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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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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 Dr. Dmitri 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 et al. (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 many areas of the social sciences have been adapted to accept that differences in culture, norms, rules, laws, and biophysical parameters have an important function in behavioral outcomes (Bicchieri, 2006; Elster, 2007; Ostrom, 2005; Schelling, 2006). Among these theories, one that has been fitted into a number of contexts in order to explain collective behavior is economic game theory (Easley & Kleinberg, 2010; Gintis, 2000; Ostrom, 2005; Schelling, 1980). Economic game theory is a means of quantifying and modeling strategic situations with a limited number of strategies and a variable number of players and it has been widely applied across the social sciences with mixed success (Gintis, 2000). On one hand, it provides a clear model for how a group of agents who are following their own preferences and making strategic decisions can generate a complex collective outcome. On the other hand, a significant body of research reveals that human decision-making seems quite irrational, and in fact, the assumptions that game theory uses of self-interest, perfect awareness, and strategic thinking, only apply to select cases of human decision-making. The critics of game theory rightly recognize that human beings are not hyper-rational optimizers with the ability to see limitlessly into the future and that humans cannot perfectly understand their own beliefs and desires, or the beliefs and desires of others. Yet, having agents that are bounded by time, processing power, and have (seemingly) unpredictable motivations does not render game theory useless.

There are many different applications of game theory across the social sciences and a few of them take both context and limited processing power into account (Bicchieri, 2006; Ostrom,

2005). These accounts of game theory function within more realistic accounts of decision-making because they model the players in a strategic situation as self-interested and rational, but limited in knowledge and processing power. Importantly, they also recognize that individuals are driven by a variety of intrinsic motivations in addition to external rewards. With this model of behavior, a researcher can align certain subgroups within a population based on preference functions build from an understanding of intrinsic motivations and the external rewards afforded by the environment. With these preference functions in place, game theory proceeds per usual by assuming that individuals aim to maximize these more complex preference functions. Another important feature of this type of model is that players are not expected to have perfect information. Rather, the information that they have about the environment is perceived and interpreted in some form, thus players have limited information about the environment and expectations about how others will behave.

This model of game theory has been successfully applied to a number of real world situations and is only a small part of typically larger conceptual frameworks. For example, the *Institutional Analysis and Design Framework* developed by Ostrom (2005), which has been successfully applied in resource management, knowledge management, and government, takes into account a much richer set of factors, but uses game theory to understand collective action in strategic situations. Another framework called the *Rational Reconstruction of Social Norms* developed by Bicchieri (2006) uses this type of game theoretic model to define the dynamics of collective behavior in social norms. Given that many online video games are at their heart strategic situations with structured incentive systems, a researcher who applies this type of game theoretic model with the guidelines of the mapping principle should be able to make predictions about the dynamics of player behavior and collective outcomes in online games.

We have only briefly introduced game theory, but the following are the necessary components for a game theoretic model:

1. **Strategic Context** – This describes the rules of a game. Specifically it is the choices available to players. The complexity of the game theoretic model increases as the number of choices increases, which means that this type of model is best suited for games (or subsystems in games) where the number of choices are not so large that the model becomes intractable. Game theory is well suited to game features like team death-match, MMO raids, guild governance, online racing, and simple economic systems where choices and preferences are relatively clear, but it appears less suited to understanding player behavior in open worlds with a wide range of choices. At some point as the number of choices increases the model simply becomes too complex to manage.

2. **Preferences** – for a game theoretic model to function it must also account for the preferences of players. When players are in small groups it is possible to estimate the preferences of each player; however, in larger groups simply being able to define the preferences of subgroups of players is enough for a model to function. In addition, it is important to account for intrinsic motivations, which provide strong motivations in addition to the explicit rewards that are designed into the game (e.g. points, gold, resources, or upgrades). This is naturally a challenge, and research regarding player types in certain genres of games can be helpful along with research in positive psychology, behavioral economics, and motivation (Bartle, 1996; Jeng & Teng, 2008; Ryan & Rigby, 2011; Sober & Wilson, 1999; Williams, Yee, & Caplan, 2008; Yee, 2006). The big data sets of virtual worlds provide perhaps the most valuable window into preferences, since they contain longitudinal information about the actual behavior of players.

3. **Beliefs** - Since individuals do not have perfect information about their environment, it is important to have a mechanism or set of mechanisms by which they interpret the information. These mechanisms provide a part of the explanation for non-rational behavior since players are making assumptions about the environment, the priorities, and choices of other players based on limited information. Social information and other heuristics often provide important signals for how players form expectations regarding other players' behavior. For example, Cummings and Ross (2011) have explored how players use heuristics and make decisions where there is a very large amount of information, Ross and Weaver (2012) have explored the role of social learning heuristics in online games, and Ross (2013) has explored how simple messages about others behavior influence player expectations and behavior in online games.

By identifying the formal features of a game with economic game theory while considering the mapping principle, a researcher can attempt to model behavior in online video games. One example of how to apply economic game theory to video games already exists in the work of Smith (2006, 2007). Smith's work is important because it does identify a class of economic game, called mixed motive games, that is important to game designers. His work shows how mixed-motive games appear in different video game contexts, yet it never provides a framework for how game designers could understand collective behavior from the motivations of individuals. The rest of this paper aims to build on the work examined thus far by presenting a case study of the Looking For Raid (LFR) mechanic in the online video game *World of Warcraft*. In exploring the case study, we will show how the behavior in LFR can be explained as the product of player preferences, strategic context, and beliefs. In doing so we will show how the player community actually prefers a cooperative/fair collective outcome, but that a lack of

information leads to beliefs of widespread cheating behavior, increased cheating among borderline players, and thus less-happy players overall.

