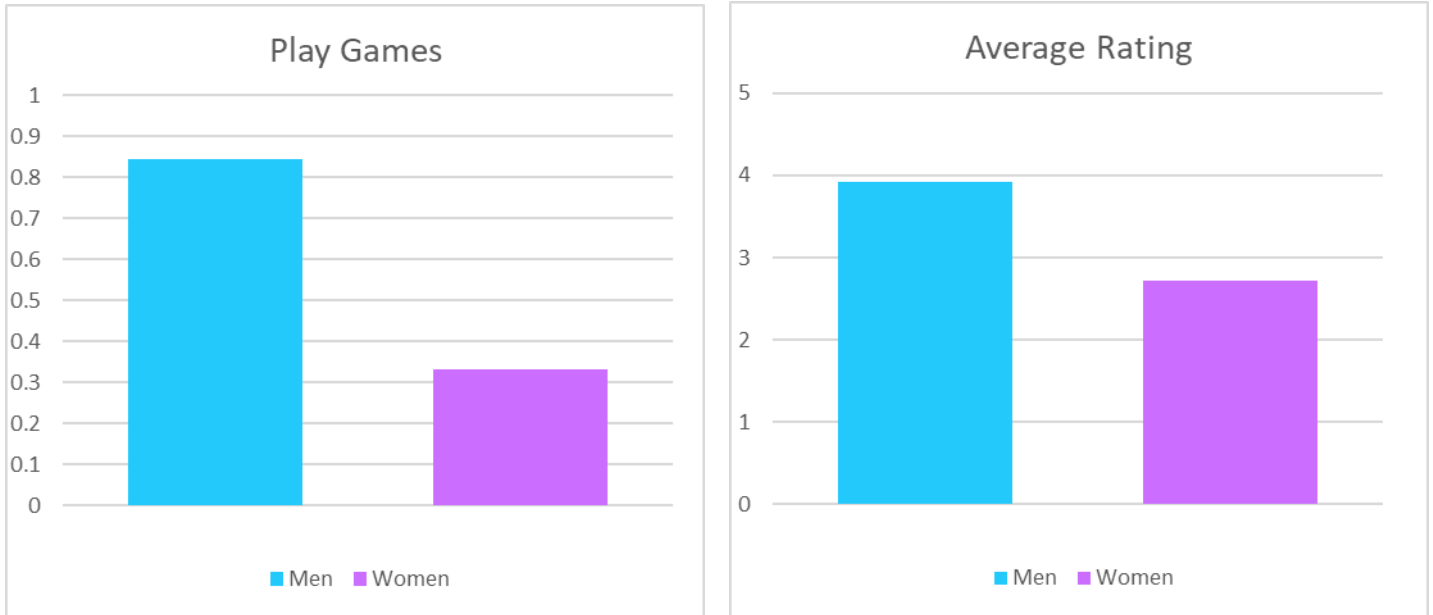
Especially noticeable is that both groups responded negatively to the Expression Aesthetic. While not rated negatively by either group, there is a large discrepancy between groups in almost every Aesthetic of a ratio of two to one, except for the two highest rated Aesthetics for Group A: Challenge and Fellowship.

Among all of the Aesthetics, there are four that stand out most. Challenge and Fellowship for their consistently high ratings between groups, Expression, for being the only Aesthetic with an overall negative score, and Submission for the astronomical difference in response rating between the two groups.

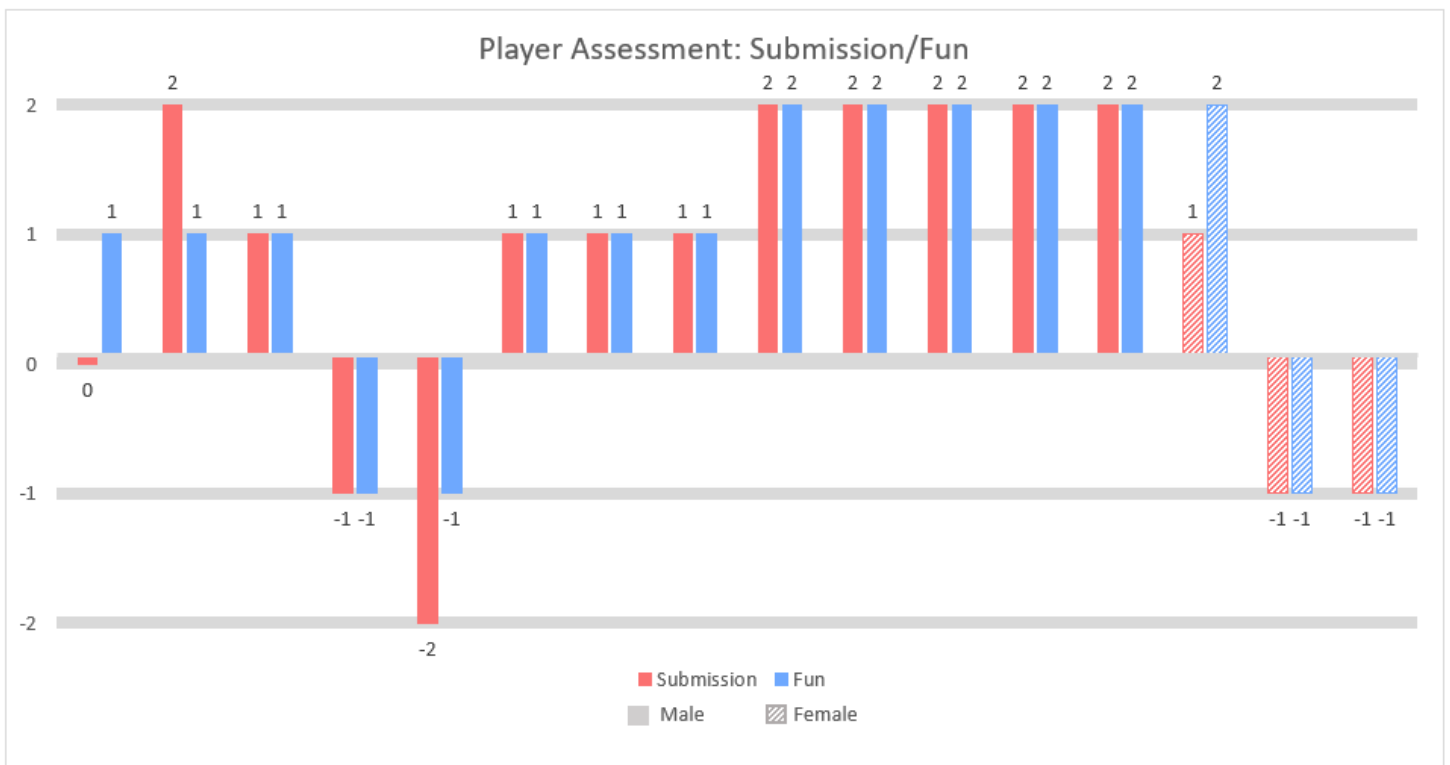
The average values, by contrast to the groups, demonstrate a much more measured response, with five of them measuring in the zero-to-one range on the adjusted scale. As I evaluated the responses collected, I looked toward the meta-data generated in survey responses, particularly at what influence age and gender would have, as well as what influence it would have if those surveyed also opted to play games as a pastime outside of the environment in which they were observed.

I looked first to gender. Knowing that Group A had a mix of men and women, and Group B had only men, could it be possible that gender would have an impact on the scores players would give the game? While in general, men had a higher average fun rating for the game than women, neither gender had a rating that fell outside of the range encompassed by the zone of no indication, see figures 5-a and 5-e. Where the biggest difference between men and women was in response to the question, “do you play games in your free time?” Their response was significantly higher, with only 33% of women responding yes, and more than 80% of men responding yes, see Figure 5-d. For these reasons, there may be inherent gender bias in this data, and that gender may have an influence on the data. However, while there is correlation between

some of the responses, there are other responses where gender division provides no clear distinction, and there is not conclusive enough evidence to state that there is causation in any of these cases.



**Figure 5-f: Percentage Who Play Games by Gender** **Figure 5-e: Average Fun Rating by Gender**



**Figure 5-d: Submission v. Fun Player Ratings**

After comparison on gender, I look next to age as an identifier in trends or patterns in the data. However, all of the players surveyed were between the ages of 19 and 29. The relatively low range of ages made it difficult to know if there were any patterns. In organizing the data, there were no graphs or chart producible that could illustrate any patterns specific to age.

There was one pattern, however, that did stand out. Among respondents surveyed, 11 of the 16 surveyed rated the Submission Aesthetic at the same level that they did the overall fun rating of the game. Similarly, regardless of whether the respondent rated the Aesthetic positively or negatively, their response between Submission and fun never had a deviation greater than 1. See Figure 5-f. In an attempt to understand if gender presented any bias in these responses, they were also separated by gender, but this delineation did not demonstrate any meaningful pattern.

