GAME FEATURES AND TRUST BELIEF FORMATION:  
A STUDY IN AN MMORPG

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ABSTRACT

Today’s video games are not simply isolated entertainment to be consumed, but designed human experiences that provide for a rich set of behaviors in naturalistic settings. Despite this, it is uncommon for the use of social science theory to be a primary element of game design. One particularly interesting element of social behavior that could be applied to game design is trust. But, as part of a complex social process, trust has been difficult to both design and study. This research considered and extended a cognitive model of trust and used it to explore and evaluate how features in the massively multiplayer role playing games (MMORPG) World of Warcraft (WoW) effected the formation of trust beliefs.

Qualitative analytic induction was used to evaluate data and assess changes in the trust theory. The research illustrated a significant correlation between game features and how players develop trust towards each other. During analysis, an additional factor – trust belief formation delegation – was discovered in the form of reputation, group identity, and telepresence. Additionally, the analysis contributed to extensions in the use and understanding of adaptive structuration theory, temporal motivation theory, and swift trust.

This new knowledge bridges the areas of game design and other social science research, emphasizing the use of games as a research medium for socially complex behavior. Additionally, it has the potential to provide industry with a predictive mechanism that can be considered while designing game features and additionally facilitates player discussion with developers to address perceived negligence in design. These results were used to create design guidelines for video game designers to support trust formation using game features. Two examples of game features that follow these guidelines were provided – the first as an alteration of an existing game feature in WoW, and the second as the design of a new feature for role playing games. Additionally, these guidelines were reconstructed in a context agnostic manner to create general guidelines for managing distributed teams.
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to be a good person – all within a game represented only as text scrolling across a screen.
Noblesse Oblige

The abuse of greatness is when it disjoins remorse from power
Julius Caesar, ACT II, Scene 1
William Shakespeare

Analysis of Temporal Motivation and Risk

Social Context

Delegation

Predisposition

Task Context
Chapter 1

INTRODUCTION

Despite considerable research on human play and entertainment, a theory-driven approach is an uncommon method for commercial video game design. This is unfortunate, since video games and immersive environments are not merely media to be consumed, but full human experiences that combine the creative, the cognitive, and the social. Valve Software’s attempt to use theory and research to drive the game design of a commercial product has proven to be remarkably successful, helping shape player experience in ways they otherwise could not (Ambinder, 2011). More generally, game design and narrative have shown a remarkable ability to produce naturalistic responses in players and yet the science of that design is still in its infancy.

One of the primary factors that influence decision-making and its outcomes is the set of social processes informing the decision. One essential component of day to day social processes, and thus to designing a player experience is how that player perceives their trust of other players, objects, and computer controller characters in their environment. A player may spend considerable amounts of time playing a game to achieve a certain status or state, and the situations presented to that player may offer the opportunity to risk that achievement by trusting someone or something else for an even more impressive gain. The features and experience in the game up until that point help support the decision that they make. If game designers could better anticipate how players trust each other and game elements, they can shape the features and game environment either to support the player’s goals, to facilitate a specific intended behavior, or operationalize elements of a narrative.
Consequently, if we could better understand how social processes and trust moderate decision making, then we would also gain a deeper understanding of how individuals appraise risk, verify sources of information, and more generally come to the decisions they do when confronted with fairly routine combinations of social and circumstantial factors. Such social processes, however, are difficult to observe in natural settings because they are inherently reflexive, and thus quickly change in response to perceived changes by the participants. This characteristic of social systems presents a major challenge for researchers when they attempt to translate finding between social contexts (i.e., from the lab to the real world) and between research areas (i.e., from games to organizational science).

However, while trust is an often researched and discussed topic, it is no more clearly defined. Erikson asserted that the first stage of human life is one characterized by the psychosocial crisis of developing a “sense of basic trust” (2011, p. 96). However, he does not go into incredible detail as to what he means by “trust” and instead provides a brief, somewhat tautological definition: “an essential trustfulness as well as a fundamental sense of one’s own trustworthiness” (2011, p. 96). Those who address the issue more directly tend to fill books discussing the concept with much disagreement between them. The researchers Castelfranchi and Falcone (2010) sought to provide a unified theory of trust based on multiple cultural definitions and usage of the term, but tied to specific cognitive elements.

Using a universal theory of trust by studying games will help advance social science by illustrating how game environments instrument and modify behaviors. This knowledge may translate to other related areas, but more importantly it can be used to better
understand how these phenomena work in other areas – providing support or weakening existing theories.

Additionally, a better understanding of how game features affect trust development would aid game designers in steering gameplay elements to create more specific experiences for their target player population by allowing the designer to manipulate elements to encourage or discourage the formation of trust. This study examined trust within a Massively Multiplayer Online Role Playing Game (MMORPGs) called World of Warcraft (WoW) through qualitative analysis.

By applying and extending this cognitive model of trust to the context of the design of game features within a video game, we can critically evaluate it as a theory while considering the effects of each set of features on the trust decisions the player makes. Following an existing trust research framework, a qualitative analytic induction study is used to develop an understanding of player’s experiences within each game, as applied to game features and trust decisions.

1.1 Problem

1.1.1 Game Design

T.L. Taylor provides examples of how game design changes can have dramatic effects on how players interact within the game using her experiences within EverQuest (Taylor, 2006). For instance, features were introduced that automated trade between players and made transportation quick and easy. Prior to these, players were required to engage each
other and negotiate to request assistance. After these features were added, many of the areas that were previously filled with dialog and active characters became desolate and she notes that the game may have suffered a loss of socialization which allows players to build relationships and among other things, trust.

Games have been used as a means to study many different areas including but not limited to identity, education, immersion, flow, motivation, and art. However, the study of how specific game features can be classified and evaluated is still in its infancy. Towards this end, it is difficult to evaluate how any specific feature, or combination of features, influences the experience of the player as they engage in the game.

### 1.1.2 The Study of Trust

In short, trust has been notoriously difficult to study. Definitions of trust are often either domain-specific or don’t demonstrate a solid evaluation of their construct and external validities. This results in survey instruments which are also domain-specific or only evaluate a single level of the social context. For instance, one survey may attempt to measure intrapersonal trust between members of a team operating in a business while another only evaluates trust of healthcare providers. While these may be useful for the specific domain and context, it is unclear that they are measuring a construct that can generalize to other situations.

One of the primary factors that influence trust development is the set of social processes informing the cognitive perceptions about the potential trustee. Consequently, if we could better understand how social processes moderate trust, then we would also gain a deeper understanding of how individuals appraise risk, verify sources of
information, and more generally come to the decisions to trust that they do when confronted with fairly routine combinations of social and circumstantial factors. Such social processes, however, are difficult to observe in natural settings because they are inherently reflexive, and thus quickly change in response to perceived changes by the participants. This characteristic of social systems presents a major challenge for researchers when they attempt to translate finding between different specialized areas.

Computational researchers tend to focus on either the internal thought process of an individual, or the emergent behavior of large groups of individuals working as a collective to study trust and decision-making. Neither of these approaches, however, generalizes well across multiple social contexts, suggesting a combination of approaches is needed to better understand the multi-level interactions (the ways in which small groups influence larger organizations and larger organizations smaller groups). Additionally, as with any social theory, a proper study of trust requires identifying a specific scenario context and clearly identifying relationships between the factors of interest.

MMORPGs provide a scenario with a partial solution to these problems. They contain immersive environments that do not change rapidly, limit the potential set of activities participants can engage in, and provide generally well defined levels of social evaluation (such as explicit groups to engage with). That is, they provide a semi-controlled environment that can be used to study social processes without entirely eliminating a naturalistic social context.

For the reasons provided further in this study, the following research questions are included:
• RQ 1: Do MMORPGs provide situations that require trust between people?
• RQ 2: What are the relationships between game features, external social factors, and how trust develops within the game?

1.2 Impacts

1.2.1 Social and Organizational Sciences

The area of trust research is one where there are few unifying theories and much of the research is not directly comparable against other research. By focusing on a cognitive model of trust and leveraging existing social theory, this research provides support for the evaluation of trust that is not context specific and bridges trust research with other areas. This will help unify a very divergent area and pave the way for increased translatability while solidifying the validity of the cognitive trust theory (Castelfranchi & Falcone, 2010).

Additionally, the use of video games (specifically MMORPGs) in this manner invites further discussion in the social sciences towards virtual environments with populations that approximate real-world populations. In a typical social context, structural properties often change over time. Treating intransient features within a game environment as analogous to sociological structural features found in an organizational setting provides a powerful opportunity to crystalize those aspects of a study for further investigation.
1.2.2 Game Designers and Players

A better understanding of how game features affect trust will allow game designers to better design games to support different levels of trust between players and groups. This will allow the games to elicit more specific experiences for the players by facilitating designers to explicitly design for high or low trust interactions. In turn, this will help designers support different levels of group cohesion and cooperation, as well as facilitate more complex game dynamics such as cooperation despite a low-trust environment. Additionally, by evaluating trust as a multi-level phenomenon, it will be possible for game designers to better predict how major feature changes might avoid a loss of trust from players towards the designers.

Finally, by comparing trust to game features, it emphasizes the effects of design elements on the player’s experience. This opens the door for game designers to seriously consider theory-driven design as a viable component during the initial development of a game, allowing them to create targeted experiences that elicit more specific reactions from players without the player feeling “forced” to play a certain way. This is important because a critical factor in the enjoyment of games is the perception of self-direction and control over the experience by players (Ryan, Rigby, & Przybylski, 2006). Behavioral theory-driven game design could allow the player to perceive that control but provide designers methods for directing the experience in an unobtrusive way.
Chapter 2

BACKGROUND

2.1 Role Playing and Video Games

There is nothing particularly new about the idea of an interactive virtual world. It’s not a far stretch to believe that table-top role playing games such as Dungeons and Dragons were (and are) a kind of virtual world that exists in books, notes, character sheets, and actively in the minds of the players and game-masters participating in gaming sessions. At its very core, a virtual world is simply a shared imaginary environment where activities and role-playing might take place.

From an academic standpoint, when we refer to “virtual”, it tends to imply something that exists with an electronic component. Nevertheless, some of the first electronically enabled virtual worlds sprung for the earlier ideas of table-top role-playing in the form of Multi-User Dungeons (MUDs). In the acclaimed “first virtual world” (Bartle, 2004), MUD1, contains the core ideas derived from RPGs that are still heavily used today: character progression was recorded by “levels” and “stats”; players acquired “skills” and “magic”; and players travel across a variety of areas and “rooms”\(^1\). All of the interaction with this virtual world is done in text. Players type text into a console and receive text back that gives them information about the world and their actions. The project that

\(^1\) MUD1 may owe much of its role-playing heritage by being based on Zork, a single-player text based role playing video game(Bartle, 2004). Bartle notes that this is where the D in MUD comes from, since the authors wanted a “multi-user” version of DUNGEN – a variant of Zork that they played. There is confusion that the D stands for “domain” or “dimension” caused by TinyMUD's attempt to distinguish itself by asserting that claim.
would become MUD1 was started in 1978, and would be rechristened MUD1 by its third release in the late 1980’s as the internet started to become more generally available. Prior to this, MUDs would be played by directly dialing into specific systems (usually universities or privately hosted bulletin boards [BBSs]).

Hundreds (likely thousands) of MUDs evolved from the original MUD1. (For a more complete genealogy please see (Bartle, 2004).) Eventually, the first MOOs (MUD-Object Oriented) were created. These allowed players to create their own objects and write programming scripts to allow their objects to have behaviors\(^2\). LambdaMOO was created by Pavel Curtis at XEROX’s Palo-Alto Research Center (PARC) and released for public play in 1991(1951). In a year, it had over 3,500 unique players, and in an example week, Curtis mentions that 750 of them had been active. LambdaMOO is notable for being one of the most well-cited MUDs in research, as well as a source of potential controversy. It has been used to look at group behavior in general, group emergent rule systems(Paul T Costa & MacCrae, 1992), as well as used as a virtual environment to test out artificial agents(Grüne-Yanoff & Schweinzer, 2008).

The freedoms provided by LambdaMOO to players also caused considerable problems with players harassing each other. It is just as often cited in social science literature regarding social norms, morality(Holland, 2006), and the emotional harm that can befall people participating in virtual environments(Blodgett, 2011; Meyerson, Weick, & Kramer, 1996).

\(^2\) In many ways, the virtual world Second Life is simply a 3D MOO. The basic principles of scripted user-created objects as well as lack of administrative control and oversight are nearly identical.
By the mid-1990’s, 3D gaming was becoming increasingly popular which lead to the release of Meridian 59. Meridian 59 “is remembered for being the first 3D virtual world” (Bartle, 2004, p. 24). Effectively, it was a MUD with a 3D interface to view the world3. Otherwise, a lot of the interaction was still based on text-entry and text-updates of events on screen. It was, however, quite overshadowed by the release of Ultima Online (UO) a year later.

The isometric 2D UO is typically noted as being the first standalone commercially successful4 virtual world and probably the first that could be called a Massively Multiplayer Online Role Playing Game (MMORPG), gaining over 100,000 subscribed participants by the end of its first year (Bartle, 2004). To handle this potentially astronomical number of simultaneous users, UO ran multiple isolated copies of their virtual world, called shards (now colloquially referred to as servers5 for most MMORPGs). Each shard ran a completely independent copy of the game world that could not interact with other shards. When a player would create a new avatar, they would have to select a shard for that avatar to inhabit for its lifespan.

By 1999, EverQuest (EQ) was released (Bartle, 2004, p. 26). Bartle notes that it came at just the right time – there was demand for new online experiences, UO was under fire for being a harsh environment to new players, and the graphics were beautiful for its

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3 This is a firsthand account, I beta-tested Meridian 59 before it was commercially released and had been a player of MUDs for some time beforehand.
4 Prior to this, some internet service providers provided access to “premium” online games either as part of their service, or for an extra fee. While some of these included graphic elements and multiplayer, they were tied to the services they were part of.
5 Typically in MMORPGs, each “server” is also subdivided into “zones”. Each “zone” runs on a different physical computer server and there may be other hardware to support various game features. In effect, a single world instance may require dozens of machines to actually run.
time (2004, p. 26). All of these factors and reasonably good gameplay lead to EQ becoming increasingly popular - popular, and quite addictive. The addictive nature of EQ has led to it often being referred to as “EverCrack” and the subject of several research studies on the topic, for example: (Chaud, 2012; Hazzikostas, 2013a, 2013b; Reiss, 2004; Smahel, Blinka, & Ledabyl, 2008).

Another aspect of EQ that made it significantly different from its predecessor UO was that it was designed to be a highly social environment requiring players to group together to complete difficult challenges (Taylor, 2006, p. 38). Previous games had included the concept of characters having a “class” and being limited in skills and abilities by this class. However, EQ’s designers included interdependence in their class systems that often required players to work together. To this end, the game supported additional mechanisms to help players accomplish this, such as long term groups (called guilds).

There are several important factors that separate MMORPGs from other video games and virtual environments: online, multiplayer, capability to scale massively, persistence, immersive, goal-directed, and lack of a terminal win condition. While these factors exist in other games, the specific combination of all of them within a single game is unique to the genre of MMOs, and support the ability to run a naturalistic study.

The first factor, as denoted by the term MMO is that they are *online*. The game world and majority of the game logic is not run locally on a user’s computer, but supported through a series of internet accessible servers. A case could be made that Downloadable Content (DLC) and Digital Rights Management (DRM) bring single-player games into this realm, but in these cases, the game itself is not running in a separate physical location that requires internet access. Similarly, the bulk of Adobe Flash games, prominent on
many webpages, are not truly online games, as they run within a virtual sandbox environment on the user’s own computer\(^6\). While not a requirement for a naturalistic study on its own, being online facilitates the opportunity to have multiple participants for extended, and recurring, durations.

The second factor, *multiplayer*, is linked to the first, and begins to draw upon the necessity to look at the intersection of factors. In the context of video games, multiplayer is defined as a game that allows more than one participant to contribute to, or affect the outcome of a shared scenario within the game. While many games may have online components, they may not be multiplayer. Likewise, many multiplayer games may not have online components (although this case seems to be shrinking).

In the context of naturalistic social interactions, few interactions (if any) occur in social isolation. While an individual may be responsible for their actions, this does not mean that the process used to make a given decision can be attributed solely to the individual (Festinger, 1954; Festinger & Carlsmith, 1959; Giddens, 1984; Haney, Banks, & Zimbardo, 1973). Single-player games impart artificial conditions where the player is competing and comparing themselves against computer controlled opponents that react in a pre-programmed manner. Multiplayer games, on the other hand, provide real people, who help to build a natural context for play. With this subset defined, the next factor is a natural step and defines how many players can participate in this online shared context.

For a video game to be an MMO, it must, by definition, potentially exist and *scale massively*. The division is specifically made here between the noun form “massive”,

\(^6\) This is not universally true, as many flash games integrate online components or run virtual environments on remote servers, and in some cases are actually MMOs, such as Dofus and Club Penguin.
which indicates a not entirely discrete size, and the adverb “massively”, which indicates a property or manner of being. It does not simply indicate a total number of participants, but a capability to support a large number of both multiplayer participants and interactions.

This is an important distinction - while the population and population density of a game can change how research is conducted, and what research can be conducted, if actual population, rather than theoretical population is considered, then the term "MMO" becomes an honorific title that is gained, and can be rescinded, rather than a label for a genre which otherwise seems clearly defined. It is much simpler to refer to certain MMOs and indicate population density for clarification where needed, as done by Williams in his studies of EverQuest 2 (2006). This is no different than what one would see in anthropology or sociology when an area or culture is deemed to have a low population density and this statistic would be reported. For a naturalistic study, this provides the facilities for deep and wide social network creation. Players can participate and expand their social network, virtually unconstrained by any artificial limit of relationships imposed by the environment.

Regarding video games, persistence refers to three areas. The player’s individual avatar or statistics persist while the player is not playing, collective group state persists (although they persist dynamically and can change when an individual player is not present), and the game world persists in a dynamic fashion as well. The player is free to leave the game (logout or in some cases even terminate their subscription) and return to the game world at a later time. However, the gameplay within the world has persisted as well, and the state of the game may be different from the one the player left. This is
different from the example of reloading a saved game, in which the action and social structures of the game have not persisted, but have merely been paused while the player has been inactive.

Some may argue that many MMOs are not persistent because the players cannot truly affect the state of the game world in a manner that will persist over time. This is true only if you consider that the players themselves are not part of the game experience and accept that MMOs should be treated as any other video game, instead of as a distinct area. Additionally, many MMOs have featured persistent player-affected content. World of Warcraft has had areas which require certain degrees of player participation to unlock, EverQuest has had enemies that could only be killed once and then were gone forever, and EVE Online is an excellent example of a game that is primarily driven by player actions. Indeed, the economic systems within all of these MMOs are driven by the actions and decisions of players and continually persist and change over time.

Persistence is a fundamental factor for a naturalistic study, since actions in the real world have persistent consequences. Additionally, it allows the researcher to become integrated into the study slowly, eventually becoming non-invasive while constantly checking and rechecking their observations and conclusions(Owens, 1982). Many studies in economic game theory involve one-shot experiments where the either the results are minimal, or do not persist. These are artificial parameters created by extensive reduction and do not reflect natural conditions(Erlanson, 1993; Lincoln & Guba, 1985; Owens, 1982). The persistence feature of MMOs may overcome these limitations.

With a world that continues with or without the players, and where player actions can have lasting consequences for other players, how does this allow players to win the
game? Rather than providing a *terminal win condition*, MMORPGs allow for continual achievements and social comparisons. One way is that players can often compete with each other in short-term tournaments or competitions, as seen in World of Warcraft, complete with seasons like many sports have (Paul, 2010). Additionally, many MMOs include achievement systems that facilitate the scoring of different actions within the game (Lewis & Wardrip-Fruin, 2010; Triebel et al., 2010; Yee, Ducheneaut, & Les Nelson, 2011). In one such case, the media attributed a player who acquired all the achievements in World of Warcraft as having “won” or “finished” the game (A. Robinson, 2009).

There are, however, two problems with these arguments. Firstly, the game does not itself, specify this as a winning condition for a player for the entire game. In the first example, the participants can win short-term contests that do not affect many of the other players in the world. In the second example, there was nothing at all specified for a player that acquired all of the achievements.

Secondly, even if these were considered “winning” conditions, the win does not affect the game state in any meaningful way. In other video games, winning is a *terminal condition*7. It is a final outcome that does not allow the player to proceed any further in the game, and bares a remarkable similarity to other types of “game over” scenarios, with the primary difference being that the player is told that they “won” instead of “lost”. Of course, winning may grant the player something, such as unlocking a new mode of play,

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7 Notably, other games (particularly single-player roleplaying games and “sandbox” games) often allow the player to continue playing after they have completed the final challenge. However, there is still typically a clear indication to the player that the game is “finished”, despite their continued ability to interact with the world.
or allowing them to keep all their gear and start from the beginning, but the overall current state of the game is that it is terminated and cannot continue beyond that point.

MMORPGs generally lack this terminal win condition. This is potentially because MMORPGs must support the previously mentioned factor of Persistence. If a player could win, and the game state was terminated and reset, it would also reset the progress of all the other players. Given the amount of time that MMOs require to experience their content, this could also be catastrophic to other players and incredibly frustrating if they were constantly reset by other players. However, again it reflects a naturalistic setting. Philosophy and religion aside, some might say that life has no terminal win condition.

MMORPGs also create a potential opportunity for social scientists desiring to run longitudinal studies, or studies that require participant interactions for extended durations. As an example of the time involved playing MMOs, in studies of MMO Role Playing Games (MMORPGs), researchers have found that players average 20-30 hours per week which is almost a full time job (Griffiths, Davies, & Chappell, 2004; Williams, Yee, & Caplan, 2008). This is compared by Williams to the industry reported figure of 7 hours per week for all video games (2008). Further, the duration of play over time can be significant, with Griffiths reporting averages of over two years of play history for a single MMORPG, EverQuest (2004). Given the time between EverQuest’s release (mid 1999), the date of publication (2004), and accounting for time required for research and peer review, this average is probably weighted primarily by players who played since roughly the time that the game was brought online.

This indicates the ability to support somewhat large, stable population of long-term players. In addition, the cooperative nature of many MMOs is reflected in associations
that can be tracked over these time periods. This has allowed researchers, such as Chen, Sun, and Hsieh, to track collective group formation, and begin to analyze the lifecycles of these groups (2008). Their initial look did not attempt to compare to real-world phenomena, but it did provide a model that can be used for research in other areas. This model points out various stages of guild development, which can be used by future research when determining where to acquire their population sample, and when explaining results that may be affected by the stability and size of groups within MMOs.

The long durations and extended dedication to playing an MMO, in addition to the other features previously mentioned create a highly immersive environment. Immersion is beneficial for two reasons. Firstly, it creates a more enjoyable experience for the player (Jegers, 2007; Ryan et al., 2006; Sweetser & Wyeth, 2005). Secondly, the psychological mechanism supporting immersion, described in Transportation Theory (Green, Brock, & Kaufman, 2004), connects the player cognitively, emotionally, and socially to the narrative environment, while simultaneously partially disconnecting the player from social restraints or qualities that may be imposed on them in the real world. The removal of some (if not all) of the cultural constraints on an individual is not entirely positive. In real-world scenarios there are always social constraints and norms shaping people’s actions (Giddens, 1984). However, this is where MMOs differ when compared to virtual worlds, like Second Life. MMOs, through rules of gameplay, provide a substitute for the restraints they remove, that can be altered by the designer. This allows the formation and exploration of new self-identities primarily grounded not by existing cultural beliefs, but by those experienced in the game world. As a naturalistic environment, this may allow researchers to observe generalizable behaviors that are not as influenced by an individual’s cultural background.
Another important property imposed by the game design, and not found in more general virtual worlds is that of goal-directed interactions. Sociology and psychology are rife with theories, from Thomas’ Four Wishes to Maslow’s Hierarchy of Needs and beyond, that support the notion that human behavior is influenced by a series of goals or desires. However, in the modern world, these desires are constrained by social expectations, economic necessity, and other influences. MMORPGs support similar constraints by providing systems for advancement, complete economies, and social repercussions for improper behavior. Again, this is one area where sandbox virtual worlds fall short as naturalistic settings.

2.2 Gameplay in World of Warcraft

While useful a basic description of MMORPGs as a game type does not suffice to fully describe the field site that is World of Warcraft (WoW). This section details many of the gameplay elements within WoW and references the Multi-Dimensional Topology of Games (Aarseth, Solveig, & Sunnana, 2003; Elverdam & Aarseth, 2007) to place descriptions within a larger comparative framework. This topology was created with the intent of providing an extendable descriptive framework for games that provides details far beyond the limited (and often ambiguous) descriptions of genre and game type. In its most basic form, it offers several initial dimensions arranged in categories for this purpose:

8 Notably, Pavel Curtis (1951) asserted that MUDs, the progenitors of MMOs, were not goal-oriented, as they had no “win condition” or score. While this is true of some MUD derivatives, it does not indicate a total lack of any particular goal, as typically MUDs had some form of interaction that was goal-directed – it may just not have been a requirement of playing. This freedom should not be understood as a complete lack of any goals, only that players have the option to choose which goals to pursue or not to pursue any at all and perhaps create their own objectives.
- Virtual Space – how space and the environment are treated within the game
- Physical Space – the player’s view of the physical space used to play the game, and how it interacts with real-world physical space in general
- External Time – the grounding of time within the game versus the natural flow of time, as well as defining finality type (game over – win/loss) within the game.
- Internal Time – the relationship between real-world time and game time, and its other behaviors
- Player Composition – single vs multiplayer, the composition of teams
- Player Relation – nature of player to player interactions within the game and how players are evaluated by the game
- Struggle – the origin of the challenges within the game and how victory is defined
- Game State – the level by which players can effect change within the game and maintain or restore it over a duration

Each of these categories contains subcategories branching into properties that describe how they are represented within the game. Full discussion of each of these subcategories and properties is beyond the scope of this document – only those that WoW instantiates will be discussed. Additionally, because of the variety of activities available within WoW, some of these cannot be applied to the entire game, and instead must be applied at the feature level. These will be mentioned and discussed during individual features.
2.2.1 Character Creation and Elements of Gameplay

The basic component of gameplay in WoW results from character creation. Players make choices when customizing an avatar that have direct results on how they will approach the rest of the game. First, the player must choose the server type they wish to play on:

- **Player versus player (PvP)** – players of opposing factions are free to attack each other nearly anywhere within the game world.
- **Player versus environment (Normal, PvE)** – players focus on completing game content rather than attacking each other, however limited PVP is available in specific circumstances.
- **Roleplaying (RP-PvE)** – similar to a PvE server, but players focus on playing the role of their character, communicating as if they were acting as their avatar would within the world and taking actions that the character would. These servers only differ from PvE servers by additional rules of conduct enforced by Blizzard to help facilitate this playstyle. Discussions involving the real world are restricted and can result in a violation.
- **Roleplaying Player Versus Player (RP- PvP)** – the same as RP- PvE, but identical to PvP servers with additional rules of conduct.

Next, a player must choose a faction (Horde or Alliance). This faction represents their global “team” within the world. Interactions with the opposing faction are limited and primarily hostile – economic transactions, trading, and communication are all restricted between factions. Faction also alters the next choice a player must make – race/class
combination. Races consist of several fictional types (for example: elves, dwarves, orcs, human, etc.).

They are mostly dependent directly upon faction (with the exception of one race available to both). Each race has a limited number of classes available to choose from. Depending on the particular player, they may be creating an avatar specifically for a particular class or to experience the game as a different race. Each race has a different visual appearance, a few specialized abilities, and their own starting storyline and areas.

Class has the largest effect on gameplay. Class selection will restrict the player to a very specific list of abilities during gameplay that will shape how they approach challenges and interact with others. There is limited customization within a class during gameplay that allows an avatar to focus on a specific role – which the game defines as healer (can heal injured players), tank (can take significant damage and protect other players), and damage (often “damage per second”, DPS). Some classes can choose from all of these roles, others may have different styles or combinations of two (for example, warriors have specialized tank and damage roles, but also a balanced version between those two). In the current iteration of the game, avatars can gain the ability to choose two roles and swap between at certain times.

Lastly, players can customize their avatar name, appearance (skin color, facial features, hair style, etc.), and gender. These do not have any effect on gameplay facilitated by game features but may result in different social experiences.

Player progression generally entails conquering various challenges that include gathering items, defeating enemies in combat, completing objectives in specific areas (such as dungeons and raids). Successful completion of these activities results in specific
or semi-random rewards (loot) of avatar equipment (gear) and items used for crafting/trading, currency (gold), and experience points (XP).

Gear is used to increase statistics associated with the avatar that increase the avatar’s abilities and may even provide additional abilities. Gear pieces are designed to fit “slots” on the avatar – for example, helmets fit a head slot, swords fit a weapon slot. Higher level challenges typically result in higher level rewards. Items can be damaged, reducing their effectiveness and bonuses, and repaired in exchange for gold.

Items and gear from loot are colored by rarity (in concurrence with the increase in ability relative to level): grey (limited value), white (common), green (rare), blue (very rare), purple (considerably rare, called epic), orange (incredibly rare, called legendary). Items can also come with restrictions on how/if it can be traded or sold to other players. Bind on pickup (BoP) items will only ever be usable by the avatar that obtained it. Bind on equip (BoE) can be traded or sold between characters until it is worn by an avatar for the first time when it begins functioning like a BoP. Bind to Account items can be traded between any avatars on the same WoW account (typically the same player). Most items and gear have a minimum level requirement to be used by an avatar and their power is relative to this level – items are often referred to by type, level, and rarity (a “level 89 purple sword”).

The primary advancement mechanic is through acquiring new “levels” for an avatar. This is achieved by gaining XP. Each successive level requires higher degrees of XP to acquire, at which time advancement to that level is automatic. More difficult challenges (“higher level”) result in better rewards. Additional levels result in an increase to specific avatar statistics / attributes, making them overall more powerful. At some predetermined
levels, avatars also gain new skills, increased power in existing skills, and/or can further customize the role(s) selected for their class.

The game world itself is presented as consisting of multiple continents and some extra-planar dimensions across space. These larger areas are subdivided into specific “zones”. Zones are typically aligned to a specific faction (and thus will have challenges only available to that faction) and are intended for a specific level range of avatar. Some zones that avatars begin playing in are also specific to their chosen class.

Avatar’s typically run within a zone, but walking is also available. There is no penalty for running and it can be maintained indefinitely. For faster travel players can acquire the ability to ride upon mounts. These animals and vehicles are controlled by the player and move much more quickly than the player alone is capable. In addition to mounts, there are flight points where a player can ride on a mount along a predetermined flightpath to other flight points. Most flight points must be first discovered by traveling to them on foot before they are available for fast transit. Players do not control the route the mount takes in this case, but often flight paths travel over land that is otherwise difficult to transverse, shortening the travel time. Another mode of travel is via ships of different types, which make scheduled stops at predetermined locations, but otherwise make travel virtually instantaneous. Some classes also have abilities that can transport players instantly from one location or another.

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9 Many areas in the game support flying mounts, which allows the player to control a mount traveling through the air. The use of flying mounts is a topic often brought up in discussions by both the players and the developers, and is currently beyond the scope of this section.
For much of the play experience, player avatars can operate alone. However, certain game challenges require players to work together. For this reason, the game supports the formation of groups. Players can choose to form small temporary groups (a *party*) with other avatars (up to 5 people). They can also form larger, longer term (but still temporary) groups of 10-50 (called a *raid group*) to tackle larger challenges. Additionally, players can collaborate to form semi-permanent groups called *guilds*. Players can be members of both a guild and party/raid groups at the same time, but they can only be a member of a single guild at any given point. Guilds provide access to additional features such as collective item storage, specialized perks, and leadership/hierarchy management of members. Management of the temporary groups is somewhat more limited.

Players can communicate to each other through chat channels in the game – this description is entirely non-exhaustive, as there are many more details regarding communication. There are dedicated channels available for specific purposes (general chat, trade, etc.). Instances of certain chat channels are localized to the zone the avatar is currently located in. Chatting through the *say* command only communicates to all other avatars in a limited spatial region, which is extended with using *yell* instead. *Whisper* is used to talk to another specific avatar or player (and only that individual) no matter where they are located within the game world. Parties and raid groups have special channels for communication while formed and members of guilds have a channel dedicated as well.

Additionally, players can create their own chat channels and invite specific avatars to participate. If a player wishes to no longer receive any messages over any chat channels by another avatar, they can add that avatar to an *ignore* list. Lastly, there are several *emotes* within the game that show a description of an action to nearby avatar and
additionally cause the invoking player’s avatar to animate an action (such as dancing or laughing). These channels also communicate information related to combat to the player.

A complete summary of the user interface (UI) and control elements of WoW are beyond the scope of this document, but a general overview is provided here. Players control their avatars within 3D space typically using a mouse and/or keyboard – controls are highly customizable. As a player travels, they can choose to interact with certain objects and NPCs (typically by clicking). Specialized NPCs may serve additional functions (such as shops or skill trainers), or give access to certain features (such as an auction system and a bank to store items).

Action bars within the game allow players to specify that a specific UI button will activate a specific avatar ability. Additionally, some of these buttons are automatically mapped to keyboard shortcuts. Many actions also require a specific target (and many do not). Many players do not play with the default UI and instead heavily customize it using addons. Addon development is made available by the game itself to allow players to extend various features of the game. These addons can almost completely replace the default UI, providing additional buttons and screens as well as access to (or better organization of) a large array of informational data available to players. Third party websites manage the distribution and organization of addons for their developers.

### 2.2.2 Gameplay Activities

Claiming that World of Warcraft provides a plethora of activities for a player to engage in could be an understatement. This section is intended to provide a general
overview of activities within WoW to give a broad sense of gameplay, its complexity, and variety.

Firstly, as an expansive world it is important to note that many players simply enjoy exploring the variety of domains, their digital flora and fauna, and landscapes both alien and familiar. The game provides certain rewards for this activity, but it typically not enough to progress a character very far.

