A social scientific framework for social systems in online video games: Building a better looking for raid loot system in World of Warcraft

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ARTICLE INFO

ABSTRACT

This paper examines social behavior in the online video game World of Warcraft. Specifically focusing on one element of social design: the behavior of players in the first release of Looking-for-Raid (LFR) loot system of World of Warcraft. It uses lens of economic game theory, combined with Williams (2010) mapping principle and a modern theoretical account of human decision-making, to explore how theory about individual interactions in well-defined contexts (games) can explain collective behavior. It provides some support for this theoretical approach with an examination of data collected as part of an ethnographic study, through focus groups, and a survey distributed to 333 World of Warcraft players. It concludes with a discussion of the results and some guidelines for predicting collective outcomes in certain types of online games using the introduced framework.

1. Introduction

Online multiplayer games and virtual worlds are difficult to design; they contain economies and other complex systems where the decisions of one player can have far-reaching implications for other players. When considering the welfare of players, game designers have a difficult job; they must create systems, which optimize enjoyment for a body of players who often have different motivations for playing the game (Bartle, 1996; Cummings & Ross, 2011; Yee, 2006). This paper outlines a theoretical approach to collective behavior that uses a combination of game design, motivational psychology, and economic game theory. First, it takes Williams's (2010) mapping principle and shows that changes in context from the real to the virtual world must be interpreted through a lens of user experience, game design, and motivational psychology. What this implies is that players process information in video game environments with the same mental tools that they use to process information in the real world. However, those who wish to understand behavior in video games must recognize that behavior is sensitive to context, particularly the costs and incentives used by game designers and the structure and properties of a computers mediated world. That behavior is sensitive to context is a critical insight from the mapping principle because it lays the

foundation for understanding how social science theory to can explain collective behavior in a video game. The goal of this paper is to draws upon economic game theory and a beliefs and desires model of individual decision making to frame collective behavior as the dynamic interaction of players with motivations that are different, but can also be categorized into distinct subgroups, based on the theoretical approach of the researcher (Bartle, 1996; Bicchieri, 2006; Jeng & Teng, 2008; Yee, 2006). From this perspective, a researcher can explain and predict some of the stable states that dynamic groups will reach in online video games by connecting game design and a theory of behavior in computer-mediated worlds with a general understanding of motivational psychology and a theory to explain the dynamics of social interaction. Beyond simply predicting behavior, this type of framework could also be used to push a system in a favored direction through designed intervention.

In addition to providing a basic framework for collective behavior in a subset of social contexts of online video games, this paper also examines the predictions of the framework just described by looking at an existing arrangement, the first release of the Looking-for-Raid (LFR) loot system of World of Warcraft. The first version of the LFR system, released in November 2011 and available until August 2012, is an in-game mechanic that matches players into 25-person groups and delivers them into a raid dungeon. Once there, the group navigates through a dungeon filled with enemies, occasionally encountering a powerful enemy boss that requires coordinated teamwork to defeat. Along the way the group finds a

few valuable items, which are distributed by allowing eligible players to enter a lottery. For this study, we used participant-observation ethnography and interviews with focus groups to examine and document the LFR user experience under the previously described framework. In addition, we developed a survey distributed to 333 active *World of Warcraft* players to analyze players' beliefs about others in the LFR system as well as their reported behavior in loot situations. In this paper, we find that the reported behavior and expectations of players follow the theoretical predictions of our framework under the assumptions of players as boundedly rational agents with limited perceptions in the context of an N-player mixed-motive game. Finally, we explore the theoretical potential of this type of framework for game developers who trying to design balanced social systems within games, and also propose a few theory-guided solutions involving information/communication channels and social norms that could shift the equilibrium of the current system to a more collectively enjoyable outcome.

2. A framework for understanding social behavior in virtual worlds

In this section, we introduce a framework for understanding collective behavior in virtual worlds, which pulls together work from economics, psychology, and game studies. It operates on the assumptions that human motivation can be quantified and individual motivations can be ranked, ideally at the individual level, but at least at via subgroups of players – for examples of subgroups see Bartle, 1996; Jeng & Teng, 2008; Yee, 2006. As we proceed through this section, we will apply work from three distinct areas. First, we will outline Williams's (2010) work with *the mapping principle* – a guideline for applying social science theories to human behavior in virtual worlds and video games. Second, we briefly introduce economic game theory, focusing on categorizing and understanding situations where the incentive structures in a game align as a specific type of collective action problem known as a mixed-motive game. Third, we demonstrate how a particular type of model of decision-making known as a beliefs and desires model is particularly well suited to explain player behavior in mixed-motive games. This section concludes by introducing a case study that explores the usefulness of this theoretical perspective.