### **Focus Group Comments**

In Chapter 4, I briefly noted the major comments that players made during the focus groups, and the similarities and differences between them. In the following section, I restate in greater detail the comments, concerns, and thoughts that the players voiced during focus group. This time, however, I focus on how those comments compare and contrast to Alfred Twu's Design Intent of *Bay Area Regional Planner* and the data collected by the survey.

#### **Group A**

Beginning with Group A, I will transcribe the most important points raised during our discussion. They noted three key points relating to the goals cards the students had during gameplay. First, they were able to achieve all of their goals cards by working to together and pseudo-sharing all of their goals, thereby treating the goal cards as though they were one big list that everyone needed to achieve instead of as conflicting self-interests. During the course of

gameplay, they also received no economic “Bubble” cards, which a few students noted could’ve changed the difficulty significantly had they been able to continue playing.

I shift then to student responses to the Aesthetics of the game as outlined in the MDA taxonomy. For Sensation, the group noted that they expressly liked the artwork, and that the placement of physical game pieces proved satisfying. However, they found the inclusion of Marin County confusing. The rule about upzoning there was a small line in the rules, and there was not anything on the game board to denote that they should not upzone there. I had the chance to clarify the reasoning for this decision with Alfred Twu. His response came as a two-part justification. One, if you turn the Bay into a big square, Marin County is part of that square and it wouldn’t make logical sense to remove a geographic landform. Two, the citizens of the Bay area (his target audience) would intrinsically know not to try to develop there – “it really is different playing the game in the Bay” was part of his defense of this design decision, and forms the basis of the answer he provided to many of the questions I raised further.

Moving on to Fantasy and Narrative Aesthetics, the group raised one point that echoed across both Aesthetics. The game was not strong in convincing them that they were planners because the timeline felt unrealistic, there were no angry residents voicing concerns to them, and because the group had a final say over what would happen. This made the game feel transactional in nature. By reducing planning issues this way into a game, they lost what would have made the game challenging: people.

The opportunity to speak directly to the group about what they found most challenging was insightful, as I discussed the Challenge Aesthetic. In the opinion of the group, being heard, especially in the first few turns, was difficult. The group was trying to decide what actions to take, and while most players were engaged, not all were active in the discussion. After the first

few turns, the challenge of the game decreased dramatically. Some players mentioned that they would, “actually like to have more mechanics.” Further, time limitations were a factor in the perceived difficulty. If they had more time, and seen the Bubble cards, perhaps they would have been more challenged.

Discussion of Fellowship and Discovery were met with direct and short answers with little elaboration from the group. Group A did not find the Fellowship Aesthetic particularly engaging, and as one student put it, “planners already have a round table.” For this reason, many thought that using the game as a social medium was frivolous and not valuable. Additionally, Discovery was not meaningful to them. As 5<sup>th</sup> year planning students, they “already knew” what the game was trying to teach them.

On paper, the Expression Aesthetic was the lowest rated Aesthetic of Group A’s responses. However, the group did not have much to say about Expression, but noticed that their personal goals in some cases were not in alignment with the goals cards they had in game, and as such were not able to use the game as a medium to express their vision and ideas for the Bay Area.

An interesting divide occurred when discussion turned to the Submission Aesthetic. There were those who believed the game too simple for them to want to play again, or even to play as a pastime because it would not be as entertaining as something else they would opt for. By contrast, others admitted that they thought the game would be too complex or obtuse for the groups they would play with. It is my position that both groups are correct. It was as Professor Huston Gibson put it during substantial completion review, loosely summarized, *the game is more fun than blank, but less fun than blank*. In this way, the players found that playing *Bay Area Regional Planner* was better than listening to a class lecture. However, for each subject, the



game fell on a different place of fun when considering whether it would be something they would enjoy outside of the environment it was tested in, and when on that spectrum they would choose to engage with it.

In summary of Group A, there are a few stray thoughts they raised toward the end of discussion. Many thought that the game made Regional and Community Planning seem easy, and would like to see a more challenging version of the game. They suggested that perhaps adding new rules as the game progressed could alleviate the issue of difficulty drop-off. Generally, though, Group A seemed most interested in seeing how those outside the profession would interact with a game about planning, and were hopeful to see what outside perspectives could bring to the discussion.

### **Group B**

By contrast, the discussion raised by Group B drew attention to completely different aspects of *Bay Area Regional Planner*. In particular, the players seemed interested in discussing the ways in which they thought the game could be improved, and so discussion with Group B spends a significant portion of time in reflection of the game's Mechanics.

Similar to Group A, Group B responded to the first focus group question stating that they instinctively made the goals cards they had into a sort of group effort. The concept of challenge arising from tension between the goals vanished as they worked together instead of against each other. However, due to a lack of attentiveness from one player, he failed to achieve both of his goals, and as a result, the group only achieved 13 of their 14 goals.

On the Sensation Aesthetic, players responded that they appreciated the tactile experience of playing with tiles, and would prefer playing that way to using the digital or PDF printout version that is available. However, at first glance, the game looks complex with its stacks of tiles,

multiple sliders, and game pieces that have to be manipulated. These first impressions were overcome during gameplay, though they did stick with the players well enough for them to raise them as concerns during the discussion.

Something interesting was mentioned during discussion about the Fantasy Aesthetic by a student. As he put it, “At the start I felt like a bad planner when we were learning to play. But if I were to play the game a second time I would know what to do.” This comment reaches the core of one of the biggest issues with *Bay Area Regional Planner* – one that is discussed in conclusions in Chapter 6.

Somewhat more compelling for the players in Group B was the Narrative they were creating. They described what had transpired as though they had been a planner for the past 30 years, and had grown seasoned and ready to face whatever challenges were to arise from the economy deck next. Many students echoed the same sentiment, and the rating the group appraised the Aesthetic indicates that players did find some fun in the narrative and Fantasy of being a planner for 30 years.

Challenge, a consistently highly rated Aesthetic between both groups, was the next topic of discussion. Group B faced an incredibly difficult first few turns as their misunderstanding of the rules relating to commute time created another challenge. The players reiterated this point during our focus group discussion, mentioning that learning how the commute times exactly worked took a lot of time for them to understand. The Recession and Bubble Economy cards were another challenge. Not having planned where to develop during recessions, they struggled when they reached one. The same thing is true for Bubble Economy, and the players learned that it was acceptable not to hit the goal for the total number of housing units on some of these turns. The game did provide leeway, and they had built in cushion for events such as housing bubbles.

It was at this time that the discussion doglegged into the realm of game design, a path I was happy to follow. The players suggested that because of the difficulty they faced during the game, they thought it might be interesting to see player roles become more active in determining the flow of the game. They noted the goal cards didn't have much influence on the way they played through most of the game, so perhaps assigning specific roles or jobs to players would make the individual goals more meaningful. This could also create more conflict, I noted – an idea that the players echoed back would be interesting, as they had little to no conflict at all.

Related to the issue the players raised here is that all of the goal cards that are additive to play in *Bay Area Regional Planner* are preventative because they seek to prohibit certain actions or developments. There are some that are prescriptive, which are those that would ask the players to attempt to do something extra in addition to the game's core goal. However, the prescriptive goals that were included are only based on goals the players are all collectively trying to reach.

Returning the discussion to the Aesthetics at hand, I discussed with the focus group the idea of Fellowship. Similar to Group A, Group B had little to say in specific reference to the Aesthetic save that sharing their goals helped bring them closer together, and that without doing so, they likely would have failed. This echoes the interview with Alfred Twu, in which he mentions that compromise is key and that he did mean for players to end up having to work towards shared goals.

The lines between Discovery and Expression were somewhat blurred during focus group, as ideas that could be considered learning opportunities more along the lines of discovery were a central part of the group's discussion of Expression. On Discovery, one student described that he learned that for every action there are consequences. Then, when asked about Expression, the students mentioned that they learned a valuable rule was to trust others but verify yourself the

accuracy of what you are told. Based on the scores that the players gave to these Aesthetics and ending up in the bottom quartile for Group B, it is not surprising that there was not more to be learned from these Aesthetics.

The discussion with Group B was incredibly informative as I focused our discussion on the Submission Aesthetic. The group was wise to point out that there may be some gender bias to their response to the question, since submission relates to playing games as pastime, and the group was made up entirely of young men.. However, for the players who did play games outside of the classroom, they described that the gameplay scenario in class was different than what they would normally play outside of class in terms of pace and the level of engagement after the initial difficulty.