Probably the most ubiquitous activity in WoW is defeating computer controlled enemies. Enemies can take many forms – humanoid NPCs\(^{10}\), creatures, demons, plants, animals, forces of nature. Defeating an enemy typical involves engaging them in combat (using avatar combat skills and abilities) and causing a certain amount of damage before they can defeat the player. When an enemy is defeated they usually leave behind rewards (loot) and the avatar acquires more XP.

Players can choose to engage in quests. Quests are a game feature where a specific goal is provided to the player with the promise of a specific reward for completion. They are often restricted by the player’s avatar level and faction. Additionally, they can function in a workflow like faction, requiring certain conditions (including other quests) to be completed before becoming available – called a quest chain\(^{11}\). Quests are primarily acquired by approaching an NPC with a yellow question mark indicated above them, but may also come from other sources (such as using an item). Players can abandon quests and typically acquire them again later in this case. Completed quests can generally only

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\(^{10}\) There are also occasional non-humanoid NPCs, such as dragons.

\(^{11}\) This is a bit of a misnomer as quest chains may not follow a direct path, but could involve branching along different paths, potentially including different final ending quests.
be completed once, but a special category of repeatable quests\textsuperscript{12} exists, often signified by a blue (rather than yellow) question mark. More difficult quests may indicate a suggested number of players cooperate to complete them. A non-exhaustive list of quest goals include:

- Defeating a specific enemy
- Defeating a certain number of enemies
- Delivering an item to another location
- Escorting an NPC to another location
- Engaging in a large scale battle
- Acquiring a certain item
- Using a specific item at a specific location or on a specific enemy

While the activities mentioned thus far can typically be completed in the global world at various locations, WoW also provides specialized areas with more difficult content intended to be entered by a group, called \textit{instances}. The name comes from the fact that instances exist outside the global world, and a new copy is created for a specific group engaging in them. That is, two teams each engaging an instance will have their own isolated version that is not affected by the activities of other groups.

Colloquially, the term instances refers to two specific types: dungeons and raids. Dungeons are smaller and easier than raids. They are intended for engagement while an avatar is still gaining levels and with small groups (up to 5 avatars). Raids are considered

\textsuperscript{12} There is an additional subset of this category which players refer to as daily quests (dailies) – these are quests that become available again after completion \textit{and} a specific duration of time (typically a day).
“end game” content, intended for players of maximum level and with larger groups (from 10-40) – these are detailed further in section 6.1.1, Cognitive Trust Beliefs. Instances present players with specific enemies to defeat and quests exist that may specify other objectives to complete within the instance. The rewards from instances are typically much better than those acquired from completing quests or defeating monsters in the global world.

Global player versus player (PvP) was mentioned in the previous section during the discussion of server type. However there are additional avenues of PvP participation. First, there are PvP Arenas where individuals or small teams (2 or 3) can challenge each other to combat. Arenas act like instances, in that different competitions do not interact.

Second, there are PvP battlegrounds, which each have different specific objectives (such as capture the flag, collect resources, capture territory, conquer a defended position, etc.) and specific team sizes (5 or more, depending on the specific battleground). Most battlegrounds are instanced, however some exist on the global world (such as Wintergrasp).

In addition to the above activities, player avatars can optionally engage in professions as well. Avatars are allowed to take two primary professions and all of the secondary professions. Primary professions can be divided into two categories: gathering and crafting. Gathering professions (such as herbalism and mining) allow players to pick up resources as they explore the world, which can then be sold or used for crafting. Crafting professions (such as blacksmith and alchemy) allow players to take raw resources to create items and equipment (using specific recipes) that can be used by and sold to other avatars.
The secondary professions are a bit less generalizable and consist of first aid, archaeology, fishing, and cooking. First aid simply allows an avatar to create bandages that can be used to heal. Cooking allows avatars to create food that can heal and may have other additional bonuses when eaten. Fishing allows players to catch fish (and occasionally junk) almost anywhere there is water in the game. Archaeology creates a mini game of collecting artifacts throughout the world to create items and discover lore.

There are several activities well beyond the scope of this list – Timeless Ilse, garrisons, holiday/world events, etc. However, this list of activities provides a broad overview of what is available within World of Warcraft which can be used to facilitate further discussion and illustrate comparative examples.

2.2.3 Topological Dimensions of Gameplay

Before continuing into a description of specific gameplay activities, the multi-dimensional game topology (Aarseth et al., 2003; Elverdam & Aarseth, 2007) should be revisited. The first property, virtual space, is broken down into the subcategories of perspective, positioning, and environment dynamics. WoW uses a vagrant perspective (players cannot see the entire game area) and no environment dynamic (players cannot alter the game environment). Virtual space positioning requires special attention. The updated version of this topology (Elverdam & Aarseth, 2007) included some details for

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13 This is effectively true for the version of WoW that was the subject of this study. However in the existing expansion players have a certain degree of freedom to change limited areas within the game world. Notably, the way that this is implemented does not fall within the existing topology and a new property must be created phased environment dynamics. Players can change specific areas within the game, but the changes are only available for interaction by the player instantiating the change. Earlier versions of the game had similar phasing components, but they were intended to be part of a pre-defined progression (fixed) rather than dynamic and changeable over time.
WoW and stated that it used a relative positioning system (players could not determine absolute position within the game world, only relative to objects within the game). On the surface, as the game is presented, this is true. However, internally the game uses a coordinate system that is accessible to game modifications and addons. Many players use these to determine their exact location within areas of the game and external game resources often contain these coordinates to help players locate objectives – which effectively gives the game absolute virtual space positioning.

The physical space category does not directly apply, as physical space has little effect on the play experience for WoW. That said, the publisher Blizzard provides server instances located in specific regions around the world to facilitate faster network communication. In general, these instances are identical\(^\text{14}\) and should not significantly affect the gameplay experience (other than by concentrating regionally-based players).

External time is handled with an infinite teleology within WoW (there is no final win or lose condition) and time is represented in an arbitrary manner (the passage of time does not reflect real time). However, time representation can be broken down further into two sub-categories: story events and in-game calendar. The instantiation of story events in WoW can still be considered arbitrary – they reflect specific dates or periods in the history of the world, but happen at arbitrary times determined by player actions. That said, WoW alters the environment lighting / weather in sync with regional day/night cycles. Likewise, special “holiday” events are scheduled for regular occurrences on

\(^{14}\) Third parties localize the game content for China and host/operate game instances which may result in a different game experience for Chinese players.
specific dates in sync with the real-world calendar which would be considered a mimetic representation of external time.

*Internal time* is divided into three subcategories: haste, synchronicity, and interval control. For the majority of gameplay in WoW, haste can be considered present (the passage of time affects the game state), players exhibit present synchronicity (they can act at the same time), and they have no control over the passage of time within the game (absent internal control). A notable exception is one game feature – pet battles. Player avatars can acquire “pets” during gameplay. These pets are used to challenge non-player characters (NPCs) and other player avatars to battles. These battles advance the pet (it gains levels and abilities) and can result in rewards that otherwise help the player – however, they do not directly affect the main elements of WoW gameplay. Pet battles are detached from real-world time (absent haste), are turn based (absent synchronicity), and turn activity / passing is determined by the player (present interval control) – the exact opposite of how Internal Time is otherwise handled in WoW.

The *player composition* category in the topology creates a challenge when classifying WoW. The existing properties in this category work well for many games, as they describe basic player / team setup: single player, single team, two player, two team, multiplayer, and multiteam. However, for many MMORPGs (and WoW in particular), this description falls short – avatars can be members of multiple teams for different

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15 There is a second area within the game that illustrates slightly different behavior – resource contention. Certain items and resources within the game can only be used by one individual at a time. However exposure to this is limited and does not significantly alter the experience of the player other than that it can create competition for the “first” player to arrive at a resource. This is more of a technical restriction than it is a feature of the game.
purposes simultaneously or choose to be on no team at all\textsuperscript{16}. For this reason, the typology is modified to include an additional composition, complex, which describes games which support multiple styles of composition.

In the typology, \textit{player relation} is broken down into two subcategories: bond and evaluation. This is one of the primary categories that can change depending on specific activity within the game. Generally speaking, player bond within WoW is dynamic – the relationship between specific players can change over the course of gameplay (they can join different groups, for instance). However, many activities within the game can facilitate a static bond \textit{for the duration of that activity}, such as PVP battlegrounds and arenas, raids, and dungeons. Additionally, players on PVP servers (engaging in \textit{world PVP}) can be considered to have a static bond within their faction in relation to the opposing faction.

\textit{Player evaluation} is equally murky – players are sometimes evaluated individually and sometimes as a team. The topology provides a \textit{both} property that describes this kind of evaluation, but this is incomplete – are players always evaluated both as individuals and teams, or are they evaluated as one or the other based on context? For the former, the \textit{both} property suffices. However, for games such as WoW where this evaluation changes, a new property is created, \textit{contextual}. In WoW, depending on the specific activity, the evaluation for completion might be either as a team (e.g. PVP arenas) or as an individual (e.g., quest completion).

\footnote{\textsuperscript{16} Although, to be fair, the faction that a player is required to choose during character creation could be considered a team, but a player can choose to play in a manner that makes the impact of this decision limited and in many ways non-adversarial or competitive.}
Struggle is divided into two subcategories: challenge and goals. Challenge in WoW is divided between PVP and PVE activities. PVP activities are all agent based challenges – the opposition is provided by otherwise autonomous agents with no game-provided strategy or specified activities. PVE game activities (and most other non-PVP activities) are considered identical – with minor variations, each activity is the same during each attempt at completion.

Goals within WoW are all relative. As Elverdam and Aarseth mention (2007), there may be specific goals within the game, but players always have the option of not pursuing them (and can still continue playing in other ways). That said, this would be an area where it would be useful to consider specific features as they relate to the topology (for cross comparison). For example, quests have absolute goals (do X, Y, and Z) while PVP arenas can be both (defeat of an entire team or time expires). Some goals may even be subjective, such as while fishing within the game - is the goal to catch fish or to relax for a while?  

The final category in the typology is game state, divided into two subcategories: mutability and savability. Generally speaking, WoW can be said to have a finite mutability – changes to a player avatar continue through the life of the game. Changes within some activities (such as raids and battlegrounds) would be considered to have a temporal mutability – the state change does not persist and will be reset. Finally, game

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17 Additionally, there are also quests that involve fishing with specific goals.
state within WoW typically cannot be saved (as it is continually changing) giving it a savability of none\textsuperscript{18}.

### 2.3 Swift Trust and Virtual Teams

The topic of swift trust (Meyerson et al., 1996) is common when discussing distributed/virtual teams and trust\textsuperscript{19}. Meyerson et al. mention that “temporary systems act as if trust were present, but their histories seem to preclude its development” (1996, p. 167). In particular, temporary teams are able to function as a cohesive unit to facilitate achieving a goal – without the shared history typical of what is generally referred to as trust. Often times, these groups exist for the sole purpose of achieving that goal - once completed, the team is dissolved as a working unit. Additionally, there is often considerable pressure to achieve the goal by specific, short deadlines – necessitating a swift work pace (Iacono & Weisband, 1997).

Meyerson et al. list several specific characteristics important for the development of swift trust:

1. Participants with diverse skills are assembled … to enact expertise they already posses

\textsuperscript{18} An exception to this rule may exist for raids which can persist without being reset for a time but can only be restored from their last state. This could either be considered conditional savability or no savability depending on the specific definition of saving in this context – that is, is it specific to user-level saving, or would it include system-oriented saving as well? This may be an area that could use more evaluation within the topology.

\textsuperscript{19} This discussion is additionally muddled somewhat by multiple (conflicting) definitions of distributed and virtual teams. Many maintain that these types of teams are always temporary, while others make the specific distinction that the primary requirement is that members are distributed in multiple locations and that temporary virtual teams are a specialized subtype. To facilitate precision in communication, this document will always specify temporary where it applies.
2. Participants have limited history working together
3. Participants have limited prospects of working together again in the future
4. Participants often are part of limited labor pools and overlapping networks
5. Tasks are often complex and involve interdependent work
6. Tasks have a deadline
7. Assigned tasks are nonroutine and not well understood
8. Assigned tasks are consequential
9. Continuous interrelating is required to produce an outcome (Meyerson et al., 1996, p. 169)

Many of these characteristics are instantiated in the shorter term groups in WoW (particularly parties, LFR groups, and other non-guild raid groups). These teams require members with extant diverse skills, they may have a limited shared history, many of the members will never see each other again, tasks involve interdependent work, and some tasks have a deadline. The remaining items provide a matter for discussion. While some of the tasks can be considered nonroutine, they often consist of subtasks that are routine, and the tasks themselves are typically repeated multiple times. While the rewards for completion are certainly important to some players, tasks for these groups can be repeated until the teams succeed – severely limiting the degree of consequence. Finally, interrelating is not often a required feature of these particular groups – many of these tasks can be completed entirely without communication. For the longer-term groups (such as guilds) in WoW, nearly all of these characteristics are typically absent.

The very nature of swift trust – that it is similar to trust but exists where trust cannot have developed – creates a significant impact on research approach. It is a qualitatively
different phenomenon, requiring unique circumstances and a different population for study. The initial team level of interest for this study was *guilds* within WoW and their internal dynamics, thus the research path that developed suggested that the immediate study of swift trust was out of scope. However, as noted in section 7.5 of the discussion section, this is an area that resurfaced during data analysis. Additionally it certainly deserves future investigation beyond the coverage here (see 8.4, Future Research).
Chapter 3

LITERATURE REVIEW

The literature review is divided into three subsections. First, games and MMORPGs as research topics are reviewed, providing some methodological considerations. Second, a review of the group dynamics literature related to MMORPGs is presented. Last, MMORPGs as a platform for research is discussed.

3.1 Games and MMORPGs

These factors and example resulting properties outlined thus far can have a significant impact of the design methodology for researchers working with MMOs and, additionally, create MMO specific issues that must be addressed.

For instance, an individual player, or even a specific group of players is often not responsible for the game state of the entire world they interact within. That is, the player’s experience is more than the sum of the actions between that player, and the world provided solely by the game, and includes the actions of all the other participating players. This is different from other games, even other multiplayer games. In other multiplayer games, generally all the participants are directly interacting with each other in some manner (such as all players competing directly against each other in a racing game), and directly altering the global state of the game, through their play, for all the participants.

In MMOs, the players may be indirectly affected by the actions of other players, or other groups of players. This can create larger sources of social structural properties
which the individual player must act within, but may have little control over the shape that they take. Additionally, these structures can change while the player is not playing. For example, a guild may institute a new reward distribution policy, based on the concept of Dragon Kill Points (DKP), while not all of the members are present. The use of DKP is a player created system, outside of the normal game rules to handle distribution of rare items that require group effort to acquire. The introduction of DKP creates new or altered social situations, norms, and methods of inter-guild discipline (Malone, 2009; Silverman & Simon, 2009).

DKP is also an example of how a single MMO is not necessarily a closed system. It was originally created by guilds inside EverQuest, and is now found in others, such as World of Warcraft, demonstrating that structures are not isolated in a single game (Malone, 2009). This process is not limited to social structures and knowledge that travel between games, but is also found to manipulate the game-imposed rules as well. During her ethnographic work, Taylor found examples of how player instantiated economic system of travel influenced the game designer to alter the game mechanics to facilitate alternate methods of travel (2006). This in turn changed the structures evolved by the players, and eliminated entire player activities within the game. So, the loop of changing structures does not simply travel in one direction, from the game to the player, but is in fact a recursive process where players are both influenced by the game, and influence the game itself.

In the context of research, this could be alarming. Many studies treat their results as generalizable, not only to other MMOs, but also to the MMO being researched as well across time-space, with little mention of how game modifications could alter future
results. Some automated data collection methods, such as those used by Ducheneaut, Yee, Nickell, and Moore are able to capture data both over time, and across multiple servers (virtual space), which have avoided this “field site” bias, but their techniques are not applicable to all kinds of research (2006). Additionally, as Ducheneaut et al. point out, their group saw inconsistencies in their data that were only cleared by further subjective and qualitative research through participant observation and interviews.

This suggests that mixed methodologies are more or less a *requirement* of drawing conclusions based on data from MMOs. Indeed, this is likely an issue with all types of video game research. However, through the admission of many of the MMO researchers, it is found that many of them readily label themselves as “gamers”, and participate with considerable frequency in their MMO of study (C. H. Chen et al., 2008; M. Chen, 2005; Ducheneaut et al., 2006; Johnson et al., 2009; Taylor, 2006; Yee et al., 2011). This is a stark contrast to research in other video game genres where it is obvious that many researchers do not have solid foundations in the understanding of the games they use.20

20Often, this is apparent by the choice of games they use for comparisons, which end up being so drastically different that rather than comparing two similar items, with a single or limited few variable, they are comparing two very distinctly different items, with many significant independent variables. It is quite common in video game violence and aggression research to compare games that are radically or fundamentally different, despite the existence of games that may alter alternatives that are more closely related. For instance, Fischer, Kastenmüller, and Greitemeyer compared Wii Bowling to Wii Boxing (Fischer, Kastenmüller, & Greitemeyer, 2010). This not only compares what they
This can lead to some categorizations that may seem strange or inaccurate to game players, such as boiling down all games into three types (imagination, physical, and traditional) as Greenburg, Sherry, Lachlan, Locas, and Holmstrom do (2010).

In fact, the ever changing and permeable nature of MMO social structures should not be perceived as a weakness of the genre by researchers. It is similar to comparing behaviors of one generation of people in a country to a generation several decades later. This is not simply the adoption of a technology, but the adoption of a culture, complete with evolving and changing social structures. In an increasingly globalized world, this kind of situation is reflective of the larger context of studying real-world societies and interactions as well. Within MMOs, however, researchers have the opportunity to study these behaviors within somewhat controlled settings (whether or not the researcher is the one in control).

There are still issues to be addressed, however. In addition to the field site problem, MMOs may suffer from a particular kind of selection bias. Yee pointed out that there are different motivations to playing MMORPGs (2006a, 2006b). Different MMOs may attract and retain entirely different kinds of players, self-selected for both as they play, and as they are invited to play by friends. For instance, Myst: Uru Online attracted players who label a “violent” game to a non-violent game, but also a game with direct adversarial competition to one with indirect casual competition. A better comparison might have been between Wii Boxing and Wii Tennis – unless they are making the judgment that Tennis is inherently violent.
(if Yee were to compare) would probably be much higher in the “immersion” and “social” motivations category than players in other MMORPGs. This is evident by an analysis of the several hundred players rebuilding Uru in other virtual worlds after it was shut down (Pearce, 2006). This continues the issue mentioned previously that a sample of players from one MMO may not be representative to all MMOs as a whole. For this reason, it will become increasingly important for studies to be conducted in multiple MMOs in order to discern the generalizability of results, as well as determine how different gameplay styles and player types can influence those results.

In summary, the factors, properties, and populations involved with MMOs create a unique research situation that clearly separates them from other forms of video games. Using both objective and subjective data, while also actively participating in the MMO being used for research can help researchers better understand their data, their participants, and their results. The long-time commitment to gameplay creates opportunities for researchers to study social structure development and change, but also comes with risks to the participants that need to be considered. It is the responsibility of the researcher to understand that players can take their MMO game time very seriously, and they may need to adjust their methodology accordingly.

### 3.2 Group Dynamics and MMORPGs

The trust model developed in section 4.1, Trust, contains the concept of a social context as both an input and recursively affected as an output of past performances. One way to look at the social context is as a composite of all perceived social effects of an activity by an agent. A primary way to look externally at other agents is by looking at the
groups they form in relation to one’s self. People are constantly assessing their membership, participation, and ideals against those of the groups they perceive around them and making adjustments in relation to those perceptions (Festinger, 1954; Tajfel & Turner, 1978; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). For this reason, group dynamics are predominant factor within the social context in direct support of the assertion that trust is multilevel phenomenon.

Research on group dynamics within virtual worlds and MMORPGs has been somewhat piecemeal. For this reason, I use the categories developed by Lickel et al. (2011) to help structure this review. These researchers conducted a cluster analysis of categorization of different social groups by participants to determine if there were any repeated themes in how people perceive the groups around them (specifically with their relation to entitativity, the notion that a group is an entity unto itself). Their research resulted in four clusters, from high to low entitativity: intimacy groups, task groups, social categories, and loose associations.

Intimacy groups are generally composed of close friends and family but may also include other tight-knit groups such as gangs and military squads (Powell, Piccoli, & Ives, 2004). Task groups, as the name suggests, are groups composed of people working together to complete a common goal or task. Social categories are groups composed of individuals with a shared common property, but of which people do not necessarily self-associate or inter-associate with other members. That is, they might be derived either from an insider looking at a group they belong, or an outsider attempting to classify other people around them. For example, gender, ethnicity, citizenship of a country, and political associations are all types of social categories. Loose associations are a weaker form of
social category and indicate ideas such as people who share a particular talent or inclination towards a style of art.

One aspect of particular interest regarding groups and MMORPGs is that many types of groups are provided and enforced by the game rules (provided explicitly) and membership is often at least somewhat voluntary even for clusters that in the real-world would be considered a social category. For instance, players often have the opportunity to choose between multiple races, ethnicities, and genders while initially creating their avatar.

That said, the unit of particular interest towards a study of trust are the task groups and potentially intimacy groups (if task-oriented intimacy groups exist and function in MMORPGs). Task-oriented groups are generally fully supported by these types of games and come by many names: groups, guilds, clans, corporations and more. Additionally, different types imply duration of membership as either persistent or short-term and may include game rules to support that function. For the purpose of this literature review, I focus primarily on long-term established task-groups and use the term “guild” in general to refer to them.

In their literature synthesis, Silverman and Simon called guilds “the primary social unit of MMOG play” (Silverman & Simon, 2009). In addition to the rules and features explicitly provided by the game, they note that often guilds create their own systems of social norms, rules, and punishments. These can be rules of behavioral conduct, organizational and operating procedures, recruitment standards and more. Additionally, guilds may have a very strict recruitment system requiring players to petition for entry.

Since guilds often engage in group activities that require trusting reliance between participants, the rules and heavily instrumented recruitment processes serve an important function with regards to trust. This is similar to the systems observed by Iannaccone (1994). She observed that the strictness of church rules was greatly correlated to the cohesion of the church and rate of growth—stricter churches were more stable and had more positive growth. With rational choice theory, she claimed that stricter rules lowered the overall cost of maintaining the group. It is very likely the same principle operating on larger “elite” guilds. The challenges they choose to undertake are more difficult with higher risks and the strictness of the rules provides them with a way to mitigate group maintenance costs.

But in addition to these, they also provide a mechanism to enhance their ability to perceivably trust an incoming individual. The membership applications provided by Silverman and Simon include items that directly apply to several of the trust beliefs (Suchan & Hayzak, 2001). The application itself serves to partially satisfy the willingness trust belief of the participant. Some questions ask about the number of hours the player can commit a week (reliance trust beliefs). Several questions ask about the skills, equipment, and previous guild history of the applicant (competence and history trust beliefs).

That said, the groups with the strictest rules and most difficult application paths (such as religious groups in (Iannaccone, 1994)) are also those that have been reported as having a high level of entitativity (Merritt et al., 2011). Within the cognitive model of
trust, the trustee is not required to be a cognitive agent (Castelfranchi & Falcone, 2001). In situations where two individuals are members of the same group, acting within a social and task context for that group, where the group itself can be perceived as being an agent itself, a cognitive shortcut is provided-the trustor does not need to trust the other individual if they trust the group. That is, it isn’t necessary for members to trust in each other when they can trust in the group. This is not simply matter of trust being informed by multiple levels, but one of allowing an upper level to almost completely subsume the need to evaluate a lower level.

However, the strictness of membership and rules within may also significantly decrease the perceived risk as well, lowering the need to continually evaluate the group at all. Without that level of evaluation trust collapses into an economic and/or strategic decision. One does not need to evaluate the beliefs or motives of the group if the rules and mechanisms in place give them a reasonable assurance or subjective probability.

Indeed, the strictest rules and admissions come from the player-colloquial category of “hardcore” guilds. There is a lot of discussion about what the label “hardcore” should refer to with regards to players and guilds, but there is a common thread that is often mentioned – time commitment (Aarseth et al., 2003; Elverdam & Aarseth, 2007; Merritt & McGee, 2012; Suchan & Hayzak, 2001; Taylor, 2006, pp. 70-74). Members of hardcore guilds typically are willing and able to dedicate proportionally large blocks of their available discretionary time to participate in guild-related activities. As detailed in the brief discussion of Temporal Motivation Theory (TMT), section 4.1 - Trust, time is major variable considered when evaluating the utility of potential actions for economic
benefits. Dedicating such large portions of time to a group could be considered a significant economic investment.

T.L. Taylor\textsuperscript{21} goes further, evaluating the play style of hardcore players in EverQuest. She says this type of player approaches the game with “a focus on efficiency and instrumental orientation (particularly rational or goal-oriented)”\citeyearpar{Taylor2006, p. 72}. One of her informants described his view of the game as something “a problem to be broken apart and solved”\citeyearpar{Taylor2006, p. 74} and goes on to describe their approach to gaming as being one that increases efficiency by reducing waste and increasing production. In other words, he was actively evaluating the economic utility of his activities within the game.

This could be an indication that such players and guilds are actively engaged in minimizing the necessity to trust, and instead are playing primarily in an economically strategic way. Instead of a social unit facilitating and enabling trust, guilds in these cases are primarily being used as a functional component instrumental to gameplay. In this way, the manner in which a guild functions may affect the composition of membership (self-selecting) but also how those members evaluate each other. That is, members of different guilds may behave differently in their evaluations of other members (and the guild itself).

That said, guilds (like other groups) are not omnipresent – they start small and evolve over time. Chen et al. conducted a study of 600,000 World of Warcraft players and their guild memberships over a two-month period to understand the dynamics of guild formation and dissolution \citeyearpar{Chen2008}. They found three primary factors affecting guild

\textsuperscript{21} She uses the term “power-gamer” rather than “hardcore”.

46
membership: 1) game world design, 2) changes in guild member motivations, and 3) guild management.

The design of the game world facilitates or discourages the need for guild membership at different points during gameplay. Additionally, motivations continually evolve and change during long-term gameplay due to many both game-related and external factors. Finally, the way in which the guild is actively managed by its leadership (and how that leadership changes) can affect membership in a positive or negative way. These factors underscore both the need to be a member of a guild at all, as well as how well an individual personally identifies with that guild. Likewise, this change in membership can reflexively change the behavior of the guild as a whole and its perceived identity.

Additionally, they found clusters of guild-types (by player level and guild-size) and an evolutionary life cycle of guild composition (see Figure 1). Tuckman noted that groups typically develop through a series of five stages(McGee, Merritt, & Ong, 2011; Meyerson et al., 1996). These stages are: forming – initial formation of a group for a purpose; storming – conflict arises as members resist each other in the struggle to form a group identity; norming – a cohesive identity is formed and members begin to form standards and rules to facilitate that identity and purpose; performing – a stable group with established norms engaged actively in completing tasks; and adjourning – the group disbands.
Extending this model to include long-term and more task oriented groups results in additional decay stages: de-norming, de-storming, and de-forming providing a regression path for the group (Coppola, Hiltz, & Rotter, 2004). With this addition, the presented guild life cycle can be viewed in terms of how players are reacting to motivational changes as they progress through the game.

Initially, lower-level groups form as a way to help new players acclimate to the game or to help existing players (with new avatars) advance quickly through initial game content. These would be somewhat unstable moving from the forming to the storming phase and guilds would combine (or adjourn) in an effort to stabilize membership.

Notably, the lifecycle model has three major “stable” stages: small guild, big guild, and elite guild. These are tied directly to the game mechanics of World of Warcraft (at the time of the lifecycle’s development). Level 60 was the highest level an avatar could achieve and “end game” content and challenges required 20-40 players. Thus, it is expected that the most dedicated players, playing in the most economically beneficial way would form groups that facilitate that type of play, and only that type of play (elite
guild). Additionally, it would not be surprising to see an unstable guild shed off less hardcore players for this purpose, since they are playing primarily through an economic behavior rather than a social one.

Small guilds are situated with members around levels 30-45 and 10-30 members. This level range is also associated with specific game challenges in World of Warcraft that require groups (in this case 4-5 participating members). Chen et al. (C. H. Chen et al., 2008) note that these groups are able to take in the lower level members of unstable guilds and higher level members of newbie guilds to remain stable even as membership continually changes.

Big guilds subsume many of the roles of both the small guilds and the elite guilds by providing a group that can complete the elite content as well as the lower-level content, by having a larger number of members available but not enforcing play in a “hardcore” efficiency-is-everything manner.

Guild structure and membership has often been compared to real-world collectivities. Johnson et al. compared guilds to data collected regarding membership of street gangs in California (2009). They found correlations between the two in the areas of group size distribution, recruitment factors, and others, resulting in the list of factors found in Table 1.

Table 1. Team-Agent Dynamics in Gangs and Guilds, adapted from (Johnson et al., 2009)

<p>| 1 | Teams tend to recruit members to cover a spectrum of attributes; |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Agent joins a team by assessing his potential contribution to the team;</td>
</tr>
<tr>
<td>3</td>
<td>Agent joining a team only sees an average of the attributes of a team;</td>
</tr>
<tr>
<td>4</td>
<td>Team accepts new member by assessing his potential contribution;</td>
</tr>
<tr>
<td>5</td>
<td>Agent leaves a team when there are many members with similar attributes;</td>
</tr>
<tr>
<td>6</td>
<td>Agent always looks for better teams where he could contribute more;</td>
</tr>
<tr>
<td>7</td>
<td>Team tends to expand by mergers when its membership becomes stable</td>
</tr>
</tbody>
</table>

One additional interesting result of their analysis was the discovery that the data fit by ethnicity of gang members matched the data fit by specific server of the Warcraft data – indicating a similar dynamic for a social property that cannot be changed, and can be used as an identifier. They specifically note that “while the behavior of the players in different servers are not too different, there are slight differences indicating some kind of special characteristic of a server or game environment” and that this difference is similar to the differences found between gangs of different ethnic groups (Johnson et al., 2009).

In a similar vein, Jakobsson and Taylor use the analog of the Mafia to describe group dynamics in the MMORPG, EverQuest (2003). Jakobsson and Taylor mention that trust and reputation heavily weight the social networks of guilds in EverQuest. Additionally, membership in a guild comes with an understanding that the guild will assist a member, but that the member must “return the favor” (2003). That is, guild membership comes with a series of responsibilities that reinforce the trust and reputation relationships, and illustrate the member’s dedication to the guild. As previously mentioned, to acquire
membership in a guild often involves a lengthy application process, and can require sponsorship by an active guild member. One way to get this sponsorship is through the smaller groups. These non-persistent groups are often short-term social networks and the mechanism used to meet new people to invite into the larger guild.

An additional mechanism for sponsorship is through offline connections. They briefly note the importance of offline relationships for players of MMORPGs. When another player is a family member or real-life friends, it can add an initial degree of trust that may not immediately exist between other players. Additionally, nationality can play an important role in defining associations within the game. These connections can lead to interesting cross-MMORPG group dynamics. For instance, Jakobsson and Taylor note that entire social-network subgroups have left one MMORPG (EverQuest) to play on a different one (Dark Age of Camelot).

Brignall and van Valey argue that the community and group formation aspects of MMORPGs, in their case World of Warcraft, create an environment that promotes neotribalism (2007). That is, they promote the formation of subgroups within the game with unique group identities, shared common goals, and social organizations that are more complex than simple hierarchies. That is, in MMORPGs, the larger and longer-term persistent groups allow the formation of these more complicated behaviors. The qualities of group identity and goals also add additional dimensions to guild type, beyond the guild lifecycle described by Chen et al (2008).

That is, guilds are not each composed of individuals with the same motivations and interests, but may be specialized around the individuals they contain. This can contribute to a significant amount of “othering” between groups, common to tribalism. That is,
group members collectively recognize their differences compared to other groups, and use those qualities to differentiate themselves into the collectivity descriptions of “we” and “they”. In some case, these collective associations are directly supported by game mechanics, by allowing players to pick a larger faction to be a part of (such as the Alliance and Horde in World of Warcraft).

Additionally, the aspect of identity and interest adds a social factor to group disengagement that is not outlined by Johnson et al. According to Brignall and van Valey (2007), players may leave guilds because they have found another guild whose members more closely match their own interests. This may have nothing to do with the team dynamics of advancement or skill composition, but rely solely on personal factors and personality compatibilities. Indeed, this is evidence that the same factors that contribute to social comparison (Festinger, 1954) and social identity theory (Tajfel & Turner, 1978) in the real world, also result in similar behaviors within MMORPGs.

All of the preceding studies have given views of group dynamics in MMORPGs. They present models that illustrate macro-level group evolution and dissolution, structure and composition of groups, and analogs to these same properties in real-world settings. Likewise, many of them mention the importance of the individual, from how their offline relationships influence their online gameplay, to how their own interests and avatar configurations can alter their place within the group.

At the same time, and as mentioned previously, there are several factors in most MMORPGs that make group formation and composition unnatural. For instance, group association and membership is not entirely open. As an example, in World of Warcraft, players can choose the race of their avatar, but that race is automatically assigned to a
specific faction (Horde or Alliance). In this game, there is no way for the fictional dwarf race to be a member of the Horde. Additionally, and as mentioned previously, player avatars cannot be a member of more than one guild, or more than one group at a time.

These features severely limit the number of potential social scenarios. For instance, even if the avatar started out as a member of the Alliance, there few ways he could switch sides later on to participate as a member of the Horde. Additionally, the avatar has no ability to participate in multiple guilds that each specialize in a different area he is interested in - although the player could do this using multiple avatars, it is still an artificial boundary. Finally, group membership in all the above scenarios was an absolute factor – an avatar was either a member of the group, or not.

While these are limitations on one hand, on the other they are important examples of how technology and organizational constraints can limit or otherwise alter behavior. Group dynamics are largely reflective of the particular context they emerge within. Groups with different purposes, sizes, and stability may have a considerable effect on how each individual member evaluates if they can trust other members (or if the need to at all).

