

Movers and Shakers: Conversation and Conflict in a Serious Game for Tablets

Konstantin Mitgutsch, Steven Schirra, Sara Verrilli, Richard Eberhardt

MIT Game Lab
77 Massachusetts Avenue
Building 26-163
Cambridge, MA 02139

{k_mitgut, schirra, akiru, reberhar}@mit.edu

ABSTRACT

Movers and Shakers is a tablet-based serious game that explores how subversive game design can foster meaningful conversational conflict beyond outside the game's digital screens. This two-player strategy puzzle was developed at the Singapore-MIT GAMBIT Game Lab and is used as a research tool to explore novel challenges in multiplayer serious games. The project provides insights into the affordances and challenges of mobile serious games for co-located players.

Categories and Subject Descriptors

K.3.1 [Computers and Education] Computer Uses in Education; H.5.2 [User Interfaces] – Evaluation/methodology

General Terms

Design, Theory, Measurement

Keywords

Serious Games, Game Design, Tablet Games, Mobile Learning.

1. INTRODUCTION

The goal of the game project *Movers and Shakers* was to develop a multiplayer (two-player) game that uses subversive design elements to camouflage the relationship between players and encourage them to communicate beyond the screens to win the game in a collaborative way. In doing this, the game explores how recursive learning [3] and social elements can create a meaningful context for educational gaming. We understand “serious games” as playful environments intentionally designed to have a purposeful impact on players' lives beyond the self-contained aim of the game itself [4]. In addition, *subversive game design* challenges players' expectations by subverting common game design patterns through novel or unexpected forms of conflict [5]. The research goal is to investigate how players: 1) overcome their competitive expectations of the other player, and 2) shift from destructive exclusion to cooperative problem solving in the game.

While other games have employed such mechanics to create conflict or mask information, *Movers and Shakers* employs these tactics for an explicit educational purpose.

The theory-based design process of *Movers and Shakers* involved five fundamental steps: (a) developing the theoretical framework, (b) applying the theory to game design, (c) exploring suitable best practice serious games, (d) developing a prototype and the final game with a team of students and (e) evaluating how well the game meets the theoretical standards. The three leading questions of this process were:

1. How can subversive game design elements be implemented in a two-player tablet game?
2. How can the game encourage players to engage in a meaningful conversation beyond their tablet screens to solve a problem collaboratively?
3. What in the game causes players to engage in an actual conversation, and how does their interpretation of the other player change because of this?

With these questions in mind, our paper briefly describes the design and research goals of the game.

2. GAME CONCEPT

Designing a two-player, subversive game for networked tablets was the unique challenge assigned to ten students at the Singapore-MIT GAMBIT Game Lab in the summer of 2012. After exploring various theoretical approaches to serious game design and transformative learning [1, 2, 3, 5], and analyzing purposeful games such as *Sweatshop* (Littleloud, 2011), *Way* (Coco & Co, 2011), *Every Day the Same Dream* (Molleindustria, 2009), *Phone Story* (Molleindustria, 2011), *One Chance* (AwkwardSilenceGames, 2010), *Gray* (Intuition games, 2009) and *Afterland* (GAMBIT, 2010), we explored how a multiplayer component could be added in a way that encourages deeper critical engagement. We wanted to design a game that required players to talk about their differing perspectives beyond the screens if they wanted to “win” the game. The physical space between the players is used as a potential conversation area that impacts the gameplay and the perspective of the other player.

The purpose of *Movers and Shakers* was to introduce young workers—high-school or college graduates just entering the workforce—to some of the inherent contradictions and communication difficulties inherent in a workplace, to show them

the challenges and advantages of differing perspectives, and to encourage them to reach out and communicate with their fellow player outside the channels provided within the game itself.

Movers and Shakers explores the conflicts between a high-level executive and a floor manager in a factory setting. As a game, it aims to create a meaningful conflict between the players, and then allow them to come up with their own ways of working together or against each other.

In the game, the two players oversee a machine that keeps the world spinning at the proper speed. One player, the executive, seeks to maintain the machine at its proper temperature; the other, the floor manager, improves the communication flows between employees. The introductory narrative for the two players is similar, but not identical (Figure 1). This reinforces their different points of view, while insuring they understand the mutual goal.

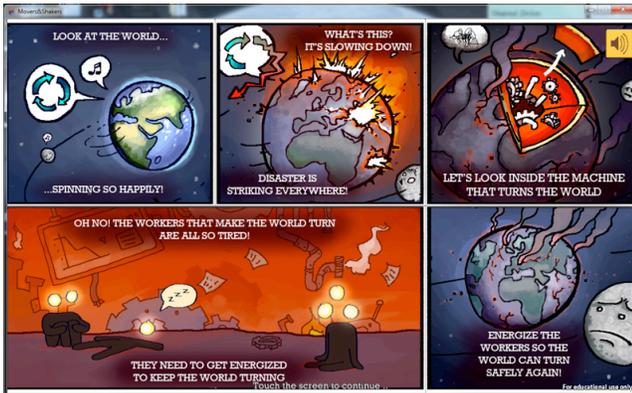


Figure 1: Intro Comic

For the executive, or machine player, work completed is paramount: the sprite employees appear as cogs, part of a machine, to be oiled or fixed or replaced. The other player sees the sprites as less interchangeable and more uniquely important.

Both players are tasked with the in-game goal of keeping the world rotating at the correct speed; both players can see where the sprites are working; and both players rely on the same vat of lava to fuel their actions. Their turns take place simultaneously, allowing them to work with or against each other, or even race to use up all the shared resources before the other player.

