
Mind Reader: Designing for More Intimate Social Play in Video Games

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Abstract

Socializing is one of the main reasons that people play games [14]. However, co-located video games often move the focus toward a visual display and personal input devices. This paper looks at how we can bring the focus back on the co-players providing for more intimate social play without losing the advantages of digital games and visual display. Such games may provide social/relational benefits and increased enjoyment as well as may be of use for social learning, teambuilding, and therapy. The design of our game, Mind Reader, attempts to both learn from non-digital games as well as exploit the potential of mobile devices to create a more social form of video game. The game was built around two main features: face-to-face play and a shared physical space designed to promote social gameplay. We then present a way to test this new form of gameplay against traditional mobile gaming to determine its effect on social interaction.

Author Keywords

Social play; face-to-face; co-located; shared physical space; game design

ACM Classification Keywords

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



Figure 1. Typical co-located multiplayer console gaming where players are seated side by side with focus directed towards the display in front of them.



Figure 2. Typical co-located multiplayer handheld gaming where players focus is on devices held in hand.

Introduction

Many other forms of co-located games are considered more social than video games. Traditional co-located console games use a single shared screen that all players are focused on throughout the game and each player uses their own individual input devices. Handheld/mobile devices have attributes with the potential to break the confines of how co-located games are played. Despite this, there is evidence that the creation of “private gaming spheres” and are considered less social than co-located console gaming [17]. In this paper, we attempt to break these individual gaming spheres by taking advantage of the attributes provided by distributed devices to design a game with face-to-face gameplay and a shared physical space in pursuit of a more intimate social experience for the players. We then discuss the concept for an experiment to test these design decisions to determine if they provide for a more intimate social setting than traditional mobile gameplay. To do this the experiment will use measures of social presence, perceived closeness, liking, as well as awareness of the co-player.

Background

Face-to-face gameplay

Most co-located multiplayer games are played on a single shared screen. Consoles like the Wii U added an additional screen to the controller; however, the focus still remains on the display/s. Players play side-by-side while watching the screen in front of them which can hamper social interaction [11].

Mobile devices provide for an opportunity to break this side-by-side seating arrangement providing for more rich social interaction. However, a study on Nintendo DS play showed that handheld mobile devices can

create personal bubbles of gameplay that are less social than console games. Players’ focus is on the screen in hand. There is also no inherent reason for players to sit near each other built into the game so often they don’t [17].

Video games have attributes that can provide for gameplay that is not possible with traditional games. To our knowledge there are no video games with true face-to-face gameplay that couldn’t be easily replicated without the use of video game devices. That being said there has been some work done in creating face-to-face gameplay for both digital and non-digital devices.

The importance of moving focus away from a video display back to the players is stated in [16]. In the indie game scene there have also been attempts to move away from the screen. Johann Sebastian Joust is one such game in which players try to jostle their opponent’s held PS Move controller [7]. Proximity is a dance/fight game where scoring is based on getting sensors on the players’ hands within a certain proximity to sensors on their opponent’s body [15]. Another game, i-dentity, has teams of players watch each other make movements with a PS Move controller and try to determine which player’s movement is responsible for changes in the color of the remote [4]. Researchers at NYU-Poly developed a dance battle game, Yamove!, which used video as a digital scoreboard but the display didn’t have a significant purpose during gameplay [6]. While these games do create face-to-face gameplay, they lose potential benefits provided by the use of a video display.

There are several non-digital games that attempt to create face-to-face gameplay by having hidden



Figure 3. Sifteo Cubes are tangible input/output devices that communicate with a base (located above the three cubes in the picture). Our game, Mind Reader, took advantage of the cubes' LCD screen, touch capability, and small lightweight design.

information on a players' forehead such as Indian Poker, HedBanz, and Celebrity. Some of these games have been mimicked using digital devices worn or held on the forehead. A couple examples are Heads Up!, a game for iPhone, and Bin ich..., which uses a headband. While these two examples do use video, they don't use the capabilities video games to provide gameplay that isn't possible with a non-digital counterpart.

Probably the closest attempt to face-to-face gameplay while still keeping video a significant part of the game was a shared transparent wall display in which players can see each other while playing on either side [5]. There are also games that use a shared board whether through a table top computer or mobile devices to create face-to-face play; however, focus still remains downwards towards the display instead of the co-player [8]. There have also been some augmented reality games where a player sees their co-player on their screen as well as some networked non co-located games like Airhockey Over a Distance [13].

Shared space

Most video games do not have a shared physical game space with physical contact between players and shared input devices. These attributes are common in non-digital counterparts but rare in video games.

Research in social play at Georgia Tech used augmented reality (AR) and a shared board to create a shared game space. Players had to maneuver around the board using the AR device and could physically interfere with their opponents' actions [19].

Tabletop computers and tablets have offered an opportunity to provide for a shared game space. Bloop,

a game for tablets, has several players sharing a single tablet trying to hit squares of their own color [2]. Because of the small size of the game space it forces, by design, players' hands to make contact with each other. Several games mentioned in the previous section such as Johann Sebastian Joust and Propinquity also create a shared game space.

Design of the Game

Originally designed as a commercial product for the Sifteo Cubes gaming platform, Mind Reader has two game types: a two player game and a four player team game. The latter is similar but relies heavily on teammates trusting each other under pressure. The team game will not be addressed in this paper.