3. Method and Results

In applying the mapping principle to game theory, the best way to understand the rules of a strategic situation in an online video game is to be literate of the user experience and the intentions of the game designers. This requires a mixed-method approach, and for our study we used three methods: ethnography as a means to uncover and understand the LFR system, focus group interviews to explore players' reactions to and perceptions of the system, and a survey to investigate whether the observed phenomenon could be generalized to the wider group, and if so, what patterns emerge. In the sections below, the methods of the ethnography and focus groups are discussed, the data from which culminate in a description of the LFR system being investigated in this paper. After these sections, the survey is described and the results are presented.

3.1 Ethnography

The existence of the LFR mixed-motive game was uncovered during a five-year participant-observation ethnography of a *World of Warcraft* guild – for full details of the project see Collister (2013). The project was conducted from 2007 until 2012 and involved researcher interaction with the community and the environment in the style of digital ethnography (e.g. Boellstorff, 2008; Nardi, 2010). The researcher was embedded in the community as a regular player and guild member, participating in guild events at all levels of play as a competent player in order to gain a deep level of understanding of the game and its players; as Bonnie Nardi said in her *World of Warcraft* ethnography, "It would be impossible to penetrate the game without being engaged as a player" (2010:28). The social phenomena occurring in LFR in *World of*

Warcraft would never have been encountered had the researcher not been embedded in the game community and the events to learn the "unwritten rules" of games that can only be learned through playing (Sniderman, 1999). However, this method introduces researcher bias, in that the researcher had an active stake and participation in the events being documented. The ethnographer can remediate this bias by being accountable for their own behavior and role in the study, as well as triangulating their observations with other sources of data (Collins and Gallinat, 2010). In this work, the descriptions of the phenomenon come from the ethnographer's perspective as a player of the game and experiencer of LFR, which were corroborated through the use of focus group interviews; finally, a large-scale survey was created based on these observations in order to elicit data from a broader range of players. This mixture of quantitative methods with ethnography can help a researcher understand more thoroughly a complex behavioral process (for another example of mixing methods, see Guitton's (2012) work on immersion in Star Wars roleplaying communities in *Second Life*).

Data for the ethnography were collected in the form of recorded voice and text chat, interviews with individual players, video recording of guild events, archiving of guild forum posts, and researcher observation in a data notebook. Participants in the host guild were informed of the ongoing research project by an introductory post on the guild's forums, a link to that post in the in-game guild information pane, and reminders during large guild events in which recording was taking place. For interview and focus group participants, the participants' explicit consent was gained verbally at the start of the interview and recorded.

The ethnographic observations of the LFR system occurred during its first incarnation from November, 2011, until August, 2012. One of the authors of this article (Lauren Collister) was an active participant in these events as a player and experienced the system first-hand to gain

an understanding of its rules and operations. The ethnographer participated with her host guild in at least two LFR events per week and had the opportunity to interact with the system herself as well as observe other players' interactions in and around the LFR system.

The ethnographic observations formed the foundation for understanding the context of the system and its implications for the players who participated in the system. Once the norms for behavior in LFR were established, it was recognized as a mixed-motive game and further investigation was prompted.

3.2 Interviews

Two focus group interviews were conducted during April of 2012 with nine informants from the participating guild in the ethnography. These focus groups were convened to verify the ethnographic observations about the nature of the LFR system and to gain greater insight into the range of behaviors demonstrated by players. The nine players were selected because they were expert players who reported to run LFR at least once per week and had been participating in LFR since its inception in November of 2011. These nine players are the same ones whose behaviors were observed during the ethnographic observations. Consent for the interview was given verbally at the start of the interview and no identifying information about the interviewees was recorded. Any character names, guilds, or other identifying information given was removed from the transcript.

One group consisted of five participants and the ethnographer, and the other group was four participants and the ethnographer. The focus group discussions were conducted using Ventrilo, a third party voice over IP program, and the discussions were recorded by the ethnographer. Each group was asked the set of questions about their experience with LFR shown in Appendix A, including their strategies for getting loot, their perception of other players in

their groups, and their overall happiness. When the discussion warranted it, other questions were asked for clarification or to extend the discussion. Each focus group discussion lasted approximately sixty minutes.

The audio of the interviews was transcribed by the ethnographer in a Word document. Using the contextual insights from ethnographic observations combined with the behavioral insights from the focus groups, we modeled the player preferences and the strategic situation. In the following section, we describe the setup and experience of LFR and detail the reactions and responses of players within the system. This description comes from a synthesis of the ethnographic observations as well as the responses given from focus group participants.

3.3 The Strategic Situation & Preferences in the Looking for Raid Loot System

Looking-for-Raid (LFR) was released in *World of Warcraft* in November, 2011. LFR was an accessible way for individual players and small groups to engage with end-game content which was previously restricted to advanced players in large, coordinated raid groups. LFR was introduced in the *World of Warcraft: Cataclysm* expansion with the final raid dungeon which was called Dragon Soul. Dragon Soul (DS) had five different difficulty levels and LFR was widely considered the easiest. LFR served both as an accessible way for more casual players to engage with raid content as well as an introduction to the basic mechanics of the raid battles and a way for more advanced players to get better equipment before tackling the more difficult modes.

In the LFR system, a single player or a small group of players use an in-game mechanism to register themselves in a queue; each player registering for the queue would have to indicate what role they play (tank, healer, or damage-dealer (DPS)). The queue consisted of players from

several servers to increase the available pool of players for LFR and to reduce the wait time for starting the raid.

Players in the LFR queue were matched up via an in-game algorithm to create a 25-player group with similar gear levels and with the appropriate team composition. Each LFR group had a required set of roles: 2 players acting as tanks, 6 players acting as healers, and 17 players acting as DPS. Once the group was assembled, all 25 players were delivered to the beginning of the raid and the group would begin their assault on Dragon Soul. However, LFR presented special challenges because the raid team was essentially made up of strangers -- players who had never met each other before and who would most likely never meet again. Players would not know the relative playing ability of their teammates, nor would they know the extent of the gear possessed by other players aside from what the players were wearing on their avatars.