### 3.3 Discussion

One approach has been successful in research involving complex social processes is the use of participatory simulation. This methodology involves creating a simulation

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22 To be clear, this used to be entirely impossible. Blizzard has implemented a system that allows players to pay a flat fee (real world currency) to change factions now. It is possible, but cost-prohibitive to do multiple times.
environment and replacing computation agents with human actors and balances a purely quantitative modeling approach with the addition of qualitative evaluations of human action. Furthermore, by including real people in the simulation, this approach allows for additional variability and creativity in response to the setting and other actors, making it possible to capture a much wider range of human actions than would be possible with purely computational methodologies. This provides a general methodology that supports the following Assertion and Derivation:

assertion I: Participatory simulations allow for modeling and observing behavior in naturalistic, socially complex settings.

derivation A (from Assertion III, Assertion I, Derivation C): Participatory simulations allow for accurate observation and modeling of trust.

To capture the formation of group ties while also both measuring levels of trust and maintaining some degree of environmental control, we need a rich interactive, immersive, computational environment for participatory simulation. MMORPGs fit this description well.

As mentioned previously, MMORPGs already offer functionality and incentive to form social groups. Participatory simulation often uses role-playing to anchor their human agents in the simulated scenarios (Barreteau, Bousquet, & Attonaty, 2001; Castella, Trung, & Boissau, 2005), and an MMORPG would provide an environment to ground these roles.

Game rules can be defined to suit the specific theory being tested, while allowing long-term study of human subjects and social processes in a controlled environment. Additionally, it allows direct comparison of results to data collected from running purely
artificial agents within the same conditions and the same environment. An environment such as this is a powerful way to support the study of trust and group formation over an extended duration with some degree of external validity, while also allowing for the proper experimental controls. In addition, game scenarios allow for experimental study of adversarial environments that pose little risk to the participants, but one that is still comparable to significantly higher risk experiments using traditional methods. Thus, the following **Assertion** and **Derivation**:

**Assertion II:** A MMORPG is a useful and powerful platform for participatory simulation.

**Derivation B** (from Assertion II and Derivation A): An MMORPG allows for powerful observation of trust.
Chapter 4
THEORY

4.1 Trust

A generally accepted definition of “trust” currently does not exist. There is a wide range of definitions with varying degrees of scope given specific context or domain. Castelfranchi and Falcone address what they call “the traditional arrogance of economics” by providing a cognitive model of trust based on individualist beliefs, rather than a simple set of subjective probabilities, or an empty set for economic transactions (2000, 2001). They extend a content analysis (Castaldo, 2002) of definitions for trust with domain specific definitions from several domains, additional literature, and a linguistic analysis of how people in different cultures use the term (Castelfranchi & Falcone, 2010). They use this analysis to critique and extend existing models (Gambetta, 1988; Hardin, 2002; Marsh, Science, & Mathematics, 1994; Mayer, Davis, & Schoorman, 1995; McKnight & Chervany, 2001; Rousseau, Sitkin, Burt, & Camerer, 1998; Yamagishi, 2003; Yamagishi & Yamagishi, 1994) into an integrative domain-general model, which results in three concepts of trust that are interrelated:

- “[A] mental attitude...an opinion, a judgment, a preventive evaluation about specific and relevant ‘virtues’ needed for relying on the potential trustee...”(2010)
- “A decision to rely upon the other, i.e. an intention to delegate and trust, which makes the trustor ‘vulnerable’” (2010) adapted from (Mayer et al., 1995)
• “A behavior, i.e. the intentional act of (en)trusting, and the consequent overt and practical relation between the trustor and trustee” (Castelfranchi & Falcone, 2010)

That is, trust conceptually captures the process of a belief (mental attitude), desire (decision), and intention (behavioral act), or BDI model (Castelfranchi, 2004) presented in Figure 2-BDI Model of Trust.

![Figure 2-BDI Model of Trust](image)

When a trustor trusts a trustee with a delegated task, the trustor draws upon available knowledge of the trustee to form a mental attitude. This attitude structures the basis for making an informed decision and desire to delegate a specific task to the trustee. The process is complete when the trustor than delegates the task to the trustee with the intention that the trustee will complete the task. (For simplicity, the discussion of this model will use task delegation as a standard behavioral act referenced, but there are other behavioral acts, such as knowledge sharing.) In the words of the authors “[trust] is in general all of these things together”(2010).
Specifically, however, this model is defined by a relationship containing five variables, detailed in Table 2, and given the form in Equation 4.1:

\[ TRUST(X, Y, C, \tau, g_x) \]  

4.1

Table 2. Variables in Five-Part Trust Relation, adapted from (Castelfranchi & Falcone, 2010)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>The Trustor</td>
</tr>
<tr>
<td>Y</td>
<td>The Trustee</td>
</tr>
<tr>
<td>C</td>
<td>“A context…or situation…or environment where ( X ) takes into account ( Y )” (2010)</td>
</tr>
<tr>
<td>( \alpha )</td>
<td>An act or performance required to complete the delegated task</td>
</tr>
<tr>
<td>( \rho )</td>
<td>The positive outcome desired by completion of the delegated task</td>
</tr>
<tr>
<td>( \tau )</td>
<td>( Y )’s task, delegated from ( X ), defined as the couple ((\alpha, \rho))</td>
</tr>
</tbody>
</table>

“The specific goal for which \( X \) is Trusting \( Y \)” (2010)

Castelfranchi points out that in this relationship \( X \) must be a cognitive agent, but this is not required for \( Y \) (Castelfranchi, 2004). For instance, \( Y \) might be a door that you trust will close automatically behind you. Combining the general and specific models given, the following definition is derived:
- Trust is a process in which a trustor evaluates whether she can delegate a task to trustee based on the expectation that the trustee will perform actions to complete the task in question. The trustor’s belief is most often rooted in a common history and may be influenced by the sense of a common interest or goal, but not necessarily as a means to achieve a positive outcome towards a specific goal of the trustor.

Transformed into the model of trust in Figure 2, this equation results in Figure 3 found below, the modified BDI model of trust. Here, belief is represented by the specific context of the trustor respective of the trustee ($C_{xy}$), desire is the positive outcome ($p$), which leads to the intentional act respective of the trustor and trustee ($\tau = (\alpha_{xy}, p_{xy})$).

![Modified BDI Model](image)

Figure 3-Modified BDI Model

Additionally, Castelfranchi and Falcone dismiss the notion of binary trust in an individual, and replace it with a situational cognitive model using a threshold of degrees of trust prior to delegation of an activity to another individual (2000). The idea of a trust delegation threshold agrees with and builds upon the influential work of Gambetta (1988) by presenting eight beliefs that influence the degree of trust we have in another individual (or in this case group): (1) competence, (2) disposition, (3) dependence, (4) fulfillment, (5) willingness, (6) persistence, (7) self-confidence, and (8) motivation. While
Castelfranchi and Falcone note that these attributes vary from each individual, their research does not investigate how they vary and if some attributes facilitate more important functions than others. Furthermore, this model only includes trust as associated with individualistic task delegation. These factors, when included in the model result in Figure 4.

![Figure 4-Model including Separate Beliefs and Trust Threshold](image)

In this figure, separate beliefs of the trustor regarding the trustee are aggregated to form a threshold of desire required by the trustor to consider delegating the task to the trustee.

Experiments such as so-called ‘trust games’ that attempt to reduce trust development and interactions to incredibly simple forms result in strategic cooperation and *reciprocity* (Castelfranchi & Falcone, 2010), rather than trust. As Hardin notes, the terms are often confused and not measured separately, “this means that trust is often identified with…cooperation and, because it is not independently measured, it yields no explanation of anything”(2006). He continues by mentioning that, historically, relatively small
communities, and an understanding of communal norms bounded many of our decisions on whom to trust. While these factors have certainly changed in the past hundred years, it does raise the important point that a meaningful representation of trust must include the social context, and cannot be measured in isolation. This builds upon the notion of trust as a multi-level phenomenon that functions between multiple populations, and develops over time. This leads to the following Assertion:

Assertion III: Trust occurs between people within social systems, and as part of social processes.

Social processes influence routine decision-making, including who we decide to trust and to what degree we trust them. Trust, itself, influences our belief in the validity of information provided by an individual or group, and how we use that information to inform our decisions. While we have derived empirical theories from observational data that describe these processes, these theories tend to be retrospective. Additionally, the data collected comes from a wide range of sources with little experimental control and a complete inability to manipulate variables (such as population density, cultural norms, or the availability of knowledge within the environment) – all of which significantly alter the social processes involved. Simon mentions that factors such as these are important, as they change the scope of which the actors will make decisions (1978). That is, people are not able to consider all variables when making a decision, and the ones they do choose to consider can be heavily influenced by the environment.

On the other hand, traditional experimental studies involving trust are much too localized and controlled, and thus unable to capture the mechanisms necessary for long-term trust formation. Consequently, the conclusions that arise from this work have
relatively limited external validity. That is, while the resulting theories may prove valid, they may only be valid under somewhat artificial conditions and may not reflect how the concept actually functions in a real-world scenario. For example, Gambetta critiques experiments conducted by Axelrod, arguing that his conclusions do not reflect real-world situations, and his deduction that cooperation can exist without trust is based on a faulty understanding of how trust is interacting with the study’s participants (1988). In an study by Glaeser et al. (2000), and recreated by Lazzarini et al. (2005), they found that experimental measures of trust did not correlate directly to data collected from an attitudinal survey, suggesting that mixed approaches should be used when studying social phenomena.

Efforts to expand these experiments to larger more immersive behavioral studies are expensive; time consuming; and often rigidly implemented, with strict groups defined by the experimenter (for example, see Haney et al., 1973). This process thus precludes the ability to identify more concretely the generative or contextual factors that influence group formation.

While these studies have provided insights, network science and the complex adaptive systems (CAS) literature (Holland, 1992, 2006) suggest that the relationships between individuals and their individual histories are critical components to both individual decision-making, and the formation of stable social structures and groups. This view is supported by the related study of generative social system modeling (GSSM) (Epstein, 2006), which emphasizes the evolution and emergence of larger scale social phenomena from the interactions of individual agents.
Both of these approaches view larger social system phenomena as properties that emerge based on actions between individual agents, and in the case of GSSM that each agent makes decisions that include an understanding of other agents directly involved in the potential activity. While this is a useful view, it is also somewhat incomplete. In addition to viewing every other individual agent separately, agents should also perceive, and react to changes in the larger social systems that affect them at different levels.

Research in both organizational science and social support provides evidence that trust arises from interactions and observations occurring at different levels of society (e.g., a personal connection influencing my perceptions of Penn State and thus those who have studied there). We see this kind of interaction repeatedly in alumni networks where perceived multi-generational membership can positively or negatively influence hiring outcomes. For instance, we can imagine a member of a hiring committee who happens to be a Penn State alum giving more attention to an applicant who recently graduated from Penn State. In this case, the committee member’s actions may not be the consequence of an explicit set of decisions but rather an unconscious bias triggered by familiarity. Even in a relatively simple task-delegation scenario between two individuals, there are several social levels of trust influencing the decision. For example, a person may have a general predisposition to trust others, but the degree of trust in a specific relationship is often mediated by group affiliation (for example, a doctor is part of a larger system of health-care providers who are all part of the field of medicine (Hall, Camacho, Dugan, & Balkrishnan, 2002)). We can see the effect of general group membership on trust ties in the African American community. Members of this community have historically had more skepticism regarding the intentions of health care providers because of the long
history of medical abuses suffered by African Americans (Beiyao Zheng, 2002; Hall et al., 2002). This provides basis for Assertion II:

**Assertion IV:** Trust is a multilevel phenomenon.

Recall equation 4.1. To explore this definition the context variable ($C$) is highly important, since it is directly related to the first step in the task delegated trust general trust model. It includes not only all the information that the trustor has about the trustee but also the historical context of the relationship between them and the other actors and entities in the simulation. Historical context between agents and groups of agents is a critical component of both CASs and generative social modeling. While this means it may be difficult to predict the specific interactions between any given trustor and trustee pair, an aggregate view of the system may be used to derive patterns of trust that relate to identifiable contextual factors in the formation beliefs by trustors with regards to trustees. That is, while knowledge of the attitudes held by the trustor concerning the trustee cannot yield a precise prediction of any one trustee’s likelihood of delegating a trusted task at a given time, they can be used at a system level to understand patterns of trust that arise in specific contextual situations. Additionally, they can be utilized as a retrospective measure to analyze why a particular decision may have been made. This requires a better understanding of how belief affects the trust process.

The mental attitude component is broken down into several categories of different beliefs. The core trust beliefs, fundamental to all other evaluations, are the trustor’s belief in the competence of the trustee, and belief in the predictability of the trustee (Castelfranchi & Falcone, 2001, 2010). That is, does the trustor believe that the trustee is capable of completing the task and actually willing to do so? Competence is an
evaluation that the trustee has the required skills, knowledge, and abilities necessary for the task. Many cultures codify and legitimate competence into official titles, training, and certifications. For instance, medical doctors are recognized as having a certain level of competence simply by their degree or salutation (Dr., MD, DO, MBBS, etc.), and can have board-certified specialties that indicate a higher competence in a specific area (for instance, cardiology and nephrology). This codification is evidence that people actively engage in making trust a multi-level concept (Assertion IV), and that they also develop new social processes (Assertion III) for managing trust relationships, leading to the following:

Assertion V: People actively attempt to manage trust relationships and beliefs as part of social systems.

That said, it is important to point out that competence is a combination of the factors listed above; for example, one can be very knowledgeable in human anatomy, and surgery, but not actually able to perform the specific act.

If the trustor believes the trustee is competent, does the trustor believe that they are willing to complete the task? In a perfect world with no (and no history of) deception or interference, these evaluations would be simple. If unknown, the trustor could ask the potential trustee what her skills and plans are, evaluate their abilities versus the task requirements, and request the trustee complete the task. Firstly, the trustor must believe that the trustee intends to complete an action. Castelfranchi and Falcone (Castelfranchi & Falcone, 2010) call this willingness and part of the predictability belief. This requires knowledge of the trustee’s skills, attitudes, and past behaviors. To formulate this belief,
the trustor must have an understanding of how the trustee will act given a specific context and situation.

Secondly, *persistence* indicates that the trustor must believe that the trustee is committed to an action in a predictable manner. That is, that the trustee has no objections to the action, that there is no historical or contextual factors that may interfere with the task, and that the personality of the trustee does not predispose him to random, unpredictable actions. Lastly, the trustor must believe that the trustee is aware that they are able to perform the task (*self-confidence* belief).

To illustrate the predictability beliefs, the following sports analogy is used: Julio and Mark are both American football players. Julio is in possession of the ball, and needs to successfully pass before he is tackled. He believes that Mark is a skilled and knowledgeable player (*competence*), is motivated by a strong desire to win the game (and likely to *persist*), and has never missed a pass (so is likely to be *self-confident* in his own abilities). These factors should all add up to a positive trust belief by Julio towards Mark. However, since Mark is on the other team, Julio does not believe that he is properly motivated and willing to perform the action Julio wishes to delegate to him.

In this example, all of these factors allow Julio to form a predictive model of Mark’s possible actions and deduce that while he may be able to catch the ball, and has a strong desire to win, he is not willing to help Julio win. This illustrates that evaluations and formations of these beliefs are not always simple. Competence in a skill cannot always be reduced to a simple number, and activities might be considerably more complex, potentially requiring not only multiple skills but also adaptations to an array of situational factors. Additionally, although a potential trustee might accept a task, acceptance is not
necessarily an indication of the trustee’s willingness to perform the task, relative to the trustor. That is, the willingness and disposition of the trustee is composed of factors such as the pre-existing history between the two. Rather than a simply an evaluation of the trustee’s skills and timetable, the trustor must evaluate if this specific trustee, in this specific circumstance, is willing to accept a delegated task from the trustor. Many factors could lead to a specific trustee’s unwillingness to aid a specific trustor. For instance, the degree of risk associated with the task, different cultural backgrounds, or different group associations all could lead to reluctance or unwillingness on the part of the trustee.

Building on the core trust beliefs are the reliance beliefs. The first of these is the dependence belief. This is the belief that the trustor’s task must be completed. Dependence, in this model, is characterized as either strong (the task is necessary) or weak (it is better to rely on the trustee to complete the task than have the trustor to complete the activity). The second of these is the fulfillment belief, which is an evaluation by the trustor of the trustee’s intention to complete the task. Scammers and con artists have abused the fulfillment belief for centuries by promising activities that they never plan on completing. Given the trustor’s individual history of experiencing deception, he or she may be more or less accurate in evaluating a potential trustee’s trustworthiness. Further, the trustor may generalize an experience of deception to more than one context, with the perceived applicability of this experience being based usually on some notion of similarity. For instance, a trustor may not believe a potential trustee will fulfill the task because that trustee seems either similar to or acts in a similar fashion as another individual to whom the trustor had previously unsuccessfully delegated a task. Thus, the tendency to trust or reluctance to trust is likely to be context dependent.
If we consider reliance beliefs, we can begin to see the difference between what we call trust and cooperation (strategic or otherwise). If the trustee should fail the task, and the trustor is relying on it to succeed, then the trustor is damaged in some way by the trustee’s actions or inaction. Without reliance, an individual only has an evaluation of a potential trustee, positive or otherwise (Castelfranchi & Falcone, 2010). Castelfranchi and Falcone (2010) further illustrate that, while these beliefs are internally attributed mental states, it is important to remember that the trustor must also consider contextual and environmental conditions (externally attributed). For instance, the trustee must have appropriate opportunities and resources to complete the task. Additionally, the level of outside interference may significantly impact their ability to complete a given task. The trustor must consider these factors when deciding to trust another individual with the task. That is, the level of trust required to delegate a task to a trustee is variable depending on the specific circumstances and context confronting the trustor.

To this end, Castelfranchi and Falcone propose when modeling trust formation to apply a variable threshold to represent the trustor’s acceptable level of risk regarding the delegation of a given task. Applying such a threshold enables the model to represent instances where the trustor generally trusts a potential trustee, but not to perform the task in question. Williams (2001) also advises using a variable threshold but adds an additional dimension, the motivations of the trustor. For instance, we can imagine certain factors such as a sense of urgency regarding the completion of the task would likely lower the threshold generally applied to trust decisions. This suggests that in fast-paced highly competitive environments, the degree of trust required to admit a new member to a group might be considerably lower than in a slower, more cooperative situation. This tendency;
however, might be offset by the fact that highly competitive team environments often require a significantly higher level of trust between group members.

While Castelfranchi and Falcone (2000) assert that trust cannot be modeled by simple global probabilities, this does not exclude other forms of computational modeling. They, in fact, provide a description of some of the individualistic measures that do affect trust, resulting in the agent-based cognitive model described above. Their socio-cognitive model of trust follows along the lines of a Belief, Desire, and Intention (BDI) model. In this context, belief is not simply a set of beliefs about the trustor’s environment but also includes beliefs about the potential trustee: their desires, intentions, and group associations. BDI agents can exhibit many of the characteristics found in CAS systems, and not surprisingly have been used to model CASs (Yang, Hussein, Sarker, & Barlow, 2005). For instance, a BDI agent that is capable of learning new information (declarative memory) and inferring rules from this information is also capable of not only evolving over time as it learns but also potentially anticipating the actions of other agents. These individual properties allow for aggregate behavior, and thus support all three of the properties that characterize CASs. Similarly, many BDI agent designs have utilized the five factors noted by Epstein (2006b): heterogeneity, autonomy, explicit space, local interactions, and bounded rationality. Under these conditions, a cognitive model of trust would be well suited for modeling at the individual level a complex, adaptive, and emergent social system.

While at an individual level, a BDI model provides a reasonable basis for modeling a dyadic trust decisions. BDI models as a rule generally do not model any kind of systematic predisposition to trusting behavior, arguably a key component for modeling
trust decisions occurring in larger groups. While examining trust related to medical care and health insurance, researchers have found that individuals in the study had a predisposition for trusting other people who they associated with a larger group or institution, i.e. group affiliation can powerfully influence an individual’s likelihood of trusting an individual member of that group (Beiyao Zheng, 2002; Hall et al., 2002). For example, I am more likely to trust any one doctor if I am already favorably disposed to doctors as a class; the literature also suggests that the inverse is true. Consequently, we can think of trust not only as a multi-level phenomenon (Assertion IV) that people actively manage (Assertion III and Assertion V) as group members but also that people use group membership itself as a simplifying heuristic to manage trust decisions (whether to trust and to what degree) amid all the other time sensitive activities they have to perform.

We can see this in communities of practice (Wenger, 1998); common practitioners operate in a shared skill domain and thus can quickly verify competency, frequently they know many people in common, share many of the same goals, and can rely to some degree on group pressures to ensure normative behavior. Communities of practice also illustrate the powerful influence that roles and role playing have on behavior because trust decisions are made based on a history of mutuality in the group not necessarily on an extensive personal history. Consequently, trust decisions occurring within the context of the group can be made rapidly which facilitates an openness to exchange and discuss knowledge related to the practice.

This is not entirely surprising. Simon’s work (1956, 1991) on bounded rationality provides some insights here. Individuals simply do not have the cognitive capacity to
evaluate every possible option for a decision, especially given the number of time sensitive decisions we confront on a daily basis. Additionally, although the exact cognitive mechanisms behind pattern matching are still a matter of debate, we do know that people match visual stimuli to similar patterns and that they generalize the properties of those stimuli (or stored patterns). We can see this tendency to generalize based on pattern analysis also operate in social decision making in the form of in-and-out-group biases. Group membership informs the initial impressions towards an individual, based on what a trustor knows about the more general groups with which he or she associates the potential trustee.

According to Erik Erikson’s Eight Stages of Development (1950), individuals may begin developing a sense of trust early in their lives. This sense may influence the individual for many years but can change based on significant experiences. Citing Rotter (1971, 1980), Kramer (1999) also claims that early experiences heavily influence an individual’s disposition towards trust. We can represent this in a socio-cognitive model by using a baseline trust metric and developing a mechanism for changing that metric based on subsequent events, potentially weighting the influence of earlier events more heavily (informed by empirical studies); this evolving metric would moderate the agent behavior and potentially system behavior. Gambetta (1988) supports this notion of predisposition, arguing that humans tend to exhibit trusting behaviors when there is no pre-existing relationship to influence their behavior. Gambetta, thus, differs with Axelrod’s assertion (1981; 1985) that cooperation can form without trust. Rather, Gambetta would argue that trust underlies cooperation until mutual history leads to alternative evaluations, with strategic cooperation based on the perception of mutual incentives despite feelings of distrust being only one outcome.
Finally, predisposition has been shown to be a reliable indicator of many individual human activities, including trust. For example, as a component of predisposition, personality, Mooradian et al. found a significant correlation between the agreeableness personality factor with interpersonal trust of coworkers and management in an organizational setting (2006).

We thus need a trust model that also has a model for predisposition. Predisposition should be modeled by stipulating both a baseline tendency towards trust and mechanisms for changing that tendency based on personal history. For the mechanisms governing changes to the baseline to be effective, the model must support pattern matching and inferences based not only dyadic interactions but also larger group interactions. This, and including a predisposition to trust formation, further develops the model of trust resulting in Figure 5.

![Figure 5-Context Expanded Model](image)

The trustor’s beliefs concerning the trustee ($B_{xy}$) become a function of both the social context ($C_p$) and the trustor’s predisposition to trusting behavior ($C_s$) resulting in an expanded context between the trustor and trustee ($C_{xy}$) and resulting in Equation 4.2.
\[ C_{xy} = B_{xy}(C_p, C_s) \]  \( 4.2 \)

Theta (\( \Theta \)) represents the threshold required to delegate a task to a trusted individual. It can be broken down further as a measure of the potential \textit{perceived} utility of delegating compared against not delegating (Equation 4.3).

\[ \Theta = U_1 > U_0 \]  \( 4.3 \)

The threshold is exceeded when the utility of trusting an individual with a delegated task is greater than the utility of not trusting the individual.

A useful representation of that utility is given by Steel and König (2006). Their Temporal Motivation Theory (TMT) integrates several models of motivation into a single equation that represents the motivation to make any particular decision (Equation 4.4).

\[ U = \sum_{i=1}^{k} \frac{E_{\text{CPT}}^+ \times V_{\text{CPT}}^+}{Z + \Gamma^+(T - t)} + \sum_{i=k+1}^{n} \frac{E_{\text{CPT}}^- \times V_{\text{CPT}}^-}{Z + \Gamma^-(T - t)} \]  \( 4.4 \)

Here, the first summation represents the expected gains of the action, while the second is the transformed expected losses associated with the action. The dividend of the summation (\( E_{\text{CPT}} \times V_{\text{CPT}} \)) is a modification of Expectancy Theory which denotes the probability that the desired outcome is achieved (\( E \)) multiplied by the value of that outcome (\( V \)). This adaptation, called Cumulative Prospect Theory (CPT), modifies expectancy theory by including the notion that people frame prospective outcomes based on a relative point which is developed based on prior experience (Tversky & Kahneman, 1992). While the CPT terms are already somewhat relative, Steel and König include a divisor (\( Z + \Gamma(T - t) \)) which indicates an individual’s perception of how time affects this
decision. The function of Gamma (Γ) reflects their sensitivity between the current time (t), and the time that the goal of the action is achieved and a reward gained (T), while Z is a constant representing instant gratification. As an individual becomes more sensitive to the time remaining to complete the task (as Γ(T − t) shrinks) then the task becomes more important to complete.

The inclusion of TMT within the model is a natural fit. A feature of the initial theory of trust that has thus evolved includes the notion of comparing utility as per Equation 4.3, while also including the idea of differencing levels of performance (Castelfranchi, 2004). The extensions to this basic comparison provided by TMT further enhance the model.

For instance, the time sensitivity of TMT and the framing effect included from CPT result in a context specific to that specific task, relative to a specific moment in time, and influenced by the other contextual parameters in the trust model in this proposal. Additionally, this task context (C_t) has a significant effect on the trustor’s motivation to delegate a task, altering the threshold required to delegate. See Figure 6 for these modifications.
These factors are important because they extend social process modeling via CASs to not only including historical context between individual agents, but also the historical context of how an individual agent views the structural systems within which it interacts, as well as how each individual forms and evaluates abstract groups of collective others. This supports what Castelfranchi’s and Falcone’s (2010) call for modeling “the recursive nature of trust”. We see this recursive process within equation 4.2 in the feedback loop informing the three major model components: the personal predisposition towards trusting behavior, the personal trust beliefs regarding this specific trustee, and the more general social context. Additionally, if trust is recursive and iterates as Castelfranchi and Falcone claim, then we have further evidence for Assertion III: Trust occurs between people within social systems, and as part of social processes.

The general social context includes the influence of group-level and cultural-level for norms, sanctions, and power, as well as the overall group attitude towards both the trustor and the trustee. Additionally, while it is not represented in the figure, the social context
may be highly interrelated to the formation of personality and social development. Equation 4.5 represents the feedback loop and the associated reinforcement learning. The first parameter ($\alpha_{xy}^t$) represents the previous level of trust from the trustor to the trustee, the second ($d_{xy}^k$) represents the delegated task, and the third ($O(d_{xy}^k)$) represents the outcome of delegating the task.

$$\alpha_{xy}^{t+1} = f\left(\alpha_{xy}^t, d_{xy}^k, O(d_{xy}^k)\right)$$  \hspace{1cm} 4.5$$

This value then influences the reference point in the utility equation ($U$) given by CPT ($E_{CPT} \times V_{CPT}$) for the next interaction between the two individuals ($t + 1$) in either a positive or negative manner, and given in Equations 4.6 and 4.7.

$$\Delta_{xy}^+(\alpha_{xy}^{t+1}) \rightarrow \Delta^+(E_{CPT} \times V_{CPT})$$  \hspace{1cm} 4.6$$

$$\Delta_{xy}^-(\alpha_{xy}^{t+1}) \rightarrow \Delta^-(E_{CPT} \times V_{CPT})$$  \hspace{1cm} 4.7$$

Similar feedback is expected for the other two levels. However, because none of the levels exist in isolation and thus interact with the others, it should be noted that the degree to which behavior is reinforced will vary both between and across levels. CAS and structuration theory (Giddens, 1984) both provide support for this view, suggesting that systems become less inclined towards changes as they become more broad and complex, and as they develop a richer collective history. For these reasons, we would expect that changes to predisposition would occur the most gradually ($\Delta_p$), followed by changes to the social context ($\Delta_s$) and finally changes to a specific trust relationship ($\Delta_{xy}$) as shown in Equation 4.8.
Additionally, Festinger (1954) describes a relationship between these factors, noting that groups will attempt to reduce discrepancies between their general views and any given member’s, while also noting that individuals gravitate towards groups that share their beliefs. This suggests that the influence of the group plays a key role in the development of trust towards an engaging outsider, and that the outcome of a delegated task reinforces beliefs about individuals and groups. Since people tend to engage in society as members of many groups, rather than completely isolated, this could have a significant impact on their development of trust.

Even early on in our lives, we are participating in relationships that are part of larger social systems. Giddens (1984) suggests that trust is a foundational component of ontological security, which is the belief that “the natural and social worlds are as they appear to be…including self and social identity”. He agrees with Erikson that trust develops very early in our lives, adding that it forms a foundation for how we perceive the social structures around us and how those structures influence our decisions and perceptions of trust. Furthermore, both structuration and social comparison theories indicate that individuals respond to their perceptions of social qualities, which in turn can result in a change of these qualities. According to these theories, it is difficult to separate the relationship between individuals from the relationship between an individual and the group.

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23 To be clear, Giddens directly cites Erikson as the foundation for his argument.
If the different levels of trust are interrelated as we have described, and change at different rates, the evolution of trust is not only part of social processes (Assertion III), but also includes the integration of associated social systems at different levels (Assertion IV). That is, accurately modeling trust not only requires a representation of the recursive learning process, but also a representation of the social systems in which the individuals are embedded, supporting Assertion III that trust exists within social systems.

Including these factors into the trust model yields the collapsed model in Figure 7.

![Figure 7- Collapsed Model including Feedback](image)

Thus far, this model has been developed while including only task delegation as the behavioral act. A comprehensive model of trust includes additional acts, such as knowledge sharing. According to Castelfranchi, “knowledge sharing is both a state resulting from a process/activity and the process/activity itself”(Castelfranchi, 2004). With this assertion, he also includes the notion that trust is a two-way behavior, in that the trustee must make a decision to trust the trustor as well, by accepting the knowledge as accurate and true. A similar situation would be indicated in task delegation as well – the trustee must actually accept the delegated task, and trust the trustor’s intentions.
This co-relationship can be represented as a sub-model by taking the current model and inverting all of the trustor-trustee relationships with the exception of the action being performed (as seen in Figure 8-Trustee-Trustor Sub-model).

![Figure 8-Trustee-Trustor Sub-model](image)

With the sub-model established, it can then be included into the existing trust model which is additionally extended by adding acceptance of task as a factor, in which the trustee can either accept or pass on the task (Figure 9- Inclusive Model).

![Figure 9- Inclusive Model](image)
For the complete expanded model, see section B- Expanded Model of Trust. For the model expressed in predicate logic notation please see Appendix C- Predicate Logic for Expanded Model of Trust.

While it may not be feasible to capture the entire set of beliefs about collective others that an individual has formed, it is reasonable to gather data on a few specific collective others: the general collective other, and the system of collectives that is specific to the community under investigation.

A common method used to model and research trust is human experimentation involving simple games such as the Prisoner’s Dilemma (PD) and variations. However, these provide an inaccurate representation of trust in a task delegation scenario. Specifically, they model weak task delegation. However, in a natural social situation, weak task delegation generally requires a very deep understanding of the trustee by the trustor. PD experiments often utilize participants with no previous relationships, artificially negating the core factor used in the type of delegation decision they are measuring.

4.2 Sociological Lens – Structuration Theory

There are several important properties of the trust model that have been discussed and developed thus far. Firstly, it has been established that any cognitive evaluation of a potential trustee is inherently influenced by past activities and knowledge of the relationships that trustee may have with other individuals and groups. Additionally, that evaluation is further influenced by the social context (such as specific time, space, and social positioning) that embeds the decision to trust as well as the context of the specific
task being delegated. This context itself is spread across multiple social levels (individual and multiple levels of groups). A sociological lens to view such a phenomenon needs a way to view these recursive relationships across multiple levels situated in a social context.

Giddens’ structuration theory (1984) emphasizes these concepts as core features in a broad theory of how society functions. Structuration theory dismisses the more classic notions that social behavior is the result of either only agency or only social structures and provides a social process model that unites the two concepts. Individuals are neither entirely autonomous nor entirely driven by their society and culture. Instead, this follows a recursive process. Agents reproduce social structures by instantiating them\(^{24}\). Then they evaluate their interactions within society and internalize their experiences and observations which will influence, but not determine, future decisions and how they instantiate social structures. In this manner, structuration theory captures the requirement of supporting recursive socially influenced processes. This feature directly corresponds to the multilevel nature in the discussed trust theory, as well as the time-sensitive nature of the previously discussed temporal motivation theory (TMT) (Steel & König, 2006).

Another important feature of structuration theory is its emphasis on the importance of social context to behavior. Structuration supports the notion that our behavior is heavily influenced by the specific location, timing, and social positioning of an intended action. These determine which group and authority relationships we may be considering at the

\(^{24}\) Giddens’ structuration theory uses a somewhat non-standard definition of “social structure”. He insists that they only exist during instantiation by an agent and the “chronically reproduced features of a social system” (Giddens, 1984, p. 288) are instead treated as “structural properties”. While this might seem somewhat awkward, the distinction between the two allows for an additional level of analysis and observation.
time. Through the consideration of social positioning, we also tend to take on multiple social identities in our daily lives, changing how we behave in any particular situation (time/space) with consideration to the people present and the roles they play with respect to the current social and task contexts.