When asked what aspects of the game were most fun, Group B responded in different ways. For a few students, the involvement that they had in the game helped time pass by faster as the game was more fun than a lecture, like Group A described. Others expressed that the feeling of sharing the experience they had with other players and building the friendships they had been developing over the semester was the most fun part, which is a concept that directly reflects the high rating of the Fellowship Aesthetic within the group. Others still thought that the presentation of Regional and Community Planning as a Game was the most interesting part of the day. The students who responded this way were the ones most ready to give feedback on what they thought could be done to make *Bay Area Regional Planner* a better experience – at least in their opinion.

### **Drawing Conclusions**

Prior to the first interview with Alfred Twu, he had never read about the Mechanics Dynamics and Aesthetics Framework that I was using for this project. As part of our dialogue, I

sent him a copy of the MDA Framework with the expectation that we would talk about it in our follow-up interview. As mentioned before, Twu shared the Aesthetics he hoped would be most important in shaping the player’s experience: Challenge, Fellowship, Narrative, and Expression. In the following, I detail, in order of importance, the eight Aesthetics of the MDA Framework, and the ratings given to them by players. I compare those ratings to the Model Scale of Fun, and determine whether predictions were correct about each Aesthetic before I move on to answering the research question, “Is *Bay Area Regional Planner* fun?”

Group A's Rankings		Group B's Rankings		Average Rankings	
1 Fellowship	4.22	1 Submission	4.69	1 Fellowship	4.35
1 Challenge	4.22	1 Fellowship	4.54	1 Challenge	4.30
3 Discovery	3.56	3 Challenge	4.54	3 Narrative	3.74
4 Sensation	3.44	5 Narrative	4.36	5 Discovery	3.71
4 Fantasy	3.44	5 Fantasy	4.32	5 Fantasy	3.65
4 Narrative	3.44	5 Discovery	4.05	5 Sensation	3.54
7 Submission	3.00	7 Sensation	3.83	7 Submission	3.44
8 Expression	2.33	8 Expression	2.56	8 Expression	2.30

**Table 5-1: Aesthetic Averages by Group**

The Fantasy Aesthetic is the result of players feeling caught up in the drama of the game, the world, and perhaps even the roleplaying. It was my initial prediction that Fantasy would have a score close to the median. The overall score, as shown in Table 5-1, is 3.65. Using the Model Scale of Fun (Figure 5-b) a score of 3.65 places the overall evaluation within the Zone of No Indication Range. This range means that the players did not score the game high enough in this Aesthetic for it to be considered fun, but not low enough for it to be considered un-fun or detractive to the experience. In this case, the initial prediction was correct, and with a score of 3.65, Fantasy falls into the median range.

The Sensation Aesthetic is the result of game design taking advantage of senses available in their medium, and using them to create an experience that is satisfying to the senses; quite literally, the game can be sensory pleasure. There are advantages to using a board game versus a

software game, and as the focus group noted, the experience of moving the tiles was very satisfying. With a board game, there are also limitations like fixed graphics and a lack of sound design. Based on this forethought, I predicted that Sensation would have a low rating. With an Average score of 3.54, Sensation remained in the Zone of No Indication on the Model Scale of Fun, but consistently among the bottom scored Aesthetics when compared to others. While the reasoning behind my prediction was correct, ultimately the outcome did not score high enough to be provable.

Submission is the Aesthetic that represents the end result of a game being playable as pastime. This idea is closely related to playing games as a leisure activity, and a game that rates highly in this category is one that is easy to pass time with or lose track of time playing. My initial prediction for this Aesthetic was that it would average a low score. Group B's response to this Aesthetic was undeniably positive, but resulted in a collective average score of 3.44, inside the Zone of No Indication. The number seven rated Aesthetic overall, Submission did still bring up a very important point – that *Bay Area Regional Planner* could be comparatively fun. The idea of comparative fun is not one that I am studying in this research project, but it is worth mentioning that it does provide some reasoning as to why Group B rated Submission so much higher than Group A – the activity of playing *Bay Area Regional Planner* was comparatively much more fun than an alternative. To Group A, the comparative difference between the game and a lecture was comparatively lower.

Discovery is the Aesthetic that may most closely tie to educational games, as it represents the outcome of a player learning a lesson about something the game either taught them or asked them to learn through the course of gameplay. It was my initial prediction, given that *Bay Area Regional Planner* is an educational game intended to teach the value of compromise, that

Discovery would be a highly scored Aesthetic in player responses. Averaging a score of 3.71, it scored higher than any other Aesthetic I have discussed to this point, but still fails to pass the Threshold of Fun, and falls into the Zone of No Indication. The game intends to teach compromise and is central to the gameplay experience, but the game never really requires compromise on a meaningful level. Most goals can be achieved, and few goal cards actually put players at odds. This, combined with rules that both tell the players that they will need to compromise, and to not worry about compromising with other players, prohibit the game from establishing a central tone to convey the intended lesson.

The next four Aesthetics are those that were mentioned by Alfred Twu as those he would have intended to be resultant Aesthetics had he been using game design theory to inform his design process.

Narrative is the resultant Aesthetics of a compelling gameplay story. The narrative players experience can come from carefully planned story elements placed into the gameplay, or from player interactions with the game allowing them to write their own story. In the case of *Bay Area Regional Planner*, I expressed initial prediction that Narrative would have an average score around the median. With an average score of 3.74, this was exactly the case. While the prediction was correct, it does not fall in line with design commentary from Alfred Twu. Twu expressed that players building their version of the Bay Area was core to the experience, yet players in the groups surveyed simply did not seem to share that opinion. While playing the game was not a bad experience, players did not connect with the game close enough through this Aesthetic to score it above the Threshold of Fun. Perhaps this is because of the reason Twu provided – that *Bay Area Regional Planner* wasn't designed for people outside of the bay and wouldn't make

sense to them. Without access to data from players in the bay, however, it becomes difficult to prove or disprove his reasoning.

Expression as an Aesthetic represents the result of a player being able to self-actualize within the game, or use it as a means of self-expression or as a creative outlet. My initial prediction was that Expression would be a low scoring Aesthetic, and survey responses indicated I was correct in the initial assessment, with an average score of 2.30: the only Aesthetic with a score below 3. The data collected and feedback from players ran counter, however, to what Mr. Twu had to say about Expression. The only counter argument he offered was part of the game where players see their ideal version of the Bay Area is lost without living in the Bay. In his opinion, you must live in the Bay Area in order to experience the full game. While definitely intended for a specific audience, the game was made available for sale and use outside of California, and without its ability to stand without the need for only specific groups to be allowed to play it, the game loses part of its quality. While Expression does still fall into the Zone of No Indication, it certainly comes closer than any other Aesthetic to detracting from the experience.

The Challenge Aesthetic is the result of design that creates Dynamics that result in players having a sense of challenge to progress through the game. The degree of this challenge could be based entirely on the player or designer selecting a specific difficulty, or could be the result of randomness such as through Random Number Generation, or drawing cards from a deck. In the case of *Bay Area Regional Planner*, the players responded highly to Challenge, with an overall score of 4.30, which surpassed my prediction of a median score. Challenge is one for only two Aesthetics in the research study to pass the Threshold of Fun in overall group average score. As players admitted in the focus group, they struggled significantly more in the first few



turns of the game than at any other point, which can create player buy in. In our interview, Twu expressed that challenge was central to his design, and that he believed that in order to be successful, players would have to be willing to compromise. This idea is the central philosophy of the game, and it fails.

According to Twu, *Bay Area Regional Planner* requires players to sacrifice goal cards in order to collectively succeed. However, none of these goals puts them at odds, and in the instances that groups played during this study – as well as during prior gameplay to build foundation to understanding – players had to sacrifice a goal card only a few times. In the study, only one player did not accomplish both of their goals. Based on Twu’s comments, in order to have the full experience, he prescribes the full 12 players. Otherwise, he explains, the difficulty just isn’t the same.

With these things in mind, yes, *Bay Area Regional Planner* is challenging, but it is difficult for the wrong reasons. The lack of clear demarcation of Marin County, the inhibitive nature of the goals cards, and the obtuse phrasing of the additional commute time rules make the initial turns of the game needlessly complex. By contrast, as many students mentioned, playing it a second time would be much easier, even with different goals. The problems associated with this Aesthetic go to the root of the issue with the game design of *Bay Area Regional Planner*.

Last, I present Fellowship. Fellowship is the Aesthetic that is derived as the result of players using the game as a social medium, and even building relationships through playing it. Closely tied to Expression, Narrative, and Fantasy, Fellowship is the metric by which interpersonal relationships can be judged through gameplay. It was my initial prediction that Fellowship would be scored highly by participants, and with an average score of 4.35, it was the consistently highest scoring Aesthetic of the eight. Both to Twu and the players, the

communication and relationships they built through the game were formative in their perception of the experience, and could have changed drastically with a different group makeup. However, knowing that the rating for this Aesthetic could vary greatly from group to group in the future, it is hard to know whether the groups had fun playing with others because of the game, or if players had fun playing with others because of their existing relationships to each other.

