

Social Thwarting Games for Persuading Behavior Reduction

Joel Ross
Informatics Department, UC Irvine
jwross@uci.edu

1. Context and Motivation

Games and other interactive experiences can be used as tools for solving significant societal problems. "Serious games" and "games for change" are not only fun to play, but also provide some other value to society (such as education, health care, or scientific exploration) and demonstrate how games can promote pro-social behavior change.

However, achieving some desired social goals, such as **environmental sustainability**, may also require promoting **behavior reduction**. People need to stop performing undesirable actions in addition to adopting new positive behaviors.

My dissertation studies the social dynamics that can enable the development of games that encourage behavior reduction—particularly **pervasive games** that integrate with the real world and can directly influence player actions and behaviors. I am examining current forms of social game-play (specifically "**thwarting**" dynamics) that may be suitable for promoting behavior reduction, and exploring how these forms may be used in the development of novel pervasive games for persuading pro-social behavior change.

2. Social Thwarting in Games

Thwarting is blocking other players

Thwarting is the behavior of a player purposefully blocking their opponent's possible moves, frustrating their current plans, or otherwise creating obstacles or challenges for other players to overcome.

Thwarting is a common dynamic

Social thwarting is a game dynamic that can be found in almost all competitive multi-player games. Thwarting behavior may be part of careful strategic play: threatening squares to control possible moves in *Chess*; blocking roads or moving the bandit in *Settlers of Catan*; or dropping shells for opponents to hit in *Mario Kart*. Thwarting behavior may also be part of a hierarchy-asserting challenge (i.e., "but can you do *this?*"): challenging throws in the basketball variant *HORSE*; time-trial and "high score" challenges in Racing games; or player-created challenge levels in *Little Big Planet* or *Super Mario*.



Thwarting is fun!

Social thwarting dynamics are a highly engaging and fun component of many board games and video games, producing memorable and emotionally charged game-play events. They also represent a way in which individuals are able to effectively influence and limit the actions of others within a gaming environment.

Thwarting through creating hurdles

Players can practice thwarting by creating "behavioral hurdles" for other players to overcome. A **behavioral hurdle** is an action or behavior that a player needs to avoid performing while achieving some goal. For example, players try to communicate a word without speaking in *Charades* (or without using the word in *Catchphrase* or the *ESP Game*), or try to kill an enemy without being seen in a stealth-based video game like *Assassin's Creed: Brotherhood*. By using behavioral hurdles as a thwarting mechanic, a pervasive game can encourage players to avoid certain actions and achieve behavior reduction.



3. Research Goals

I propose to study the game dynamics of social thwarting and behavioral hurdles as they exist in practice, developing a formal understanding of these components for use in creating novel pervasive games for behavior reduction and their supporting technology. My dissertation aims to answer the following research questions:

1. *What are the characteristics of social thwarting games (and games with behavioral hurdles) that make them engaging and fun to play, thus demonstrating social influence?*
2. *In what ways do players practice and negotiate the use of social thwarting strategies in digital and non-digital gaming environments?*
3. *What aspects of pervasive thwarting games can be supported by technological systems?*
4. *What characteristics of pervasive thwarting games are best suited to influencing behavior reduction?*

4. User Studies of Existing Games

In the first stage of my dissertation research, I am studying how players use social thwarting dynamics in current games with strong thwarting elements. Thus I am exploring the play of digital games such as *Starcraft 2*, *Assassin's Creed: Brotherhood*, and *Mario Kart*, as well as of non-digital games such as *Settlers of Catan*, *Diplomacy*, and *Catchphrase*.

Qualitatively study game thwarting in practice

I am studying these social game dynamics by performing qualitative user studies of play practices. Based on methods in previous work on social gaming practices, I am observing gamers playing established games with strong thwarting elements and interviewing them about their experiences with these elements. By using a Grounded Theoretical approach to analyze thwarting behaviors, I will develop a formal theoretical framework for how players interact with game patterns (and social environments) that restrict players' moves and actions. Such a framework will help us understand how thwarting as a social dynamic plays out in practice, and how it may be harnessed in games for behavior reduction.



5. Pervasive Thwarting Game

In the second stage of my dissertation research, I will use the developed framework for thwarting behaviors in designing and deploying a prototype pervasive game for encouraging individual behavior reduction. In particular, this game will target behavior reduction the domain of environmental sustainability by aiming to reduce the amount that people drive.

A pervasive game adds hurdles to everyday life

This pervasive game will implement behavioral hurdles in the context of players' everyday lives, requiring them to avoid performing certain daily actions. For example, the game could position driving as a behavioral hurdle, challenging players to not drive (and instead walk or take public transit) during the process of going to the store or achieving some other goal. By overcoming such hurdles and not performing the proscribed action, players effectively engage in behavior reduction.

Players pervasively thwart each other

The pervasive game can harness engaging thwarting dynamics by having players create these behavioral hurdles for one another as challenges to overcome. If Alice announced that she was going to the store, Bob might challenge her to get there without driving. In this way, thwarting dynamics can be used to socially engage players in trying to avoid performing a behavior during their daily lives.



6. Contributions

This dissertation will make the following contributions:

1. *A theoretical framework for understanding the performance and effects of social thwarting behavior in digital and non-digital games.*
2. *A technical framework for using social thwarting dynamics to develop pervasive games for behavior reduction, with an implemented demonstration of that framework.*

Supports game studies, games for change, and HCI

My dissertation will contribute to the fields of game studies, games for change, and HCI. This work offers of a novel exploration of a form of game-play that is practiced by social gaming groups, and how those practices may be influenced by the technology in digital games and environments. An understanding of these practices can contribute to how researchers view the interaction between human behavior and games as rules-based technological processes. This research will also contribute to game development by providing a technical framework for the design of games for change that support behavior reduction—a distinct form of behavior change that may be more suitable to some pro-social goals, such as environmental sustainability.