In addition to locale and regionalization of activity, structuration theory provides three dimensions that can be used to analyze and categorize behaviors. Each has a structural side:

1. **Signification** – structures of communication, symbolic reasoning, interpretive schemes
2. **Domination** – structures of authorization, allocation, power
3. **Legitimation** – structures that support the presence of social values and norms

This is connected to an agency side through an interaction:

1. **Communication** – interactions between agents that provide information for interpretation
2. **Power** – interactions that exercise an agent’s ability to control the actions of another agent
3. **Sanction** – interactions where one or more agents exact a penalty on another for violation of an established social norm

The connection itself is made through a modality. Modalities are the internal or external tools that allow translation and expression between a structure and interaction:

1. **Interpretive scheme** – translation of internalized concepts and abstract ideas into a format that can be communicated
2. Facility – rules, laws, and other tools that provide an individual or group with the ability to exercise power over another

3. Norm – socially accepted values and normative behaviors

Using structuration theory as a functional sociological lens presents some challenges. Obviously, the recursive nature of the theory makes it difficult to find an entry point, and it certainly does not allow for carefully controlled experimental studies. Instead, Giddens’ suggests the use of strategic conduct analysis: “[in] the analysis of strategic conduct the focus is placed upon modes in which actors draw upon structural properties in the constitution of social relations” (Giddens, 1984, p. 288). He mentions that careful attention should be paid to three areas: “the need to avoid impoverished descriptions of agents’ knowledgeability; a sophisticated account of motivation; and an interpretation of the dialectic of control” (Giddens, 1984, p. 289). That is, a researcher should provide detailed descriptions of the information available to the agents, their motivations, and what they know about the social power and authority structures in a given situation.

The basic principles of structuration theory and strategic conduct analysis present a useful framework for viewing and analyzing the interactions of individuals in various social contexts. However, as many have noted the core literature of structuration theory does not include a description of how technology interacts with agency or social structure. In an age when technology and new forms of information are continually woven into both our personal and professional lives this is a necessary component for a holistic view of any type of human behavior. When the social context involved exists primarily as a virtual representation within technology (such as an MMORPG), this factor

25 The degree to which an agent behaves autonomously or chooses to be dependent (Giddens, 1984, p. 16).
becomes increasingly important. It also raise an interesting question: how much of a person’s decision making can be attributed primarily to factors of the virtual environment? In the context of trust within an MMORPG: how do the game’s features affect the decision to trust or not? Do certain features reduce or increase the need for trust?

Organizational science provides one of the most notable attempts to rectify this deficiency introduced the concept of “the duality of technology” (Orlikowski, 1992). This perspective used structuration theory within a framework of interpreting the role of information technology in organizations.

In a manner similar to how Giddens defines the duality of structure, Orlikowski posits that technology is often viewed in a false dichotomy “as either objective force or as socially constructed product” (Orlikowski, 1992, p. 406). Instead, she suggests that technology is in fact both – created by agents and presenting representations of social forces. In this way, technology can be an integrated part of the recursive nature of structuration theory, flowing between agent and social structure. Importantly, she notes that technology is not typically static, and can be (usually is) modified after deployment to end-users. Often organizations and/or users provide information that is critical to the design of software. With a flexible look at technology, it is important to consider that users (and their feedback) may also have direct impacts on additions or modifications in future versions of that technology. This completes the feedback loop from agent to

26 Additionally, she mentions that this notion is typically contrary to the disconnected stages of the software development lifecycle that, at the time, was heavily used (generally variants of the Waterfall development method). In more recent years, many developers have transitioned to “agile” and “iterative” methodologies and descriptions that explicitly contain the properties and modifiability she claims technology typically has.
technology – agents create and influence the creation of technology; technology effects change in behavior of agents; through their use of technology, agents effect change in it during the next iteration.

Taking this a step further, she also includes the notion of interpretive flexibility to describe the relationship between the constitution and use of technology, and the agents creating and interacting with it. Users can generally choose how and to what degree to interact with a given technology, based on their interpretation of what it does, and how it can be useful to them, bounded (restrained and enforced) by organizational rules and guidelines (organizational structures of domination and legitimation).

This idea can be applied to MMORPGs in a few different ways. First, while there may be a multitude of conceptual organizations at work influencing an individual within the game world, it is useful to limit the scope. The primary originator of the technology, the game studio, can be viewed as a top-level organization. They share many of the same properties and roles as other organizations – creation of the technology through understanding of potential users, limited creation, and enforcement of behavioral norms “within” the technology/organization, responding to and incorporating feedback of users, and providing mechanisms for self-management of internal groups. In structurational terms, the game studio suggests initial organizational structures of legitimation, enforces certain structures of domination, and often provides the means of interpersonal communication and the basis for interpretive schemes (signification) as well as through game features and the design of the virtual world itself.

An example of the recursive duality of technology is given in Section 3.1. Restated here, Taylor observed that players took advantage of features presented by their game
world, EverQuest(2006). In this environment, travel to different virtual locations for most players was a very time consuming process. The game provided players with certain specializations the ability to transport other players very quickly to remove areas (institutional conditions of interaction with technology (Orlikowski, 1992)). Those players in turn began providing transportation as a service with an economic cost. This activity was not an intended function of the design of the game and was observed by the game studio. Eventually, they created a system within the game to provide alternative methods of travel (institutional consequences of interaction with technology, (Orlikowski, 1992)). As a result, the player-created activity of the sale of transportation disappeared, completing the casual loop: agent $\rightarrow$ technology creation $\rightarrow$ technology appropriation $\rightarrow$ agent feedback $\rightarrow$ technology adjusted due to feedback.

Guilds (and similar groupings) operate somewhat like semi-autonomous departments embedded within that larger organization. The game (through the design of the studio) provides the functional means for players to form groups by giving them features to facilitate their creation, dissolution, and management. That is, these features provide players with the means to exercise power and sanctions on each other within their self-defined guilds and groups. This often includes the flexibility for players to define their own systems of leadership, roles of organizational dominance, and mechanisms for sanctions within the game environment.

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27 Guild membership may not be entirely constituted within a game environment and may cross over into multiple games or reflect real-world organizations or social media affiliation. While an interesting topic, the discussion of the effects of multiple overlapping social identities and their semi-permeable nature is beyond the scope of this document. This would be a good area for future research.
Structuration theory and the duality of structure provide powerful descriptive tools for analyzing interactions involving people and technology. Adaptive Structuration Theory (AST) can be used to help frame this within the context of trust behavior (DeSanctis & Poole, 1994). While specifically designed to explain organizational behavior relating to technology appropriation, AST also provides an additional level of detail expanding what Giddens called social positioning. AST claims that in addition to the technology itself, there are other intrinsic sources of structural properties\(^{28}\). Particularly, that the use of a technology is constrained through structural properties provided by the given task needed to be completed and the organization environment that the task and technology are constituted within.

AST presents structuration within the frame of advanced information technologies. However, it is unclear that such a restrictive term is necessitated. Any tool that is provided for the context of a task, constrained by an organization should retain the properties of ASTs propositions. Broadly, AST could apply throughout history to include the appropriation and use of tools such as the hammer, the wheel, and even fire.

And what is a tool? Simply, it is something that we delegate (in whole or in part) a task to for the purpose of insuring task completion or increasing efficiency. It provides us with an alternative (often better) way to complete a task. This is exactly the purpose of delegating responsibility to a trustee within the socio-cognitive trust model\(^{29}\). We may consider more carefully when the focus of our potential delegation is cognitive, but in a

\(^{28}\) DeSanctis and Poole utilize the terminology/phrase “sources of structure”, but this usage does not match the established definitions from Giddens. For consistency, this document will refer to structural properties in place of their usage of structure.

\(^{29}\) Recall that the socio-cognitive trust model does not require the potential trustee to be a cognitive agent.
trust-scenario they are effectively operating, in part, as a technology to complete a task. With this in mind, the sources of structural properties that AST mentions are an ideal match to the socio-cognitive trust model, since it also propositions that task and social context directly influence the decision to trust. The primary difference one would expect to see when dealing with a person, rather than technology is that delegating to a person may have wider-reaching social repercussions.

DeSanctis and Poole mention four aspects for technology appropriation

1. Appropriation moves – the method that the structural properties of the technology are adopted or understood
2. Faithful or unfaithful appropriation – how well the use of the technology matches the designer’s intention
3. Instrumental use – how the technology is actually used and the meaning derived from that use
4. Appropriation attitudes – how attitudes towards the technology change as its appropriated

These four aspects also show up in the socio-cognitive trust model during the decision to delegate a task while considering the trustee. (1) Is concerned with understanding the other, relating what one knows about another to past experiences, and socially comparing oneself to that other which is part of the role of social development and social context within the trust model. (2) Provides a mechanism for understanding the interaction between the task context and social context of the trust model. Within these contexts, should the trustor be asking this
potential trustee to complete this task? Is this part of their responsibilities within
the organization? Is this activity an intended part of both individuals’ association
with the group? (3) Develops this idea further. Are their potential social
repercussions resulting from the success or failure of this trustee to complete the
task?

The final component (4) is almost a direct analogy for some of the core trust
beliefs. AST provides a non-exhaustive list of potential attitudes: confidence in
their use of the technology, perceptive value of the technology, willingness to use
the technology despite challenges. Replacing the technology with an evaluation of
a potential trustee, these are not dissimilar to the core beliefs of competence and
predictability (disposition, willingness, and self-confidence). In a way, this makes
quite a bit of sense. The appropriation of technology could also be described as an
act resulting from how and to what degree users trust the technology to handle a
delegated task. It is not surprising to see that others have noted that trust is an
important factor towards technology acceptance (e.g., Gefen, Karahanna, &
Straub, 2003) and that this extends to the use of virtual worlds as environments
primed for cognitive absorption (Chandra, Srivastava, & Theng, 2012).
Adapted from DeSanctis and Poole, a structurational analysis of behavior within an online multiplayer game would begin with:

1. A description of the features of the game related to the behavior or activity being studied
2. A description of other available sources and instantiations of structural properties
3. A description of the group composition and organizational components (leadership systems, potential sanctions, etc.).

Since this proposal is exploratory in nature, and information about trust behavior is likely to come more from hypothetical scenarios rather than from actual observed behavior, the remaining steps would diverge towards this end.

4. Develop hypothesis about potential behavior
5. Assess and clarify cognitive beliefs within a hypothetical scenario
6. Refine and modify trust theory with new hypotheses

Structuration theory, the duality of structure, and AST provide powerful abstract and descriptive tools to facilitate these tasks. With regards to trust, a researcher should note the specific time/space of an interaction, the institutions or groups that may be influencing that interaction, rules and norms, social and institutional relationships and networks, and any authority or power forces that might be in effect during the interaction. This emphasizes the importance of developing a complete case and participating in discourse with the participants of
that case to better understand the information that they are considering. Additionally, AST provides a coding scheme that can be used to code interviews and questionnaires responding to the proposed hypothetical scenario. Additionally, it can also be used to assess how a potential trustor is considering the features of the environment during a potential trust decision.

As an example, a common occurrence in MMORPGs is running out of space to carry virtual items. Often, there are places where an avatar can drop off or transfer items to regain space. However, these generally require quite a bit of travel and may not be opportune. If the player does not wish to leave their current location, one option is to ask another to transfer or hold onto some items for them. For a structurational look at this scenario from a trust context, one might consider the following:

1. Does the game provide any features that ensure that the trusting player will eventually recover their transferred items (environmental structural properties, structures of domination over the trustee)?

2. Does the game provide features that allow an associated group (or guild) to enact punishment if the item is not returned to the trustor (environmental structural properties supporting organizational structural properties, structures of domination and legitimation)?

3. Does the game provide any means for the player to enact a sanction on their own if their items are not returned (environmental structural properties facilitating interpretive schemes during the decision, structures of signification and legitimation)?
4. Are their social structural properties embedded within the group that the game does not provide which allow sanctions (organizational structural properties, structures of domination and legitimation)?

5. How could the features mentioned effect the trust beliefs of the socio-cognitive trust model? Do they change the degree of reliance on certain beliefs?

Additionally, each of the features or sources listed could be further analyzed to better understand how the player interprets their usage. Even if a feature exists for a purpose, it might be socially inappropriate to invoke it because of properties of the social context. For example, it might be accepted social practice for a player to keep some of the items transferred as payment.
Chapter 5

METHOD

5.1 Methodological Approach

A major problem identified by many trust researchers is a lack of appropriate experiments that truly model and measure trust (Castelfranchi & Falcone, 2010; Hardin, 2006; Luhmann, 2000). They agree that the reductionist approach used in many “trust games” causes important social and cognitive factors to be lost, resulting in a model that does not represent natural trust but instead only illustrates an artificial kind of strategic cooperation. Assertion III and Assertion IV affirm that trust is complex, and integrates social phenomena across multiple levels, which certainly supports the view that current economic trust games are inadequate. Edmonds (2001) suggests that shortcomings such as these can be the result of unsuccessful attempts at more complex scenarios, or simply the lack of a proper methodology to support the concept the researcher is attempting to capture. Combining this with Assertion III and Assertion IV results in the following:

Derivation C (from Assertion III, Assertion IV): Experiments lacking complex social contexts do not accurately model the formation of trust.

To this end, a study of trust must not be an experiment reductio ad absurdum, and should integrate both quantitative and qualitative data collection (Goudge & Gilson, 2005).
To support a naturalistic\footnote{Naturalistic here is used to describe not simply an event that occurs within its natural context, but one that occurs in a context capable of simulating or evoking responses and behavior as they would be within a truly natural context – such as a participatory simulation.} and generalizable study of trust requires a solution using a mixed methodology approach (Goudge & Gilson, 2005). Where possible, established quantitative measures should be used while also using content analysis and ethnographic methods as explanatory and investigative devices. Developed by synthesizing existing approaches from the trust literature and extending them, Goudge and Gilson provide a conceptual workflow for researching trust (see Figure 10). The process they propose uses qualitative analysis to inform the design of quantitative measures and experiments to facilitate the research cycle of hypothesis, data collection, and analysis within each methodology type. Notably, this framework forms a loop where the results of study are intended to feedback into defining what trust is as a phenomenon so that the cycle can begin again.

Since resources are limited, this study focused on the first section of this framework, investigating and exploring the qualities of trust within an MMORPG with the intent that the results of this research will be used in the future for quantitative study. The intention of including the trust research framework is to illustrate how this research facilitates a step on a longer-term path investigating the nature of trust. However, it should be noted that the results of this research are useful on their own and can be treated directly as scientific findings and applied as such.
Figure 10: Trust Research Framework adapted from (Goudge & Gilson, 2005)
5.2 Research Questions

While Castelfranchi and Falcone’s trust model (2010) includes concepts for several cognitive trust beliefs (competence, predictability, reliance and the sub-beliefs inside each), it tends to minimize the importance of social contexts and sensitivity to risk and time. Additionally, it is unclear how these components may function in a virtual environment. This leads to the first research question:

- RQ 1: Do MMORPGs provide situations that require trust between people?

With the larger goal of investigating trust in this manner is to facilitate a theory-driven method of video game design. This proposal suggests the idea that features within a game environment will act on a player in a manner similar to social structures in another setting such as an organization. In relation to the other questions, this suggests that different games and game features will alter the way that trust decisions are made, given a similar situation presented in each (the framing context). What wasn’t entirely clear is exactly how they do that, and if it is possible to define or describe a system for evaluating game features with regards to trust, suggesting the following questions:

- RQ 2: What are the relationships between game features, external social factors, and how trust develops within the game?
5.3 Method

The method consisted of the first phase of the trust research framework (Goudge & Gilson, 2005). An exploratory analytic induction (W. S. Robinson, 1951) consisting of structured observation and semi-structured interviews to refine the trust model was conducted using the MMORPG World of Warcraft. This facilitates the first step of Goudge and Gilson’s trust research framework by having a qualitative investigation (providing a rich descriptive context) which can be used later to inform the development of a quantitative tool aiding further inquiry.

This investigation served two purposes in exploring the research questions. It provided exposure to the game environment which allows the researcher to become more familiar with the context of activity and better develop a sense of how different game features facilitate or weaken trust development. To this end, the researcher paid close attention to how different features work, how they are used by the players, and used them to formulate questions for interview participants. Asking hypothetical questions about feature changes or additions helped to triangulate aspects of the feature that give it qualities causing particular effects.

Second, it provided rich context to help understand how the different trust beliefs, group context, and task context are used to make trust decisions31 in the game environment. Additionally, this investigation provided evidence for the instantiation of elements of the trust model.

31 For example, trading items between players or inviting another player into a long term cooperative group could involve trust. The first research question involves trying to identify which activities in the game actually involve trust.
5.3.1 Exploratory Analytic Induction and Trust

The investigation consisted of an exploratory analytic induction. Analytic induction is an iterative research method that begins with an existing theory or description of behavior (explanadum) and refines it through a process of discovering negative evidence in newly examined cases and information (Katz, 2001). That is, rather than following a completely deductive process of supporting the theory only by positive evidence, it also benefits from delineating and refining based on what does not fit the theory. The method used to perform the analytic induction was through structured observation leading to a series of semi-structured interviews. Qualitative coding of interview responses was used to gather new information that was be used to refine the trust theory for each successive interview.

The standard procedure for performing an analytic induction is as follows, adapted from (Rettig, Tam, & Magstad, 1996; W. S. Robinson, 1951; Tacq, 2007):

1. A rough concept of the phenomenon is defined and a general hypothesis or explanatory theory is formulated
2. The hypothesis is compared to a set of facts (for example, a case)
3. If the theory does not match the facts, it is modified so that:
   a. The new facts will be supported by it
   b. Or, the phenomenon is redefined to exclude cases that give rise to these facts
4. Repeat the previous steps to continually refine the conceptualization of the phenomenon or the hypothesis until each negative case is supported
In this way, analytic induction works well for research that is exploratory or just beginning because the research process begins under the assumption that the theory is incomplete but contains elements that are accurate, if not precise.

As Rettig et al. note, “the advantages of analytic induction are in its capacity to generate conceptual formulations, induce theoretical revisions by examining negative evidence … and create process theories” (1996, pp. 207-208). The mention of process theories is also important here. When working with a social process rather than a pure psychological phenomenon it is often the case that variables under consideration have complex relationships and values that change during each iteration of the process and with relationship to specific social contexts (positioning, as in (Giddens, 1984)). This creates a situation where it is difficult to impossible to isolate and control variables in a typical experimental/laboratory setting.

The exploration of trust is a perfect example of this. Each time an individual chooses to delegate to a trustee the result of that delegation will change how the trustor evaluates others in the future. While the socio-cognitive theory of trust (Castelfranchi & Falcone, 2010) contains variables for that evaluation, it is not always clear how those variables interact, how they might be affected by environmental factors (such as game features), and how they might change because of negative or positive results from a delegation. Additionally, since individuals enter new decisions with pre-existing beliefs influenced by their experiences, there is no reasonable way to isolate the process at a “starting” point for experimental evaluation. Analytic induction is well suited for studies such as this, as it allows exploration of these variables without requiring their isolation and does not require a process to begin in an experimentally “clean” manner.
This fits Robinson’s argument for the use of analytic induction in cases where conditions can be described, but their presence may not initially necessitate the instantiation of a phenomenon. He says that a naïve analysis of analytic induction shows that it yields “only the necessary, but not sufficient conditions for the phenomenon to be explained” (1951, p. 815). However, by examining negative cases in addition to positive cases, and looking at a larger variety of cases with fewer similarities, conditions can be refined so that they are supportably sufficient even if they are incomplete.

5.3.2 General Procedure

Initial recruitment involved recruiting “group leaders”. These are individuals in leadership positions representing a collective group within the game environment (groups defined as “Guilds” in WoW). Calls for participation were posted to two internet message boards: MMORPG.com (http://forums.mmorpg.com/categories/world-of-warcraft) and a private server forum Feenix (http://www.feenixserver.com/forum/), Facebook, and social media site Reddit on the WoW subreddit (www.reddit.com/wow/). Potential group leaders contacted the researcher asking to participate in the study. Details of the study were reiterated and verbal consent was obtained to observe and interact with the group/organization. Verbal consent was requested to observe the normal activities of group members and to request engagement of specific group members for further observation and interview (see H Verbal Consent Script-Group Leader).

The group leader was asked to post a notice to the group, indicating the research activities and identifying the researcher. A template was provided to the group leader that they could use for this purpose (see J Group Notification Script-Leader) however they all
posted their own messages. As a follow-up, the researcher discussed with the group or individuals the purpose of the study, the research procedure, identified the researcher and his association with Penn State, and informed them that their participation was voluntary and that they were not required to participate, could refuse to answer any question, and could end their participation at any time (see K Group Notification Script-Researcher).

Once this occurred, observation and recruitment for interviews began. Particularly, the researcher observed some group chat, but primarily collected data through interviews.

The group leader was asked to supply initial interviewee candidates, and recruitment will followed a snowball pattern from that point on (asking each interviewee for new suggestions). Potential interviewees either contacted the researcher directly or were approached by the researcher. The researcher obtained verbal consent to interviews and more detailed observations (see I Verbal Consent Script-Interviewee). With consent, an interview was be conducted (see F Interview Guide). The interview will focused on the individual’s experience with various activities within the game and attempted to identify and clarify the use of socio-cognitive trust beliefs in their decision making.

5.3.3 Sampling

World of Warcraft players were recruited primarily through recruitment materials posted to the social media site, Reddit (www.reddit.com), with several others resulting from a shared post on Facebook. Other forums and websites where the materials were posted resulted in no participants recruited. Player recruitment also used a snowball technique (asking participants for recommendations) to recruit more participants.
Most players were active in their guilds. Using terminology from (C. H. Chen et al., 2008), these players were primarily members of small and elite guilds, with one being a member of a big guild. However, many participants had been part of newbie and unstable guilds in the past (and many commented that these associations were how they eventually came to their current, stable guilds). Participants were primarily from two guilds, with several participants from other guilds or currently unaffiliated. Most participants were American, while a few of them were European\textsuperscript{32}. The ratio of female to male participants was roughly equal. All participants were over 18 years old, and many of them were college graduates.

Within the game, the ratio of participants of the two factions (horde/alliance) was also roughly equal. All players interviewed were long-term players with WoW experiences dating back at least two year (often quite longer). One participant was currently playing only on WoW private servers\textsuperscript{33}, the rest were on Blizzard’s server. One participant had not played WoW in a year, and one has quit since the time of the interview.

All interviewees except one were actively involved in guilds whose primary activity was raiding (rather than PvP, and discussed in more detail in sections 2.2.2 and 6.1.1). Additionally, most players primarily played alliance characters. However, many (regardless of primary faction type) had avatars in the opposing faction. The majority of

\textsuperscript{32} Specific nationalities are omitted here as they may result in identification of the research participants

\textsuperscript{33} A private server is an instance of the World of Warcraft game that is hosted by individuals or groups other than the game’s publisher and players can access for free (without a monthly fee). Often, these instances run older or modified versions of the game that either replicate earlier experiences or make the experience easier and more casual. While there are certainly economic reasons to play on private servers, many players do so as a result of disagreeing with changes made to the game by the publisher over the years and seek to re-live earlier experiences. This gives private server players a unique perspective, as they are more actively engaged in comparing and contrasting different versions of the game and how game features changed the behavior of players, while additionally being able to validate those conclusions with private server experiences.
participants played primarily on PvE servers, but several played on PvP servers. One participant also played heavily on an RP server.

Three guild leaders were interviewed, many others maintained officer or other leadership positions within the guild. This helped balance the perspective between various stable and transient leadership roles as well as average members.

5.3.4 Data Collection

An initial interview protocol was developed to begin. This was refined multiple times during the first three interviews with only minor modifications afterwards. The final protocol can be found in the Appendix, section F. Three interviews were in person, two were via online text chat, and the rest were voice conversations over Skype, TeamSpeak, and Ventrillo (Vent). There were 23 participants total, three recordings were lost due to software error, but notes were taken and used during analysis.

Most participants were interviewed a single time for 1-3 hours. Typical interviews lasted 1 to 1.5 hours. The longer interviews were the result of participants having a lot to say in response to questions, rather than the interviewer asking additional questions or for clarification. Guild leaders were interviewed multiple times – two were interviewed twice, and another one three times. The first interview with guild leaders was typically not recorded and was used to discuss the method involved and gain some background and understanding of their guild and its history, as well as gauge participation. These typically ran for roughly 30 minutes. The first guild leader interviewed facilitated prototyping the interview guide resulting in an additional interview to answer new questions in the revised list.
Transcriptions were made for the majority of recordings to facilitate qualitative coding.

5.3.5 Data Analysis

Qualitative content analysis is a research method used to analyze and derive meaning from some form of textual content (interviews, chat logs, transcripts, etc.), reducing that content to a series of themes, keywords, and categories (Zhang & Wildemuth, 2009). The reduced data can then be used as evidence to support, weaken, or reject a theory or hypothesis.

Zhang and Wildemuth provide the following process for qualitative content analysis:

1. Prepare the Data
   
   This is the conversion of data into a textual format – for example, transcribing from a video or audio recording. Audio (face to face and internet based) interviews were transcribed to text files and then converted to a specialized Microsoft Word document. Additionally chat text was recorded in-game for some participants and converted to a similar format.

2. Define the Unit of Analysis
   
   Since this study is primarily exploratory, iterative research that requires continual modification of codes, it is necessary to maintain that same level of flexibility when selecting the unit of analysis. For that reason, the data was analyzed using themes for this purpose.
3. **Develop Categories and a Coding Scheme**

Recorded data was initially coded using a scheme derived from the socio-cognitive theory of trust, with elements of adaptive structuration theory (DeSanctis & Poole, 1994) used to frame the context of responses. Codes were continually revised during the coding process.

4. **Test Your Coding Scheme on a Sample of Text**

Since existing interview data specific to this subject is not readily available, the initial set of codes were evaluated against situational ethnographic text that describe similar activities in an MMORPG (such as selections from (M. G. Chen, 2009) or (Taylor, 2006)).

5. **Code All the Text**

Since codes changed between interviews, once all analysis of interviews was complete, data was re-coded using the final set of codes. Interviews were coded on paper printouts, without the assistance of software, to facilitate higher reading comprehension and reduce eye fatigue (Jeong, 2012; Mangen et al., 2013), thus allowing more rapid coding. Code instantiations were aggregated in an electronic format (Microsoft Word document with HTML output) and a custom piece of software was written to retrieve all quotations containing specific codes from the transcribed data.

6. **Assess Coding Consistency**

During analysis of the content and application of codes, it may become necessary to check that validity and consistency of codes. For this purpose, coding and results were validated by research participants (member-
checking) – however this could have been improved (refer to limitations in the conclusion).

7. **Draw Conclusions from Coded Data**

Following the process of analytic induction, coding was used to refine the socio-cognitive model of trust. New patterns were recognized and negative evidence was used to improve the model and redefine the phenomenon.

8. **Report Your Methods and Findings**

A summary of findings was created that presents the final model and any redefinition of trust – this document represents that report.

The steps presented above provide a general framework for using qualitative content analysis. However, it may also be important to classify that method when comparing against other studies. Hsieh and Shannon (Hsieh & Shannon, 2005) defined three distinct types of this method, differing by their starting point, timing of definition of codes, and source of codes. The table below is reproduced and adapted from their work:

Table 3. Differences among Three Approaches to Content Analysis adapted from (Hsieh & Shannon, 2005)

<table>
<thead>
<tr>
<th>Type of Content Analysis</th>
<th>Study Starts With</th>
<th>Timing of Defining Codes or Keywords</th>
<th>Sources of Codes or Keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>Observation</td>
<td>Codes are defined during data analysis</td>
<td>Codes are derived from data</td>
</tr>
<tr>
<td>Directed</td>
<td>Theory</td>
<td>Codes are defined before and during data analysis</td>
<td>Codes are derived from theory or relevant research findings</td>
</tr>
<tr>
<td>Summative</td>
<td>Keywords</td>
<td>Keywords are identified before and during data analysis</td>
<td>Keywords are derived from interest of researchers or review of literature</td>
</tr>
</tbody>
</table>
Within the context of analytic induction and this study of trust, a method was required that is adaptable during each iteration of the induction and that begins with an existing theory. The only type of analysis that fit either (and both) of these conditions was directed content analysis. With this method, a series of codes were defined prior to analyzing content but text of interest that does not match existing codes was flagged to derive new codes during the analysis. Aspects of grounded theory analysis were consulted to enrich this approach, as this method shares significant conceptual overlap (Hsieh & Shannon, 2005) - for example the development of theory grounded in interview data (Creswell, 2012). This facilitated the exploratory nature of the study while allowing the search for negative cases required by analytic induction.

Lastly, following Zhang and Wildemuth (Zhang & Wildemuth, 2009), initial codes were created to capture aspects of the modified cognitive trust model and adaptive structurational (DeSanctis & Poole, 1994) properties (see G, Qualitative Coding Guide, for the final codes). During coding, notes were taken as to developing patterns. When cohesive themes emerged, all transcriptions were re-coded to cover those themes. The interview protocol was also refined to include questions directly relating to themes as they emerged.

5.3.6 Researcher Identity

It is an important step in understanding the methods and results of qualitative research to understand the individual looking through the lens. “...Because someone told me that games bring people happiness, especially if they’re done well, so I would be contributing
something to the world [by designing games]” (Myself, 2001, Personal Correspondence). This quote represents the moment I decided that games must be an important part of my future. Like a raindrop on a pond’s surface, this desire has rippled across my personal, professional, and academic lives.

In my personal life, this has led to me designing games and discussing with colleagues and friends how game features change the player experience. I play games, and actively consider the experience I’m having. How is this feature constraining my behavior? What would happen if it were different? How do other, different people react to it? The meta-cognitive analysis of games has become an inseparable, critical part of the gaming experience for me.

I’ve been playing MMORPGs for roughly a decade and a half. True, the early text-based MUDs (Multi-User Dungeons) bare little visual resemblance to the current graphic heavy counterparts – but a lot of the essence of what they are as an experience is the same. While playing MUDs, I had the opportunity to beta-test the first 3D MMORPG, Meridian 59. For a while, I refused to consider giving up my text-based adventures in favor of more modern, but monetarily costly, experiences. Eventually, I surrendered when friends gave me free access to their World of Warcraft and EVE Online accounts. This was during the final year or two before WoW’s first expansion and it was remarkable to see how changes in equipment attributes and other structures within the game had a direct impact on players. Cherished items that took hundreds of hours to acquire were tossed

34 There is some conflict regarding the definition as to whether the “D” stands for dungeon or domain/dimension. See footnote 1, page 8 for more information. As a ROM24 (in the Diku MUD family) player, “dungeon” is the most appropriate usage for my experiences.
aside for more common, but more powerful equipment. Flying mounts made land-based roads and paths much more dangerous and towns far less social.

In my professional life, I’ve been driven to learn the technical details of implementing software, processes for improved development, graphic design (both for marketing and user interfaces), and how to talk with and consider the user and their experiences interacting with software as part of larger processes. If I were to change a game feature, what work would be involved in that change? This life has taught me to consider the technical and social limitations of game design. I understand why the in-game mail system in WoW has been infuriating at times. I can explain to others why weekly maintenance “Tuesday morning downtime” is critical part of optimizing the game. The flaw that allows speed-hacking (traveling faster than the game should allow) makes sense to me, because it’s also a fundamental part of a feature that makes the experience more immersive for most players.

All of that said, it is my life as an academic that this desire to integrate games has caused the most turbulence. I’ve been fortunate to be able to design games for education as part of research activities. Through my studies I’ve come to a holistic view of social science. That is, if we look at the social sciences – anthropology, sociology, psychology, etc., they are distinct parts of a multidimensional continuum, with boundaries created artificially, but necessarily, to provide for cohesive discourse and isolated evaluation of rigor. Each sub-field or method therein is a tool to carve at the same stone, but with different results on the shape that emerges. Some tools can be used together fluidly, others irrevocably mar previous cuts.
What is reflected only somewhat in this dissertation is that it has been a difficult process to find the appropriate tool(s) to carve away at trust. Several early attempts investigating various quantitative efforts (game theory, decision theory, agent based modeling) left a sculpture of unnatural sharp edges. The important factors that make trust an emergent and significant part of the human experience were completely lost. While the results of this kind of research may have been quantifiable and generalizable to larger areas, they would also be fickle and somewhat fragile – falling apart because of subtle changes in social context.

Often I say to people stuck in their work, “The problem isn’t the answer you’re getting. The problem is how you’re asking the question.” That is, if you’re constantly faced with results that don’t seem to fit, maybe try a different way of forming the interrogative. In my case, this meant stepping back from “how do I measure trust formation in games?” to “what can I learn about trust in games?” and eventually: “what are the relationships between game features and trust?”

Answering these questions is an investigation requiring very different tools. Thankfully, as I had started my journey down research-lane in anthropology, not wholly unfamiliar tools. As a long-time player of World of Warcraft, I also had the advantage of having both an insider’s view of game activities and a knowledge of how feature changes had previously altered player behavior. This allowed me to not only discuss the game with players as it currently was, but also integrate discussion of how it had been before. I was able to isolate certain features that were related to trust and that had changed significantly (or been added) during the experiences of my interviewees. My familiarity also allowed for the generation of hypothetical questions with exaggerated feature
changes to emphasize certain potential behaviors giving key insights into the social structure of guilds and how players interact.

For interviews that typically lasted one to two hours, I was somewhat surprised by the response from my participants while concluding the process – most thought it was much more fun than they had expected. Additionally, I was invited to join most of the guilds that I interacted with during this process. I think these are direct results of leading the interview in an open-ended fashion from the perspective of someone who was not just a researcher, but also a fellow player. The study participants were at ease to confer game matters in a very candidate way and tangential discussions were common. They acknowledged our shared backgrounds and that formed a useful bridge to build a trust in the interview process.

However, this shared background also contains many unique experiences. While others were learning to socialize at high school parties and sporting events, I was learning these skills online through playing MUDs and online chat rooms. The MUD I played on resulted in many lifetime friends and even gave me a jumpstart on my career as a software developer – providing both an outlet to learn development and friends offering advanced professional opportunities.

Members of the guild I co-founded would often refer to each other not in terms of an online group, but as a family – the charter of that guild, and the members I helped recruit were instrumental in forming my core sense of empathy and morality. This is possible because in many ways, I don’t immediately distinguish a difference between people in the real world and those playing games online. They may be playing roles, or working towards goals, but at the end of the day they’re still people.
I’ve certainly seen my share of trust development in online games – I had to earn the trust of my guild members and recruits and develop my own trust in them. I’ve also experienced violations of that trust to facilitate personal goals on multiple occasions. Group play on these early text-based games was somewhat limited (and discouraged by gameplay elements), so the majority of trust-centric activities were socio-political and trust abuses often left the group as a social unit weaker – but these abuses were the exception, rather than the rule.