Before I began this research study, I hypothesized that the answer to the research question, “Is *Bay Area Regional Planner* fun?” was yes. As stated, based on experience, that I hypothesized that *Bay Area Regional Planner* was fun. Now, I can finally answer that question. The answer to the research question is no, *Bay Area Regional Planner* is not fun. There are three primary reasons. First, the average score of the game in the survey was 3.68. This places the overall score shy of the requisite score of 4 in order to pass the Threshold of Fun. Second, as I discussed the concept of comparative fun, *Bay Area Regional Planner* may still be comparatively fun to a committee meeting or when sitting through a lecture. However, based on objective criteria, on its own, *Bay Area Regional Planner* cannot be considered fun. Third, the obtuse rules explanation artificially created a higher challenge rating than there would have been had the rules been simpler to understand. The high challenge rating is one of the reasons the game’s score was as high as it was.

## Chapter 6 - Conclusion

As I conclude this study, I am aware of the many questions that the results of this research will bring. As mentioned, I am not just interested in answering “is *Bay Area Regional Planner* fun?” but why, and what that means for planners and academics. In building the case for answering the research question, I substantively provided reasons for why *Bay Area Regional Planner* is not fun. In the concluding statements, I draw the results of the study back to Urban Planning, as well as present the outside questions this project has led us toward, as well as possible next steps for anyone interested in continuing research in this vein.

Why, then, should we care that *Bay Area Regional Planner* is not fun? The answer is complex, and not as prescriptive as I initially hoped it could be. On one hand, I could argue that it doesn’t matter that *Bay Area Regional Planner* isn’t fun – Twu never intended it to be. According to comments from the interview with him, he only ever intended it to be technically accurate and not fun. Aspects of challenge are lost in obtuse design and goal cards don’t provide meaningful conflict to require compromise. Good game design should emphasize fun through thoughtful design – the designer should be able to create a fun experience even while intending to convey a lesson.

A game that isn’t fun is a game not worth the investment of a player’s time, even if it is only fun compared to the alternative. Perhaps, then, planning games do not need to be fun, only more fun than a public meeting, and more entertaining than reading about the theories they try to teach. This perspective applies not only to planning, but any form of academic or public practice in which game implementation occurs.

We can craft better experiences more in line with our goals through iterative design. *Bay Area Regional Planner* serves as a shining example of how experience affects our ability to

make something better the next time, as Twu has gone on to create other games that explore issues of mass transit and public water infrastructure. The greatest lesson we can learn from *Bay Area Regional Planner* is to continue to create and iterate on what works.

As before, I explored theories of game design for this project, and as expected, for each answer I found, more would arise. I am still left asking,

- What would a perfect version of *Bay Area Regional Planner* look like?
- Could a regional planning game be made for other metropolitan regions?
- Would it be possible to adapt *Bay Area Regional Planner* into a digital game?
- Would a digital version of *Bay Area Regional Planner* have different resultant Aesthetics?
- What would a larger sample size change in the data collected?
- What comes next?

As game design develops as a field, there will be continuing opportunities to see aspects of all professions “gamified.” As planners, our responsibility will be to predict oncoming trends and implement them in meaningful ways. With the development of new technologies, it is not unrealistic to expect changes in our lives. By taking the time to understand how games about planning are designed, we can better prepare for the opportunities we may have to create complex and detailed simulations that will challenge the public’s perception of planning and improve the quality of our neighborhoods. Generally, games are assumed to be fun. Indeed, many games related to planning could be considered fun if given further study. However, as discovered, games are not always fun. *Bay Area Regional Planner* sets a precedent for games being used in the planning field, but its underdeveloped mechanics and need for local context leave much to be improved upon before planning games can be implemented in a broader scale.

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# Appendix A - Bay Area Regional Planner Rules



AN URBAN PLANNING SIMULATION  
CC-BY ALFRED TWU, DECEMBER 15, 2015

2-12 PLAYERS  
GAME LENGTH: 60-120 MINUTES

The Bay Area is expected to add over a million new jobs in the next 20 years, putting pressure on housing costs and traffic. Rent is unaffordable and people are being displaced to areas outside the region - but still have to commute in to work.

To handle the projected growth and make up for lost time, the region will need to add over 2 million new homes in the next quarter century. The old desires of open space, consensus-based decision making, neighborhood character, and affordability still remain, but compromises will need to be made if the region is to stay livable.

- Contents*
- 1 board
  - 1 set of rules
  - 13 Goal Cards
  - 14 Economy Cards
  - 4 Commute Time counters
  - 1 Median Rent counter
  - 1 Year Counter
  - 6 Upzoning markers
  - 77 double sided Zoning Tiles

## YOUR OBJECTIVE

You will be given cards, each with two policy goals, which may include keeping commute times low, lowering rent, or preserving open space and existing neighborhoods.

Every round, you and the other players will decide where new development occurs in the Bay Area. Don't worry about how the other players do - consider it a success if you're able to meet all but one of your goals at the end of the game. If you can get them all, even better!

**Shorten commutes and make rent cheaper** by building extra housing to create a regional surplus.

**New housing away from downtown** will increase commutes in the county it's built in.

Depending on the economy, **50,000-300,000 new homes** are needed each round, for a total of approx. 2 million new homes by the end of the game.

## SETUP

1. Set the Bay Area Median Rent counter at \$2200.
2. Set the Commute Time counters for the four outer counties on the corresponding circles.
3. Distribute Goal Cards face up among players.
4. Shuffle Economy cards and place face down.

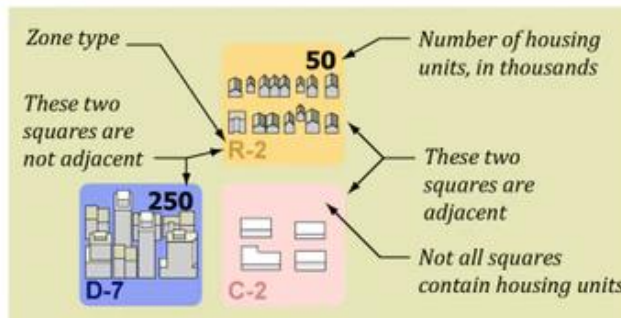
Goal Cards per player				
# of Players	2-3	4	5-6	7+
Cards per Player	4	3	2	1

*For a more challenging game, distribute some or all of the extra goal cards to the more experienced players.*

## ZONING

### "D" DOWNTOWN ZONES

These are major job centers. Adding housing in or adjacent to downtowns does not have any impact on traffic.



### "R" RESIDENTIAL ZONES

Building new or adding density to bedroom communities that aren't next to jobs has a major impact on commuter traffic.

### "C" COMMERCIAL ZONES

These are minor job centers such as office parks or mixed use shopping streets. New housing in or next to C zones have a minor traffic impact.

CONTINUED ON NEXT PAGE



## THERE ARE 12 SIMULTANEOUS ROUNDS, EACH REPRESENTING 2 YEARS.

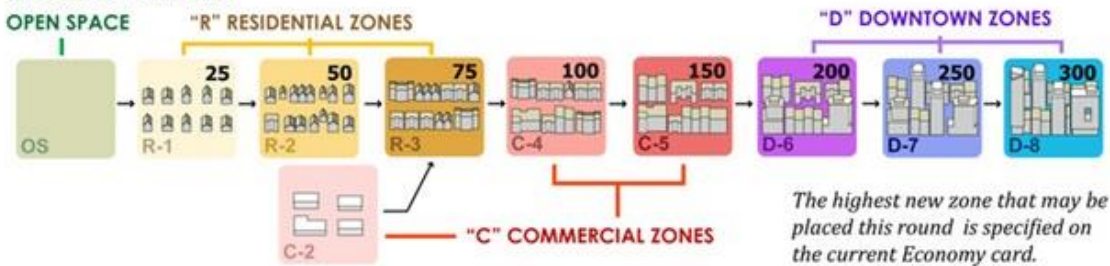
There are no individual player turns - everyone makes decisions together.

### 1. START EACH ROUND BY DRAWING AN ECONOMY CARD

### 2. DECIDE WHERE TO UPZONE

- Up to 6 squares may be upzoned each round. Each square may only be upzoned once per round.
- Upzoning brings a zone up one level (i.e. from C-2 to R-3 or from R-1 to R-2). See Upzoning Pathway.
- Anyone can suggest any number of upzonings at any time.
- Everyone must be in agreement for a square to be upzoned. Place the new zone and an upzoning marker on the square to indicate that it is a newly upzoned square.
- You can't upzone any squares in Marin.