Because each player role has different responsibilities, the players do not have the same information available in game, nor do they have the same abilities. Most important, they each have an individual goal to complete in order to win the game, and the actions each player takes in the game are those that best enable their private goal. At the same time, those actions also affect the overall, shared goal: maintaining the speed of the world.

Representing the high-level executive, the first player (figure 2) can ‘hire,’ ‘inspire’ and ‘fire’ sprites. Since his goal is to get as much ‘work’—or heat—out of the sprites, this player can choose to hire the most effective sprites, and can also force them to work harder. The hiring player chooses each worker’s initial placement. This player can also use lava to enlarge the sprites, causing them to ‘work’ harder and thus increasing the machine’s temperature. Since the personal goal is to hit a maximum heat, the game mechanics encourage this player to overwork and exhaust the sprites—and also to get the world spinning much faster than it should, since heat speeds up the world.

The second player (figure 3), representing the floor manager, can rearrange the sprites’ position in relation to other employees to

help them work more efficiently and effectively together. The player spends lava to improve communication between sprites, in turn improving morale. When sprite morale is high enough, the manager receives a badge; this player’s private goal is to earn four badges. Happy workers make the world spin faster; unhappy workers slow it.



Figure 2: CEO perspective in Movers and Shakers

Overworked sprites are never happy, making the manager player’s job harder; at the same time, a sprite moved by the floor manager loses all ‘inspiration’ the executive player has poured into it. Thus, the two players are continually thwarting each other by attempting to optimize their own personal game. Finally, if both players push the productivity too high, they will find the world spinning far too fast, and the whole game is lost.

These mechanics set the players in deliberate, direct conflict with each other, but the game itself requires direct communication beyond the screens to succeed. The physical setup is face-to-face, so that all a player has to do is break out of the game long enough to start speaking with the other player.



Figure 3: Floor Manager perspective in Movers and Shakers

Movers and Shakers had a significant technology challenge: it is a two-player game with hidden information, but part of the game’s purpose is to encourage out-of-game communication and conversation amongst players. We choose tablets to explore if and how mobile devices can be used to break the communication barrier between the players.

Tablets create a physical space where the players are near each other, working with the same data but not actually forced to interact. Again, this echoes the game’s purpose and goal—the players are playing the same game, interacting with the same data,

but with separate views and controls, each of which supports the players' separate goals.

Finally, tablets are easy to carry and distribute to different locations. Since the game was intended to be a proctored experience, with a researcher or an educator observing, ease of transport and deployment was an important factor.



Figure 4: Tablet interaction for *Movers and Shakers*

3. RESEARCH

In designing for social change, creating opportunities for critical reflection is crucial. Unfortunately, most digital serious games are single-player experiences, and are not designed for a social setting. *Movers and Shakers*, on the other hand, requires that two physically co-located players share a local network to play. Because *Movers and Shakers* is a game meant to get players to resolve conflicts and collaborate, studying the nature of the conversation that happens both during and after playing is key. Though we hope that designing the game for lightweight tablet computers will remove some potential communication barriers during gameplay—keeping it free from the physical “walls” that would be created by devices such as laptops—there has been little research into how the use of tablets benefits or hinders the experience of playing multiplayer serious games.

Though evaluating the impact of serious games is an ongoing challenge, we wish to better understand how players internalize the game's serious message about the workplace—if at all. We believe a well-designed serious game should follow the maxim

“show, don't tell” in delivering its message; however, it's possible that *Movers and Shakers*' message is obscured by the game's mechanics and fictional universe. Do players understand the game's serious meaning, and, if so, did they find it effective?

To further study *Movers and Shakers*, we are conducting controlled playtests with 10 pairs of players (20 players total) in the game's target age range of 18–27. We are observing how participants play the game, if they reach their goals, and the nature of their interactions with each other. Two researchers observe the playtest and lead a post-game discussion among players. Using this data, we will identify common play strategies and discussion points that speak to both the effectiveness of *Movers and Shakers* of delivering its serious message about communication in the workplace, and the effectiveness of tablet computers in coordinating collaboration between co-located players. Early results demonstrate that face-to-face communication can be counterintuitive to players of a mobile game, and that sharing screens is seen as “breaking the rules.” However, the prospect of failing motivates players to speak to one another and to shift from competitive to collaborative gameplay.

This research suggests that locally networked tablets can create novel contexts for face-to-face collaboration, and lend much promise for future serious game designs.

4. REFERENCES

- [1] Lave, J. and Wenger, E. 1991. *Situated learning: Legitimate peripheral participation*. Cambridge University Press, Cambridge.
- [2] Mezirow, J. 1996. *Contemporary Paradigms of Learning*. *Adult Education Quarterly*, 46, 3, 158-172.
- [3] Mitgutsch M. 2011. *Serious Learning in Serious Games*. *Transformative learning in video games*. In *Serious Games and Edutainment*. Ma, M.; Oikonomou, A.; Jain, L. C. (Eds.) Springer: New York. pp. 43–56.
- [4] Mitgutsch, K. & Alvarado, N. 2012. *Purposeful by Design. A Serious Game Design Assessment Model*. *FDG '12 Proceedings*. ACM New York, NY, USA p. 121-128
- [5] Mitgutsch, K., and Weise, M. 2011. *Subversive Game Design for Recursive Learning*. *Proceedings of DiGRA*.