Effectually, I treat trust the same way I would treat any other socio-cognitive phenomenon with a game. I expect it to behave similar within the game as it does in the real world – but moderated by game features which shape the experience. Game features are nearly analogous to organizational rules and policy in the real world with the exception that they provide explicit limitations on activities/behavior and the real world only provides enforceable limitations. The greatest bias in my interpretation of data would likely be this expectation of shaped similarity.

But my gaming experience also differs from many others in a very fundamental way. I don’t enjoy most competitive play - and while I intellectually comprehend the reasons why many people do, my abstract understanding is somewhat lacking. While I occasionally play in competitive activities in games, the parts I enjoy the most are the sense of helping a team or improving my own skills and abilities rather than the trill of winning against other people. I typically won’t engage in playing a game where the

35 Online games also typically have enforceable limitations and rules by means of acceptable usage policies and guidelines for playing.
36 This anti-competitiveness extends into other areas as well – I don’t typically enjoy competing with co-workers, for recognition of achievement, or for placement and awards.
players take the competition more seriously than enjoying the mechanics of the game itself. In many ways, the increase in the importance of competition in games over the last decade has been quite alienating for me – as if gamer culture has changed to drive me out. For this reason, I’m likely to look for answers that include increased cooperation rather than increased competition and occasionally miss insights derived from competitive activities. This is also one of the reasons that this study focused less on player versus player goals than other player versus environment goals.

An additional effect resulting from this approach and my personal background is that I do not typically think of most groups in games as temporary. My limited experience has generally consisted only of groups that have lasted for months or (more typically) years. While playing the MUD, the player base was significantly small to create a sense of personal, but collective group membership among most of the players – whether or not they were in the same guild/clan. So, in that sense, working together for short term goals was still facilitated within a long-term group. My later experiences in parties in WoW were very limited and nearly all of them contained members of my guild or personal friends. For these reasons, I had limited insight or background to approach this research from the direction of temporary groups (such as those found in LFR groups and parties in WoW).
Chapter 6
RESULTS

The purpose of this chapter is to detail the themes explored and discovered relating to trust in World of Warcraft. The first subsection will detail evidence to support each of the components of the extended cognitive trust model within rich contexts. The next section covers some of the emergent themes that arose during the interview process (telepresence, reputation, identity). Finally, themes that illustrate game features moderating trust decisions are discussed.

Additionally, game features (code category F) were considered causal conditions (Creswell, 2012) that affected trust development. Expressions regarding game features were broken down into three sub-codes, derived from structuration theory (Giddens, 1984) - feature moderated behavior or social structures, Fs; feature provided a mechanism for exerting dominance, Fl; feature supported communication, Fc. This list was extended to include factors identified as important for the appropriation of technology (or in this case, game features) within adaptive structuration (DeSanctis & Poole, 1994) – unfaithful appropriation, Fu; faithful appropriation, Fa; instrumental meaning, Fm; and appropriation attitude, Fa. These are not specifically noted by code in the analysis but mentioned by name where they are used.
6.1 Rich Contexts

The basis for this study rode heavily on the question: “Do MMORPGs provide situations that require trust between people?” To investigate this question, the cognitive trust belief theory was detailed, and upon examination, extended. While the initial beliefs proposed by this theory certainly account for much of the internal processes individuals use to make decisions, there was still the potential for a high degree of variability resulting from the influence of other factors.

World of Warcraft provides a rich experience that requires people to assess temporally sensitive interpersonal risks, develop relationships, and work together to achieve goals in complex social situations.

6.1.1 Cognitive Trust Beliefs

The variables in the cognitive trust model form the core of a theory for how people make trust decisions. To restate from previous sections, there are three primary categories of cognitive trust beliefs:

1. Reliance – the belief that a trustor *must rely* on a trustee to complete the task
2. Competence – the belief that the trustee *is able* to complete the task
3. Predictability – the belief that the trustee *will complete* the task if requested

That is, trust requires a cognitive evaluation of the thought process and/or activities of another individual. As an over-arching theme unifying these beliefs, participants often expressed a need to “get to know” another individual before they could trust them.
Building a cognitive model of another individual is typically a slow process, requiring many shared experiences.

Expressions of this general notion of knowledge of another or abstract sense of trust were typically represented by the code (B, Trust Belief). This was a predetermined code as specified by directed content analysis (Hsieh & Shannon, 2005) representing an overall category of trust beliefs of which specific beliefs were sub-codes – such categories are typically used with grounded theory analysis (Creswell, 2012). Occasionally these were co-located with or preceded indications of more specific trust beliefs (Bp, Predictability; Bc, Competence; Br, Reliability).

Within WoW, a common requirement for choosing an individual to assist with a delicate situation was a long duration for their relationship and how that trust built over time. Players were asked a hypothetical question – what would you do if you couldn’t transfer items and currency between two of your own characters? Who would you ask to help?

This hypothetical was formulated as an example of a feature used in some degree by nearly all players regardless of play style. Additionally, while facilitated by a game feature, it is easy to draw analogs to real life scenarios (people exchanging goods and currency), and is otherwise isolated from the fantasy nature of the game. Finally, the existing implementation of this game feature removes the need to trust for many types of transactions and it was simple to create a hypothetical version derived specifically to include that factor without altering a complex mechanic or aspect of the narrative. Effectively, this is an example of the simplest mechanic in the game that could be
changed to show the largest consequence related to trust. Below is a typical response to this question:

If I didn't know them personally, if I hadn't had built a relationship, I would build a relationship long before this situation would arise. It wouldn't be something like oh I need to trade this, let me go find someone I think is trustworthy. (Odr)

There are a couple important things here. Odr notes the importance of having a shared history with another individual to trust them with critical tasks. But additionally, he’s also indicating that he would have planned on doing this as a direct result of understanding how the game feature worked and its limitations. In this way, the feature would not only change his activities in the game, but also would compel him to develop social relationships. Having those social relationships would decrease the risk involved with these kinds of transactions and give him an advantage over less social players.

Another participant comments:

Nope. You don’t know trials or apps at all. They could be some random person on the street and you have no idea who they are. You've gotta earn some trust and some respect before you start asking them to do favors. (Forseti)

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37 On many MMORPGs, players can pay for multiple accounts, allowing them to simultaneously login multiple characters that they control (called multiboxing). There is also software that exists to help coordinate movement and activities between these accounts at the same time. This can reduce the gap in advantage between social and asocial players, but a deeper discussion of this topic is beyond the scope of this research for the time being.
Forseti mentions new and potential guild members (members on trial status (trials), and applicants (apps)). These fall into a class of guild membership where they likely have limited shared history with other guild members. He qualifies the nature of the history, however. It isn’t enough to simply know a person, but also to know that they will behave in a specific way reflected by that history – trust and respect must be earned.

The game also presented several situations that required a high degree of coordination between players to succeed. For example, raids are specialized areas in the game that are designed to require a certain number and composition of players to complete successfully. These areas require that each player knows their role as part of the team, and knows the order of events and activities that will be presented to them to complete the raid. Raids can often take dozens to hundreds of attempts to complete successfully. Raids are categorized by the number of players required (10, 20, 25, and 40 man), the difficulty (normal, heroic, and mythic), and style of play (normal, flexible, looking for raid).

Typically, the larger the number of players required, the more difficult the raid as well. Cooperation does not diminish as a requirement either. Even in a 40 person raid, success or failure can rely on a single individual. However, the style of play is a considerable moderator on the difficulty. Notably, both flexible raiding and looking for raid were not included with the original release of World of Warcraft, but were added in updates to allow more players to experience raid content. The most difficult style of raid is the original, normal raid. In a normal raid, the raid difficulty is designed assuming the maximum number of players is participating. In flexible raiding (flex raid), the difficulty scales up and down with the current number of participants to provide a scenario where
groups of shifting sizes, or low sizes, still have the ability to experience and successfully complete content.

Looking for raid (LFR, also “Raid Finder”) is quite different in the difficulty level presented to the players and the mechanism used to create teams. In the other two types, raids are typically organized within a guild, where participants are assigned to different teams depending on their role. The patch notes for LFR indicate that it should be used for an audience of players that otherwise could not participate in certain game activities: “The Raid Finder is intended to help players experience the current tier of content” (Daxxarri, 2011). LFRs are much easier to succeed in than the other raid types, and provide less powerful rewards as well.

Importantly, it should be noted that LFR was the developer’s response to a particular dilemma – only a small percentage of players were able to dedicate enough time and effort to experience a significant amount of game content - raids. These challenges are much more complex to design and implement then other areas of the game and likely take considerable development resources. Developers are forced to look at content from at least two directions – how is the content a justifiable business expense, and how do they maximize the enjoyment of the game for the greatest number of players. Raid content, as it was implemented at the time, did neither of these very well. Raids were an amazing experience for those able to participate, but the core audience of WoW was changing significantly as the player count grew. LFR is an example of solving these kinds of problems.

Notably, LFR appeared quite frequently within interview responses. On its own, it could be considered for promotion to an in vivo code (Charmaz, 2014) in that it carried
substantial significance (beyond its core definition as a game feature) to the population of interview respondents. However, this step was not taken as references to LFR were frequently co-located with other codes of interest. That said, since the sample population consisted primarily of players actively engaged in raiding guilds - most of which were long-time players – there is a strong negative bias towards LFR reflected in this analysis. The reasons for this are emphasized later in this section.

Typically, there are *raid leaders* responsible for forming the raid group, giving commands to others during the raid, distributing rewards, and leading teams\(^ {38} \). LFRs are organized using a user-interface that is completely separate from any guild. With LFRs, players “sign up” for a role within a raid and are queued until enough players sign up. These players can be anyone on their own server, or on several other servers that meet the minimum requirements to join the raid. For this reason, it is typical for LFR members to have never met each other before and potentially never see each other again. There is no expectation of long-term relationships, as this player notes:

> *I think because there's no vested interest it's actually harder to trust people in game now. Nobody has any vested interest with anything. Time, commitment. It's all been given to them on a platter and they don't like what you say or do, they don't need to stick around with you, they just go to somebody else.* (Magni)

One of the important issues raised with this quote is that LFR didn’t just give a wider audience access to raid content – it may be part of the cause of a behavioral shift in the

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\(^ {38} \) One individual may be responsible for one or more of these tasks. Additionally, those with leadership roles within the guild may participate in raids as a standard member, without a say over the task that happen within a raid.
general population. Players that experienced LFR content as their introduction to raiding might see other social commitments as optional. Since many of the newer raids only require 10 or 25 people instead of 40, it is much easier to maintain a guild and coordinate events – giving rise to a larger number of guilds available to experience normal raid content. As Magni mentions, to the non-discriminating LFR player, this has effectively turned guild membership into a buyer’s market where it once belonged to the seller – if the player doesn’t like you or your guild, they can just find another one.

Additionally, prior to LFR, raids were a symbol of achievement. Being able to experience them was a reward for players of maximum level that were able to make it into a guild organized enough to take on the challenge. In many ways, and for many players, raids were “the real game” – everything else leading up to them was just preparation. The dungeon instances that required 5 players were just practice, teaching you how to play your class to the best of your ability as part of a team. Raids required hours of scheduled dedication every week and people you heavily relied on.

LFR changed that. Now anyone could experience the raid. Sure they wouldn’t get the best rewards, but they’d still get to taste the coveted end-game content. LFRs don’t require the same dedicated time, knowledge of your teammates, or any particularly high skill level. This has caused much contention among the player base and also presented a unique opportunity to study trust within groups. Many of the players interviewed mentioned that LFR has made it more difficult to trust other players – there’s almost no chance in an LFR to build a lasting relationship with others and to form that basis for cognitive evaluation. Players were asked if LRF has changed the game, and this was a typical response:
In terms of social interactions? It hasn't done much for social interaction. It's still...more like wham bam thank you ma'am. That's what it's become. It's not really the deep relationships you can form, like long term relationships you can form through interactions in normal instances and heroic mode instances and raids in particular. I think LFR and LFG really just gave you a wham bam thank you ma'am call it a day situation. (Skuld)

While the mechanics of an LFR are very similar to a normal raid (but less difficult), the method of joining a group creates an entirely different social context. LFR players are not invested heavily in long term interactions with other LFR players. They may not have the same level of skill and dedication as participants of normal raids. Their goals are often very different – they simply want to complete the content, not face incredibly difficult challenges.

Another game feature, player versus player (PvP) arenas, allow players to compete in small teams against each other for points used to buy in-game rewards. Teams must be formed beforehand (team members do not need to be from the same guild) and are matched against each other according to size (2v2, 3v3, and 5v5). Arena matches are ranked, so players are not only competing directly with another team, but also being rated against a much larger population of players. The highly competitive nature of arenas makes teamwork very important to success.

Raiding and PvP arenas were commonly brought up as examples where knowledge and shared past experiences with teammates was very important:

When I was raiding I definitely needed to do it with people I knew. Going through dungeons I want to do it with people I know so I don't have to rely
on random people. When I was playing PvP I really needed people I knew.

(Kvasir)

Requiring knowledge of the other person is a general way of indicating that decisions are highly dependent on understanding the abilities and thought processes of an individual. Kvasir also brings up an important point – that there is a degree of choice in WoW to select who you play with and that for particularly challenging content, it is often advantageous to select people you know rather than people you don’t. But it is also a forced choice – if a player wants to experience this content, they must rely on others, emphasizing the reliance cognitive trust belief as a precursor to play.

The subsections that follow illustrate each of the cognitive trust theory’s belief categories and how they pertain to player experiences in World of Warcraft.

6.1.1.1 Reliance

The cognitive trust model (Castelfranchi & Falcone, 2010) breaks down reliance into two beliefs. First, dependence – as a trustor, there is a reason that the trustee must complete this task instead of myself. Second, fulfillment – I reasonably expect that you have the intention to complete this task. Both of these were included into a single category for reliance (Br).

Players expressed a considerable degree of dependence on others related to raid content. Raids require a team to be composed of players with an assortment of particular skills to be successful. They need to have individuals that can heal, those that can do damage, those that can control enemies, and other specializations. For the average team member this creates an implicit dependence on other team members that each is doing a
job that cannot be done by others. In addition to expertise by class, a player can be specialized by exacting role within a raid situation:

*That usually emerges when we're progressing with the bosses you usually know for example there's spells we each know who is going to do this spell, which guy. Because I'm a healer, so I know for example one of our paladins is doing the tank healing and can rely on that. (Tyr)*

This quote also illustrates the multi-level nature of belief evaluation. The tank group relies on the healer group and trusts that, as a group, they will perform their job well. At that level, it isn’t necessarily important to each tank which healer is responsible for them – only that they are dependent on healers as a group, and that this group also intends to fulfill support of them (the two core reliance beliefs). But within the healer group, each individual is also relying on each other in a similar way. Their survival is contingent on the survival of the tanks, so they are internally dependent on each other and allocate the fulfillment of their obligations to best support this end.

However, the game also creates a situation where singular dependence on another individual is not always entirely true. Players can have multiple avatars – each with a different specialization. Most players have a main avatar and then one or more alternatives (alts). This provides a method for teams to maintain a flexible membership of specializations. However for the purpose of raids, it does not remove the requirement of reliance. As previously mentioned, raids can be incredibly difficult and are limited by the maximum number of players allowed. Regardless of specialization, it is often the case that each slot on a raid team needs to be filled to be successful. Additionally, it can be quite difficult to organize a group of 10-50 people in a block of time that can run for
several hours to play a video game. If any one person cancelled at the last minute, it could result in the entire event falling apart:

Everyone is getting set to go for the raid and the guy's like, “girlfriend's here gotta go”. You don't do that. You don't let 20 other people or 24 other people hang and you go and you do your thing. That's not cool. (Skuld)

This example also illustrates a case of expected fulfillment that never occurred. Players had the reasonable expectation that this individual would fulfill their obligation to participate in the raid. With normal raids, there is no built-in game mechanic for punishing players for leaving a raid early and it must be handled by the guild or group. In many cases, not showing up to a scheduled event and violating that fulfillment belief was considered one of the paramount infractions by a guild member. This was even worse if the violator was the individual organizing the event:

...like a raid leader didn't show up or something like that. The only thing bad that happens is just that you didn't go. The only thing bad I can honestly think of is leadership and guild activities. I did have an officer a couple of years ago in cataclysm who wanted to be a raid leader. He kept scheduling raids and he didn't show up or would be two hours late.... when you don't show up three weeks in a row ... they're not signing up anymore. Why? Because they don't trust you to be there! I kind of had to ask him to stop doing that. Stop trying to lead things. (Freya)

Raids create a situation where reliance on other players isn’t an option – it’s a requirement. The specialization and numbers required to succeed in a raid mean that every individual is important to all of those involved, “In heroic or normal modes, one
essential player being dead can in fact wipe the raid.” (Freya). Fulfillment of that obligation is an overriding principal to success within the overall organization of a raiding guild.

6.1.1.2 Competence

Another important factor within the cognitive trust model (Castelfranchi & Falcone, 2010) is competence (code Bc). An individual might have the abilities required to participate in an activity and the intention to do their best, but do they actually have the skills to succeed? In the real world, this is one of the easiest beliefs to see the multilevel nature of trust and how it’s encoded in associations and certifications. In the virtuality of World of Warcraft, a belief (or disbelief) in competency can be potentially and partially derived from a variety of likewise encoded resources. However, of all the trust beliefs, this has become the most difficult to assess as the game adds more and more features. Many of the features added have blurred existing evaluations or made it entirely impossible to use them.

The game allows players to create modifications (addons, mods) that change the user interface, often providing better displays of all the data and additional methods of interacting with the game. Raids often present a number of variables that require continuous attention and are a common target audience for certain mods. However, total reliance on mods can be seen as a lack of competency by more skilled players:

…people were like 'oh this battle's so tough' … they were like 'oh the mods haven't been updated for the new fight.' And I'm like, well why do you need mods? Just look for the debuff. (Heimdal)
This quote also illustrates that the mods didn’t provide any new information, but that new players come to rely on the different method the information is conveyed, instead of learning to react to the game using their own skills. As an example, a mod could indicate the exact time an enemy would use a certain ability so that the player could react at exactly the right time. Often, the game would provide visual clues or text alerts to these abilities on its own, but players learn to look at the information a different way, and lose the ability to work with the game as it was created.

As an external source of structural properties, mods have altered the task context used to evaluate trust beliefs. In the above example, the raid assisting mods have altered the way that players appropriate features within the game (to the point of not appropriating at all). As Heimdal notes, this can be seen as a lack of skill – the players are delegating an evaluation of the current game state to an external source rather than make the analysis themselves.

Many players expressed that the raid content in pre-expansion WoW was much more difficult than the current, newer raids. This resulted in raid participants being very skilled at their specializations. Often times an elite group would emerge from this:

\begin{quote}
Back in Vanilla\textsuperscript{39} you would have a huge range of different types of people. But there was always that core group that was very very skilled. We used to run 25 man in Wrath and we found a lot of skilled people. We actually turned it into a 10 man and was able to run heroics straight out the gate
\end{quote}

\textsuperscript{39} Vanilla refers to any version of WoW prior to the release of the first expansion, The Burning Crusade. While there were minor changes and additional content added in patches, there were few major modifications to how the game worked at a fundamental level.
with this 10 man. There was a higher quality of player essentially because you had to be that high a quality of a player to survive. (Thor)

At the time, there was also no Flex or LFR raiding. As such, the rewards for completing raids (often worn as clothing on player avatars) became a sort of visual way to assess competency.

You knew that guy had to do a hard raid that took 3 to 4 hours, 3 or 4 times a week with 39 other people ... all the loot that was, in the end always just 2 or maybe 3 pieces dropping between 40 people (Baldur)

Not mentioned in the quote is that the gear that dropped from these encounters wasn’t made to fit every type of avatar, dropping the likelihood of acquiring one of them even further. That is to say, that to get one of these items to wear would require players to successfully complete the content several, potentially dozens of times. Imagine working on something, doing the same tasks over and over, for sixteen hours a week with 39 other people, for the chance that you would see a benefit every few weeks.

Having an item, or even more rare, a complete set of raid equipment, was a mark of both dedication and skill. The new system of raiding often has visually similar equipment (but varying degrees of power) as rewards for different team sizes and raid types, making the simple visual identification of competency much more difficult.

The gear itself, for flex and LFR raids is no longer considered a marker of competency. Since these raids types are particularly easy and more competent players can guide less skillful players though them, they can often be acquired without seriously engaging the content at all. It seems to be quite common for participants in LFR not to be competent:
If you join an LFR you have to trust people to do their jobs and I've been burned enough that I don't really use LFR anymore. Just because you get under equipped tanks that don't have any enchants or gems and ask what to do. Like the instant that they join the group their like..."I've never tanked this also I'm really undergeared and I don't really think about my gear and uh...tell me what to do." I'm just...yeah. I really hate that...

There's a lot of things people can misuse in LFR like signing up as roles and not really reading up on what they have to do that makes it easy to distrust players you meet in the system...That's also another issue. with the signing up as a specific role because I guess you know that healers and tanks especially have pretty fast queue times compared to dps so a lot of people sign up as a healer even if they don't really have heal gear or intent to heal. (Tyr)

Here, Tyr couples the lack of competence with two comments about the unfaithful appropriation of the LFR feature. The first is the assumption that a skilled player will research their role and the encounter online before attempting it (via websites and video walkthroughs). A mark of competence here is external preparation and knowing how to prepare. It is difficult to determine, however, if this kind of preparation is part of the design of the feature. While it’s intrinsic to taking on more difficult raids, it is far less necessary in LFR. Regardless of knowing the specifics of the raid, it is likely still expected that a player knows the intricacies of playing their own character. Knowing that raiding is not easy, they should put at least some effort into preparation.

The second item is a much more straightforward violation of feature appropriation. Not only are the other LFR players unprepared for the encounter, but they're abusing the
LFR sign-up process. Raids require a set number of players and a set number in specific roles – healer, tank, damager, and leader. In LFR sign-up, players indicate which role(s) they plan to perform in the raid. The interface and mechanics of the raid make the designer's intentions here quite clear – you sign up for the role(s) you intend to play. However, to lower the wait time before they can begin the raid, Tyr indicates that players will often sign up for roles that are in higher demand / lower supply, even if they don't plan on fulfilling those obligations inside the raid.

This can cause an interesting conundrum. While it clearly violates beliefs in the other two categories (reliance and predictability) it may not cause a weakening of the competence belief for all participating players. Tyr also says this:

*I've seen a ton of elemental shaman signing up as healer and just [doing damage]. Usually if you point that out most of the group will be like...yeah but he's doing a lot of damage so we can't really kick him. (Tyr)*

Despite not fulfilling their specified role, the group decides that the individual is competent enough in a different role that they shouldn't be removed. The unfaithful appropriation becomes acceptable by the group if it increases their perception of potential success. In instances such as this, it is also very likely that the individual is more competent in the role they are performing than the others that legitimately signed up for that role.

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40 In more recent versions of the game, any specific character class can be configured to work in at least two distinct roles. LFR raids will allow characters to sign up for any role they can potentially fulfill, even if the particular avatar has not put a lot of effort into a secondary specialization.
However, the fact that the healer role is missing a member often becomes critical, lowering the overall likelihood of success despite having a skilled individual doing more damage. More experienced players, such as Tyr, recognize that group composition is often more important than the slightly higher skills of one individual. That is, while a player might be competent in a certain role, they may not be competent in understanding the group mechanics required to succeed at the overall activity. With experienced players, this lowered their perception of competence in the group, and builds the belief that the activity (LFR) creates lower competence groups.

Flex raiding provides an interesting contrast. Flex raiding is still typically a guild-related activity, so they can be much more organized. Since it is an easier challenge, there is significantly less pressure on the importance of each individual player. Additionally, players of normal raids will typically have gear that is more powerful than required of a flex raid, making it that much easier. With the significant reduction in reliance, guilds often look at flex raiding as a “teaching raid” where less skilled or less powerful guild members can be brought in and taught the basics of how the normal version of the raid works:

\[
\text{He's not an experienced raider, he needs some direction, but he has potential. He has enthusiasm. He's a little bit above LFR but there's no way I'd take him into normals. No. But with enough players, overgeared players, we could definitely let him tag along in a flex situation where he could learn to raid. Not necessarily walk away like he's a huge failure ... I like flex for that purpose. To help players. (Freya)}
\]
That is, flex raiding could act as a stepping stone to help guild members acquire enough competence to tackle the much harder normal raids. Since it’s within the guild, it also operates as a shared experience where the belief in competency can grow through observation, interaction, and shared knowledge. Some players likewise expressed that LFR was useful as a training ground (and thus stepping stone up to Flex), but since they are composed primarily of players outside of the guild, just completing the LFR was not enough of an indication of skill level. Flex raids completed outside of the current guild would suffer the same scrutiny.

In the most recent expansion of World of Warcraft, the publisher has granted players the ability to automatically boost a single avatar to the previous maximum level (90). In this way, they are able to skip all of the game content typically experienced training to use different abilities, and yet another metric of competency becomes more useless:

The instant 90 boosts concern me a bit. I’ve always been distrustful of that.
Because if you haven’t worked yourself up to raid-ready 90, you may not have gotten the basic skills necessary to be able to be a constructive member (Fenrir)

The game provides a variety of different classes for avatars, each with different roles available, which in turn provide in-game abilities. The skills learned raiding in one combination of these dimensions are often not transferable to another. So, even if a player is an experienced raider with their particular class and role, they may not be experienced in another. The game provides new abilities as a player gains levels, so that they have the opportunity to learn the intricacies of each ability in a variety of conditions. As an analogy – imagine a computer scientist being asked to work in a genetics wet lab because
she has experience with bioinformatics. She may have some of the shared background related to the tasks, but none of the applied skills to start out as an expert in a new field.

All of this said, judging competency using features provided by the game has become a difficult to impossible task. In today’s WoW, this belief is often developed in a similar, and somewhat old-fashioned manner by most raiding guilds. Applying to be a member of a guild often involves an application and trial process. Applicants are given a trial period that is often several weeks long, during which time they are given opportunities to prove what they know and show they can integrate socially into the guild:

*We always have a trial period of about four weeks where we take a look at people if they fit in socially as I mentioned if they are performing what they should be performing. If they do the dps if they do certain jobs like properly doing the mechanics we asked them to do. Usually after four weeks we will invite them to the guild and the raid roster.* (Tyr)

*...when I was in the hardcore guilds we'd always pre-screen new guild mates by letting them come in for like a 2 week trial or whatever. Bring them on raids with us or whatever, see how they do. You couldn't roll on loot or anything. But if they passed our trust task and they didn't ninja the loot or whatever then we'd vote to bring them on.* (Kvasir)

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41 A “loot ninja” is an individual that takes loot in violation of social norms or group rules.
6.1.1.3 Predictability

To build a mental model of the predictability of another individual typically requires a certain degree of shared history (code Bp). In some cases, guild members pull in shared history from external sources (real life friends, association with other online groups, etc.) – this is detailed further in a later section on group identity. When no previous shared history exists, players take opportunities to create history. This is another benefit of the “trial” period of new applicants attempting to join a guild. It isn’t simply about learning if they’re a skilled player with the right equipment, but is also a chance to learn about that individual and how they react socially to different situations. This can’t be done as a singular event, but is an ongoing process of discovery that takes time:

*For me I’d have to play with this person more than just once. Developing some sort of online relationship in terms of knowing who this person is. What do they do, what's their family life like, you know. Is this person helpful? (Sif)*

This quote also accurately illustrates the permeability of the “magic circle” of gameplay with MMORPGs. The idea that players are agents isolated from the real world outside within a fantasy gameplay is weakened considerably. In the more social guilds, players expect each other to bring in parts of their real lives into the game – and those parts are valuable in determining how they’ll behave in the guild. In this way, individuals are using real-life factors as context clues and delegates to forming an initial trust belief in another person. They are pulling in multi-level associations of behavior from social positioning outside the game to establish a frame for evaluation.
It is important to note, however, that not everyone draws the same conclusions from these relationships – they are seen through personal lenses. For example, the guild finds out that a new player, Vidarr, has two children who have made it into their school's honor roll. One guild member hears this and reasons that Vidarr must be very responsible and organized, and thus highly reliable and predictable. Another guild member hears the same thing, but their experiences lead them to assume Vidarr is likely very occupied with his children's lives, making his ability to play the game for extended periods of time (and over long durations) much less predictable. The same information results in two different alterations to the predictability trust beliefs. But, nevertheless, it still allows each player a frame to begin forming those beliefs.

This initial frame will likely be replaced as they share more relevant, in-game experiences with Vidarr, creating an understanding of his social positioning with respect to his gameplay behavior. Echoing the idea of getting to know someone one player was asked what they would consider when deciding to trust someone with a risky trading task, and they replied:

*How long have I known them, have I traded items with them before (such as crafting a potion or something like that) and what they say about their personal life.* (Verdandi)

Again, there is the example of pulling in a shared history and an understanding of who that person is in the real world. However, Verdandi adds to this but giving an example of a similar experience that occurs in game (potion crafting) to the hypothetical one presented.
The example of trading a crafted item illustrates both the reliance and predictability beliefs fairly well\textsuperscript{42}. First, consider basic material trading in earlier online games. This often involved two separate transactions:

1) Player A gives payment to Player B
2) Player B gives the purchased item to Player A

Of course, there are many variations of these involving different quantities or with the order reversed. But, the root sequence is the same - there is the opportunity for the second player to take what they are given and give nothing in return. Trading often involves a degree of \textit{dependence} (one player has something another player needs) and heavily rests on a \textit{fulfillment} belief between the two players. Likewise, each player must be \textit{willing} to trade. However, there is a special expectation put on Player B that they are likely to \textit{persist}. By step 2), Player A has already committed to the transaction, but Player B has not.

The trade system in Vanilla WoW removed the advantage of Player B and the requirement to rely on the trust beliefs to trade. It did so by causing the completion of a trade to occur in a single transaction. Players open up a shared user-interface window where each specifies what they are willing to trade and both must agree before the trade is completed. Any change in the items offered for trade would remove the agreement and players would have to re-agree.

\textsuperscript{42} The competence belief is factored out here – it would be difficult to play the game at all without understanding how the trade window works. Trading and crafting are binary skills – either you can or you can't do them.
Crafting an item is different, however. Often times, crafter not have the material resources to complete the new item on-hand and the buyer must provide them. The game does not provide a single-transaction method for doing this and the players must rely on the two-step process mentioned above. Revisiting Verdandi's comments – she specifies that the experience of similar past situations would help her determine if she could trust this individual now. With the crafting example this is a two-fold belief: 1) she's participated in a similar two-step transaction in the past and believes she can reasonably asses the person's intentions for a future task, and 2) she could also assume that the person would like to continue trading in the future and would not risk violating her trust at this time.

However, even with the permeability of the magic circle, there are some boundaries between real life and in-game life. In the workplace, there are subjects that people typically don’t discuss with other co-workers because they are points of contention where disagreements could make it difficult to work with each other. Guilds can be no different in this respect, but with the recognition that it makes the game more enjoyable for everyone:

_We don't allow in general - in our guild chat - or even in our party or raid chat - politics, religion, or any subject matter - or profanity. Because, we figure this is a game, people are coming here to relax, there could be children, there could be people that are offended, there's no reason to bring that up._ (Urd)

By legitimizing social norms through guild rules, this potentially leaves the expectation that, despite political or religious differences, everyone should be getting
along and having a good time playing. Since this is a game, these things should have no major impact on how you play. By not allowing them, guilds also prevent them from having an impact. For example, people with opposed political beliefs could be less likely to persist or willing to help each other in the game if they were constantly discussing those beliefs with each other. The game provides methods of communication, but ultimately it is up to each individual guild to enforce how and when those communication channels are used.

There is also the expectation that a person wants to remain a member of the group. They should be playing to benefit the group and conducting themselves in a manner suitable for that endeavor:

*You kind of assume that the people want to hold their spot and if they do something douchbaggish and loot ninja then they're not going to be in the raid group anymore. It's almost self-preservation. That's what I mean about Loki, his initial instinct might be I want to take this for myself, but in doing so, what is that going to do to my standing in the guild, is that going to remove me from the group? It's almost self-preservation. If I want to keep raiding, I need to do what's right by the group and not just by myself.*

(Freya)

This follows from the previous quote from Sif, “is this person helpful?” – A typical trait of value for a group member. It also shows how the predictability beliefs contain a certain amount of overlap with the concepts of *reciprocity* and *strategic cooperation*. Playing with others allows individuals to experience events with each other to help formulate a model of how they might react in the future. The longer the shared
experience, and the more similar the circumstances, then the better the model that develops. In response to the hypothetical trading task and what qualities they would look for in a guild member/trading partner, one player said:

*How long I've known them, what I've done for them and what they've done for me. If I did something for somebody, like if they had me do trading with them for one of their alts.* (Thor)

This is similar to Verdandi’s comments, but specifically mentions the reciprocity factor tied to the exact activity. It also takes it a step further by saying, "you trusted me with this earlier, so I can trust you with it now", which goes beyond simple economic reciprocity, showing that the cognitive evaluations about a trustee are not simply "can they be trusted?", but they are also influenced by "is this a person that trusts others?".