LFR was not just a one-time event for players; there were benefits for players of all types to engage in LFR (or, in the terms used by focus group participants, "run LFR") multiple times. The players who tended to run the fewest LFRs were the most casual players -- once they saw the story and experienced the content, many did not want to return. For more advanced players, LFR offered useful benefits and rewards that resulted in experienced players running LFR whenever possible. In the beginning of LFR's existence, players could run LFR to learn the basic mechanics of the raid battles before going into a more difficult version of Dragon Soul with their guild or raid group. As time went on and the Dragon Soul raid became familiar, the vast majority of players ran LFR multiple times for the purpose of obtaining in-game items to upgrade their character's gear.

By defeating bosses in LFR, all players automatically received Valor Points, which were a currency that could be turned in for epic quality gear at vendors in major cities in the game. The only requirement to receive Valor Points was to be present and defeat the bosses. In addition, each boss in LFR dropped two or three random pieces of loot. Each piece would be awarded to one player in the raid by a tiered random number generator system. When loot was available, a box would appear on the player's screen with the item and a description, and a player would have the option to roll "need", "greed", or "pass". See Figure 3.3.1 for a depiction of the loot action box. Every player who rolled would be assigned a random number from 1 to 100. Players who hit the "need" roll would get priority over those who rolled "greed" – therefore, a player with a "need" roll of 1 would always beat a player with a "greed" roll of 100. The only time a player rolling "greed" would win an item would be if no other player rolled "need".

Figure 3.3.1: A box with loot information. The item's name appears on the left, and the options to need (the dice icon, which is grayed out to indicate that the viewer is not eligible to need on the item), greed (the gold coin icon), or pass (the X icon in the upper right). Also visible is the disenchant icon in the lower right, which breaks down eligible materials into crafting supplies and was rarely used in the community. The yellow bar on the bottom is a timer to indicate how long the player has to respond.

The intended outcome of the need/greed roll system was that players who actually needed an item (e.g. it was an upgrade over what they already had) would hit "need", and then any other player would use "greed" to sell the item for in-game gold. However, in reality, the system was flawed – many players would "need" on an item regardless of whether they actually needed it, whether they wanted to sell it and gain money or whether they did not take the time to determine whether the upgrade was something they actually needed. This caused anger and outrage in the

community and contributed to the creation of another tier of roll priority to attempt to mitigate this loophole.

Loot was divided into two categories: *boss drops* and *tier tokens*. Boss drops were weapons or armor that were geared towards a specific class and tagged accordingly. Each boss drop was tagged by role so that players who fulfilled the role would get priority, meaning they received a roll modifier to improve their chances of obtaining the item. That is, if a plate mail helm with stats appropriate for a tanking role dropped from a defeated boss, then characters that were currently in the LFR as a tank could roll "need" on the item and have 100 points added to their roll. This would ensure that if any tank rolled "need", they would be assured to win the item over anyone else who rolled "need". Other characters who could equip the item would be able to roll "need", but they would not receive the roll modifier – this was in place for players who were building a second set of gear, called "offspec". Characters who could not equip the item (for example, those who could not equip plate mail) would only be able to roll "greed" or "pass". The priority system did not scan a current player's gear, however; a crucial loophole in the new system was that players who already owned an item could roll "need" any time that item dropped again.

Tier tokens were separated into classes and could be turned in by a member of that class for a piece of gear of their choice. For example, a [Gauntlets of the Corrupted Conqueror] would be restricted to the paladin, priest, and warlock classes so only members of those classes in the raid could roll need on the item. It was not filtered by role, and the recipient of the item could turn in the token for gear at a vendor. If a paladin ran the LFR as a healer and received a token, that paladin could turn in the token for healing, tank, or DPS gear after the raid was over.

In practice, the system worked like this: A group of 25 strangers defeats a boss in LFR. Everyone in the group receives the same amount of Valor Points for defeating the boss. Two items drop: a tanking sword (a boss drop) and a tier token for warriors, hunters, and shaman. The two tanks in the LFR can roll need with priority on the sword, and any other character in a DPS or healer role that can equip a sword can roll need with no priority. Everyone else can only roll greed or pass on the sword. On the tier token, any warrior, hunter, or shaman in the raid can roll need on the item, and everyone else in the raid can roll greed or pass.

The system was intended to work in a way that if a player already had the sword (or had a weapon that was better), they would pass or greed on it so that another player who needed it could win it. In practice, the use of the system was much more complex; some players followed the intended use of the system while others took advantage of the possibilities the system afforded them. Some players used their priority to roll need on items that they did not need in order to sell them after the raid for gold or to break them down into component materials for crafting. Other players would need on every item they could in order to potentially offer the items they won in trade with other players. For example, if there was a paladin tank in the raid who needed the tier token as an upgrade for their armor but already had the sword, they might win the sword on a need roll but lose the token, and offer to trade with the winner of the token.

The players in the ethnographic study reacted to this range of behaviors by selectively altering their behaviors to increase their agency in the system. Focus group participants reported that they would coordinate with their friends to maximize the chances of being able to trade for loot with their friends who could benefit from the system. If Player A, a paladin, needed to get some tier pieces, she would run LFR with friends who also played a paladin and could also roll need on tier pieces to trade with her. In fact, it was not uncommon for arrangements to be made

so that players would roll on items for each other – Paladin B would roll on tier pieces to give to Paladin A, while Paladin A rolled on boss loot items to trade to Paladin B. Players reported engaging in these behaviors to increase their agency, or, in the words of one interviewee, to "feel less cheated by players who are trying to take advantage of the system".

