Designing Digital Games for Public Transport

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ABSTRACT

Commuting on public transport can be a very unengaging experience that often involves sitting or standing for long periods of time. We see an opportunity to enrich the commuting experience by exploring digital play in this space, and in response aim to deploy a social exertion game designed for public transport. Our game will act as a research vehicle to explore the ways in which digital games that incorporate both the commuter's body and the social setting can enhance the experience of unconventional play spaces, in this case, public transport. We aim to provide guidance for game designers who consider play in unconventional spaces such as trains and trams, evoking playfulness in users of these spaces, allowing for more engaging experiences.

Author Keywords

Exertion games; exergames; play; unconventional play spaces; public transport; game design.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Human Factors; Design.

INTRODUCTION

Games generally occur in defined play spaces and are governed by rules. The act of accepting these rules and stepping into the space of play is sometimes referred to as entering the 'magic circle' – the metaphorical space in which play occurs [9]. This magic circle often also denotes a physical space, for example digital games have traditionally been confined to arcades and living rooms. However, the advent of recent technologies such as mobile devices allows us to play almost anywhere. Spaces that we consider playful are constantly expanding [6], for example, city streets [1], shopping malls [7], and public transport [14]. However, one of the problems that game designers may face when designing for these new game spaces is the conflict of the purpose of the space. Although the spaces may have the potential for play they may not be widely

accepted as such. This may cause disruptions and discomfort for non-players in the space when a game is played. We focus specifically on public transport as one example of these spaces and refer to these spaces as unconventional play spaces.

The challenge with public transport, namely trains and trams, as a space for play is the fact that despite it being populated with people, no one speaks to one another, in fact ethnographic studies show that passengers go out of their way to avoid eye contact [5]. Our aim is to explore play in public transport in order to understand the behaviors and reactions of its users to the game. This will ultimately help us create better games that not only enhance the space by taking advantage of its unique opportunities but also work well with the space and its users.

RELATED WORKS

Organizations such as Everything Is OK [11], The Love Police [13], and the Copenhagen Game Collective [2] have hosted playful games on public transport in the past. Some of these are more like performative events than games, such as the subway sessions by Everything Is OK and The Love Police in which they board a train with a megaphone and announce the train carriage the "happy carriage" or the "love train" to amuse the passengers with humor and satire. The Copenhagen Game Collective play Train Mafia [14], an extension of the folk game Mafia with a modified rule set designed for train rides. We learn from these experiences that social play on public transport is possible if orchestrated correctly.

There have also been concepts that have considered augmenting the public transport space with digital systems, for example, by strapping a small display to the handles that passengers hold onto while commuting, allowing them to play simple games like Tetris through tilting button pressing [8]. We learn from this that handles and bars are important parts of commuting and can be augmented to create playful interactions. Unfortunately, this system is only a proposed concept and there is no study on how commuters would engage with or enjoy the system.

The London-based public transport game Chromaroma [4] uses commuter's Oyster Cards [12] to track and record their locations and awards points for completing tasks and missions, such as visiting unexplored locations. Players are able to compete with one another on a national leaderboard. The game is accessed through a mobile device and provides

visualizations of the commuter's travel routes. We find this to be an interesting way of engaging passengers during public transport rides, but not so different to existing iPhone and Android games that are commonly played during commutes. We understand that these methods of pastime are easily accessible and do not disturb or intrude on the privacy or comfort of others in the space, but we also believe there is a missed opportunity to incorporate both the passengers and the immediate physical space into play, and allow for the commuters to engage in play together in order to create more engaging experiences.

CART-LOAD-O-FUN

When we look at public transport, namely trains and trams, we notice two key features:

Firstly, the space is populated with people, so there is potential for social interaction, yet this rarely happens between strangers. Secondly, the train or tram is constantly moving and stopping, an interesting characteristic of the space and very different to most other play spaces such as living rooms.

We see these two features not as problems or challenges but as design opportunities. As such, we aim to design a game that makes use of these features.

Our project is called Cart-Load-O-Fun. We use two force sensors that are attached to the horizontal bars of the train or tram that passengers hold on to while travelling. Our current game involves two players collaborating in order to control a single character in the game. One player controls the character's movement on the x-axis while the other player controls the y-axis by holding onto the bars that the sensors are attached to. Holding on tighter increases the x or y value. Players must work together in order to collect the gems that randomly appear in the level while avoiding enemy characters. Each gem collected adds two seconds to the timer. The game usually lasts 60 seconds and is high-score based. We project the game onto a flat surface in the space (either on the floor or ceiling), alternatively there is a screen that displays the game.

STUDY

We aim to explore the reactions of passengers to the games we deploy in the public transport space in order to understand how games for the commuting experience should be designed.

Participants

We invite the passengers in the public transport space to play the game. These include passengers who have just entered the space and who are already present.

Measurements

Participants will be observed during the game, which will be followed up with a discussion and an open interview process guided by key research questions using the laddering technique [3]. All game sessions will be recorded on video (with audio). These recordings will be used to assist the analysis, to compare previous reports, look for synergies and anomalies, as well as to inform ongoing game development. The primary researchers conducting the interviews will keep video logs of their findings and thoughts after each study. These will also be analyzed along with the recordings of the participants.

Procedure

The game is installed in an open area of the tram. Players are free to play alone or with others. Once players are finished playing the game, they are asked if they would like to be interviewed.

Analysis

We will look for common themes that arise throughout our data collection, these will be discussed with co-researchers. The researchers will also be keeping a video log where they speak about their opinions and findings after each study. This will also help us analyze our data.

Challenges

Due to the nature of the space that we are conducting our research in, there are several challenges that we face. For example, passengers constantly entering and leaving the space makes it hard to engage them in play and in conducting interviews afterwards. We address this by keeping the game simple and the play time and interviews very short while still being able to capture enough data to analyze. Our game is designed to be picked up and dropped by passengers with ease as it does not contain a story element or any other complex game mechanic that requires extensive time to understand.

PRELIMINARY FINDINGS

From our studies conducted on local trams so far, we can report on preliminary findings.

Playing on public transport is a performative activity as other passengers are constantly watching the players play the game. Therefore it is important for the display to be visible for not only the players but also for the audience as they also seem to enjoy the experience of being an observer. Thus the audience are engaged, allowing for observation or even participation [10].

Placing a game in an unconventional play space like public transport easily gains the attention of the people in the space, as it is not a common sight to see such events occurring in the space. However, we still find it difficult to engage even the curious passengers. As expected there is a social barrier to entry.

Several players have reported that the tram moving back and forth has an influence on the game, and that they sometimes try to resist the acceleration and deceleration of the tram. We find this to be unique to a tram, and the fact that the tram is able to manipulate the player's control over the input to be a very interesting game mechanic that can be leveraged.

LIMITATIONS

Our research investigates the role of play in one particular unconventional play space (i.e. public transport, namely trams). Naturally, there are many more. However, this is only the first step into such an investigation. As such, this research only provides a snapshot of a particular unconventional play space. Nonetheless we believe our insights are a valuable starting point for researchers to investigate this domain further.

CONCLUSION

We have presented Cart-Load-O-Fun, a work in progress project. We report on preliminary findings from studies conducted on local trams. Our game acts as a research vehicle to explore the ways in which digital games that incorporate both the commuter's body and the social setting can enhance the experience of unconventional play spaces, in this case, public transport.

We aim to provide guidance for game designers who consider unconventional play spaces such as trains and trams, evoking playfulness in users of these spaces, allowing for more engaging experiences, ultimately allowing players to rethink where, when and with whom we play. We aim to further enhance our study and therefore enrich our contribution.

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