#### UPZONING PATHWAY



### 3. ADJUST COMMUTE AND RENT BASED ON TOTAL BAY AREA HOUSING SURPLUS/SHORTFALL

If total housing units added was **less** than the new demand...

For every 25,000 units short, move rent up 1 space, and commute time in all counties up 1 space.

If total housing units added was **greater** than the new demand...

For every 25,000 units surplus, move rent down 1 space, and commute time in all counties down 1 space.

If commute time reaches 55 minutes in any county, or if Bay Area Median Rent reaches \$3000, game ends and everyone loses.

### 4. ADJUST COMMUTE BASED ON NEW DEVELOPMENT IN THE OUTER COUNTIES

Alameda (AC), Contra Costa (CC), Santa Clara (SC), and San Mateo (SM)



No impact if upzoning took place on or adjacent to an existing D zone.

*Note: Adjacent is defined as sharing an edge. Existing means the square was already a C or D zone at the start of the round.*



Each upzoning that is on or adjacent to an existing C zone but not on or adjacent to an existing D zone, increases commute by 1 minute in the county it's in.



Each upzoning that is not on or adjacent to an existing C or D zone, increases commute by 2 minutes in the county it's in.

### 5. ADVANCE YEAR MARKER BY 1 SPACE AND START NEXT ROUND

Game ends at the end of the 2038 round.

## Appendix B - External Sources

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## Appendix C - Survey

### Survey Questions:

1. What were your Goals card(s) during gameplay? (Example: Goals 1.A and 1.B)

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**The Next Nine Questions will be about gameplay, and your experience while playing *Bay Area Regional Planner*. Please evaluate the following statements on a scale of one to five, with one being not at all, and five being very much.**

2. Playing *Bay Area Regional Planner* created a form of sensory pleasure. (These could be sights, sounds, smells)

1                      2                      3                      4                      5

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3. Playing *Bay Area Regional Planner* made me feel like an Urban Planner in the Bay Area.

1                      2                      3                      4                      5

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4. Playing *Bay Area Regional Planner* created an interesting and compelling story that I was interested in watching unfold.

1                      2                      3                      4                      5

---

5. *Bay Area Regional Planner* challenged me to think critically and find a create solution to its problems, or to get better at the game in order to play it.

1                      2                      3                      4                      5

---

6. *Bay Area Regional Planner* helped me to stimulate conversation and deepen connections between me and the other players.

1                      2                      3                      4                      5

---

7. *Bay Area Regional Planner* taught me a lesson that I wouldn't have learned otherwise, or it taught me to think deeply on something I hadn't before.

1                      2                      3                      4                      5

---

8. *Bay Area Regional Planner* taught me a lesson about myself, or I created something that I wouldn't have been able to without it.

1                      2                      3                      4                      5

9. *Bay Area Regional Planner* was an interesting and enjoyable way to spend my time.

1                      2                      3                      4                      5

10. I had fun playing *Bay Area Regional Planner*

1                      2                      3                      4                      5

11. *Bay Area Regional Planner* is a game about Transportation.                      Yes                      No

12. *Bay Area Regional Planner* is a game about Housing.                      Yes                      No

13. *Bay Area Regional Planner* is a game about Compromise.                      Yes                      No

14. Prior to this activity, have you ever played *Bay Area Regional Planner*?

Yes                      No

15. Are games/gaming leisure activities that you participate in your free time?

Yes                      No

16. What is your age? \_\_\_\_\_

17. What race/nationality with which do you identify? \_\_\_\_\_

18. Open Ended: If you have any thoughts or comments you would like to share directly with the principal investigators, please leave them here.

## Appendix D - Focus Group Guide

**These questions will be used to guide discussion in the focus group. It is the expectation of the researchers that conversation may find us exploring some of the aesthetics in more depth than others.**

### **Focus Group Questions:**

1. Think back to the goal cards that you had during gameplay. How did they impact your experience playing the game? Did they put you at odds with other players, and if so how did you react?

**The next section of questions are all based on the game's aesthetics. Each will be based on the assumption that they players' responding to the question rating on a five point scale are above a 3. (Ex. For those of you who very much agreed that...)**

2. For those of you who agreed that playing Bay Area Regional Planner created a form of sensory pleasure, what about it created that sensory experience?
3. For those of you who agreed that playing *Bay Area Regional Planner* made me feel like an Urban Planner in the Bay Area, what about it made you feel like planner?
4. For those of you who agreed that Playing *Bay Area Regional Planner* created an interesting and compelling story that I was interested in watching unfold – what narrative was it that interested you?
5. For those of you who agreed that *Bay Area Regional Planner* challenged me to think critically and find a create solution to its problems, or to get better at the game in order to play it – what parts of the game were the most challenging?
6. For those of you who agreed that *Bay Area Regional Planner* helped me to stimulate conversation and deepen connections between me and the other players – in what ways did the game bring you together or create ways to interface with each other?

7. For those of you who agreed that *Bay Area Regional Planner* taught me a lesson that I wouldn't have learned otherwise, or it taught me to think deeply on something I hadn't before – what lessons did you learn?
  
8. For those of you who agreed that *Bay Area Regional Planner* taught me a lesson about myself, or I created something that I wouldn't have been able to without it – what did you learn about yourself or what ways did the game help you express yourself?
  
9. For those of you who agreed that *Bay Area Regional Planner* was an interesting and enjoyable way to spend my time – do you typically play games as a leisure activity, and what made this special/different?
  
10. For those of you who agreed that I had fun playing *Bay Area Regional Planner* – what about it was most fun?

# Appendix E - IRB Forms

FOR OFFICE USE ONLY: IRB Protocol # \_\_\_\_\_ Application Received: \_\_\_\_\_ Routed: \_\_\_\_\_ Training Complete: \_\_\_\_\_



## Committee for Research Involving Human Subjects (IRB) Application for Approval Form

Please send your completed application to [comply@k-state.edu](mailto:comply@k-state.edu)

### INSTRUCTIONS

**Be sure to save the application PDF to your computer before you begin completing the form. You may not be able to save your changes if you edit this form in a web browser.**

The KSU IRB is required by law to ensure that all research involving human subjects is adequately reviewed for specific information and is approved prior to inception of any proposed activity. Consequently, it is important that you answer all questions accurately. If you need help or have questions about how to complete this application, please call the Research Compliance Office at 532-3224, or e-mail us at [comply@ksu.edu](mailto:comply@ksu.edu).

Please provide the requested information in the outlined text boxes. The text boxes are designed to accommodate responses within the body of the application. As you type your answers, the text boxes will expand where appropriate and as needed. After completion send your application by e-mail to [comply@k-state.edu](mailto:comply@k-state.edu).

You may sign this form using a digital signature. DO NOT sign the form until it has been completed. You cannot edit the form entries once the form has been digitally signed. If you are making revisions to a previously signed form, right-click the digital signature and select Clear to remove the signature (this can only be done by the person who originally digitally signed the form).

Forms that have not been signed will not be accepted.

*Additional material is requested with this application. Be sure to provide electronic copies of the following documents (if applicable) and submit them to [comply@k-state.edu](mailto:comply@k-state.edu) along with your application:*

- Consent Form (see *Administrative Information, IX. Informed Consent A.*)
- Sponsor's grant application or contract as submitted to the funding agency. (See *Administrative Information*)
- Surveys, instruments, etc used for data collection (see *V. Design and Procedures C.* and *X. Project Information P.*)
- Debriefing statement to be utilized (see *IX. Informed Consent E.*)

**FAILURE TO PROVIDE ALL INFORMATION REQUESTED MAY LEAD  
TO A DELAY IN PROCESSING YOUR REQUEST.**

**Please proof read and check spelling BEFORE submitting the form.  
To use Acrobat spelling check, press F7 or select EDIT, CHECK SPELLING**

**PLEASE CONTINUE TO THE NEXT PAGE  
TO BEGIN COMPLETING THE FORM**



**ADMINISTRATIVE INFORMATION:**

Title of Project/Course:

Type of Application:  New / Renewal  Revision (to a pending new application)  
(check one box)  
 Modification to an existing approved application #:

Principal Investigator Details: (must be a KSU faculty member):

Name:  Degree/Title:

Department:  Campus Phone:

Campus Address:

E-mail:  Fax #:

Responsible Graduate Student: (Person to contact for questions/problems with the form):

Name:  Campus Phone:

E-mail:

Does this project involve any collaborators not part of the faculty/staff at KSU? (projects with non-KSU collaborators may require additional coordination and approvals):

No  Yes

Project Classification (Is this project part of one of the following?):

Thesis  Dissertation  Faculty Research

Other:

*Note: Class Projects should use the short form application for class projects.*

Copy of the Consent Form:  Copy will be submitted to comply@ksu.edu with this application  Consent form not used

Funding Source:  Federal  State  Internal  Other

Funding Agency: Please give name of Funding Agency. (You will also need to provide a copy of the sponsor's grant application or contract as submitted to the funding agency. Submit documents to comply@ksu.edu with your application.)