We describe LFR as a mixed-motive game because there are selfish incentives for taking actions within the system which reduce the enjoyment and experience for other players. Players can need on items that they do not need in order to give them to friends who could use them more, or they can need on items for selfish purposes like selling or disenchanting. The decisions made in the design of LFR, including the rules for needing items as well as the ability to trade, created scenarios in which items had value to players who did not need the items themselves, whether for the cooperative benefit of helping out other players or for selfish purposes. This value was a consequence that may not have been intended by the developers, but which rose out of players attempting to increase their agency in the system. As an added layer of complexity, players did not always know the intentions of others who needed items – were they needing because they actually needed it? Are they here to help a friend of theirs? Or are they being selfish? The question that rose from these observations was whether an individual's behavior is affected by their expectations about what other players will do. Does the probability of selfish behavior increase if a player expects others to behave selfishly?

The interviews and the ethnography provided us with a window into the rules of the game and strategic choices available to players along with some insights into the preferences of players; however, we were left with many questions about how the rules function on a broader level and how the varying components of the mixed-motive game interplay. To answer these

questions and to gain a larger perspective on how LFR's rules impact behavior, we expanded our focus to include a survey aimed at a broader population.

3.4 Survey: Understanding Behavior and Expectations/Beliefs

The final step in our data gathering process was an online survey conducted through Survey Monkey. The purpose of the survey was to investigate whether the ethnographic observations and the insights from the focus group could be generalized to the larger population, and to obtain quantitative data about how players themselves view the LFR system. Where the ethnographic observations and interviews through a lens of game design provided us with an understanding of how the LFR system operated, as well as insights into a few players' preferences, the purpose of the survey was to examine the beliefs, behavior, and happiness of a wider range of players.

The survey consisted of 54 questions and we distributed it to players from a more general *World of Warcraft* population through postings on popular forums frequented by players. Participants in the study were anonymous and did not give their character name, although many did provide their server name as part of one of the questions on the survey. Some of the questions asked in the survey centered on the player's own self-reported behavior in LFR. They were asked how likely they were to roll "need", "greed", or "pass" in different situations for different items, as well as their own patterns of behavior regarding the trading of items or working with groups of friends who would be willing to trade with them. Players were also asked about their perceived behavior of other players in LFR. We intended to compare the self-reported behavior with the players' observed behavior of others.

Players were asked basic demographic questions in addition to the questions about the LFR system. The demographic questions included age, gender, and the server on which they

played World of Warcraft. For most questions, players were asked to answer on a scale of 1 to 7, which allowed for a neutral response. The survey instrument can be viewed in Appendix B. There were 333 unique survey responses for our analysis after we filtered our responses for duplicate, incomplete, and questionable submissions. The players were all active and participated in the LFR raid system at least once per month. The average age of players was 27 with a range of 14 to 55. In addition, 36% of the respondents were female and 64% were male. Respondents played *World of Warcraft* an average of 24 hours per week and reported an above average skill at the game (5.28 on a 7 point scale). From the server types we were able to estimate their location, since *World of Warcraft* servers are separated into United States (n = 226), Europe (n = 80), Oceana (n = 10), and Latin American (n = 4) servers. 13 players did not report a server. In addition, 10 of the survey respondents who provided their server name were from the same server as the guild from the ethnography; although the ethnographer did distribute the survey to her host guild, due to the anonymity of the survey, it is not possible to know for certain whether these are the same individuals from the ethnography and focus groups or different players who happen to be on the same server. Five of the focus group participants reported to the ethnographer that they had completed the survey. A comparison of responses from the server's respondents with the responses from other servers revealed that the host guild's server was generally similar to other servers and did not deviate in any notable ways, suggesting that the host guild's server's reactions to LFR were indicative of the reactions of the wider *World of Warcraft* population. The responses were analyzed using SPSS for descriptive statistics and a few simple relationships.

The results of the survey provided some interesting findings about the behavior and beliefs of players. The following section presents some of this data and highlights some of the

key findings of our survey. Going into the survey, we did not necessarily have formal hypotheses regarding the behavior and beliefs of players – however, the results of the ethnography did provide some indications of what to expect and our behavioral model from economic game theory shaped our expectations. After performing our ethnography we were particularly interested in a few things. First we were interested in the behavior of individuals in LFR. Since, we were unable to collect behavioral data from *World of Warcraft* we asked players how they behaved in LFR. In addition, we wanted to further extend the model to understand if players were following selfish preferences or if it was actually the belief that others were taking advantage of the system that was resulting in the reported dissatisfaction with LFR. We believe that this distinction is important because it provides researchers and developers with an understanding of how the computer-mediated space conveys information about others behavior.

3.4.1 Reported Behavior

The first factor that our survey explored was the reported behavior of players. LFR is aligned as a mixed-motive game but, as we discuss earlier, it is not necessarily a mixed-motive game for all players as the preferences of an individual depend on the value they place on items, what they perceive as fairness, and their own personal motivations. Thus, we were not sure what to expect. On one hand evidence from our interviews and ethnography suggested that players thought it was fairly common for other players to need on items that they already owned. On the other hand players were also mixed in their reports of whether they performed this behavior or not, and what they considered fair play within the rules of the game.

In order to capture the needing behavior of players we asked on average how often players rolled Pass, Greed, or Need for both qualifying boss drops and tier tokens. The results of these questions for each type of item were transformed into a ratio of how often a player rolled

need compared to how much they rolled greed and pass. Both scores were similar for individuals with a Cronbach's alpha of .931, so they were combined into a composite score. The responses reveal that 199 players (59.8%) reported that they never roll need on items or tier tokens they cannot use. Meanwhile, only 19 players (5.9%) reported that they always roll need on items and the remaining 115 players (34.3%) reported rolling need some of the time. We also asked players to directly rate how often they roll need with the question, "I will roll need for an item that I don't genuinely need when running LFR." The results to this question were similar, but even more strongly in the direction of the response "never", with 241 (72.4%) players answering "never". The complete results for this question can be found in table 3.4.1

In addition to asking players how often they rolled need on items that they did not need, we asked players how often they rolled need on items that they did not need in order to trade them later. These results were similar, but interestingly slightly more (rather than fewer) players reported that they had performed this behavior. Of the total 333 respondents, 195 players (59.5%) reported that they never needed on an item to trade for later, 30 players (9%) reported that they always did, and the remaining 103 (31.5%) reported that they did sometimes.