There is also an expectation that being a member of the guild means that not only are you receiving help, but that you are giving help and this factors heavily into determining if an individual actions will be predictable:

*I mean tit for tat right? What goes around comes around, karma, whatever you want to call it. I help them, they help me. If they didn't and they consistently didn't then I would have a problem. That's where the whole - okay you're not acting like yourself what the hell's going on? Why aren't you being helpful like you used to or whatever? And that would require some conversation.* (Sif)

In this way, reciprocity may not be supported by specific rules within a guild, but it is an expected norm of behavior between guild members. Group norms become just as important to evaluating the predictability of an individual as codified rules. Sif’s
comment illustrates that departure from these norms could be quite the cause for alarm. One participant specifically mentions the reciprocity factor and adds that it is an important part of the social factor:

We’d say, hey, Monday night before raid we’re gonna go run this instance and get Sindri his mount and so on and so forth. We were social in helping each other get through these things. We knew there would come a time when it would have to be reciprocated. (Odr)

In many ways, the raid system is designed to help facilitate the growth of predictability beliefs. Since it often takes many attempt to succeed at raids, they provide ample opportunity to learn how other guild members react in high pressure situations. This also means that running a new raid will show how likely a member is to persist in light of repeated failure. In an LFR raid, this isn’t as true. Currently, there’s no way of knowing how many times an individual has attempted a raid, and it is very likely that there is no shared history. Since members of LFR raids come from a pool of thousands across multiple servers, there is also no expectation of future cooperation or reciprocity. LFR raids are also somewhat of a commodity, rather than a unique experience socially tied to people in a specific guild. It is difficult to leave a normal raid and try to find another one to join, since these are typically tied to guilds. This isn’t the case with LFR raids. It isn’t uncommon for individuals to simply leave an LFR and look for a new one if it seems that things are not working out.
6.1.2 Extended Trust Model

In addition to the existing cognitive trust beliefs, several factors were identified that should influence the formation and evaluation of trust. Two of these recurred often during interviews: predisposition towards trusting and risk evaluation (part of temporal motivation theory).

6.1.2.1 Predisposition

It is important to understand that predisposition (Code P) - which can be considered causal conditions (Creswell, 2012) - is not limited to a predisposition to trusting behavior, but also that individuals are predisposed to how they approach the game environment (which in turn can have an effect on trust behaviors). There are individuals that enjoy playing in groups for raids, but would rather play alone while completing other game activities. Some like to play in groups no matter what they’re doing.

Many people responded differently when questioned on what circumstances they would ask for help. Some refused to ask for help unless it was an absolute requirement:

*Questing and stuff? That's like asking someone to help me grocery shop. It just seems stupid to ask for help. I feel like I would get on peoples nerves ... I tend to play for ten minutes and then go [away from the computer] for an hour ... I mean I'll be logged in but I could have got up to let the dog out. It's easier if I'm questing or doing things in the game. Unless it's a raid or something that requires the assistance of other people and I've set aside those two hours of time or three hours of time to do that activity. The rest of the time, or the downtimes, it's just easier if I go at my own pace. I
have seen people that take begging for help to a whole new level. In fact
one of our guild standards is that we are not a babysitting service. It's one
thing if you need help, but it's another thing if you want someone to play
the character for you. I pay to play my characters, not yours. (Freya)

In this instance, Freya’s playstyle as a guild leader is reflected in the rules of the
guild. This in turn changes the type of people applying to the guild, typically sharing all
or many of the same predispositions. In guilds that were more casual with their approach
to the game, it was much more typical for people to favor playing in small groups when
not in a raid, and to ask for assistance in a wider variety of scenarios.

These players would likely score high on the “agreeableness” factor of the NEO-PI
personality inventory (P.T. Costa & McCrea, 1992), which is indicative of a significant
willingness to trust others. Having this predisposition also changes the potential
development of trust. A common theme among the trust beliefs is the need to develop a
shared history so that a trustor can build a mental model of a trustee, preferably with
similar trust-testing experiences. If individuals are less likely to interact in a way that
requires trust, they are also less likely to develop that trust over time. The trust that they
do develop will be based on fewer experiences, and thus more fragile in response to
negative outcomes.

This also has a direct relationship with the reliance trust belief. Those that are less
agreeable may be more likely to place greater importance on the requirement of reliance.
They may only engage in a trust activity when the dependence is characterized as strong
(the trustee is necessary) rather than when the dependence is weak (the trustee could do
this better than I could).
Additionally, a player’s experience when they are new to the game can have a lasting impact on how they approach similar situations in the future (their game-specific social development). In many cases, people started playing WoW with a group of friends and thus insulated themselves from potential trust issues. However, this isn’t always the case. Some players indicate their luck in finding people they could trust early on, but recognize that there are risks within the game they weren’t aware of:

*I was lucky to fall into this guild and meet some good people fairly early on. Since then I’ve realized there's a lot of people out there that you can’t trust. But I didn’t know that at first. I was really naive about it.* (Urd)

There are other ways that predisposition can change as the game progresses. Typically, when a new expansion or patch is released it changes game mechanics or how certain values are calculated. This is usually to try to create a balance between avatars with different specializations (so no one type has a significant advantage over another). It is also somewhat to help newer players advance their characters more quickly as the game content expands. Often this rebalancing results in certain avatars losing abilities or having their effectiveness reduced. This is something that, unsurprisingly, causes many players to become quite frustrated and angry. But as they play longer and become accustom to the process, they learn to accept it:

*I can tell you when I was younger I used to really care and I used to really get visibly upset about these situations, but as I got older and I realized that hey it's okay. Really it's okay. I know people in my guild who get thoroughly upset and thrown a hissy fit about it. Like the 18-19 year olds, the kids that are still in college you know. I don't...okay they changed the*
game a little bit. Okay, that's what they've been doing ever since the beginning. I remember when I had to keep all my mounts in a bag. I'd have to summon them individually, now I get a whole tab. Just click summon and it picks one. People were complaining that the mounts that used to cost 2000 gold and people got upset that they were changing that to 50 gold and it's like, why are you so upset. It's just a game. (Skuld)

For a game that’s more often compared to a job than to a leisure activity, the realization that it is “just a game” represents a fundamental shift in attitude that can change many of an individual’s future interactions. By taking those interactions less seriously, it also lowers the perceived risk of delegating tasks or responsibilities to another.

In the quote above, this attitude is shown to reflect a sensitivity to the economy. At one point, the developers changed the pricing of a very expensive item to make it significantly cheaper. Many players spent a lot of time earning enough gold to buy one of these, and then the price suddenly dropped to a level that wouldn’t require nearly as much effort.

However, it isn’t just a simple reflection of attitude and the value of time. Players are trusting the game itself to work a certain way, and that the developers will maintain it in a specific manner. This change, for many players, would cause a violation of the core trust beliefs. Players must depend on the game to do certain things for them, as it is the environment they play in that imposes rules and provides features. They also believe that the designers should intend to fulfill the task of maintaining a stable economic system within the game. By changing something core to the economy, such as highly priced
items, the developers could be indicating that they aren’t willing to maintain a predictable and stable economy. Further, since they’ve changed values once, it becomes unlikely that prices will persist in the future.

For more experienced players that have been through many expansions and patches over the years, this type of change has become very common. The attitude that was initially a breach of trust beliefs towards the developers has become a predisposition to expect these kinds of changes when updates occur. This isn’t to say that they necessarily regain their trust in the developers, but that their cognitive model of what they expect from the game itself changes – “it’s just a game”.

6.1.2.2 Temporal Motivation Theory and Risk

Within interview data, expressions involving risk were typically noted under the category of Task Context (T), with the sub-code for Risk (Tr) – however these were often co-located with the other task context codes (Task Location, TL; Task Timing, Tt; Social Positioning (Task), Tsp). Task location and task timing were eventually grouped into a category of Task Temporal Position (Tsp) during analysis. Taken collectively, the task context codes represents two important categories of codes mentioned by Creswell (2012). Most of these codes represent the context with the sub-code for risk marking broad intervening conditions related to trust related actions. That is, they represent factors that influence how an individual may act upon trust beliefs, but do not directly create those beliefs.

One of the primary benefits of developing cognitive trust beliefs is that by having a mental model of a trustee a person can better manage risk associated with delegating
tasks to another individual. But, within the World of Warcraft, what risks are being managed? Participants were asked what they thought about risk in the game and a few responses shared this sentiment:

Really nothing in the game itself as far as just the game platform itself is risky…For me it doesn't become risky until it interfaces in the real world. (Fenrir)

There's not a lot of risk I find in wow to ask other people for help... If you're younger some people might try to get your account info and say they won't hack and what not and as you get older you realize you don't give that stuff out...but overall there's not a lot of risk, maybe a 1% chance of risk. (Brokkr)

Something that feels like a risk is a hard thing. Because there is not much that. I feel there's not much that can go wrong! You can lose gold but, you know, that would be annoying. You know, I mean, wiping on content is not… doesn't feel like a risk, you know? Because it is going to happen. It's the nature of the game. (Hermod)

Another player dismissed the idea of risk, agreeing that it was all “part of the game” (Sif). That said, what part of the game was valuable enough to consider losing it risky? Hermod mentioned losing gold (in-game currency) and others brought this up as well:

When I got my benediction staff, I took a risk asking someone on the spot for a [potion] if they had it in the zone. This was when I was kind of gullible. I went ahead and gave them the money for the [potion] because I needed [it] so bad. But he said he had to buy mats. So I gave him the
money and trusted that he would come back with my [potion]. And he did.

Money was a crime back then because 20 gold was a lot of money. I remember when I broke 100 I was ecstatic. But then I realized that raiding every week I had to make, I had to keep myself around 100 because of repairs. Repairs were so expensive back then. (Magni)

An interesting aspect that comes from this quote is that raiding requires that an avatar’s gear be fully repaired at the expense of gold. Since raids are often highly scheduled events, this means that there is a specific point in time that a player must have acquired the gold and done the repairs before they are properly equipped to raid. Since an avatar may die multiple times while attempting a raid, they also have to make sure they have enough gold available to repair immediately.

Additionally, recall from temporal motivation theory (Steel & König, 2006) that motivation to act is time-sensitive. In the example above, the player took a risk because they needed something immediately in their current area. But if the perspective is widened, over a larger timespan, the perception of players change a bit:

There’s always risks of losing gold or repair costs… I mean it’s just a game but can be bad if you lose an item or you pay some gold to repair. It’s just a game. … but it’s just digital gear, it’s not important in the long run. Gear is so transitory anyway, it really doesn’t matter. Although I’ve known people that did get upset over those kinds of matters. It doesn’t bother me. (Urd)

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43 Player avatar equipment becomes damaged if the avatar dies while wearing it, potentially breaking and becoming useless. The game provides a feature to “repair” damaged gear at the cost of gold – more powerful gear would cost more gold to repair.
Urd also echoes the previous sentiment here that “it’s just a game” - she acknowledges that over time a player is going to spend a lot of gold and that these expenditures are expected and recurring. The gear itself being repaired is transitory and will be replaced by more powerful items. By looking at the game and her needs from a much wider timespan – possibly months to years – rather than the immediate needs of the moment, Urd relaxes her sensitivity to time. Additionally, she likely plans ahead to have enough gold on hand for repairs following a raid rather than waiting until the task becomes imperative.

Returning to Fenrir, he mentioned that he only considers risk if there’s overlap with something in the real world. Baldur hints that there is one factor where the in-game world and the real world overlap significantly:

*I play with two friends, lots of the content is like where there are elites and they'd destroy me and are meant for a group of 5 but there's mostly just me on the warrior and my friend on the druid. As far as the game world goes we're taking the risk constantly when approaching these mobs cause you pull one too many and we're both dead...which costs money and time.

*Time mostly. Money as well. (Baldur)*

Rather than toss aside the notion of risk because it's just a game, Baldur acknowledges here that lost time is an important risk factor. Since he plays with friends, he isn't just risking his own time, but the time of others as well. But again, this is a risk he accepts and taking these kinds of risks is part of the fun of the game. There are other, less risky activities he could participate in within the game world – activities he could even
complete alone, rather than with friends – but he chooses the more difficult, social undertakings.

A few other players mentioned time as an important risk factor:

As a lock, there were some [risk] in order to get our level 40 mount back in the day. We had to complete a quest line that required 5 or 6 or 7 people. I don’t remember the exact number. So I had to get help if I wanted to have a mount. There’s the potential for dying and having to start over again and trying to get all the people together if they didn’t have time. It was quite a risky endeavor if it wasn’t successful the first time. (Odr)

The game has dumbed down so much now, there’s less and less risk within the game. The only risk you would have within wow is time. Wasting somebody’s time would essentially be the only risk you’d be looking at....When it came time to work on the legendary cloak I felt like...I really don’t want to ask people to help because it takes a while to do this quest. There’s certain parts where you need help with it. You can’t do it by yourself. But at the same time it can take some time to get the people together and to get out and to do it and then end up failing. That was the only time recently that I felt to have any sort of risk. But that’s the only risk you really have out of the game. Essentially is time. Wasting people’s time.

(Thor)

Here, both players recognize the inherent value of time and convey their concern for managing the time of others. Several players expressed that earlier versions of the game were more difficult – but as Magni mentioned, part of this was because gold was very
time consuming to acquire. The task Odr mentioned is one that was part of Vanilla WoW that is no longer required. It was difficult, time consuming to complete, and required the time and effort of others.

Contrast this to Thor’s quote, which is referring to much more recent versions of the game. He surmises that there is less risk within the activities of the game itself, and more risk just with wasting time. The legendary cloak quest he mentions required completing multiple objectives within multiple raids. This is far more time consuming than Odr’s task and would typically take several months to complete. In a very real way, this embodies the spirit of Thor’s comments – while there is less danger within elements of the game, time remains the ultimate thing of value and scarcity.

While at one point gold was time consuming to acquire, a few players implied that this is no longer the case. Magni follows up later with this statement:

...because money's so cheap and instant justification is there, and bag space is no longer at a premium… (Magni)

However, in earlier versions of WoW it could also be more time consuming to get equipment back after an avatar died:

There was the grave running, that's where you used to do the grave running. Die, try to get as far as you can, and then do the same thing until you were finally out of range (Magni)

While this could be difficult, it was not nearly as bad as the challenges faced by EverQuest players, which still contain the same threads concerning the value of time:
Some of the risk we had in EverQuest - I did a little raiding in EverQuest and you could go raid ... and fear you end up wiping...well now we’re spending the next 6 hours trying to get our bodies back. It’s just insanity. (Thor)

In fact it is likely that this sentiment is shared among players of many MMORPGs. Time is universally valuable, one of the most limited resources a person has to manage, and MMORPGs take a lot of time to play and master.

While time seemed to be the most recurring item of value to be risked, it was not the only one. There is an intrinsic value with being a member of a raid team, a coveted position:

As a raid member they can lose the trust of being able to be reliable. And but that's just for the raid, that doesn't necessarily mean I don't trust them in other things, but there's been times that' people have had to get put into - okay you're in fill in status if we need somebody to fill in and you're on you can come but otherwise you're not a regular member because we can't rely on you to show up. It happens. (Urd)

As previously mentioned, much of the game content is only available to people who can secure spots on raid teams. While LFR has removed this restriction somewhat, there are still equipment and other parts of the experience that require full normal raids. Without a raid team, players may feel like they’re paying for a game and not being able to fully experience what they are paying for. This may also be one of the reasons that time is so valuable to players – there is a direct monetary, real-world cost for a player’s time. Emphasized from a previous quote:
It's one thing if you need help, but it's another thing if you want someone to play the character for you. I pay to play my characters, not yours.

(Freya)

Returning to Urd’s example, if a player has done something to lose the reliance/fulfillment belief they have in a raid member, that member risks losing their spot on the team – despite being competent and otherwise predictable.

Here, the strength of those two beliefs is reflected in the fact that the guild would still consider them as a backup option in case a regular member was unavailable. While the guild trusts them to “do their job”, they don’t trust the individual to fulfill the role on a regular basis. Notably, this means that they still trust the individual with identical tasks – but they only trust the individual in a different task context. In this way, the task context works as a frame within which both risk is evaluated and trust thresholds are adjusted. It also suggests that the decision to trust is not a simple aggregate of belief values, but that each is independently evaluated as related to the frame of the task and its context.

Additionally, the risk is minimized and trust is probably recoverable if the player establishes more scheduled activities. Likewise, a loss in the belief of a player’s competence might be recoverable if they can show they’ve been actively working to increase their skill. The last set of beliefs, predictability, could be much harder to recover from:

If they stole anything, again, if they stole, because you raided with them, they'd have the potential to lose a prime raiding spot. Nobody wanted to take those kind of chances. It wasn't even thought of...again I ran into a
few griefers that were black listed but...it was very rare. It wasn't a common problem like it is now. (Magni)

Theft was repeatedly mentioned as a socially destructive activity. In many cases, it would lead to an immediate removal from a guild – not just a lost raid opportunity. Theft violates not only trust beliefs but also social norms and established rules of conduct. The degree of intentionality is also more severe – a player may miss a few raids because of poor scheduling or forgetfulness, but a player cannot accidentally steal. They must have had that intention.

For a game often described as a social experience, most players did not mention social aspects when related to risk. Sif mentions that the game becomes more difficult without friends:

*If you don't have a guild or at least friends on the same server, it's hard to play. So even though I like soloing, I also like having people to talk to.*

*Which is fine. (Sif)*

But beyond the game mechanics, friendships are valuable in many other ways. They are part of our senses of identity, belonging, and can influence our self-worth and confidence. They help us deal with difficult times and share our most precious moments. Why then, would they go virtually unmentioned as part of a risk of playing? It could be that many players already have external relationships with their friends and consider World of Warcraft itself to be “just a game” that shouldn’t affect those relationships. But as Skuld mentions, it may also just be something that during the interview process, is just overlooked by players:
I've had risks where friendships have been at risk or the friendliness of acquaintances have been at risk with drama involved. I don't really know if that would be considered an in game risk or not. (Skuld)

Players may be compartmentalizing the game into “in game” and “out of game” aspects during interviews. There are activities that are clearly bound by the game itself, such as questing and raiding – but a lot of the social aspect takes place on voice chat, forums, or other external systems.

The usage of one feature, BattleTag sharing, provides limited evidence that players are actively considering social risks. BattleTags allow players to see each other's status and communicate even if they are playing on a different WoW server, as a different avatar, or even if they are playing another Blizzard game such as Diablo or StarCraft. Many players emphasize that they carefully consider who they allow to add them by battletag. In one case, an officer in a guild mentioned only allowing a select few to do so because this person wished to minimize interactions with their guild while they were playing in other contexts – reducing the risk of guild members interrupting their gameplay or misinterpreting the time they spent away from the guild. However, this is a very indirect indication of social risk considerations and while not clearly associated with risk, many of the more social factors of gameplay emerged as relevant to trust and are detailed further in the following section.

6.2 Emergent Factors

Throughout interviews and observations, open coding (Charmaz, 2014) was used to detect three new factors emerging as common topics of conversation when discussing
trust: telepresence (code Tele), reputation (R), and identity (G). In many ways, as socially influenced and defined constructs, these three overlap considerably. All three of these items add support for the assertion that trust is a multilevel phenomenon. Since these were not included as part of the extended trust model and emerged during coding, they are areas that would be excellent subjects for future investigations.

6.2.1 Telepresence

MMORPGs, by their very nature, are telepresence heavy environments. Users are controlling avatar representations of themselves within a 3 dimensional environment filled with other user avatars, active in real-time. With World of Warcraft, this telepresence extends to voice communication. Hearing someone’s voice, rather than just reading text they type, turns out to be a major factor in understanding that individual, and thus developing trust. One participant explained the importance rather well, including the limits of current telepresence:

I think voice chat has - is the biggest thing that helps with people's forming a relationship and an understanding. When almost everything was mostly text chat - basically once you start getting into bigger raiding and stuff - we went into team speak and vent - stuff like that. But at the very beginning it was mostly text chat and it's much harder to understand people's what's behind their words if you can't hear or see them. Even just

44 WoW originally had no voice communication built into the game but has since added it in an update. However, many players aren’t even aware that the feature is included and those that are aware consider WoW’s implementation to be substandard compared to the offerings of third parties. Most players use services such as Ventrillo (Vent) and TeamSpeak for this purpose.
hearing doesn't always do it. Because we're so used to dealing with people's face to face signals. Just texting doesn't really get it across. People become offended or take things wrong really easy because they misinterpret what has been texted. In voice chat at least there's a lot more - at least there's voice inflections. We still don't have the face to face contact going on, but at least the voice inflections helps a lot with that. I think that has been the biggest being able to form trust in the game. (Urd)

Historically speaking, this captures the evolution of voice chat fairly well. In the earlier days of MMORPGs voice chat was not yet ubiquitous. Internet bandwidth was at a premium, online voice services were an additional expense for hosting, and many players simply didn't have microphones. For these reasons, players often relied on text communication. But with the distinct challenges facing players in games like WoW, many eventually came to rely on voice chat.

As Urd notes, there is a distinct advantage to voice in that it conveys additional meaning that is lacking in the words alone. There is a wealth of information included in paralanguage non-verbal communication that players have access to when they hear someone’s voice. Do they sound confident or worried? Does their tone and speed indicate that a request is imperative, requiring immediate action? As a socially involved game, a player might even be able to tell if another is exhausted from work, or otherwise having a “bad day”. It also helps us evaluate intention, separating a harsh criticism from something intended as a joke to relieve stress. These inflections, intonation, and other cues heard while a player talks help others understand their personality and how they react socially, giving building blocks and a framework for forming cognitive evaluations of behavior.
This reliance on voice communication to form trust was consistently echoed by other participants:

_The people I raid with I think I would trust more because...it really depends. In PVP not everyone may be in Vent or whatever so it'd be harder to communicate and trust._ (Kvasir)

Here, Kvasir contrasts raids to PvP situations where people are less likely to use voice. PvP differs from raids since the group size is quite a bit smaller (for arenas), or less bound to guilds (for battlegrounds). Their activities are also much shorter – arena matches may only run for a few minutes, and battlegrounds for an hour or two. For these reasons, voice chat is far less likely.

Some participants brought up that voice communication was part of understanding the person, rather than the avatar the person is playing.

_The trust factor is always been just strictly in dealing with the individual people behind the toons. The game itself, the basic anonymity, involved in it if anything would make me a little more cautious. But vent has definitely helped, being forced into situations where you have to be forced into working together as a team such as a raiding situation. I think that is the one feature that does build [trust] because there's a big difference [joining a pick up raid] versus raiding with your own guild... there's a big difference in seeing typed command when you're in a rush situation where you might not be able to read and pick up on nuances versus hearing somebody's voice, their inflection. You know, this person has some urgency, I might wanna listen up._ (Fenrir)
Additionally, this quote illustrates an important factor – the additional information provided by voice (via inflection, timing, etc.) is a valuable component of communication while coordinating resources and people. Others stated this as well: “For harder difficulties, yeah, you usually need voice” (Tyr).

One interesting aspect of this quote is that Fenrir identifies anonymity as a risk factor. It’s difficult to know who another person is. But hearing their voice adds a level of identification to them – this avatar is attached to this specific voice. A text chat identifies the avatar by name, but everyone’s text looks the same – there is nothing truly unique about it. Hearing someone’s voice adds something nearly tangible to the association and understanding of who that person is.

In this example, Fenrir also specifically mentions raids, which given the relative degree of coordination required, would make the difference between text and voice very pronounced. However, this information is always present and people interpret it continually in their understanding of each other. In one example, a participant mentions voice as an important part of recruiting new guild members:

In those two weeks I figure, if you're active enough that gives me a chance to talk to you to make a personal connection. For me it's a personal connection... We're recruiting a tank right now. So somebody contacts me for that specific role, I will probably ask them to get in vent and ask them about their raiding history and what fights they know. (Freya)

Importantly, Freya is directly using voice as part of her recruitment method. There are a couple likely reasons for this. First, as a guild leader she has many responsibilities and her time could be somewhat scarce – talking in voice is much faster when there is a lot of
information to rely, and she recognizes this. Second, she’s using this as an interview, evaluating the person’s intentions and also the truthfulness of their statements and non-verbal cues help her make these evaluations. For example in a text chat it would be more difficult to determine if a person was reading off a cheat sheet when discussing their raiding history, rather than recalling from memory. There wouldn’t be an easy way to notice delays in response, or stress caused by asking for specific details that might not be included in reference material.

All of that said, voice chat is also seen as something that is optional by many. In earlier MMORPGs, with broadband internet just emerging, voice communication didn’t exist or was severely limited, and their players still had to coordinate to succeed at similar challenges. This typically led to a lot of pre-programmed text commands (macros) that could be issued by pressing a single button, which is an option still used in WoW by some:

*I've had a guild raid leader who refused to use Vent in the past. So he'd always type everything out, it took forever. But, because he was like a hardcore EverQuest guy back when they didn't have Vent...during that time he was still an effective leader - he knew his stuff. But it was just more annoying to get things across and he would always have tons of macros to come out. But...I don't know. I like communicating on vent. It's definitely a plus playing a computer game or any video game for that matter. (Kvasir)*

Whether or not the reliance on text macros here was because the guild leader learned raiding in EverQuest is a point that could be debated. While it is certainly a feasible
explanation, there could be other reasons as well. One participant mentions that some
people just don’t like using voice:

   You'll have two different types of people. You'll have the people that will
   converse a lot in vent and then you have the people that either don't have
   mics or don't feel like talking on vent. They'll converse a lot on guild chat.
   
   (Thor)

   Somewhat unfortunately, all the participants for this study were of the first type
mentioned – voice users. With that in mind, an evaluation of why they prefer not to use
voice would be mostly speculation. However, one participant mentions that he goes as far
as to turn off all communication with many of the guilds he is a member of:

   On most of the toons I don't even have guild chat enabled because I'm
   basically in the guild for guild perks. I'm not there for social experiences.
   
   (Tyr)

   In this example, he has no reason to be identified by his guild mates. His reasons for
joining the guild are not social and do require him to rely on an individual member. By
turning off chat altogether, he simply becomes a name on a list, a ghost of an avatar that
the other guild members may never interact with.

   Tyr is also illustrating an important point here – guilds offer game benefits beyond
social experiences. In updates to the game, additional features were added – guild banks
for storing equipment, and guild perks which give avatars benefits just for being in a
guild. Players will often times form or join guilds just for these things, rather than as a
means to play end-game content such as raids. In this way, guilds can be used as a pure
game mechanic, and don’t require the social experience – there’s no expectation of future interactions with other members, and no reason to build trust.

For players that aren’t intending to run normal raids, the guild perks have limited value. There are many that aid in gaining levels (providing additional experience, yielding equipment, etc.), and these are helpful, but are they necessary? As indicated by one participant, as the game has been made progressively easier to play other content, guilds themselves show little use:

> At first I heavily vested that interest in [my guild] and then I realized you didn’t have to. Because nobody really cared… There's no gratification or vested interested needed anymore in a guild. You don't need to be in one

(Magni)

### 6.2.2 Reputation

In the absence of personal experiences or other indicators of a person’s potential behavior, their reputation might be the only information available to decide if someone can be trusted. Typically in WoW, trust decisions are not spur-of-the-moment, and can be considered with some care over time. For this reason, reputation acts as a delegate for deciding if an individual will even be put into a situation where trust is required. The most basic example of this behavior is recruiting a new member into a guild, where a player’s reputation could ruin their chances:

> Back then there were so few good guilds because you needed 40 people, you didn't want to lose rep with one of the good guilds because you
basically had to transfer servers because your rep got spread to the other guilds because guild leaders knew each other. And all the raid leaders knew each other. We used to ask each other when we get recruits if they were in a previous guild, why did they leave? … And reasons ranged from, no they just didn’t get a lot of play time from us because we had a primary raiding group, oh no the kid stole loot (Magni)

As Magni mentioned, the raid leaders all knew each other – there was a shared history of playing in the world, and a general reputation of each guild that had developed over time. Therefore, guild leaders would already have a cognitive model of trust beliefs for each guild and their leaders, which would help them evaluate if they could trust information coming from any particular leader. In this way, guild leaders formed a trust network. If the information could be trusted, it would function as a delegate for forming trust beliefs about the recruit.

This isn’t just a process of a leader researching a new recruit either. Guild leaders will actively inform each other of the reasons for a member’s dismissal:

Well I’ve had a player leave here and I have had and I have done it myself, contacted the guild master of the guild that person was in, especially if that person has been in seven guilds in six months, what’s up? Are you waiting out your promotion period and then you’re ganking everything from the guild bank? What’s happening? So I’ll find out. I have had guild masters or officers from other guilds whisper me and say hey, so and so left our guild, just letting you know they’re a ninja or they just took stuff from our guild bank. (Freya)
In this way, the trust network of guild leaders is not simply a passive network to be queried. Instead, it is an active network of informants working to preserve the trustworthiness of each individual participant, and by association, their guild.

Freya also mentions the importance of caution in accepting the word of others:

*Sometimes I'll give it the benefit of the doubt. There have been times where I've said “okay thank you for the information”, and then I want to find out for myself. I don't always take it off the jilt of a previous guild master, because I don't know the entire situation. That's why we have a 2 week waiting period. (Freya)*

While there is some shared history between informants, that history is often fairly isolated and doesn't involve recent internal guild events. As Freya notes, it is difficult to have a view of the entire circumstances for a member leaving a guild. As socially dynamic organizations, there could be personality clashes, politics, change in leadership, or other internal or interpersonal contention between current guild members and a former one, which could be shaping information coming from that guild. It is to the discretion of the trustor to determine the reliability of external information when making these decisions. In Freya's example, she notes that this is part of the purpose of the waiting period – to validate or invalidate the external information.

Reputation also isn't always a private matter discussed between leaders. Often times, a quick response to a transgression in a group is to kick an individual from the group and immediately inform everyone on the global chat channel:

*I do remember being on and there was this one...there was actually [someone] in general chat saying “don't play with this person, all he does*
is ninja your stuff. They'll just take it, he'll just need everything.” It’s like

oh no, that’s not good. (Sif)

Observations also indicated that some players actively try to make a name for themselves. On one server, a particular individual was a frequent commenter on the global chat channels. Typically, he discussed his own competence relative to the abilities of others. In doing so, he made himself a social outcast on the server and had his account both temporarily and permanently banned more than once. That said, he remains a legend of infamy to this day.

As some participants mentioned, there are also non-verbal cues of reputation. When seeking a guild, a potential member can look at the level of the guild and their achievements to indicate how far the guild has progressed. But one factor was mentioned as fairly important by more than one player – the age of the guild:

I went through about 4 or 5 guild interview before I decided on this guild in particular. I was thoroughly impressed by the fact that they've been around for a while. (Skuld)

This isn’t that different from what we see in the real world with commercial branding including the company’s date of establishment or other important milestone – Levi’s riveted clothing, patented 1873! Players recognize that the game has been around awhile and that guilds can be volatile – they aren't just surviving a changing environment and challenging content, they're surviving the internal sociopolitical struggles of a long term group. Many guilds don't endure for an extended period of time as member's priorities shift. A long-lived guild is an indicator of good leadership and stability (predictable) – a
guild that can be trusted to endure for a long time to come (persist through challenges), and is capable of taking on challenging content (competent).

All of that said, WoW was released over a decade ago (2004). Guilds that have been around since the beginning are exceedingly rare. With many guilds requiring lengthy applications to be considered for joining, being invited into an established guild can also be quite rare and can encourage a player quite a bit:

So I found out that the head of this guild, she - they had been around since day 1. They were one of the oldest guilds around so I felt really kind of special that, wow, I got invited into one of the oldest guilds. So I felt very loyal to them... (Bestla)

It isn't just that the guild is old – it's that the guild has been around as long as the game itself. There are kids playing WoW that weren't yet born when it was originally released. Being part of a guild that has been around that long is like becoming a part of gaming history. You aren't playing with other people, you're playing with legends. These are the people that competed to complete the original content first – before any websites had tips and walkthroughs, when the chance of failure was extremely high. There were no mods telling them where to be and what to do. They had to figure it out, learn the game, and develop strategies all on their own. Many participants frequently referenced how the game has gotten much easier than it used to be:

Vanilla is hella hard. Don’t let anyone tell you differently, this game is brutal. Not like Ultima, but still brutal. (Baldur)

Pulling together a group of people to survive the brutal challenges of Vanilla WoW was no easy feat. These are people that had to learn to survive repeated failure. They had
to be able to handle extreme frustration while remaining organized. Even if none of the original members were still present, the claim that a guild survived Vanilla WoW is enough to foster a certain positive reputation and reverence. But beyond working for world "firsts", players also indicate that the basic mechanics of the game have slowly but steadily been changing:

*Back in vanilla, they had a lot [of risk]...vanilla was far more difficult and was not tailoring to the lowest denominator.* (Thor)

A lot of long time players share the sentiments of Thor – the target audience of the game has changed considerably over the years, and the game has changed to fit. One of the initial draws of WoW wasn't that it was an MMORPG, but that it was a way to continue the story of another game, Warcraft 3 (W3). W3 wasn't as much a role-playing game at all, but was a real-time strategy (RTS) game. RTSs are known for requiring high coordination, tactical thinking, and dedication. W3 players probably wouldn't have readily accepted a WoW that seemed too easy – they thrive in challenge.

Over the years, that audience has expanded from any initial targeting to include people with many different playstyles – which also includes a lot of players that don't have the time, energy, or drive to take on the most advanced challenges in WoW. As such, Blizzard has implemented many features, and altered the game rules to better suit the widest audience, or as Thor notes, the "lowest common denominator.” Simply put, much of the game has gotten easier – and existing content is generally altered with every expansion to more rapidly facilitate players advancing to the new parts of the game.

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45 During initial development, WoW was actually built by extending the W3 game engine, so they share more than just a story.
All of this said, the reputation of a guild created in the second or third expansion, despite being long-lived does not compare to the reputation of a guild that has been around since Vanilla. Even if the duration of two or membership were the same, they are qualitatively different things and players recognize this.

There is a stark contrast between the attitude of players that left after Vanilla and when players talk about the current game after several years of additions and changes. One participant repeatedly mentioned features of the current game had an effect on players and the target audience:

*I think again it promotes the lazy gamer. It's the instant gratification for doing whatever you're doing. I need to be over there. Okay boom I'm over there. There's no work involved. I remember trying to run up and do.....Stranglethorn Vale? And there was that chokepoint where griefers would just hang out. Northern Stranglethorn, right across that bridge or whatever. But that was the chokehold. World PvP would just happen there because it was a travel choke point.* (Magni)

In the current game, transportation has become a lot easier – with multiple ways to get to different locations, many of which avoid dangerous areas or potential player versus player combat and/or are virtually instantaneous. Magni isn't just saying that these changes are targeting a wider audience, but that they *promote* or encourage a behavior from existing players as well. Players that formerly enjoyed the more difficult mechanisms adopt the new, easier methods into their playstyle.