Based upon criteria found in 45 CFR 46 – and the overview of projects that may qualify for exemption explained at <http://www.hhs.gov/ohrp/policy/checklists/decisioncharts.html>, I believe that my project using human subjects should be determined by the IRB to be exempt from IRB review:

No  Yes (If yes, please provide the category of "Exemption" in the space below)

**Exempt Projects:** 45 CFR 46 identifies six categories of research involving human subjects that may be exempt from IRB review. The categories for exemption are listed here: <http://www.hhs.gov/ohrp/policy/checklists/decisioncharts.html#c2>. If you believe that your project qualifies for exemption, please indicate which exemption category applies (1-6). Please remember that only the IRB can make the final determination whether a project is exempt from IRB review, or not.

Exemption Category:

**MODIFICATION:**

Is this a modification of an approved protocol?  No  Yes If yes, please comply with the following:

If you are requesting a modification or a change to an IRB approved protocol, please provide a concise description of all of the changes that you are proposing in the following block. Additionally, please highlight or bold the proposed changes in the body of the protocol where appropriate, so that it is clearly discernible to the IRB reviewers what and where the proposed changes are. This will greatly help the committee and facilitate the review.

- I. **NON-TECHNICAL SYNOPSIS** (Please provide a brief narrative description of proposal. This should typically be less than 75 words and be easily understood by nonscientists):

The proposal aims to answer the questions, "Is *Bay Area Regional Planner* fun?" In order to answer this question, we will be having subjects play the *Bay Area Regional Planner* for a limited time, and then fill out a survey with questions responding to categories of "fun" game aesthetics in the MDA Framework. Following the survey, respondents will take part in a focus group with guided discussion of their responses.

- II. **BACKGROUND** (concise narrative review of the literature and basis for the study):

Game design is an emerging field, and not one that has been thoroughly explored in academia. However, a framework exists for evaluating game design objectively, and using it as a basis for the methodology. The framework is expanded upon by articles about game play, and player psychology - the most well documented segment of game design research. Game design is then filtered through planning literature related to civic engagement and planning policy.

- III. **PROJECT/STUDY DESCRIPTION**

(Please provide a concise narrative description of the proposed activity in terms that will allow the IRB or other interested parties to clearly understand what it is that you propose to do that involves human subjects. This description must be in enough detail so that IRB members can make an informed decision about the proposal).

We propose a focus group, and survey. It is to be conducted alongside PLAN660: Community Development and PLAN815: Planning Theory in the spring of 2020. Participants will be playing *Bay Area Regional Planner* and answering a series of follow-up questions afterward in the form of a survey. The participation of human subjects will be informative in understanding what different individuals' concepts of what makes for "fun" game design - these ideas of "fun" will directly correlate with eight aesthetics for fun design in the framework used for the methodology. The focus group conducted after the survey will be a discussion of the responses to the survey, and participants discussion will be recorded electronically for transcription later.

- IV. **OBJECTIVE**

(Briefly state the objective of the research – what you hope to learn from the study).

What we hope to learn from the study is the answer to the question, "Is *Bay Area Regional Planner* fun?" Building an understanding of what aesthetics of game design players gravitate toward in *Bay Area Regional Planner* will provide the foundations of the arguments of which game mechanics analogue to planning principles, and the level at which they are portrayed accurately.

- V. **DESIGN AND PROCEDURES** (succinctly outline formal plan for study)

- A. List all sites where this research will be conducted:

Classroom Environment

- B. Variables to be studied: player interactions, individual responses, concepts learned

- C. Data collection methods: (surveys, instruments, etc - **copies must submitted to [comply@k-state.edu](mailto:comply@k-state.edu)**).

Paper Survey - to be distributed after the game is played  
Focus Group - guided discussion - audio to be recorded electronically for transcription

- D. List any factors that might lead to a subject dropping out or withdrawing from a study. These might include, but are not limited to emotional or physical stress, pain, inconvenience, etc.

personal time constraints, lack of interest from focus group

- E. List all biological samples taken: (if any)

N/A

Describe storage and disposition of biological samples: (How long will samples be kept, will samples be used for other purposes, how will samples be destroyed)

N/A

Will whole genome sequencing be used:

No

Yes

F. Debriefing procedures for participants:

assurance of confidentiality, thanks for participation, explanation of importance to research study

## VI. RESEARCH SUBJECTS:

A. Source:

PLAN660: Community Development  
PLAN815: Planning Theory

B. Number: (provide a brief rationale for your sample size)

To be determined by class enrollment numbers

C. Inclusion criteria: (List any unique qualifiers desirable for research subject participation)

any student enrolled in the class is qualified to participate. These groups have been chosen because they are planning students or prospective planning students.

D. Exclusion criteria: (list any unique disqualifiers for research subject participation)

refusal to participate

E. Recruitment procedures:

How will subjects be identified?

by numbered goal cards distributed during game play (ex. player with goal card 4, player 7)

How will subjects be recruited (advertisement, associates, etc.)?

research will be as a class activity, students will be introduced to topic by professor who will introduce graduate student

How will subjects be enrolled?

Automatically as part of enrollment in PLAN660 and PLAN815 - sample not controlled, collected randomly

Describe any follow-up recruitment procedures: (reminder emails, mailings, etc.)

N/A

## VII. RISK - PROTECTION - BENEFITS: The answers for the three questions below are central to human subjects research. You must demonstrate a reasonable balance between anticipated risks to research participants, protection strategies, and anticipated benefits to participants or others.

A. Risk for Subjects: (check all that apply)

Exposure to infectious diseases

Use of confidential records

- Exposure to radiation
- Manipulation of psychological or social variables such as sensory deprivation, social isolation, psychological stressors
- Examining for personal or sensitive information in surveys or interviews
- Presentation of materials which subjects might consider sensitive, offensive, threatening, or degrading
- Invasion of privacy of subject or family
- Social or economic risk
- Risk associated with exercise or physical exertion
- Legal risk
- Review of medical records
- Review of criminal records
- HIV/AIDS or other STD's
- Employment/occupational risk
- Others – Please explain below (Indirect risks, risk to individuals who are not the primary subjects):

**B. Minimizing Risk:** (Describe specific measures used to minimize or protect subjects from anticipated risks.)

All records will be kept confidential

**C. Benefits:** (Describe any reasonably expected benefits for research participants, a class of participants, or to society as a whole.)

Research will expand a developing research field, and promote the usage of an underused engagement tool in the planning profession.

**D. More than Minimal Risk?** In your opinion, does the research involve more than minimal risk to subjects? (“Minimal risk” means that “the risks of harm anticipated in the proposed research are not greater, considering probability and magnitude, than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.”)

Yes       No

**VIII. CONFIDENTIALITY:** Confidentiality is the formal treatment of information that an individual has disclosed to you in a relationship of trust and with the expectation that it will not be divulged to others without permission in ways that are inconsistent with the understanding of the original disclosure. Consequently, it is your responsibility to protect information that you gather from human research subjects in a way that is consistent with your agreement with the volunteer and with their expectations.

**A) Explain the type of data that will be collected (electronic, hard copy, video, specimens, etc.):**

Hard copies of surveys will be collected, and focus group audio will be recorded

**B) Explain where the data will be stores:**

Collected data will be stored on a secure hard drive for use by the graduate student.

**C) Explain the time frame of the data storage, to include how data will be destroyed:**

Data will be kept during the entire tenure of the project, and then records of audio files will be destroyed - data to be kept no longer than two years

D) Explain who will have access to the data, and privacy/security provisions (password protection, encryption, etc.):

Only the principal investigator, graduate student, and faculty on the graduate student's committee will be able to access the data during the research project. After the project's conclusion, the data will be erased.

**IX. INFORMED CONSENT:** Informed consent is a critical component of human subjects research - it is your responsibility to make sure that any potential subject knows exactly what the project that you are planning is about, and what his/her potential role is. (There may be projects where some forms of "deception" of the subject is necessary for the execution of the study, but it must be carefully justified to and approved by the IRB). A schematic for determining when a waiver or alteration of informed consent may be considered by the IRB is found at <http://www.hhs.gov/ohrp/policy/checklists/decisioncharts.html#c10>

Even if your proposed activity does qualify for a waiver of informed consent, you must still provide potential participants with basic information that informs them of their rights as subjects, i.e. explanation that the project is research and the purpose of the research, length of study, study procedures, debriefing issues to include anticipated benefits, study and administrative contact information, confidentiality strategy, and the fact that participation is entirely voluntary and can be terminated at any time without penalty, etc. Even if your potential subjects are completely anonymous, you are obliged to provide them (and the IRB) with basic information about your project. See informed consent example on the URCO website. It is a federal requirement to maintain informed consent forms for 3 years after the study completion.