We understand that we must interpret the results of our behavioral reports carefully, especially in circumstances like needing unneeded items or trading where the activity in question has a negative connotation. That said, our results seem to indicate is that there are three types of players in LFR – players who report that they always pass on items they do not need (the majority), players who report that they always need on items that they do not need (the minority), and players who report that their behavior depends on circumstances. Given these results, we wanted to understand more clearly why some players are sensitive to context. There are many possible explanations for why these players sometimes roll need, but one is that their behavior

depends on the perceived behavior of others. In order to explore this more closely we broke players out into three groups: those who needed less than 25 percent of the time (never), those who needed more than 25% of the time and less than 75% of the time (sometimes), and those who needed more than 75% of the time (always). We then examined those groups on the dependent variable "I have changed my strategy due to the strategy of others." The result of a one-way ANOVA reveal that there is a significant difference between each of the groups ($F = 4.09$, $p < .001$). The means of the groups were: never ($\mu = 3.98$, $\sigma = 2.43$, $n = 252$), sometimes ($\mu = 5.04$, $\sigma = 2.37$, $n = 56$), and always ($\mu = 5.82$, $\sigma = 2.34$, $n = 22$). The direction of the means in the ANOVA suggest that the behavior of others is a determining factor in why individuals become increasingly likely to roll need.

Table 3.4.1

Behavioral survey question responses

Question text	(never) 1	2	3	4	5	6	(always) 7	Total
I need on things that I don't need	241	19	17	12	7	10	27	333
I need on things to trade later	196	29	15	33	17	12	31	333
I changed my strategy based on others	88	24	15	31	34	29	109	330
I Run w/friends to improve chances	111	27	24	49	31	32	58	332

3.4.2 Expectations/Beliefs for Others' Behavior

The second factor that we targeted with our survey instrument was the expectations that players had for others' behavior, because while the results of our questions about behavior revealed that others' behavior played a role in individual behavior, it did not reveal what players expected. We still did not understand if most players expected fair play, or if they expected others to break the rules, but still reported playing fair themselves.

In order to better understand the expectations of players we asked the following question: "When other people are running LFR and have the opportunity to roll on an item/tier token that

is an upgrade for their MAIN spec, how often to they roll need, greed, and pass?" Once again we transformed the three scores into a ratio of how often a player needed with respect to their total rolling behavior. We asked separate questions about tier tokens and boss items, but since both item sets had very high reliability, Cronbach's Alpha .944, we combined them into a composite score. We found that while the majority of players in our sample reported their own cooperative behavior, the majority of players also believed that others often behaved selfishly at least some of the time (see table 3.4.2.1). Of 330 total responses, 65 players (19.5%) reported that others always roll need on items or tier tokens that they cannot use. While 193 players (58.4%) reported that other players need at least some of the time, and only 72 players (21.8%) believed that others never rolled need on items they did not need. Looking at these results from another perspective, 238 players (72.1%) believe that others need more than 25% of the time, 165 players (49.7%) believed that others need more than 50% of the time, and 78 players (23.6 %) believed that others need more than 75% of the time.

Considering that only 28% of players reported that they had ever needed an item that they could not use, this result – expectations and behaviors out of sync – suggests that either players are misreporting their behavior, that our survey touches only a very altruistic sub-set of players, or that players have expectations that are not in line with actual behavior. Since we knew from the previous section that players' own behavior was influenced by the behavior of others, we wanted to examine how expectations influenced behavior and if expectations provided an explanation for why some players altered their behavior. In order to explore this relationship we once again used a one-way ANOVA with the three groups from the previous section as a fixed factor and the ratio created from the question about others' behavior as the dependent variable. The result of the ANOVA revealed that there was a significant difference between each of the

groups ($F = 30.612$, $p < .001$). The means of the three groups (never, sometimes, and always) were: never ($\mu = .406$, $\sigma = .34$, n = 253), sometimes ($\mu = .589$, $\sigma = .29$, n = 54), and always ($\mu = .913$, $\sigma = .17$, n = 23). Once again the direction of the ANOVA suggest that expectations influence behavior.

Table 3.4.2.1

Perception/expectation of others survey question responses

Question text	(never) 1	2	3	4	5	6	(always) 7	Total
Others need on things to trade later	3	3	21	31	35	56	179	328
Jerks are common	3	6	11	37	38	50	183	328
Other players have good intentions	31	48	44	89	54	35	27	328

Finally, as we examined histograms of other players' expectations we discovered that our three groups actually appeared to be six distinct groups shown in Table 3.4.3.2. There were players who reported that they almost never rolled need and believed others almost never rolled need (n = 91, 27.5%). There were players who reported that they almost never rolled need, but believed that others sometimes rolled need (n = 117, 35.4%). There were players who almost never rolled need and believed that others always rolled need, (n = 45, 13.6%). There were players who sometimes rolled need and believed that others sometimes rolled need (n = 37, 11.2%). There were players who sometimes rolled need and believed that others always rolled need (n = 15, 4.5%). Finally, there were players who always rolled need and reported that others also always rolled need (n = 19, 5.8%). Out of the total 330 respondents, only six (2%) were outside these groups. These groups suggest a few interesting things. First, a group of players (13.6%) never needs on items even though they believe others always need on items. This group is altruistic and resists behavior change because they continue to play nice even though they expect the worst. There are a number of groups that may shift their behavior if their expectations of others behavior becomes more negative. These groups (never/never, never/sometimes, and sometimes/sometimes) make up the majority of the population (73%). Finally, there is a small set

of players that always need items and expect others to always need them. This subset of players is selfish and expects that others are selfish as well.

Table 3.4.2.2

Six groups of players and their expectations.

