

Social systems in virtual worlds: Building a better looking for raid loot system in World of Warcraft using the Institutional Analysis and Design (IAD) framework

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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 outcomes for a body of players who often have different motivations for playing the game (Bartle, 1996; Cummings & Ross, 2011; Yee, 2006). In addition, knowledge of how to create and tune game systems - when it does exist - is often institutionalized. There is no shared theory of how to build and maintain a virtual society. The recent development of telemetry systems has helped to mitigate this issue by providing developers with real-time feedback regarding the state of a population, but telemetry systems are not theoretical. Machine learning does not provide developers with insights into why outcomes occur, or how to develop social systems that are optimal for engagement, enjoyment, or the formation of meaningful relationships.

This paper proposes a tool that can provide game developers and researchers with such insights. The Institutional Analysis and Design (IAD) Framework was developed specifically for identifying the universal elements of institutions and draws from decades of research regarding human behavior in various institutional settings (Ostrom, 2005). The IAD framework is not a prescriptive solution detailing how to solve all institutional problems; rather, it is a tool for evaluating the arrangement of different institutional elements. Coupled with various theories of human behavior (game theory, economic theory, social psychological theory) the IAD can provide predictions about player behavior and macro-social outcomes. When used correctly, it can provide developers with theory, which explains why social systems can equilibrate into undesirable outcomes – anti-social behavior or a suboptimal distribution of resources – and identifies institutional designs that can solve social problems.

In this paper we examine how the IAD framework can be applied to an existing arrangement, specifically targeting the Looking-for-Raid (LFR) loot system of *World of Warcraft*. The LFR system, released in November 2011, is a game mechanic that matches players into 25-person groups and delivers them into a raid. Once there, the group navigates through a dungeon filled with enemies, occasionally encountering a powerful enemy 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.

In most cases, the 25 players in the group are strangers. They generally have no knowledge of their fellow group members' playing abilities, and no knowledge about their needs or strategies when it comes to obtaining loot. All of the loot items are tagged for specific classes and roles, allowing only players who fit the prerequisites to enter the lottery; however, players who fit the prerequisites can enter the lottery whether they *actually* need the item or not. This system relies on a player to honestly report their need of an item; in practice, most players report rampant greed (e.g. players "needing" items that they already possess) and dissatisfaction with the system. Interestingly, most players report honest intentions and a desire for honest behavior. Unfortunately, most players also have expectations that others will be greedy, and most players report changing their own behavior – acting in a more greedy ways – because of expectations of greed. One example of this change in behavior can be seen in loot sharing: players bring friends along on the raid, collaborate to "need" on items, and share them with each other to improve the odds of winning a piece of loot. Even though these players are working within the rules of the system to increase their odds of winning, they are also contributing to the very practice that they find undesirable.

In this paper, we use two interviews with focus groups and surveys distributed to 317 active *World of Warcraft* players to analyze players' expectations regarding loot in the LFR system as well as their reported behavior in loot situations. We demonstrate that the reported behavior and expectations follow the predictions of the IAD model (with game theory) under the assumptions of players as boundedly rational agents playing an N-player mixed-motive game. We explore the theoretical potential of the IAD for game developers who are attempting to

predict the outcomes of social systems within games, and we also propose a few potential solutions involving information/communication channels, social norms with sanctions, and auctions that could shift the equilibrium of the current system to a more optimal outcome.

References

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