Answer the following questions about the informed consent procedures.

Yes     No    A. Are you using a written informed consent form? If "yes," include a copy with this application. If "no" see B.

Yes     No    B. In accordance with guidance in 45 CFR 46, I am requesting a waiver or alteration of informed consent elements (see section VIII above). If "yes," provide a basis and/or justification for your request.

Yes     No    C. Are you using the online Consent Form Template provided by the URCO? If "no," does your Informed Consent document have all the minimum required elements of informed consent found in the Consent Form Template? (Please explain)

Yes     No    D. Are your research subjects anonymous? If they are anonymous, you will not have access to any information that will allow you to determine the identity of the research subjects in your study, or to link research data to a specific individual in any way. Anonymity is a powerful protection for potential research subjects. (An anonymous subject is one whose identity is unknown even to the researcher, or the data or information collected cannot be linked in any way to a specific person).

- Yes  No E. Are subjects debriefed about the purposes, consequences, and benefits of the research? Debriefing refers to a mechanism for informing the research subjects of the results or conclusions, after the data is collected and analyzed, and the study is over. (If “no” explain why.) **Copy of debriefing statement to be utilized should be submitted to [comply@k-state.edu](mailto:comply@k-state.edu) with your application.**

**F. Describe the Informed Consent Process:**

Who is obtaining the consent? (i.e. Principle Investigator, Graduate Student, etc.)

Principal Investigator and Graduate Student

When and where will consent be obtained?

Consent will be obtained in-class, day of the focus group

If assent (for minors) is required, please describe who will obtain the assent? (Assent means a child’s affirmative agreement to participate in research)

N/A

If assent (for minors) is required, when and where will assent be obtained?

N/A

How will consent be obtained from non-English speaking participants? (a translated written form, orally, identify the name and qualifications of the individual providing the translation)

N/A

**Informed Consent Checklist**

Items	YES	NO	N/A
Does the title appear at the top of the consent/assent form?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the consent/assent form written toward the subject?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there a statement that explains that the study is <i>research</i> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there a statement that explains the <i>purpose</i> of the research?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the procedures to be followed explained clearly and adequately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the consent document describe <i>risks or discomforts</i> to subjects as a result of participating in the research?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the consent/assent form written in the <i>native language</i> of the potential subject?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are participants compensated?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If the subjects’ identity is known to the PI, does the form detail how confidentiality of records will be maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is contact information for both the PI and the URCO/IRB office included?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the consent document indicate to the participant that he/she can withdraw at any time from the project without penalty or loss of benefit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there probable circumstances which would require the PI to terminate a subject’s participation regardless of his or her consent?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>



A statement that identifiers might be removed from the identifiable private information or identifiable biospecimens and that, after such removal, the information or biospecimens could be used for future research studies or distributed to another investigator for future research studies without additional informed consent	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
A statement that the subject's information or biospecimens collected as part of the research, even if identifiers are removed, will not be used or distributed for future research studies.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
A statement that biospecimens (even after identifiers are removed) may (or may not) be used for commercial profit and whether subjects will or will not share in the profit.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
A statement that clinically relevant research results will or will not be provided to subjects.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
A statement indicating whether or not the research project will or will not include whole genome sequencing.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the consent document written in lay language (Recommended 8th grade level)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

X. **PROJECT INFORMATION:** (If you answer Yes to any of the questions below, you should explain them in one of the paragraphs above)

- |   |  |    |   |
|---|--|----|---|
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | A. | Deception of subjects? If "YES" explain why this is necessary.  |
|   |  |    |   |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | B. | Shock or other forms of punishment  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | C. | Sexually explicit materials or sexual experience  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | D. | Sexual orientation  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | E. | Sexual abuse  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | F. | Handling of money or other valuable commodities   |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | G. | Extraction or use of blood, other bodily fluids, or tissues (if "yes", you must comply with facility and handling protections detailed in the 5th Edition of the Biosafety in Biomedical Laboratories (BMBL))   |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | H. | Questions about any kind of illegal or illicit activity   |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | I. | Questions about protected health information as defined by HIPAA  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | J. | Purposeful creation of anxiety  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | K. | Any procedure that might be viewed as invasion of privacy   |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | L. | Physical exercise or stress   |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | M. | Administration of substances (food, drugs, etc.) to subjects  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | N. | Any procedure that might place subjects at risk   |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | O. | Will there be any use of Radioactive materials and/or use of Radioactive producing machines   |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | P. | Any form of potential abuse; i.e., psychological, physical, sexual  |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Q. | Is there potential for the data from this project to be published in a journal, presented at a conference, etc?   |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | R. | Use of surveys or questionnaires for data collection. <b>Copies should be submitted to <a href="mailto:comply@k-state.edu">comply@k-state.edu</a> with your application.</b>  |
| <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | S. | Is this a Clinical Trial? (one or more human subjects are prospectively assigned to one or more interventions (which may include placebo or other control) to evaluate the effects of the interventions on biomedical or behavioral health-related outcomes.) |

**XI. SUBJECT INFORMATION:** (If you answer yes to any of the questions below, you should explain them in one of the paragraphs above)

- Yes  No a. Under 18 years of age (these subjects require parental or guardian consent)
- Yes  No b. Over 65 years of age
- Yes  No c. Minorities as target population
- Yes  No d. Physically or mentally disabled
- Yes  No e. Economically or educationally disadvantaged
- Yes  No f. Unable to provide their own legal informed consent
- Yes  No g. Pregnant females as target population
- Yes  No h. Victims
- Yes  No i. Subjects in institutions (e.g., prisons, nursing homes, halfway houses)
- Yes  No j. Are subjects likely to be vulnerable to coercion or undue influence
- Yes  No k. Is this international research? If yes, provide details as to if OHRP regulations apply in or near the area you intend to conduct research or if you have contacted individuals for applicable regulations to human subject research.
- Yes  No l. Are research subjects in this activity students recruited from university classes or volunteer pools? If so, do you have a reasonable alternative(s) to participation as a research subject in your project, i.e., another activity such as writing or reading that would serve to protect students from unfair pressure or coercion to participate in this project? If you answered this question "Yes," explain any alternatives options for class credit for potential human subject volunteers in your study. (It is also important to remember that: Students must be free to choose not to participate in research that they have signed up for at any time without penalty. Communication of their decision can be conveyed in any manner, to include simply not showing up for the research.)  

Student participation is for a single session for which lack of participation will not be penalized. Student decision to participate is voluntary.
- Yes  No m. Is audio from the subjects recorded? If yes, how do you plan to protect the recorded information and mitigate any additional risks?
- Yes  No n. Are research subjects' images being recorded (video taped, digitally recorded, photographed)? If yes, how do you plan to protect the recorded information and mitigate any additional risks?

**XII. FDA ACTIVITIES:** Answer the following questions about potential FDA regulated activities:

- Yes  No a. Is this a Clinical Trial?
- Yes  No b. Are you using an FDA approved drug/device/diagnostic test?
- Yes  No c. Does this activity involve the use of FDA-Regulated products? (biological products, color additives, food additives, human drugs, etc.)
- Yes  No d. Has the protocol been submitted to the FDA, or are there plans to submit it to the FDA?
- Yes  No e. Have you submitted an FDA form 3454 or 3455 (conflict of interest)?

**XIII. CONFLICT OF INTEREST:** Concerns have been growing that financial interests in research may threaten the safety and rights of human research subjects. Financial interests are not in them selves prohibited and may well be appropriate and legitimate. Not all financial interests cause Conflict of Interest (COI) or harm to human subjects. However, to the extent that financial interests may affect the welfare of human subjects in research, IRB's, institutions, and investigators must consider what actions regarding financial interests may be necessary to protect human subjects. Please answer the following questions:

- Yes  No a. Do you or the institution have any proprietary interest in a potential product of this research, including patents, trademarks, copyrights, or licensing agreements?
- Yes  No b. Do you have an equity interest in the research sponsor (publicly held or a non-publicly held company)?



- Yes  No c. Do you receive significant payments of other sorts, eg., grants, equipment, retainers for consultation and/or honoraria from the sponsor of this research?
- Yes  No d. Do you receive payment per participant or incentive payments?
- e. If you answered yes to any of the above questions, please provide adequate explanatory information so the IRB can assess any potential COI indicated above.