Percentage	I need	Others need
27.5%	Never	Never
35.4%	Never	Sometimes
13.6%	Never	Always
11.2%	Sometimes	Sometimes
4.5%	Sometimes	Always
5.8%	Always	Always

3.4.3 Overall Happiness with the Current System

Finally, from a game design perspective we were interested in how happy players were with the system. Based on what we found from our questions about behavior and expectations, we wanted to examine how membership in each of the six different groups of players influenced a player's overall happiness with the game and how likely a player was to continue playing if there was not a change to the rules. Each of these questions was asked on a seven point scale. After examining the relationships more closely using a one-way ANOVA, we found that the best predictor of player happiness is the expectations that players have for others' behavior. Players who expected others to need more than 75% of the time (μ= 3.45, σ = .17, n = 78) were significantly (F = 4.198, p = .01) less happy than all other players (μ= 4.05, σ = .159, n = 252). We found that most players reported that they were likely to continue playing regardless of whether there was a change to the system and the results of our graph exploring differences revealed very little differences for the six groups.

Table 3.4.3

Happiness survey question responses

Question text	(never) 1	2	3	4	5	6	(always) 7	Total
How happy are you with LFR?	42	28	41	91	76	31	19	328

How likely are you to keep doing LFR if there was no change to the system?	14	20	19	55	49	70	101	328

4. Discussion

The purpose of this paper is to introduce a theoretical model for understanding certain categories of social behavior in multiplayer video games. Once again it is important to recognize that economic game theory can be situated in more robust frameworks in order to explain social behavior. This paper provides an introduction to economic game theory inline with modern theories of decision-making and the importance of context when applying it in computer-mediated game environments. It also describes the steps we went through to investigate whether or not player behavior matched the predictions of economic game theory model. Using *the mapping principle* as a guideline we used ethnography, interview, and survey to explore if LFR could be described as a mixed-motive game. What we found was that the rules of the environment and the reports of player behavior did seem to follow the predictions of economic game theory, provided we understood the rules of the game, the user experience of the player, the messages conveyed by the system, and sub-groups of player motivations. The results of our ethnography and interviews revealed that there were a number of rules in place and our survey provided us with insights into behavior and beliefs. Given these results a semi-formal model of game theory follows the following guidelines:

Rules

1. A player can need, greed, or pass depending on their subgroup.
2. A player can trade items with other raid members while the raid is active.

Preferences

1. All players have a preference to obtain an item they do not have
2. All players have a fairness score from 0 to 1.
3. Some players will roll need on items they already own to trade, to give to a friend, or to grief others.

Beliefs/Expectations

1. Player beliefs are not in-line with behavior, because players have no way of telling if others are playing fair.
2. Players believe that a certain percentage of the population (0 to 1) is not playing fair. If this score is higher than their fairness score they will start to need on items they don't need.

This semi-formal model provides a few important things. First, it outlines the rules that players must follow when they play the game. Second, it identifies that some players are not playing "fair" due to a selfish incentive. Third, it identifies that perceptions of fairness are not in-line with actual fairness. Fourth, it shows how beliefs about others behavior can change the behavior of a "fair" player.

5. Conclusions and Implications

This study focused on one short-lived phenomenon in one game, but the results have implications for game designers and game researchers looking at similar systems or building new games. The model introduced in this work can be useful to a researcher or game developer who wants to promote fair behavior because it helps us to recognize the how the rules, preferences, and information communicated by the game can lead to selfish behavior. One of the most interesting aspects of this type of system is that it relies on a cascade mechanism to explain why behavior becomes increasingly more selfish as time goes on. The results of this model and our data do not demonstrate how many players actually perform the behavior in question; however, they do suggest that about one out of twelve players roll need in a given raid. This means that around two players in every raid group are behaving selfishly according to reported behavior. Meanwhile, players believe that around one of every three players in a raid is behaving selfishly. This is an important point for developers because even if behavior in the system is desirable, if players believe that behavior is unfair it may lead to very sudden behavior change as the result of the cascade mechanism. As this occurs, it becomes increasingly difficult to steer behavior back

in a prosocial direction. Therefore, game developers may want to make an effort to identify circumstances where mixed-motive games or the potential for behavioral cascades exist and provide mechanisms to prevent behavioral slippage before it begins.

So what can developers do to shore up these systems? Well, they would need to do two things in order to fix this particular system. First, as the results of the survey demonstrate expectations are not in line with behavior. Therefore, players must be provided with information that accurately communicates the behavior of others. However, even with this change economic game theory predicts, and research demonstrates, that a mixed-motive game will move toward collective selfishness even if players have accurate information about others behavior (Bicchieri, 2002; Fehr & Gächter, 1999). In order to sustain fairness in this type of game, players must be able to communicate to others that there are expectations for fairness and they or a central body must sanction rule violators. Even then, Ross (2013) has demonstrated that with these tools, if a norm of rules violation becomes established it can be very costly for a community to escape it.

In the end this setup existed for less than a year and is now outdated. The rules for LFR in *World of Warcraft* have changed drastically to the point where there is no player cooperation involved at all when it comes to loot. The system is entirely personal and random – an in-game mechanism randomly assigns each player in the LFR group a reward every time they defeat a boss. If they do not get a piece of loot, they get money. The actions of others have no bearing on whether any individual player gets loot. It seems that Blizzard has decided that the exploitation of the system and negative social environment caused by the first incarnation of the LFR loot rules was too troublesome to worry about refining it, so they took out all social/interactional parts of the loot system. Now players only have to worry about cooperating enough to defeat the bosses.

Finally, there are a number of limitations to this research and it is important that future research continue to explore the effectiveness and validity of economic game theory for describing and predicting behavior in video games. The survey method outlined in this paper had a number of weaknesses. First, we used a convenience sample for our survey. It is entirely possible that the discrepancy between expectations and behavior was a result of this sample and not representative of player expectations and behavior. In addition, the information we obtained about behavior can be called into question because of our sample and due to players not accurately reporting their behavior. Thus, the optimal solution would be to use actual behavior data from *World of Warcraft*. We did not have access to this historic data, but it would be interesting to see if behavior was in line with player reports.