Reiterated by Thor, these kinds of changes were done to allow more people to experience the game content:
You needed 40 people to raid. That's a lot of people. That's a lot of people to coordinate. Just to see endgame content. They changed it because only like 5 or 10% of all players were seeing endgame content. That's kind of crappy but...They had to really dumb down the game. (Thor)

This emphasizes the fact that older guilds (and older guild members) had experienced a much more difficult game world, and thus would gain a degree of respect and reputation for having endured those early times. This is a level of reputation that cannot be achieved within the current structure of the game since the game mechanisms that facilitate forming that reputation have been severely altered or no longer exist.

Participants indicated that another non-verbal mark of reputation was the power and rarity of the equipment worn by player avatars:

Yes and it actually was [a badge of reputation], not just kind of. It showed everything you've done. I mean the stuff they later on added as achievements was there all along...that he got that shield over there, the bug shield from Ahn’Qiraj means his guild had to down the [Emperors], means he knows how to play, and he earned it...seeing someone in a piece of [Tier 3 gear⁴⁶] was like... everyone inspected him, everyone control-clicked again, it was pure magic … you knew exactly who was who, the hierarchy set itself. (Baldur)

Another important aspect of Baldur’s quote is that it embodies a sense of awe and respect; just seeing an avatar with incredibly rare items – everyone would immediately

⁴⁶ The rewards from raids are categorized into Tiers, with the power of the gear increasing with the tier number. Tier 3 was the highest tier in Vanilla WoW.
check out everything that avatar was wearing. He was good enough to get through the most difficult content, what else did he have on him to do that? And yet, this immediate visual recognition of someone’s achievements has been almost entirely lost in the current game. Many of the rewards from the different difficulties and types of raids are all visually identical – just with different statistics. Additionally, a feature called Transmogrification was added that now allows players to clone the visual style of one item onto another, so seeing an item may not even tell you what it truly is.

However, one participant mentions that it can also assist in establishing a reputation because players are freer to customize the overall visual appearance of their characters:

*Transmog is a very good idea and a lot of different MMOs are picking it up…. I think it was back in wrath where we were no longer wearing judgment armor so all that stuff was just wasted. Well now we can transmog into it. My paladin is usually in judgment armor just because I like the judgment armor set … [In Vanilla] it would have made people more identifiable I think. (Thor)*

The previous section noted the importance of voice in establishing a sense of telepresence and identity of an individual. These aspects, along with a distinct visual appearance, provide context clues that can help link an individual's avatar to an identifying reputation. In the current version of WoW, who would wear Judgement armor? A player that self-identifies with that period in WoW history and worked through more difficult content would. Newer players may not even be aware that this armor set exists!
Participants indicated that establishing a reputation (either positive or negative) was a huge factor in WoW, which in newer versions of the game, has become much more difficult:

*Reputation, in worldwide everything is location location location. In gaming or MMOs its reputation, reputation, reputation. While earning your reputation for most of the game has died - like I said it used to be your rep meant something. Your guild rep meant something. You actually earned your reputation on a server - who you are. Now most guilds you don't even know who most guilds are on servers. Unless you're out looking for guild ranks and stuff, you don't even know who half the ranks are. The ones you do know are the ones who make fools of themselves in trade. So obviously reputation is out the window, nobody cares anymore. For me, personally in who I choose to raid with, it is about reputation.* (Freya)

Players overwhelmingly indicated the addition of “cross realm” functionality as a barrier for trust formation. A cross realm feature is any game feature that allows players from different servers to interact with each other as if they were playing on the same server (realm). One type of cross realm feature has already been discussed – LFR allows players from multiple servers to play a raid together. However, other types have been implemented in WoW, including “Cross Realm Zones” (CRZs).

The main world of WoW is shared by all players on a particular server. One player can see other members of their server walking through town, heading down the road, fighting spiders in the forest, or visiting the auction house at a large city. The world itself is separated into areas, with specified appropriate avatar levels to play at – for example,
the area around the town Goldshire includes game content for avatars from level 1 to 10. Players above those levels rarely have a reason to visit the area. Thus, as the server population ages and approaches the upper levels, many of the lower level areas become like ghost towns. For a variety of reasons, this is an undesirable outcome for a persistent virtual world.

To solve this problem, Blizzard implemented CRZs. Areas with few active players on a server (“low population areas”) on multiple servers are hooked together so that all of the participating servers will share a player population for those specific locations. While this does indeed make the area much more active, there are significant limitations to interacting with players from different servers. For example, they can’t join your guild and you can’t leave the area with them – they would just disappear to you (and you would disappear to them). It also increases the pool of people you might interact with from a few hundred to several thousand. One player commented on CRZs as being “This is in my opinion the worst thing they could have done” (Baldur), indicating there were potentially other solutions to the problem.

In general, players see this having a negative effect on establishing reputation:

I guess you could say that. The only way to establish reputation now is through general chat in a major city. That’s basically all you can really do now. When you’re grouping with people you’re grouping with people like cross realm all the time. (Thor)

Thor’s quote above specifically mentions "general chat in major cities" – communications over this channel, in this location, are not typically cross-realm. Major cities have enough ongoing population to be maintained on a single server instead of as a
CRZ. But the chat channels in WoW are a flurry of text. An area with a population large enough to avoid becoming a CRZ is also one with enough people to keep the chat window scrolling with comments made by different people, making conversation (let alone identification) very transient. Likewise, it lacks all of the benefits of telepresence found with more localized interactions (such as attaching a comment to the image of an avatar). If a player can't really form an identity of any given chat participant, how are they supposed to establish a reputation at all?

Thor continues by providing a useful retrospective on how important reputation was in older version of WoW compared to the current iteration with the new cross-realm features:

> You could get blacklisted back in the day. If you were a total asshat you could literally be - people would be like "don't put him in your guild he's terrible". You'd see he'd be talking in general and be like "oh god - that guild picked him up." You could go find the guild leader and be like "dude, this guy's terrible. He ninja looted on this run." They'll kick him out. Your reputation can be as famous as you can be infamous. Your reputation was basically your life line. If you had a bad reputation you were essentially - people would revere word of mouth. But yeah...that's all lost now. There's no point anymore. (Thor)

As he mentions, blacklisting was a serious action in earlier versions of WoW. An excluded avatar would lose access to a lot of the game's content without a guild to help. In many ways, an avatar was virtually "stuck" on a specific server, and would have to play with the characters on that server. Blizzard makes available a service called "paid
character transfers” to move an avatar from one server to another, but it costs $25 and during Vanilla WoW, could only be completed once a month. For someone continually generating a bad reputation, this could get expensive very quickly and result in a lot of time not being able to play the game content.

But, he laments, much of the ability to rely on reputation has been lost – ”there's no point”. In essence, the network of trust used for reputation has collapsed as the ability to identify and isolate an individual has diminished. While character transfers still cost money, they can now be completed every 3 days. Players can play for a while, even get into a good raiding guild and experience advanced content, and then proceed to break rules and violate norms only to hop to a new server. With mechanics like LFR and CRZs, often times players can behave in any manner they want without much repercussion because they will never be seen again anyways.

That said, others admitted that there were benefits to CRZs, but at a cost:

*Cross realms are like a double edged sword...it could be good if players were more apt to communicating with each other on a regular basis.*

*(Hoenir)*

Another player shared a similar thought, but was a bit more critical of the repercussions:

*The whole cross realm ability is in my opinion a double edged sword. I think it has thrown a giant boulder into the game, I think it's shattered it in a lot of ways. It's really, really taken away accountability for players. I know in Lich king, Ullr had a reputation on the server we were on as being a good tank. I had rep for being a good [damager per second] or a*
good healer because you had to stand around in Dalaran and wait to do the daily every day. So you had to group with people and if people aren't in your guild you talk to people on your server. That's how a lot of our guild members got recruited back then… But now there's no accountability for knowing what you're doing. You can completely and utterly suck at this game and still see all the end game content, still get loot and have absolutely no idea what you're doing. (Freya)

Freya's comment alludes to another issue many players have with LFR. It isn't just the transient nature of the activity that makes reputation development difficult. The risk and challenge involved in the content is so minimal that players have no reason to put forth any effort that would be fundamental in developing a positive reputation. If a player's goal is just to experience the content, and not experience the challenge (of normal raids, for instance), there is no motivation to work towards that end by developing social ties (and also no motivation to restrict bad behavior).

She also makes another interesting point here. Cross realm features provide a much larger pool of players to interact with, but that pool is temporally transient. Further, players have no easy way to interact with other players from a server that is linked cross-realm. Previously, reputation could be spread by word of mouth, messaging someone directly in game or using general chat – but those connections are broken in cross-realm. Relationships with other players have become much weaker as the gameplay has made the requirement to establish those relationships much more ephemeral.

*It's also made it where the good players don't care… no motivation to make an effort. LFRs made it so it's just enough raiding to see the content*
and get the stuff he needs. Well Flex is actually going the same direction. Because of the cross realm abilities, Flex is becoming LFR. I've gotten into a few Flexes that have been absolutely terrible. There's people with extremely low item levels, absolutely nothing gemmed or enchanted, and they're doing half the [damage per second] it takes to meet the end raids. So it's a huge waste of time for players like myself who do know what we're doing. (Freya)

It isn't just the effect these areas have on new or casual players that is cause for concern. Freya claims here that as a result of LFR and CRZ, existing players are altering their behavior to conform to the new, lower standard of play. Players that previously undertook the more difficult challenges may have simply been doing so as a result of wanting to experience the content, and following through with that behavior because it was how they always had played. But with an influx of the unmotivated LFR players, they may no longer see a reason to even maintain their existing reputation and social connections.

One participant points out that reliance on reputation isn’t a quality unique to WoW, and he’s seen it with much greater effect in other games:

[Gemstone 3] had a really great community because it had a mechanic that allowed every class to have its own specific niche. So clerics could [resurrect others], empaths could heal, there was a lot of different classes that did a lot of different things. So people were reliant on other people to get stuff done. I have boxes I need to pop. I'll just take it to the rogue over in the tower he can get them popped for me. You had to do a lot of social interaction on there. You would think somebody would take advantage of
that. No they don't. It's mostly because you're not really anonymous so much anymore. YOU have a reputation. When reputation comes into effect, you really have to rely on your integrity and your reputation so people are more apt to trust you. So community plays a huge part in essentially trusting other players. If they don't have to rely on a reputation or they don't have to worry about an integrity, they're going to be least likely to be trusted because you can't hold them accountable for anything. (Thor)

He's tying reputation directly to game features here. These games were designed with the intention that players relied on each other. Without any built-in mechanics for managing relationships, this would mean that reputation would surface as a means for managing relationships and delegated actions for risky transactions. In these cases, gameplay necessitated social relationships to experience the vast majority of gameplay and an optimal gaming experience. Communities built up around the gameplay elements as a way of sharing reputation and facilitating social exchanges – without them, the games would likely be either much more difficult, or entirely unplayable.

6.2.3 Identity

Reputation has significant overlaps with the concepts of identity and community. A player’s reputation is earned in part by the way they play as an individual and also with those they associate with. Participants from two of the guilds interviewed mentioned that the guild was actively engaged in managing its own reputation. In part by committing to a standard set of rules:
Three rules: 1. No Drama, 2. No cheating no exploits, 3. No being an idiot and casting a bad light on the guild. (Baldur)

As a member of a guild, an individual shares in the identity of that guild. Actions undertaken by an individual reflect on the guild itself. Rules such as this also accentuate the concepts that are core to that group identity – we don't get caught up in drama, we play fairly, and we're all in this together. Individuals that have difficulty with these rules will either adjust to them, identifying more with the group, or leave because their self-identity conflicts too much with that of the group.

Having a shared identity and rules such as these provide members with a framework for evaluating the actions and intentions of other group members – we have rules X, Y, and Z, thus I can reasonably expect a guild member to act with some variation of behaviors A, B, and C. This is another example of a social system that provides a delegate for forming initial trust beliefs in addition to other sources or when there is lack of any source. Here, we see that the guild acknowledges the importance of that identity:

We have a code of conduct that's fairly...it's pretty cut and clear. We really do stick to it. We expect people to follow it. We will - we don't call people out in open chat or anything because that's just rude - but we will talk to them about what's going on. Part of the code of conduct is that they represent the guild no matter where they are... (Urd)

Urd mentions that they guild actively attempts to manage that identity. She says that calling someone out in a guild chat channel is "rude", but it's much more than that. It's communicating with the group that an individual isn't behaving in a way that reflects the group's current shared identity, essentially labeling them as an out-of-group member.
Rather than challenge someone's status as a group member, they try to deal with it by discussing the issue privately. This is for a few reasons. First, it may just be trying to get that individual to act in accordance with the shared group identity. Second, the discussion could also result in re-evaluating the actions of the individual to justify them as supporting the shared identity. For example – an individual got into a fight with a non-guild member, but it was because the other person was harassing their guild.

If altercations could not be rectified as part of that identity, the guild would follow up to enforce those rules and other expectations of behavior:

...so even if they stir up trouble elsewhere when they're running with other people that aren't in the guild and we get complaints and we try to deal with it and find out what was happening and fix it. (Urd)

This reaffirms Urd's previous statement – the guild is actively involved with managing its members and its sense of shared identity. It also indicates that the guild acts as an agent (we, as a group), shared between its members. Individuals might be responsible for specific tasks, but the guild itself is responsible for the actions of its members.

We're pretty good as officers as soon as we find out about something we address it as fast as we can. If we have to we'll have a meeting about it and decide what we're going to do or the guild master will talk to one of his advisors and just ask how it should be handled. ... Or he'll just handle it sometimes directly himself or he'll just have a chat with the person himself like – “hey what was this crazy crap you're doing. You're out there representing our guild and you're out there acting like an ass. What are you doing?” ... We try our hardest to nip that crap in the bud right away
because that's what makes people get upset and start talking and this and that and we don't want that. (Bestla)

As Bestla mentions, continued conflict has a way of spreading. It can reflect poorly on the reputation of the group that passes to external players, causing them to identify conflict with the identity of the group. It can also cause internal strife among members as they attempt to reconcile that conflict with each individual member's sense of shared social identity - maybe this guild isn't what they thought it was? Maybe the leadership isn't as strong as it should be? Players may also begin to re-evaluate which group they identify more with – perhaps they think they are more like the detractor than the guild.

Sharing the identity of the guild meant sharing its rules and making them a part of your personal identity:

I was really lucky in falling into a guild that was very - that requires a certain amount of...responsibility of its members. That's their call - DOJ stands for defenders of justice and they kind of take that seriously. (Urd).

Until 2011, guilds could not change their name. That name formed a core part of the guild identity, a label that encompassed all of their ideals and what they represent. In this example, their rules and expected conduct are directly reflected by that name. This is also a label that easily encapsulates this identity to be viewed by outsiders who, while not being aware of all the politics and internal rules, can infer a general concept of them just from hearing the name.

This creates the potential that external individuals will delegate the formation of trust beliefs for members of this guild with just an understanding of the name. In reality, however, many guild names are nonsensical (Westfall Chicken Brigade). They could
otherwise be historic, not representative of the identity of the guild, or deliberately deceptive (The Burning Legion Disciples are quite friendly, and not really engaged with the goal of destroying the universe). Even so, they can still make an impression – the guild has a sense of humor, the guild respects their past – which is valuable in constructing a delegated model of behavior for the guild and its members.

In Vanilla WoW, commitment to your guild rules and identity as well as socializing within the guild, was a requirement for being able to participate in raid content:

_You had to keep that social aspect there. If you ever wanted to be in the raid, the primary raid group, and be competitive where you know we were in the top ten to twenty of all servers to clear? … To maintain that ability to clear and be competitive you absolutely needed to be on there, sucking up to people, schmoozing, basically maintaining a good rapport with your entire guild. (Magni)_

This quote illustrates another important factor – it wasn't just membership within the raid group that makes socializing and identity important. These activities can make communication and organization easier as well. A shared identity gives group members structure for understanding concepts and ideas being communicated – they understand the powers of authority at work, and the social norms shaping the communication. Because of this, there is also a shared meaning behind communications and more information is delivered with fewer words. In a situation where every moment matters, such as a raid, this provides a significant competitive advantage. It also provides a basis for more positive interactions between members, allowing them to form positive trust beliefs about each other, and the guild itself.
The socialization, communication, and relying on each other in virtual battle, helped to reinforce the shared identity of the guild:

*I mean, it banded 40 people together from all around the world in killing dragons and sharing virtual beer and silly shit no one could ever understand but players themselves. (Baldur)*

Here, Baldur also extends the shared meaning of the encounters to an experience all WoW players, as a larger community, would understand. Identity, itself turns into a multi-level concept from individual, to guild, to the shared identity of all WoW players. The in-jokes, vocabulary and phrasing that develops within the game, and shared history of important events all coalesce into an overall self-image of a WoW player. Players can share "war stories" of times past without explaining every acronym or game mechanic. An outsider might hear them discussing how amazing it was that one time when everyone started turning into zombies and spreading the plague, and have no idea what they're talking about or why the event was important.

Additionally, observations over many multiplayer games have shown that this shared identity often leads to purely social events held within a game that strengthen that bond considerably – virtual weddings, holiday celebrations, birthdays, and other random gathering are not uncommon. These kinds of relationships often follow the players as they venture forth into new gaming environments as well.

Urd mentioned of her guild that “[it] is actually older than WoW. It started in Asheron’s Call.” This isn’t uncommon, and groups from non-game related internet communities will often play together in WoW. That external shared identity is often enough to lay the foundation to trust:
So my guild is from this community group. ... my guild on the US server is drawn from members who play WoW and are all on [this community] and we're on the same Horde. So some of these people I didn't know very well and I knew they were members of the [community] and they were in the guild and so it was all good. (Sif)

This player mentions how a shared identity from an external group was transferred to that of her guild within WoW. That relationship to the other community provided a delegate for creating initial trust beliefs around a new guild member – members of the other community behave in a certain way, so it can be reasonably expected that they will follow those behaviors here as well.

I've only been in one guild and the reason why is because the only reason I started playing this is because I have friends that we've been playing online games together since 1996 and one day one of them got a beta invite and so we all ended up getting beta invites so we started a guild and we've been playing together ever since...We kind of blurred that line ... we were strictly an online community for the first probably 5-6 years or so ... because we had played together for so long we just got to be really close friends and we have attended weddings and things of that nature so we have met each other in real life and we've had barbeques and people drive from all over the US ... we took a road trip one time ... [across the country]... and we drove straight through 20 hours ... and played games together. It was a really good time. (Odr)

The sense of shared identity helps to build stronger relationships between individuals over time, strengthening trust beliefs. This quote also illustrates that trust delegation isn't
unidirectional. The shared identity and trust beliefs developed within the game helps to structure meaningful real-world relationships. Another example:

The trust in turn is built on whole different levels, raiding, grouping through game... Takes a month or two of playing to at least consider calling someone my friend, but when I do I don't make distinctions between "virtual" and "real" friends. This is something that I've come to learn through the last 10 years playing, before (on the actual retail) I think most people had their groups of friends from the real life. (Baldur)

For Baldur, it isn't just "blurring the line", the line simply doesn't exist. As players come to understand each other through their shared identity and history, the location (physical versus virtual) of those experiences begins to become less important. While trust beliefs generated during gameplay and real-life might be somewhat separate at first, as a more complete picture of the individual forms, they become a unified understanding of the person. Baldur also points out that this development happens across and between multiple different areas and activities, which establishes a cognitive model that can be more reliably used to evaluate the individual given different social and task contexts.

Shared identity can also bring with it expectations for how an individual should approach and play the game. One particular case is that of the Something Awful Goons. They are a well-known group that includes thousands of players both within WoW and in other online games such as EVE Online. One of their players mentions the identity they share:

The goons are a tight knit community from the Something Awful forums. These are people that kind of identify with a trickster idea - go out and
cause problems and play tricks on people. Often times what is happening is that people don’t like the idea of playing with random people and they don’t know anyone else playing the game, but if they play with goons, they’ll get a pretty high level quality player. And if that player is not high quality, they can make fun of them and they either quit the game or get better. (Mimir)

Mimir's quote illustrates that the lack of that shared identity is undesirable itself. Communication is more difficult and there's no cognitive shortcuts to help predict the behaviors of any one individual in the group. With a completely random group, it might simply be too much information to keep track of. By playing with an identifiable group, it reduces the initial need to evaluate each other player individually.

As previously mentioned, it typically takes shared experiences over a length of time to develop the cognitive beliefs needed to form a trust decision. Like reputation, shared identity works as a delegating force for when those experiences do not yet exist. However, unlike reputation which was not always to be trusted, Sif’s quote above expressed quite readily that she would place implicit trust in individuals she shared a group identity with. This could also extend to relationships between members that weren’t shared with the rest of the group.

I would say we usually give them a good 30 days to see how participatory they are in the guild. How they interact when they get in, how they chat, how they - what are they doing for the guild? Are they just going in the bank and taking stuff as soon as they can? Are they becoming friendly with other people in the guild are they respecting if an officer talks to them? I
would say for the first thirty days we have them at a really low rank like “turtle poop” before their really allowed to get any kind of access to even the first tab. (Bestla)

Access to shared guild resources often acts as a marker for development of the shared identity of new members. Guild banks are arranged into user interface “tabs”. Each tab can require a different set of security permissions to access, which are assigned by rank in the guild. That rank becomes part of your self-identity within the guild, but is also a shared component that exercises power and legitimates social norms. This particular guild uses names for the lower ranks which accentuate the notion that newcomers aren’t yet full members of the guild – which will change as their shared identity develops.

Members that participate more and interact positively are showing that they're starting to self-identify as members of the guild. Those players are becoming socially vested in the interests of the guild itself and accepting the rules and social norms. By doing so, their actions are also becoming more predictable and thus trustworthy.

Another example of trust networks comes from guild applicants that are referred by existing members. The shared identity and beliefs of the known individual would be used as a delegate for the new, unknown individual while also transferring the responsibility of negative consequences:

Yeah. It's more than just who's the person on the screen, it's the person behind the screen operating that character. We did actually have a person who was not from [the community] who was in the guild. Personally known by another guild member...But our guildie knew this guy personally. Went to school with him or whatever. So you were comfortable with him
coming in... If you know this person and you've developed a relationship where you know more than just his toon name, and that he knows his way around wow, for me then that would be okay. I can personally vouch for this person now. Because if the person I've vouched for comes in and turns into a ninja, that's my fault. To me that's my fault. (Sif)

When the applicant reinforces the model built by the delegated trust beliefs, it becomes a stable cognitive model of that person and guild members accept them into their shared identity – it is no longer a delegated belief or estimate of behavior, but an affirmed belief and model. This strengthens the trust network as now the existing members are willing to act as a delegate for the new individual. They willingly accept that responsibility because the potential outcome is a result of their identity and beliefs.

All of this said, the shared identity of the guild is not a static unchanging social construct. As mentioned in previous sections, guilds change over time as they gain new members and lose existing ones. Additionally, they may also split or merge with other guilds. These are activities that can radically alter the identity of the guild and often lead to difficult circumstances and adjustments.

One player was asked for example of an activity that could cause her to lose trust in other players and she responded:

The whole let's stage a coup and take everything from the guild bank and run off with the name and that sort of thing which is basically what happened with [my previous guild]...that would cause me to lose trust real quick! (Sif)
A coup is an interesting example because it illustrates very rapid social changes within a guild. These changes could have significant effects on the shared identity of guild members. Members may decide that the coup itself is an action they don't personally identify with and is so severe that it violates their existing cognitive model of trust for the group as a whole, forcing them to re-evaluate their status as a member and their relationships with others.

In another example, a merger between guilds resulted in conflicting identities.

...We ended up combining our guilds and ever since then for the six months to a year to two years after that, there was always contention between their guild leader and our guild leader how we were handling loot distribution and things of that nature. There was always this contention - why is so and so getting that when I should be getting it? (Odr)

He continues by explaining that the contention was a direct result of conflicting norms between the two guilds.

We ran our guild different in that we distributed loot based on the need of the guild, not particular members and any time of right like...for instance if I wasn't able to be active for say 6-7 months then I show up and this piece drops and it would help the guild more to give it to me than to give someone else a half a percentage bump in [damage per second] then I would end up getting it, pissing off the other person. For us that worked well. We added these other personalities that weren't used to doing things that way. They had this perception that it should go to them and
probably rightly so. But that's just not how, we didn't do things that way….They really just festered until it got to the point where the guild split into what the original guilds were. (Odr)

In the absence of being able to resolve the conflict and create a unified, shared identity, the guilds decided to split and go their separate ways. Notably, he also mentions that this entire process was not one caused directly by game features, but primarily by external social factors:

*It wasn't anything that was introduced by game mechanics; it was more of an internal cultural thing than anything else. (Odr)*

While the dispute may not have been directly caused by a game mechanic, it was certainly affected by a vacuum in the game system – loot distribution was largely left up to the player, rather than handled in a single automatic way by the game. The social mechanism players and their guilds create and use to fill voids in gameplay become part of the shared identity of the group.
Chapter 7

DISCUSSION

The findings from the analysis of data reveal key insights into the mechanics of trust and how it is interrelated to gameplay and features in World of Warcraft. In particular, through the analysis and expansion of the cognitive trust model (Castelfranchi & Falcone, 2010), the two research questions can be discussed:

1. Do MMORPGs provide situations that require trust between people? In what way?
2. What are the relationships between game features, external social factors, and how trust develops within the game?

The analysis was conducted using an analytic induction method (W. S. Robinson, 1951). This facilitated the investigation of an existing cognitive trust model as instantiated in a novel environment (World of Warcraft) as well as supported exploring extensions to this model (predisposition and risk/temporal motivation) through the inductive process. During the analysis, additional themes were discovered that play key roles in the development of trust – primarily the delegation of initial trust belief formation to sources other than shared history when no or limited shared history exists.

Structuration theory (Giddens, 1984) played a key role in the analytic process. It provided a sociological lens to assist in interpreting the data. Participants’ responses were considered within the context of group organizations (the guild) and the structural properties they described or inferred. While not explicitly stated as such, the strategic conduct of responses was an important aspect of the analysis. Behavior was considered to
be relative to specific situations/tasks as well as temporal social position (individual activity versus group activity). This also considered the group composition at the time of the activity as well as how that composition was supported by game elements.

For example when comparing normal raids to LFR, it was important to consider the norms and organizational structure of the guild, as well as their power structure and how they organized power and authority. This was important in determining if a decision was highly influenced by a predisposition, deference to authority, the game feature itself, or other external factors. Additionally, the usage of communication was key in understanding delegation of trust belief formation (through communicating reputation and understanding the role of telepresence).

Adaptive structuration theory (DeSanctis & Poole, 1994) was used as a continuation of that lens through which to view players’ appropriation of game features. Faithful versus unfaithful appropriation coupled with instrumental meaning regarding those features was a useful indicator of player predisposition as well as the nature with which they approached the game itself – was it a serious task with real-world level impact or “just a game”?

This method and the sociological lenses used provided significant evidence to support the core cognitive trust beliefs: reliance (dependence, fulfillment), competence, predictability (willingness, persistence).

The primary evidence supporting the reliance belief was through a discussion of raiding activities. During raids, players are dependent on each other to perform specific roles to achieve success. The level of dependence differs from strong (for normal and heroic raids, a single individual can cause failure) to weak (for LFRs, individual players
are less important to success). This is also mirrored by the expectations of other players in normal and LFR raids – many players consider other players in LFR to be less likely to intend to fulfill their roles then in normal raids. An example was presented of unfaithful appropriation of the LFR signup process specifically to fulfill an alternative role from the assigned one, supporting this view.

Competence was also discussed primarily with regards to raiding, but also with a look at player avatar equipment. Most importantly, as the game has changed over time, it has become systematically more difficult to judge player competence without shared experiences. Previous versions of the game provided gear rewards that were easily identifiable as markers of achievement and accomplishment. With the addition of LFR and Flex raiding, this visual identification has become much more difficult. Since there is no strong dependence or requirement of fulfillment in LFR (and Flex to some extent), the gear and achievements rewarded from these experiences cannot serve as an accurate marker of competency at all. As an example, player level, while not a particularly good marker to begin with, became completely useless with the addition of the Warlords of Draenor expansion, which gifts players with an automatic boost to level 90.

Additionally, many players voiced concerns that the game overall has become much easier, so any marker provided by the game is less valuable now than it was in the past. This also has the side-effect of providing a symbol of achievement for players or guilds that have existed since the original (Vanilla) WoW – older players and guilds are afforded a certain status among other players that typically denotes some level of competency.

Player additions to the game (mods/addons) have somewhat transferred one type of competency from being able to understand the raw game elements to instead being able
to use the mod to be successful within a raid. For some players, this translates into a lack of competency using core game mechanics.

The predictability beliefs were supported by less direct evidence than the others. Primarily, it was found that players require a shared history to develop a sense of predictability in other players when forming trust beliefs. The guild environment provides a framework for developing that shared history and a social context that encourages players to be both willing to help each other, and likely to persist if challenges are encountered. Likewise, guild participation in normal raids and flex raids provide a task context for those beliefs to develop over time. LFR lacks the social context since it is played primarily with random individuals. It (along with other cross-realm functions) creates a situation where there is also no need for a long-term social commitment, altering the task context as well – thus resulting in both little need and little ability to form beliefs about LFR participants’ willingness or persistence for an extended time\(^47\).

In addition to raids and guilds, players indicated participation in similar task contexts to be instrumental in developing trust in another with regards to a particular task. That is, predictability isn’t a belief that can be considered in isolation of the task context – it is highly relevant.

The predictability belief self-confidence was only supported in a limited fashion, but no contradictory evidence was found. It is likely that further evidence for this belief would be found through additional interview questions.

\(^{47}\) Although their intentions do become immediately apparent when they abandon the group or violate other social norms, this revelation isn’t typically transferable to future LFR sessions except when viewing LFR players as a group.
Two extensions to the trust model were also investigated – predisposition and risk/temporal motivation (Steel & König, 2006). In support of the recursive loop of structuration, behavior was found to respond iteratively over time, and this was reflected in predisposition. Players often approached the game with predispositions towards trust belief formation, and this predisposition was found to have two primary elements:

1. A core tendency of behavior, i.e. personality, that gave no indication of changing over time
2. An approach to the game and people within it, that is quick to change in response to experiences within the game

Predisposition was also found to be an indicator of task selection and method of appropriation. Players that exhibited high agreeableness were more likely to ask for help or play in groups when the challenge was not particularly difficult. These kinds of factors may also change which tasks players choose to undertake (for example, playing LFR but not normal raids) and the groups they associate with. This likely creates a social lensing effect that colors how they view the game and how they appropriate features and general gameplay.

Likewise, personal definitions of risk were shown to be quite indicative of how players viewed the game. Many suggested that there was either no risk in the game, or that the only risk was time. These individuals were far less critical of changes made by the developers – specifically with regards to changes in the economy or equipment in the game – and accepted that the risk is part of the game. These individuals also extended that risk to taking the time of others to complete tasks. This was one of the few indications that there were social risks under consideration. Only one participant directly
mentioned social risks, remarking that she wasn’t sure if social risks were considered “in game” or not, suggesting that players may be actively considering social risks in their activities, but not including them in their responses.

The analytic induction process also allowed for investigation of new themes that arose during both the interview and analysis phases. Particularly, three trust related themes developed from the data – reputation, identity/group identity, and telepresence. Upon analysis, it was found that all three of these operated to form initial trust beliefs by providing additional sources of information regarding the trustee. Telepresence (most specifically, audio communication) provided paralingual / non-verbal cues that a trustor could use to evaluate the truthfulness of information or assess personality characteristics of a trustee. Reputation and group identity were often used to delegate the initial formation of trust beliefs to other sources. Notably, beliefs formed in this way were considered to be quite flexible and readily changed as shared experience offered an alternative source of information. Lastly, these factors also contribute to the understanding that trust is multi-level in nature and trustors are evaluating not just an individual, but group associations - including shared associations in real-world groups - and information provided by others.

The following six subsections discuss these findings in more depth. The first, MMORPGs and Trust between Players, gives a brief overview of the comparative differences in trust between normal raids and LFR, and considers the extensions to the trust model and emergent factors more deeply. The second subsection, Game Features, Social Factors, and Trust Development, investigates this comparison further with regards to specific game features and the social experience of the player. The third subsection
presents an example of how a feature (LFR) in WoW could be modified to facilitate better trust formation.

Throughout this discussion, design guidelines are presented that could assist game designers to create features which could enable trust development. These guidelines are provided and discussed primarily within the context of MMORPG development. While the discussion of their application for designing other types of games is beyond the scope of this document, their applicability is not rejected entirely. The fourth subsection reviews and reformulates these guidelines for use with virtual teams as a context agnostic example.

The fifth subsection discusses the results in the context of swift trust theory and the sixth subsection re-examines the results and previous discussion and how it relates directly to the cognitive trust model. Finally, a brief summary is presented.

7.1 MMORPGs and Trust between Players

Trust is an inherent component of social interactions. It forms the basis of how we evaluate the intentions of other individuals, which in turn shapes our own behaviors towards them. Therefore games that require social interactions to facilitate gameplay must also require and interact with the formation of trust. Multiplayer online games (and in particular, role playing games) include those social interactions and trust altering characteristics. All three of the core trust beliefs (reliance, competency, and predictability) were invoked by participants when discussing activities required to play the game. Not only do players bring a predisposition towards playing certain game activities and developing trust, but also that the duration of play over the long term (and
game features) can have a significant effect on changes in disposition towards game related activities. This disposition in turn alters the way players form trust beliefs about other players, but also how they evaluate risk within the game.

7.1.1 Normal Raids and LFR – A Brief Comparison

Raids provide a key example of how designers are encoding trust supporting social structures directly within elements of the game. The mechanism of game supported guilds provide a framework for developing trust by encouraging socialization over an extended period of time, giving players tools to manage group hierarchy and responsibilities, and providing (both internal and external) identification of individuals with shared goals and values. They provide an example of multi-level trust development in that they offer a set of group-level social norms and sense of power/authority that allows an individual to somewhat infer and predict the behavior of the guild’s members. Pre-determined raid roles provide another level to this example – for example, the guild could extoll the virtues of their raid healers, providing a social component to form trust beliefs around those healers as a group and as a subset of the guild.