**XIV. PROJECT COLLABORATORS:**

- A. KSU Collaborators:** List anyone affiliated with KSU who is collecting or analyzing data: (list all collaborators on the project, including co-principal investigators, undergraduate and graduate students).

Name:	Department:	Campus Phone:	Campus E-mail:
N/A			
N/A			
N/A			

- B. Non-KSU Collaborators:** List all collaborators on your human subjects research project not affiliated with KSU in the spaces below. KSU has negotiated an Assurance with the Office for Human Research Protections (OHRP), the federal office responsible for oversight of research involving human subjects.

Name:	Organization:	Phone:	Institutional E-mail:
N/A			
N/A			
N/A			

- C. Does your non-KSU collaborator's organization have an Assurance with OHRP?** (for Federalwide Assurance listings of other institutions, please reference the OHRP website under Assurance Information at: <http://ohrp.cit.nih.gov/search>).

Yes  No If yes, Collaborator's FWA #

**Is your non-KSU collaborator's IRB reviewing this proposal?**

Yes  No If yes, IRB approval #

**Describe the non-KSU collaborator's role in the research activity.**

**XV. IRB Training:**

- A. The URCO must have a copy of the Unaffiliated Investigator Agreement on file for each non-KSU collaborator who is not covered by their own IRB and assurance with OHRP.** When research involving human subjects includes collaborators who are not employees or agents of KSU the activities of those unaffiliated individuals may be covered under the KSU Assurance only in accordance with a formal, written agreement of commitment to relevant human subject protection policies and IRB oversight. The Unaffiliated Investigators Agreement can be found and downloaded at <http://www.k-state.edu/research/comply/irb/forms>

**Online Training****\*TRAINING REQUIREMENTS HAVE RECENTLY CHANGED\***

The IRB has mandatory training requirements prior to protocol approval. Training is now offered through the Collaborative Institutional Training Initiative (CITI) Program. Instructions for registration and access to training are on the URCO website <http://www.k-state.edu/research/comply/>.

Use the check boxes below to select the training courses that apply to this application. If you have any questions about training, contact URCO at [comply@ksu.edu](mailto:comply@ksu.edu), or (785) 532-3224.

**Mandatory Training****Required for all Principal Investigators, research staff and students**

- Responsible Conduct of Research  
 IRB core modules (IRB Researchers and personnel on IRB protocols)

**Required (Provost-mandated) for all full-time K-State employees**

- Export Compliance

**Required procedure-specific training (check all that apply to this protocol):**

- International Research       Research in Public Elementary and Secondary Schools       Research with Children  
 Research with Prisoners       Internet Research       Vulnerable Subjects - Research Involving Workers/Employees  
 Research with Subjects with Physical Disabilities and Impairments       Illegal Activities or Undocument Status in Human Research  
 Gender and Sexuality Diversity in Human Research       Research with human blood, body fluids, or tissues  
 Research with Older Adults

**All new personnel or personnel with expired training are required to register for CITI and take the new training requirements. If you previously completed online IRB modules, your training status will remain current until it expires. URCO will verify training from the previous system as well as the new system prior to approval of any protocol.**

## INVESTIGATOR ASSURANCE FOR RESEARCH INVOLVING HUMAN SUBJECTS

(Print this page separately because it requires a signature by the PI.)

P.I. Name:

Title of Project:

## XVI. ASSURANCES: As the Principal Investigator on this protocol, I provide assurances for the following:

- A. **Research Involving Human Subjects:** This project will be performed in the manner described in this proposal, and in accordance with the Federalwide Assurance FWA00000865 approved for Kansas State University available at <http://www.hhs.gov/ohrp/assurances/forms/filasurt.html>, applicable laws, regulations, and guidelines. Any proposed deviation or modification from the procedures detailed herein must be submitted to the IRB, and be approved by the Committee for Research Involving Human Subjects (IRB) prior to implementation.
- B. **Training:** I assure that all personnel working with human subjects described in this protocol are technically competent for the role described for them, and have completed the required IRB training accessed via the URCO website at: <http://www.k-state.edu/research/comply/irb/training>. I understand that no proposals will receive final IRB approval until the URCO has documentation of completion of training by all appropriate personnel.
- C. **Extramural Funding:** If funded by an extramural source, I assure that this application accurately reflects all procedures involving human subjects as described in the grant/contract proposal to the funding agency. I also assure that I will notify the IRB/URCO, the KSU PreAward Services, and the funding/contract entity if there are modifications or changes made to the protocol after the initial submission to the funding agency.
- D. **Study Duration:** I understand that it is the responsibility of the Committee for Research Involving Human Subjects (IRB) to perform continuing reviews of human subjects research as necessary. I also understand that as continuing reviews are conducted, it is my responsibility to provide timely and accurate review or update information when requested, to include notification of the IRB/URCO when my study is changed or completed.
- E. **Conflict of Interest:** I assure that I have accurately described (in this application) any potential Conflict of Interest that my collaborators, the University, or I may have in association with this proposed research activity.
- F. **Adverse Event Reporting:** I assure that I will promptly report to the IRB / URCO any unanticipated problems involving risks to subjects or others that involve the protocol as approved. Unanticipated or Adverse Event Form is located on the URCO website at: <http://www.k-state.edu/research/comply/irb/forms>. In the case of a serious event, the Unanticipated or Adverse Events Form may follow a phone call or email contact with the URCO.
- G. **Accuracy:** I assure that the information herein provided to the Committee for Human Subjects Research is to the best of my knowledge complete and accurate.

You may sign this form using a digital signature. DO NOT sign the form until it has been completed.

You cannot edit the form entries once the form has been digitally signed. If you are making revisions to a previously signed form, right-click the digital signature and select Clear to remove the signature (this can only be done by the person who originally digitally signed the form). Forms that have not been signed will not be accepted.

P.I. Signature:

Date:

Work Plan	Stephen Samuelson					"Is Bay Area Regional Planner fun?"													
	Master's Report -																		
	January					February				March				April					
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 1	Week 2	Week 3	Week 4	Week 1	Week 2	Week 3	Week 4	Week 1	Week 2	Week 3	Week 4	Week 5	
Project Week																			
Important Dates																			
Work Item			Classes Resume					Class Focus Group		Substantial Completion						ETDR	ETDR		
Method																			
Literature Review																			
Game Design																			
Planning Practice																			
Community Engagement																			
Games as Reference text																			
Report Findings																			
Observation																			
Personal Experiences																			
People Playing Games																			
Report Findings																			
Focus Group																			
IRB Approval																			
Conduct Focus Group and Survey																			
Analysis																			
Report Findings																			
Comparative Analysis																			
Comarison Between Groups																			
Removing context from design																			
Comparison to Design Intent																			
Report Findings																			
Content Analysis																			
Analysis of Fun																			
Content of other games																			
Analysis of Bay Area Regional Planner																			
Report Findings																			
Additional Work																			
Create Graphics																			
Edit																			
Committee Meetings																			

**Appendix F - Project Work Plan Timeline**

## Appendix G - Aggregate Survey Data

Student	Group A										Group B						Avg
	1	4	5	7	8	9	10	11	13	1	4	8	9	10	11	12	
Sensation	3	4	4	3	2	4	5	3	3	4	2	5	3	5	4	5	3.54
Fantasy	4	3	5	3	2	2	5	2	5	5	3	5	5	5	5	3	3.65
Narrative	4	4	4	4	2	4	4	2	3	4	3	4	5	5	5	5	3.74
Challenge	5	5	5	5	3	3	5	3	4	4	4	5	5	4	5	5	4.30
Fellowship	5	4	5	4	4	4	4	4	4	4	4	5	4	5	5	5	4.35
Discovery	3	4	5	3	3	3	5	3	3	5	3	4	3	4	5	5	3.71
Expression	3	3	4	2	1	2	3	1	2	3	1	4	2	5	3	2	2.30
Submission	3	5	4	2	1	4	4	2	2	4	4	5	5	5	5	5	3.44
Fun	4	4	4	2	2	4	5	2	2	4	4	5	5	5	5	5	3.66
Transportation	y	n	y	n	y	y	y	y	y	n	y	y	y	y	y	y	14
Housing	y	n	y	y	y	y	y	y	y	y	y	y	y	y	y	y	15
Compromise	y	y	y	y	y	y	y	y	y	y	y	n	y	y	y	y	15
Played Previously	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	0
Gender	m	m	m	m	m	m	f	f	f	m	m	m	m	m	m	m	
Games as Leisure	y	n	n	n	y	y	n	y	n	y	y	y	y	y	y	y	12
Age	26	29	28	23	23	25	28	22	23	22	22	24	23	19	22	21	23.60279049
Race/Nationality	white	latino	african	white	white	--	white	white	white	white	white	Asian	white	hispanic	white	white	