Williams's *mapping principle* (2010) is a guideline for using social science theory to explain and predict behavior in virtual worlds, and for using virtual worlds as spaces to investigate and test social science theory. The main thrust of the mapping principle is simple: games and the real world are contextually similar but also differ in important ways, which can affect the accuracy of theoretical predictions. When described this way, the mapping principle has a tendency to seem like an obvious statement – as most people understand that virtual worlds and the real world are different. However, the mapping principle highlights the importance of many seemingly inconsequential contextual differences and provides guidelines for understanding how these differences can alter behavioral outcomes. For example, Williams notes a group of researchers who studied the transmission of disease by observing a programming bug in an epidemic story that was part of an event in the game *World of Warcraft*. This in-game disease resulted in character death and could be transmitted from player to player. As a result, the researchers attempted to generate insights about disease transmission using behavioral data from the virtual world. In trying to make predictions about disease, the researchers assumed that players in *World of Warcraft* would treat death in a similar manner to individuals in the real world, but as it turns out, the consequences of death and sickness in *World of Warcraft* are not the same. Thus, the researchers were surprised when players

laughed and danced as they died, or tried to infect their friends as a practical joke. This is a somewhat humorous case of mistaken assumptions, but it illustrates an important point that is at the crux of the mapping principle: the physical properties and incentives of virtual worlds may differ from the real world in important ways. Rather than take them for granted, a researcher must apply a lens of game design and insights from computer-mediated communication to identify the important contextual differences and hidden assumptions of each environment.

Williams proposes that an understanding of game-design and research in computer-mediated communication are important for understanding the important contextual difference between virtual worlds and the real world. He suggests that an understanding of game design is important because game designers intentionally create systems of incentives for their games. Therefore, by understanding the intentions of the game designer, and how they interact with theories of motivational psychology, a researcher can recognize the hidden assumptions that would compromise theory if they were to treat behavior in the game like behavior in the real world. For example, in *World of Warcraft* the developers intentionally designed the game so that in most circumstances there is little repercussion for death. However, in other games there are designed penalties for death (e.g. lost resources). Games with a strict penalty for death are more likely to have behavior that is more similar to the real world than *World of Warcraft*. Yet because death in a virtual world can never be the same as death in the real world, none of this behavior will be identical to behavior in the real world when death is a consequence. Another interesting example comes from Lortie and Guitton's (2012) work on *World of Warcraft* and group stability, in which they found that homogenous groups in the game tended to display higher stability than heterogeneous communities. This is contrary to the typical assumption that belonging to a heterogeneous group typically favors long-term stability.

Sometimes players do not behave as expected, even when the researcher is looking through a lens of game design. In these instances a grasp of motivational psychology is also important. For example, research regarding the motivations of players in virtual worlds finds that some players enjoy causing harm to others (Bartle, 1996; Jeng & Teng, 2008; Yee, 2006). Thus, players in a game where death has consequences will have an aversion to death, but a surprisingly large number of players will enjoy killing others, not because they are necessarily psychopaths or serial killers in real life, but because the consequences and costs of killing someone in a virtual world are not the same as the real world. Another example from *World of Warcraft* includes guild dynamics and life cycles, which Chen, Sun, and Hsieh (2008) describe as an intersection of game design and player motivations – the game designer's focus on raiding features had an impact on guild ecology leading to large, mismanaged groups that cause instability in the player environment. In response to this unexpected user behavior, the designers created opportunities for smaller groups that align more closely with observed in-game guild dynamics.

Williams also argues that computer-mediated communication is an important tool for understanding how the physical differences between virtual worlds and the real world (e.g. physics, communication, etc.) change behavior. Once again this is because subtle – and not-so-subtle – differences in the environment can result in changes in behavior. As a field, computer-mediated communication is targeted at understanding how changes in medium and context create interactional consequences. Since understanding communication and interaction is an important component of understanding human behavior, the field of computer-mediated communication can offer important insights into patterns of behavior change when research transitions from the real world to a mediated world.

Of course, Williams's mapping principle is not the first utterance of the statement, "context is important." Indeed, theories in