All design decisions for the game revolved around creating an environment that would allow for intimate social gameplay. The first decision for the game was to wear cubes attached to headbands so that players would be looking face-to-face with their co-player. The idea of having information shown on the forehead was inspired by party games like Celebrity. The hope was that if players were already facing each other instead of facing the same direction or downwards towards a screen in their own hand, it would be easier for them to observe their co-player.

A second decision was to use centralized "buzzers." This was used for two reasons. One, players have to move their hands to hit the "buzzer" instead of just pressing on a handheld cube which allows their co-player to watch for body language like hesitation or anticipation during the buzzing in process. Second, it improves the spectator experience of the game. There



Figure 4. From top to bottom. The four versions of gameplay to be tested: face-to-face and shared space (FF&SS), face-to-face (FF), shared space (SS), and traditional (T). While in the fourth picture the two players are sitting near and facing each other, there is nothing in this variant that would force players to do so.

is evidence that allowing for natural observable movement in a game increases social interaction [10].

The game has gone through several design iterations. The most noteworthy was switching from each player having their own “buzzer” cube to a single shared “buzzer.” This change no longer allowed for the system to determine which player “buzzed” in first but even this has its potential upside. Players being responsible for conflict resolution may make the game more social [18]. It also brings a natural pause to the game which helps break up the game to allow for talking and a break from continually watching for the items. The change also led to a shared game space. Having a shared game space reinforces face-to-face gameplay by forcing players to play within an arms-length distance from each other. The shared buzzer also leads to the potential for players to make physical contact with one another when trying to buzz in, which would not have occurred with multiple buzzers.

We created opportunity for players to observe each other more easily so now we needed to give them a reason to do so. This is where the design of the game itself comes in. The game is a fast paced game where you race to the buzzer to collect your own items while trying to discover and block your opponent’s items. Players are initially given a private set of items to collect. The game then cycles through collectable items that are shown identically on both displays. When a player sees one of their items or an item they believe to be their opponent’s, they buzz in to collect it or block their opponent. If blocked, a player has their combo reset to zero and receives a new set of items to collect. Players should try to disguise their own pattern of collecting to prevent their opponent from blocking them

and ending their combo. The game involves hidden information and bluffing, similar to games like Poker, where reading the opponent’s body and facial expressions may be a key to winning the game. Also in the 1 vs 1 version of the game the players’ focus is solely on one another.

The intent is that all these design decisions reinforce each other in order to create a coherent game where both the game itself and how it is played come together to create intimate social interaction that feels natural and intuitive to the game.

Experiment

The original game and three modified versions will be used to test different types of gameplay: face-to-face and shared space (FF&SS), face-to-face (FF), share space (SS), and traditional (T). FF&SS is the original game unmodified. The FF version is modified so that players will each hold a cube in hand as a buzzer. The SS version is the opposite of the FF version: there is a shared buzzer but players hold a cube in their hand that displays the items. The T version replicates how mobile/handheld games are usually played where each player holds a single cube in their hand that will act as both the display and input device.

Participants will only be playing the 1 v 1 version of the game and will only play the two number mode. Each participant will be randomly assigned to play with four other participants, a different participant for each of the four forms of gameplay. The order of the type of gameplay will also be randomly assigned. Players as pairs will be instructed on how to play the game for the gameplay type they are testing and will play a shortened practice game with help until they are

comfortable with the rules. They will then play the full version of the game. Upon completion, both players will fill out a quick survey. They will repeat this process until all four gameplay types have been played.

In addition to the surveys, video cameras will also be used to record the participants' interaction during gameplay. This will provide quantitative data on various interaction cues such as eye contact, physical contact, talking, etc.

The surveys will be similar to those used during a typical playtest session that ask about aspects of the game and enjoyment but will also add measures of closeness, liking, as well as awareness of the co-player. A social presence in gaming questionnaire has been developed by [3]; however, because we are exploring a specific type of social play additional psychological measures not specifically designed for gaming will be adopted and added [1, 12]. We hypothesize that playing the game face-to-face with a shared physical space will increase social presence, closeness, awareness of the co-player, and polarize liking shown both in self-report and video evidence during playtests.

Discussion

The design on this game focuses almost completely on creating more intimate social gameplay amongst those playing. Because of this, there are many other aspects that make a game social that have not been addressed. Providing for a spectator experience is one of these areas [17]. While this game does have large movements and uses symbolic mechanics like buzzing in that spectators could view and understand, the small screens make it difficult for them to get a full experience. Future work on how to create more

spectator friendly mobile/handheld games is essential to making them more social.

Additional studies on how games with design focused on intimate social gameplay affect trust or evaluation of ability may be of interest to groups in computer supported collaborative work (CSCW) community. Work could also be done to see if these kinds of design decisions could be adopted into learning games in order to reap benefits from social learning.

The use of Sifteo cubes as head worn devices has its pitfalls as they were not designed for this purpose. The cube's display is small but the cubes have a large profile which when angled can make viewing the screen more difficult. As e-textiles advance, better head worn devices could be designed. Humans can notice a difference in angle of five degrees when making eye contact [9]. E-textile head bands could allow for easier transition from the game to direct eye contact. It may even be possible to give the perception of continuous eye contact throughout the game. Whether this perception is desirable would need to be tested.

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