In conclusion, this paper provides an introduction of how to understand a mixed-motive situation in an online game using simple guidelines from economic game theory. In addition, it provided insight for how game researchers can avoid misinterpretation of player behavior by taking into to account the suggestions of the mapping principle: that a researcher should interpret social theory through a lens of game design, user experience, and computer mediated communication. When applying the mapping principle it is also useful to have a theory that can be adapted to multiple contexts. It is our hope that other researchers can learn from our exploration of economic game theory in the LFR system of World of Warcraft. We also hope that they will extend this work by continuing to understand the general motivations of players, modeling additional situations in online games with economic game theory, and validating these models and preferences through behavioral data and tools like agent based models.

References

Bartle, R. A. (1996). Hearts, clubs, diamonds, spades: Players who suit MUDs. *Journal of Virtual Environments*, *1*(1).

Bicchieri, C. (2002). Covenants without Swords Group Identity, Norms, and Communication in Social Dilemmas. *Rationality and Society*, *14*(2), 192–228. doi:10.1177/1043463102014002003

Bicchieri, C. (2006). *The grammar of society: The nature and dynamics of social norms*. New York, NY: University of Cambridge Press.

Boellstorff, T. (2008). *Coming of age in Second Life: An anthropologist explores the virtually human*. Princeton, New Jersey: Princeton University Press.

Chen, C., Sun, C., & Hsieh, J. (2008). Player guild dynamics and evolution in massively multiplayer online games. *CyberPsychology & Behavior*, *11*, 293–301.

Collister, L. (2013). *Multimodality as a sociolinguistic resource.* (doctoral dissertation). University of Pittsburgh, Pittsburgh, PA. Retrieved from http://d-scholarship.pitt.edu/18514/

Cummings, J. J., & Ross, T. L. (2011). Optimizing the psychological benefits of choice: Information transparency and heuristic use in game environments. *International Journal of Gaming and Computer-Mediated Simulations (IJGCMS)*, *3*(3), 19–33. doi:10.4018/jgcms.2011070102

Easley, D., & Kleinberg, J. (2010). *Networks, Crowds, and Markets: Reasoning About a Highly Connected World*. Cambridge University Press.

Elster, J. (2007). *Explaining Social Behavior: More Nuts and Bolts for the Social Sciences*. New York, NY: Cambridge University Press.

Fehr, E., & Gächter, S. (1999). Cooperation and punishment in public goods experiments. *SSRN eLibrary*. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=203194

Gintis, H. (2000). *Game theory evolving*. Princeton, NJ: Princeton University Press.

Guitton, M. (2012). Living in Hutt Space: Immersive process in the Star Wars Role-Play community of Second Life. *Computers in Human Behavior*, (28), 1681–1691.

Jeng, S.-P., & Teng, C.-I. (2008). Personality and motivations for playing online games. *Social Behavior & Personality: An International Journal*, *36*(8), 1053–1060. doi:10.2224/sbp.2008.36.8.1053

Lortie, C., & Guitton, M. (2012). Looking similar promotes group stability in a game-based virtual community. *Games for Health Journal*, (1), 274–278.

Nardi, B. (2010). *My life as a Night Elf priest: An anthropological account of World of Warcraft*. Ann Arbor, Michigan: University of Michigan Press.

Ostrom, E. (2005). *Understanding Institutional Diversity*. Princeton, NJ: Princeton University Press.

Ross, T. L. (2013). *Steering Social Behavior in Online Video Games: A Calibration and Test of the Rational Reconstruction of Norms in a Multiplayer Dungeon Crawl* (doctoral dissertation). Indiana Unversity, Bloomington, IN.

Ross, T. L., & Weaver, A. (2012). Shall we play a game? How the Behavior of Others Influences Strategy Selection in a Multiplayer Game. *Journal of Media Psychology*, *24*(3), 102–112. doi:10.1027/1864-1105/a000068

Ryan, R. M., & Rigby, C. S. (2011). *Glued to Games: How Video Games Draw Us In and Hold Us Spellbound*. Santa Barbara, CA: Praeger.

Schelling, T. (1980). *The strategy of conflict*. Boston, MA: Harvard University Press.

Schelling, T. (2006). *Micromotives and macrobehavior*. New York, NY: W.W. Norton & Company, Inc.

Smith, J. H. (2006). The games economists play: Implications of economic game theory for the study of computer games. *The International Journal of Computer Game Research, 6*(1). Retrieved from http://gamestudies.org/0601/articles/heide_smith

Smith, J. H. (2007). Tragedies of the ludic commons: Understanding cooperation in multiplayer games. *The International Journal of Computer Game Research, 7*(1). Retrieved from http://gamestudies.org/0701/articles/smith/

Sober, E., & Wilson, D. S. (1999). *Unto Others: The Evolution and Psychology of Unselfish Behavior*. Boston, MA: Harvard University Press.

Williams, D. (2010). The mapping principle, and a research framework for virtual worlds. *Communication Theory*, *20*(4), 451–470. doi:10.1111/j.1468-2885.2010.01371.x

Williams, D., Yee, N., & Caplan, S. E. (2008). Who plays, how much, and why? Debunking the stereotypical gamer profile. *Journal of Computer-Mediated Communication*, *13*(4), 993–1018. doi:10.1111/j.1083-6101.2008.00428.x

Yee, N. (2006). Motivations of play in online games. *CyberPsychology & Behavior*, *9*(6), 772–775. doi:10.1089/cpb.2006.9.772

Appendix A: Focus Group Questions

1. Can you (all) describe to me your strategy for loot in LFR? When do you hit “need”, and when do you hit “greed”, and when do you pass?

2. What do you expect other players to do? Do you always expect them to loot greed? What type of people do you think play LFRs?

3. You guys go to LFR with friends, often with each other. How does that change your strategy?

    a. How is your strategy different in LFR with friends versus in guild raid groups?

4. Have you ever traded items in LFR? Can you describe a time when that’s happened?

5. Do you recall a specific time in LFR when someone has been a loot ninja, or a real jerk about something?

6. Can you recall a specific time that you had a positive social interaction with someone in an LFR?

7. Are you happy with the way loot works in LFR?

    a. Why do you think people are such jerks in LFR? (If they report bad behavior in Q2)

8. Would you change anything about loot rules in LFR if you could?

9. Are you generally happy with LFR as a game event?

10. How could Blizzard make LFR better?

Appendix B: LFR Survey – Survey was administered using survey monkey

Demographic Information

1. Age ____

2. Sex Male Female Other

3. On average, how many hours to you spend in World of Warcraft in a week?

4. On average, how many times do you run Looking-For-Raid in World of Warcraft? (e.g. once per week, multiple times per week on different characters, once per month, etc.)

5. Please rate your level of expertise in World of Warcraft: 1-7 with 1 being just started and 7 being top 1%

Please rate the following questions using this scale:

Never			About ½ of the time			Always
1	2	3	4	5	6	7

Boss Drops (Non-Tier Pieces) – For this section, please only consider items that you have the option to roll NEED on. (That is, do not consider times when an item's NEED roll is grayed out, e.g. for a different armor class than your character uses.)

6. When you are running LFR and have the opportunity to roll on a boss drop that is an upgrade for your MAIN spec
    a. How often do you roll NEED?
    b. How often do you roll GREED?
    c. How often do you roll PASS?

7. When you are running LFR and have the opportunity to roll on a boss drop that is an upgrade for your OFF spec
    a. How often do you roll NEED?
    b. How often do you roll GREED?
    c. How often do you roll PASS?

8. When you are running LFR and have the opportunity to roll on a boss drop that you already have or is NOT an upgrade for either spec
    a. How often do you roll NEED?
    b. How often do you roll GREED?
    c. How often do you roll PASS?

Tokens/Tier Pieces

9. When you are running LFR and have the opportunity to roll on a tier token that is an upgrade for your MAIN spec
    a. How often do you roll NEED?
    b. How often do you roll GREED?
    c. How often do you roll PASS?

10. When you are running LFR and have the opportunity to roll on a tier token that is an upgrade for you OFF spec
    a. How often do you roll NEED?
    b. How often do you roll GREED?
    c. How often do you roll PASS?

11. When you are running LFR and have the opportunity to roll on a tier token that you already have or is NOT an upgrade for either spec
    a. How often do you roll NEED?
    b. How often do you roll GREED?
    c. How often do you roll PASS?

General

12. In the past when running LFR I have rolled need on items I didn't really need.

13. I will roll need for an item that I don't genuinely need when running LFR (already own, can't use, is not an improvement)

14. I run LFR with friends because it improves the probability of me winning item rolls.

15. I roll on LFR items with the intention of trading them for something I need later.

Boss Drops (Non-Tier Pieces) -- For this section, please only consider items that have the option to roll NEED. (That is, do not consider times when an item's NEED roll is grayed out, e.g. for a different armor class than the character uses.)

16. When <u>other people</u> are running LFR and have the opportunity to roll on a boss drop that is an upgrade for their MAIN spec
    a. How often do you expect them to roll NEED?
    b. How often do you expect them to roll GREED?
    c. How often do you expect them to roll PASS?

17. When <u>other people</u> are running LFR and have the opportunity to roll on a boss drop that is an upgrade for their OFF spec
    a. How often do you expect them to roll NEED?
    b. How often do you expect them to roll GREED?
    c. How often do you roll expect them to roll PASS?

18. When <u>other people</u> are running LFR and have the opportunity to roll on a boss drop that they already have or is NOT an upgrade for either spec
    a. How often do you expect them to roll NEED?
    b. How often do you expect them to roll GREED?
    c. How often do you expect them to roll PASS?

Tokens/Tier Pieces

19. When <u>other people</u> are running LFR and have the opportunity to roll on a tier token that is an upgrade for their MAIN spec
    a. How often do you expect them to roll NEED?
    b. How often do you expect them to roll GREED?
    c. How often do you expect them to roll PASS?

20. When <u>other people</u> are running LFR and have the opportunity to roll on a tier token that is an upgrade for their OFF spec
    a. How often do you expect them to roll NEED?
    b. How often do you expect them to roll GREED?
    c. How often do you roll expect them to roll PASS?

21. When <u>other people</u> are running LFR and have the opportunity to roll on a tier token that they already have or is NOT an upgrade for either spec
    a. How often do you expect them to roll NEED?
    b. How often do you expect them to roll GREED?
    c. How often do you expect them to roll PASS?

Please rate the following questions using this scale:

Never			About ½ of the time			Always
1	2	3	4	5	6	7

22. There is always one player who will roll need for an item that they don't genuinely need (already own, can't use, is not an improvement)
23. It is common for players to loot items they won't use in LFRs.
24. It is common for other players in LFRs to roll need on items just so they can trade them later.

25. Other Players in LFRs are just looking out for themselves.
26. Most people in LFRs are selfish.
27. People in LFRs care about the group.

28. Jerks are common in LFRs.
29. Griefing is common in LFRs.
30. There are a lot of selfish players in LFRs.
31. Most players in LFRs have good intentions for the group.

Please rate the following questions using this scale:

Not at all			Somewhat			Extremely
1	2	3	4	5	6	7

32. How happy are you with the current LFR loot system?
33. In general how happy do you think other players are with the current LFR loot system?
34. How likely would you be to play LFR in the future if Blizzard decided not to change the current system?
35. I wish there was a better way to punish individuals who abuse the LFR loot system.