Without these mechanisms built into the game, it is very likely that players would develop guilds and roles via external tools (mods, outside forums, etc.) – this can be seen in early first person shooter (fps) games. Many of them had no built in concept of a persistent team, but teams developed nonetheless. Having guilds and raid teams built into
the game allows the designers to include these as functional elements that directly support trust building. For example, raids can be partially completed and resumed at a later time during the week, supporting not only a longer duration of collaborative gameplay, but one in which partial (if not complete) success can be shared by the group. Thus, allowing players to feel like they are making progress as a team, in spite of incredibly difficult challenges – all the while, learning about each other and building trust between them.

7.1.2 Adaptive Structuration - Normal Raids and LFRs

The participants interviewed provide a lens of the LFR experience from the view of those that engage primarily in guild-based normal raids. As noted previously, these players are not the intended core audience for LFR – but rather than a limitation, this creates the opportunity to see how a feature that is accessible to non-audience participants views its appropriation. This is important because while the feature is intended for other players, it is still both accessible and useful for guild-based raid participants – indicating that they may also appropriate it, but do so with different intentions and expectations.

First, the appropriation of the normal raid system by these players can be examined via the appropriation move types and subtypes offered by DeSanctis and Poole (1994). Overwhelmingly, participants indicated direct appropriation – primarily through explicit discourse. They expressed relationships between the structures of raiding and the guild (through guild assigned roles, training, recruitment, and other activities) indicating significant composition of structure between guilds and raiding. That is, the social activities of the guild and normal raiding were highly interrelated. There was little discourse involving constraint of normal raiding, other than the indication that the
activity was highly coordinated with various levels of leadership and management. Since most of the participants interviewed had been members of their guilds for an extended time, it is no surprise that many affirmed the approach to raiding that the guild implemented. Overwhelmingly, the appropriation moves expressed by participants indicate faithful appropriation of the normal raid system and its integration with guilds.

These participants view LFRs quite differently. Many of them still explicitly state their direct appropriation of the feature, but a few also bid – they suggest that LFR has its use for specific purposes, such as a training ground to use prior to normal raids. Interestingly, this type of bid also contributes a positive enlargement of the structures they experience within the guild and normal raids as an affirmation compliment. That is, rather than consider the feature with respect to its intended audience they subsume it into their existing social system and expectations of play – the proverbial lemons to lemonade transmutation. These players are actively involved in negotiating the instrumental meaning of LFR with respect to their own engagement in the game, trying to justify its intended purpose and adapt it.

But there is conflict between how they think LFR should be used and what they observe from the existing participants. One interviewee noted his frustration with a combination paradox in the appropriation of LFR by some – players that sign-up for a specific role in an LFR and play as a different role once participating. In his view, this is an unfaithful appropriation of the feature as the designers intended – a specific mix of roles is required increase chance of success within the raid.

However, he also mentions the reason that players do this – different roles have shorter times waiting in a queue for enough participants to start an LFR. These players
may see their actions as corrective. They could easily view the differing queue times as a deficiency in the structure of the LFR sign-up process, and regardless of the success chances of the raid in general, feel that they are faithfully appropriating LFRs as per the designer's intentions.

DeSanctis and Poole (1994) caution that the faithfulness of appropriation isn't a matter of how they users view the technology – but should be extracted from the technology to interpret the designer's intent. From this aspect, the LFR signup and engagement process clearly allows flexibility in role instantiation contrary to the role a user selected before entering. This would seem to fit the intent of the designers in details they disclose during interviews – LFRs are designed to work for a specific audience that isn’t as organized and may need to be more flexible in terms of composition (Hazzikostas, 2013b).

The lead encounter designer for WoW, Ion Hazzikostas said, "LFR is something for people who really want the convenience of being able to access and see the content without necessarily having a large circle of friends or waiting in trade chat and finding a [pick up group]" (Hazzikostas, 2013b). He specifically notes the time constraints that these individuals may have (10 or 15 minutes) and that these groups may be quite a bit less organized - issues that LFR was designed to accommodate.

Hazzikostas also points out that there is a separate audience for the "friends and family" groups – people who have partial groups but not enough to fill a full raid, or those that find normal raids slightly too challenging (Hazzikostas, 2013a, 2013b). Flex raiding was design to accommodate this audience separate from the LFR players.
Given that time constraints and flexibility are central to the design of LFR, it would seem that LFR players are indeed acting towards the spirit of the feature and faithfully appropriating it, even if they are manipulating their queue times. That said, despite clear indications by the designers, the implementation of the feature suggests a less coherent vision of the intended spirit. If it is intended for this specific audience and playstyle, why does it allow normal guild-based raiders? Participants indicate that during the Mists of Pandaria expansion, LFR became a required step towards engaging in normal raids – which suggests that the audience isn’t as clear as previously stated. In one interview, this is somewhat supported by Hazzikostas (Chaud, 2012). He mentions that the development of LFR is also very much grounded in a business decision - by giving access to raid content to millions of additional players, Blizzard can justify more expenses for raid development in general, improving the overall experience. This would help retain existing players across multiple audiences – effectively extending the life of the game.

But, these factors also create a somewhat incoherent spirit regarding the LFR feature – notably creating contradictory signals mentioned by DeSanctis and Poole (1994) and leading to the frustration seen by normal raiders regarding LFR. In this particular case, it also has a direct effect on trust development – multiple or fuzzy audiences do not send a clear message regarding behavior and expectations. Different views on the faithfulness of appropriation are reflected in different evaluations of competence. Recall this quote from section 6.1.1.2:

*There's a lot of things people can misuse in LFR like signing up as roles and not really reading up on what they have to do ... I've seen a ton of elemental shaman signing up as healer and just [doing damage]. Usually*
if you point that out most of the group will be like...yeah but he's doing a lot of damage so we can't really kick him. (Tyr)

Another participant quoted in that section mentioned a similar effect caused by players using addons to raid with – he judged their competency differently because he did not appropriate addons in the same way and viewed their use as circumventing a feature built into the game.

This discordance of appropriation faithfulness also has repercussions regarding the predictability beliefs - particularly willingness and persistence. Guild members engaging in normal raids typical conform to a set of behavioral norms that supports socialization and the organization of the guild and its activities. These often involve a sense of reciprocity and obligation to the guild. Since normal raids are instrumental to guilds that participate in them, their members have certain expectations regarding behavior within a raid that is colored by these factors.

If these individuals view LFRs as being intended (even in part) for them, then they may carry these expectations and apply them to interpreting the faithfulness of the feature appropriation. They believe that players should be willing to help each other and persist through difficult tasks. But, to the average LFR player, these expectations are non-existent, replaced by their own beliefs – they're playing in a time constraint, it's just a game, and they never expect to interact with their co-players again. If things aren't working out, why should they stick around? Why should they act a certain way when there are no repercussions?

While the designer's intentions towards faithful appropriation are important to interpreting how technology (or a game feature) are used, this example illustrates that the
there is also value in understanding the different views regarding the spirit of the design. Specifically, differing views can be highly correlated to a low degree or willingness to trust an individual seen as unfaithfully appropriating the technology within the context of using that technology.

### 7.1.3 Risk Evaluation and Game Theory

Raids and guild activities also offer key insights providing evidence that the core trust beliefs are not always evaluated in the same way – the evaluation is highly task dependent and shaped by how individuals personally evaluate risk. If time is critical, an individual may choose to trust another with a task, even if they aren’t necessarily reliable over the long-term. This also shows that the nature of the unpredictability relative to the task context is important. The group may lose trust in a person whom doesn’t show up for scheduled events, making them unlikely to schedule events including that person. However, if that person otherwise behaves predictably when they are present, then they may be trusted with unscheduled tasks ad hoc.

But, it wasn’t just how players evaluated risk, but also how they defined it. In this study, participants were asked to provide their own definition of risk within the game. Their responses to this question provided a marker that colored the rest of the discussion in a particular context. In cases where participants gave widely varying answers, their predisposition and definition of risk were key explanatory factors in understanding the reason.

Importantly, it also indicates that attempts to measure trust by quantitative means may prove difficult. While the cognitive trust beliefs are reasonably well-defined concepts that
may be transformed into psychometric survey items, the way that we evaluate those beliefs are highly contextual and interpreted through our past experiences, personality, and how we personally define risk.

What was risk to the players interviewed? Some participants defined it in terms of things game items they could lose as a result of failure – equipment and gold for example. Several of them responded that nothing in the game was risky – that only real-world events incurred risk. However, these individuals still discuss elements required to succeed and along with others emphasize that a big risk to playing is through expending or wasting their own time or the time of others. In effect, this could also be considered what is lost when a player loses gear or gold – these can be replaced by expending more time.

But the different personal definitions of risk can't simply be burned away in the crucible of economics as irrelevancies to form a pure classification of value. They're illustrative of how individuals approach the game – those that said there was no risk also indicated more casual responses to failure – and personal motivations for engaging in the activity.

One of the primary factors of temporal motivation theory (Steel & König, 2006) is that the perception of risk is sensitive to time and increases as deadlines approach. But embedded in this is the idea that individuals have a personal preference for which activities they undertake. This is reflected by Reiss, who says regarding motivations that "individuals prioritize them differently… Generally, the most important basic desires for explaining a person’s behavior are those that are unusually strong or unusually weak compared with appropriate norms" (2004, p. 186). Without an understanding of how each
individual prioritizes their motivations, evaluating the economic value of any particular risk is difficult.

With regards to trust development, this creates an interesting dynamic - a common component in nearly all the trust literature is that risk is a requirement for trust to develop. If an individual is not personally motivated by socialization, they may take what others consider to be "larger" risks when trusting other individuals with tasks where failure could have negative results to a social context. Additionally, since they perceive less of a risk, the trust that develops may also suffer and develop more slowly. In a multiplayer game, this could also have interesting results as the economic value of trusting with any specific task might be different between two players.

As trust and game theory both share the notion of risk evaluation and are often intertwined, this makes a compelling case for the importance of the narrative component in game theory experiments as mentioned by Grüne-Yanoff and Schweinzer (2008). However, the results shown here further emphasize that value beyond the scope of their analysis and indicate that not only is the narrative important for understanding the results of game theory experiments, but that the depth and richness in context provided by those story elements can cause dramatic differences as well. The participants’ predisposition to the context and interpretation of the lasting impact of decisions can result in vastly different outcomes.

It would be interesting to see a game-theory-style activity implemented in a long-duration, socially cooperative game as a component. In many ways, the comparison between LFR and normal raids provide a picture of what the results of that may look like. While not completely controlled experimentally, they offer an example of game-theory
instrumented in a rich social context as an embedded component or regular gameplay. The results, as communicated by players, have been fairly clear - with quick payoff and low social risk, many players choose to openly violate social norms and participate in offensive behavior in LFR. This number shrinks as the requirement for long duration relationships increases as a necessary component to completing normal raids.

As a design consideration, this is a difficult situation to deal with. Designers must encourage players without potentially scaring them away from the game entirely. The indented audience for LFRs are the players who do not have a lot of time to play in general, and potentially less time to dedicate to maintaining social relationships within the game. This leads to the following design guidelines:

*Design Guideline 1: Provide mechanisms for players to manage their preference to play specific activities with other specific avatars (i.e., manage social risk)*

This guideline fulfills the need to maintain long-term relationships to develop trust, but does not require that the relationships be deeply social or time consuming. The player, in this case, could be completely passive towards other avatars, simply noting the ones they enjoyed being around and those they did not. Additionally, it facilitates management of this relative to the task context (activity). This goes a step further then setting up the game interface to allow players to ignore each other, but actively providing a mechanism to automatically form random groups, but attempt to exclude socially incompatible avatars. Additionally, by separating these preferences by activity, it allows the player to differentiate those avatars they simply like to play with (or do not find offensive) from those that they actively socialize with (such as those found on a chat contacts list). This also creates a risk for anti-social players, in that their behavior could decrease the pool of others available to assist them with an activity in the future.
Additionally, as shown in the analysis, participants may also be conservative in the definition of risk that they provide versus the one they act upon. While many players indicated that they didn’t consider activities within the game to be risky they also were unlikely to mention social risks. As indicated by one player, it could be because they compartmentalized the definition to certain kinds of activities. This suggests that rather than being the result of a single open-ended question, an individual’s definition of risk should involve more directed probing that includes defining risk in terms of social relationships. This design guideline would also assist in facilitating the inclusion of social risk as part of a group formation mechanic, but in a way that may not affect the majority of time-sensitive casual players (other than by potentially providing a more positive experience).

In addition to facilitating a design guideline, this also illustrates that while game theory as currently used in experiments does not accurately reflect decisions that are socially bound, it can still be a useful tool in understanding that behavior. It’s controlled, statistical rigor and mathematical foundation can make it easy to dismiss game theory entirely as the wrong method for studying socially complex phenomena. But rather than look at it as simply the wrong tool for the job, it might be more valuable to appropriate it as an instrument that can be adapted towards better understanding.

By relaxing the controls around game theory experiments, social behavior can emerge and rightfully influence results. Key to this is instrumenting the experiment with a rich narrative that is deeply familiar to the participants, so that they can draw upon their past experiences and social connections to create informed, social-cognitive decisions. This adjusts game theory from a quantitative tool to a mixed-method device. This doesn’t
diminish the value of classic game theory experiments, but rather emphasizes that value by using them as a point of reference to see how behavior changes from social isolation to social embedding. Instead of focusing on the results of individual games and their statistical significance, behaviors would likely need monitoring as aggregate properties over time.

Implemented in this manner, game theory could be a valuable tool to study trust. Taking the raid example, we could see the effect of such changes as: taking away the ability to discern the effectiveness of specific participants (competency), lowered or increased risk, removing the ability to schedule raid events by making them randomly start on their own (reliability).

7.1.4 Emergent Factors – Delegation of Trust Belief Formation

The emergent factors – reputation, group identity, telepresence – overlap somewhat and all share a common factor: they provide additional sources of information to help form trust beliefs in the absence of related shared experiences between individuals. That is, they act as casual conditions that moderate this formation – often used as a result of specific context (initial membership in a group) and intervening conditions (particularly lack of shared history) – terms as defined in Creswell (2012).

On the surface the first two, reputation and identity, provide mechanisms for looking at other sources for more information, while telepresence is used to draw upon paralinguistic/non-verbal information that may be indicative of behavior. However, their trust-related mechanism is somewhat the same – they all delegate trust belief formation of an individual to another source.
Telepresence does this by allowing the trustor to interpret non-verbal signals as markers of behavior. Since most of this telepresence is voice communications in MMORPGs, the potential trustee’s word choice coupled with their intonations and inflections, can reflect upon experiences that the trustee has had with other individuals in the past. The trustor can question the individual about particular situations that require trust and use these cues to assess truthfulness, sincerity, and how seriously they take the example and process. These all help to paint a picture of the trustor’s intentions and shape the belief in their predictability – all without essentially sharing the actual activities.

**Design Guideline 2: Provide mechanisms that assist in forming a sense of telepresence and/or co-presence**

To an extent, many games already do this through the inclusion of voice chat and having a 3d avatar. This could be expanded to include things like overlays indicating the current speaker or the inclusion of video. Additionally, considerations for co-presence could assist in this as an information source. For example, avatars typically stand still when not engaged in a specific activity or are animated with simple “idle” animations. These animations could be made to adapt to the intensity of voice communication, or react to language typed by the player indicating certain sentiments. Avatar gaze could be adjusted to “look at” areas of interest in the field of play. The key to this design guideline is in adding realism to the behavior of audio and visual elements of avatars to enable a sense that there is a person controlling them. Not only do features such as these provide paralingual information, but they also increase the enjoyment of playing by increasing the perception that the avatar is controlled by a human (Merritt et al., 2011).

The delegation used for reputation and group identity is much more direct. The trustor has a conceptualization of trust beliefs regarding another entity – for example, an
individual, a group, or a combination. In the case of reputation, the trustor is evaluating the source(s) of the information for trust and deciding to accept, reject, or be skeptical of that information when applying it to another individual. If they accept the source as trustworthy, they will likely form an initial set of trust beliefs of another around that reputation. The following design guideline facilitates this idea:

*Design Guideline 3: Provide additional sources of information to verify player statements of behavior*

Many of the information sources provided within WoW are easy to manipulate or otherwise lack important information that could be used to verify another player’s testimony of their history within the game. Expanding upon these sources could give players deeper insight into each other’s past and enable a partial view of a shared history. One MMORPG already does this – EVE Online. Players can give each other access to a wealth of data about their past activities – financial transactions, group memberships, even their contact lists! Granting access to this information is often a concession required to become a member of a group. But this is also an example that illustrates that design guidelines such as these are not blunt instruments, but recommendations that must be implemented with great care and with respect to the overall intentions of the game.

Within EVE, access to this information is fundamental in the formation and management of groups. Players rely heavily on this feature as a delegate for their trust decisions by not only verifying past decisions but also auditing ongoing activities – competence, predictability, reliability can all be assessed (in part) with the information available.
In a game where economics is one of the primary components of gameplay, these Wall Street-like disclosures make a lot of sense. In a different type of game, such as one where exploration and adventure are central, a feature like this would need to be implemented with great care and consideration – or it could easily create a very mechanistic experience.

Group identity, particularly shared group identity, functions in a similar manner to reputation. A trustor has a conceptualization of trust beliefs regarding members of the group as a collective entity. They perceive and interpret norms of the group and apply those towards forming judgements about individuals sharing that affiliation. As noted, this often includes an understanding of individuals from groups formed outside of the game, as well as those provided by game features. Currently, the inclusion of markers of identity are very limited in most MMORPGs – typically, aside from groups defined by game features (such as role, race, etc.), players are only allowed membership in one or two groups at a time. For example, a player can be a member of a single guild, and a single transitory group (dungeon group, raid group, etc.) at a time. Players can use external tools and communications to inform each other of additional memberships, but there is considerable overhead in maintaining and communicating this knowledge. This leads to the next guidelines:

**Design Guideline 4: Provide mechanisms for players to manage multiple group identities and memberships, both internal and external to the game**

Multiple examples in interviewee responses indicated the importance of external group memberships. Providing a way to manage these groups *within the game* would offer an additional source of shared group identity for players that would require minimal additional social effort and time. Players could indicate their participation in events such
as charity walks, social media websites, or smaller discussion forums. Each of these provides a context and information that could be used to establish a shared identity with other players. By making membership information available to other players, it also provides a common ground to encourage socialization. This could also be used in a group formation interface as a kind of filter – find other players that are members of a specific external community that I trust. This idea could also extend to visual indications (for example, showing an emblem on a piece of clothing for a specific group that is not your guild).

The delegation of belief formation also happens at a couple other levels within the game. Firstly, guild members *delegate trust by authority*. They can perceive their leaders as being the first line of belief formation when new members are recruited – if they leader trusts this person enough to give them a chance, then other guild members may start with an initial level of positive trust beliefs for them. That isn’t to say that it a *significantly strong* and positive set of beliefs – only that it is somewhat higher than a completely unknown outsider.

There is also a delegation of trust by authority assigned to *the developers*. Players develop a sense of the developers over time. The kinds of features they implement, the way they address players on public forums, and the way they talk about the future of the game can all give a sense of what kind of audience they are targeting, which can be applied at a very basic level to forming trust beliefs of other players. If a player perceives that Blizzard is primarily targeting players that the player ascribes Trait X to, they can have a basic assumption that Trait X may be present for any other unknown player.
This also goes beyond a simple delegation of trust, but also creates an expectation of behavior for the developer. If they claim to be targeting a certain audience or that they want to appease a certain subset of the player population, they are expected to implement features towards this end.

Design Guideline 5: Designers, be open and engaging with your community regarding features and audience targeting

Many designers already do this in part. Designers post regular blog updates, engage in interviews, and include release notes for upcoming changes. EVE Online is an exceptional example of this. The designers for this game offer regular financial analyses informing the community of the status of the in-game economy, post informational blog updates that detail the technical challenges of developing features for the game, and even have instituted a player elected council to act as liaisons between the players and the developers. All of these things help to establish a shared history between the players and developers, enabling the players to form (hopefully positive) trust beliefs about the developers. Likewise, it helps keep the developers activities predictable and displaying competence in managing the game as shared experience between them and the players.

All of this said, trust beliefs formed by delegation are very fragile. These beliefs are simply a framework that will rapidly shift and be restructured by actual shared experiences. They provide a basis to decide if a trustee can be given a chance to support or weaken those beliefs given a specific task context. The shared history that develops can

\[\text{[Note: This is a placeholder for further discussion.]}\]

48 It should be noted that this was in response to players protesting against actions the developers took that violated the players’ trust. Additionally, in a highly competitive game such as EVE Online, this council representation is not without its problems – the general player-base is untrustworthy of the council as they can manipulate game features towards their own goals. See (Blodgett, 2009) for more details.
rapidly change those initial beliefs as the experience is internalized by the trustor (potentially also altering the decision to trust the information source in the future).

7.2 Game Features, Social Factors, and Trust Development

Within World of Warcraft, it is possible to observe two different implementations of a game feature with differing levels and types of trust development. Normal raids provide a task context that encourages trust as a component of success. The difficulty and potential duration of the challenges create situations where group members that trust each other have a significant advantage over those that do not.

In contrast, the inclusion of LFR shows that MMORPGs are not required to have trust building as a necessary element of gameplay. By reducing the reliance on very specific combinations of player abilities and skills and lowering the overall challenge of the raid event it becomes possible to play the same content with random unknown players. At the same time, it also lowers the development of trust. As mentioned, players are less dependent on any specific individual or set of skills. To the novice player, LFR can obscure how competency should be evaluated by inflating the idea that role-based skills are more important than group strategy. The transient nature of the encounter also facilitates a lack of social repercussions for actions, and thus more unpredictable behavior and significant negative socialization. More than that, the game rewards players who get away with negative actions and those that have unfaithfully appropriated the feature. From this information, the following design guideline is derived:

*Design Guideline 6: In group scenarios, reward players for faithful appropriation of game features, activities, and roles*
Rather than punish players for unfaithful appropriation, and risk losing them from the
game, it would be useful to encourage them to appropriate the feature for the manner it
was intended. While the game could simply restrict the activities of a player to those that
are appropriate for the specific feature and context, sense of control is an important aspect
of enjoyment in games (Ryan et al., 2006). Given this information, restriction on
activities they are otherwise free to perform could considerably lower enjoyment. Instead,
this guideline suggests that players are rewarded for participating in activities as they are
intended.

Players could be given a bonus to abilities, access to additional content, more rewards
from encounters, or other encouragement if they play in a manner consistent with their
role within the group, the task context and shared goal of the group, and their ability level
as a player. For example, a player may get better rewards for playing the role they signed
up for. As a second example, the group may get access to additional content and rewards
if the game detects that most of the players are actively engaged in the activity and
playing up to their skill level (which could be calculated based off of play history in other
scenarios and other factors).

Using the guideline in these manners helps facilitate a desire in the player to
appropriate the feature properly, thus raising trust belief formation by others by making
players within the activity more predictable, reliable, and potentially illustrating their true
competence. Additionally, it does so without reducing the necessity to rely on others to
perform specific roles.
7.2.1 One Mechanic, Two Features, Different Trust Belief Formation

LFR demonstrates that despite designer’s intentions, low socialization / low trust gameplay elements may have deleterious effects on player behavior at a significantly wide scale. LFR didn’t just give casual players access to raid content – it encouraged existing players to change how they play, allowing them to choose an easier path. Additionally, the method by which players have appropriated LFRs is not entirely faithful to the designer’s intentions. Because LFRs are incredibly easy in comparison to normal raids, some players aren’t simply getting access to content, they’re getting a free ride through that content as other, more skilled and powerful players carry them through it. This allows some players to achieve success despite having put little to no effort into the raid.

That is, in many ways, LFR does not simply prohibit trust from forming, it actively encourages players not to seek the development of trust at all. If a player can accomplish their goals without conforming to any kind of social norms or developing long term relationships, why would they be motivated to do that?

As players graduate from LFRs and begin to look for guilds for more difficult content, this becomes a bit of a problem. These players have learned to play the game without developing social ties and trust between each other, altering their predisposition towards other players. In game-population terms, they also likely outnumber the guild-centric raid players (since they are the “wider” audience).

There is also the issue that LFR provides a social aspect that normal raiders can use to differentiate their identity from other players. Social identity theory (Tajfel & Turner,
1978) holds that group members will seek out differences between in-group and outsiders to support a more positive self-image. While players actively participating in LFR content as a primary mechanism of player may not self-identify as an “LFR Player”, those players that participate more often in normal raids may still see them as a collective. The normal raiders will be far more likely to take note of negative aspects of LFR raiding as a way to make normal raids seem more positive to facilitate a better self-image of their guild. Indeed, one player mentioned that because her avatar only had LFR gear, it took extra steps to get the opportunities to prove she knew what she was doing.

Free rider success coupled with anti-social behavior as a norm of gameplay (as well as other elements of cross realm activities), magnified by differing social identities may be resulting in a bit of a global shift in player expectations regarding the trustworthiness of other, unknown players. This is an unfortunate example of the multi-level nature of trust – if trust development declines among a large enough population subset, it may alter the perceptions of the population as a whole.

The LFR/normal raid comparison also illustrates how the game and the player population operate as a complex adaptive system (CAS)(Holland, 1992). Here, each feature (LFR and normal raids) act as attractors in the larger scale system. LFR raids and other cross-realm features operate a step further by being disruptive attractors. Rather than being part of the designed space of social interactions, the unintended unfaithful appropriations of these features cause a significant disruption to the former normal state of the social system. This disruption settled as a new normal state emerged – one that systematically makes it more difficult to trust unknown players.
It is unlikely that this is within the intentions of the designers. However, players have limited recourse in how they choose to appropriate game features. If the feature (or set of features) is not an optional addition or change, players can choose to either appropriate it or leave the game. Players of private WoW servers have shown that quitting is an option that many opt for. Players who choose to appropriate new features in a faithful manner often are at a disadvantage to players who develop unfaithful appropriations. While LFR could, conceivably, be part of a valuable framework that actively develops trust between players, both its implementation and appropriation by players has had the opposite effect.

In an effort to appeal to a wider audience and “give players what they want”, the developers have included features that make long term relationships more difficult to develop. In many ways, the developers of WoW have made the game more convenient for players at the expense of trust development. This has transformed formerly social experiences into game mechanisms. LFR raiding, travel by flight, and single-step trading transactions are all examples of this. These all replaced game mechanics that required players to trust each other to complete their objectives.

Unlike other game feature additions/changes, when LFR was implemented it was optional to appropriate at all\(^49\). The designers claimed it was intended for a specific group – those that could not otherwise participate in normal raids. Thus, there is an inherent selection bias for participants of LFR versus normal raids that is deliberately built into the design. That said, the intended bias is one revolving around a task context – player availability, time available to dedicate to the game and gain skills, etc., and not one based

\(49\) These days, it can be argued that LFR participation isn’t entirely optional, as the equipment gained through LFR and the experience learning the raid makes normal raids easier.
on personality or social development. However, the lack of social cohesion embedded in the intended audience coupled with transitory nature of the encounter also makes it the perfect environment for players with anti-social traits to thrive.

By creating an environment where the need for trust is low, but the mechanisms for developing trust beliefs and belief delegation weakened or not present (building shared history over time, reputation, group identity, etc.) the developers have also created one in which the shared sense of community itself dissolves. Players are essentially treating each other as mechanisms within the game required for play, rather than as social agents. They are effectively playing single-player rather than multiplayer – if the other LFR players were replaced by NPCs, would they notice or care?

7.2.2 Shared Content versus Shared History

Another aspect of LFR versus normal raids is that it accentuates the difference between shared history and shared content. There are certain world game events that players share a sense of comradery over having experienced together – the scourge invasion, the accidental “virus” that killed off the populations of entire servers, or even the opening of the gates of Ahn’Qiraj.

But the open world itself, and normal content such as quests, aren’t often a topic of nostalgic discussion. There’s nothing really that special about defeating Hogger, learning the secret to acquire a pet chicken, or fishing up Old Crafty in an enemy city. They can turn into highly social events and fond memories, but in those cases the sentimentality and identification with those events is highly localized to a select group that shared the experience with you at that time. For example, on one server there is a guild called the
Westfall Chicken Brigade, but the meaning of this guild’s name is likely irrelevant to any outsider.

This all illustrates that while the majority of the game’s content is experienced by each individual player, they don’t derive a shared sense of identity and meaning from those experiences that would facilitate the building blocks of trust. Most players of WoW have played through the same content, learned how to use the same skills, etc. However, even knowing that other players have gone through these things, it doesn't replace the fact that different players haven't done it together. The experiences needed to develop a shared history not only require the presence of both individuals, but are also much stronger if those experiences are meaningful and relevant to future tasks contexts that will require trust.

**Design Guideline 7: Provide additional opportunities to share experiences with other players**

On the surface, for many online games, this could be considered something that “goes without saying”. However, many activities within MMORPGs (and particularly WoW) are easily completed without playing with others. Additionally, features such as LFR allow players to play with a random group – but if the players play on different servers, their interactions are often limited to a specific set of activities (primarily dungeons and raids). While a time-restricted player may not have the resources to devote to a fulltime raid guild, they may appreciate shorter, less dedicated encounters with players that they met in a random group.

Being able to travel more freely between servers (while a technical challenge for sure) could facilitate more socialization between more casual players. Additionally, more one-
time (or rare) game events could provide a focusing point for a shared experience. For example, a player may see that a special event is taking place on another server where they have an acquaintance from an LFR and travel to that location to participate with them. This isn’t limited to large-scale or heavily coordinated events either. Within WoW there are several “professions” that allow players to do things like fish the local waters or gather materials for crafting. Implementing creative ways to do these as pairs could help enable shared experience – a digitally facilitated fishing buddy.

7.3 Trust Friendly LFR – A Thought Experiment

As a thought experiment, it would be interesting to see a version of LFR that leveraged trust belief formation to facilitate positive social gameplay, despite being transitory in nature. How might this be done? Recall that key delegators for trust belief formation are reputation and group identity – factors that are very difficult to establish in the current implementation of LFR. However, players that enjoy playing with each other in LFR will often add each other to in-game contact lists so that they can organize joining LFRs together in the future. Players also do this when they use external forums to create temporary raid groups for normal and heroic raids. The game could easily provide a contact list just for “people I like to raid with”.

But the primary draw of LFR is that it makes raids available rapidly, and ad-hoc. There is no need to wait for all your friends to be around. How could this be replicated with a contact list? Trust networks are a solution to this problem. The game already goes through a process of matchmaking to fill certain role slots with specific players to create the correct group composition to succeed in the raid. This could be taken a step further, it
could navigate a player’s “raid friends” and actively alert them to inform them an LFR was starting that they might be interested in, facilitating the first design guideline: Provide mechanisms for players to manage their preference to play specific activities with other specific avatars (i.e., manage social risk).

This is simply the first step though and can be extended through Design Guideline 3 (Provide additional sources of information to verify player statements of behavior), Design Guideline 4 (Provide mechanisms for players to manage multiple group identities and memberships, both internal and external to the game) and Design Guideline 7 (Provide additional opportunities to share experiences with other players).

Since the friend is considered a trusted raider, their raid friends may also be trustable. The game would navigate the network - first immediately adding those currently looking for a raid, and then if more slots are available, inviting players that are online but not looking. Links where both players have each other as a contact will be considered strongest and navigated first. Any slots remaining after this process would be filled by random players. If a player has a bad interaction with another, allow that player to “block” the offender, and their connection in the network will be severed for future lookups. Indirectly, this allows players to develop an extended identity through their associations as a group and does so by providing an additional source of information with regards to that identity. Directly, this also facilitates the ability of players that enjoyed the experience to play together multiple times.

This is not perfect, but it does provide a useful example of how a feature could be implemented to consider trust building factors. As players play within trust-friendly LFRs, they are likely to encounter many of the same individuals over time – allowing the
player to develop a sense of identity and set of beliefs about the individual. They will also likely add exceptional players to their raid friend list, short-circuiting the need to navigate a deep network of trust relationships by signifying a specific individual as trustworthy.

Instrumenting a feature such as this would also give the opportunity to observe how trust development can change over an extended duration as a result of a game mechanic. For example, over time this could cause a systematic divide in the populations of LFR participants – causing a group of socially positive players to all be linked within a network, and forcing anti-social players to play in their own group. Additionally, this makes trustworthy LFR players more likely to play with other LFR players that also participate in normal raids which could have a lasting impact on the global perception of LFR players as a whole.

7.4 Design Guidelines for Virtual Teams

The design guidelines presented so far focus primarily on building trust in groups in online games – particularly MMORPGs. However, it is likely that they also have broader applications in an area which those groups are part of – virtual (distributed) teams. Simply put, these are groups of individuals brought together to work towards a goal where team members are located in different geographic areas (Powell et al., 2004). While not all of the game design guidelines are easily converted to general team

50 Some literature additionally includes the restriction that these teams are temporary in nature. To better draw direct parallels between this study and the literature, these are considered a specialized subset of virtual teams.
guidelines, many can be. Here’s how they are presented as pairs, the original and then the virtual team version.

**Design Guideline 1:** Provide mechanisms for players to manage their preference to play specific activities with other specific avatars (i.e., manage social risk)

**Virtual Team Guideline 1:** Provide mechanisms for team members to express preference for working on specific activities with other specific team members (manage social risk)

While team members are often expected to “keep it professional” while working together, it remains that there can be conflict – different work styles or methods of thinking can inhibit productivity. Some people simply work better together than others. In smaller organizations or partnerships there may be little choice in group composition, but in mid-sized to large organizations skillsets of team members often overlap or are duplicated as a necessity of the job. By facilitating communication and feedback of preference for potential team members for future activities, it would encourage additional socialization and assist in developing a shared history between individuals that may only occasionally collaborate.

**Design Guideline 2:** Provide mechanisms that assist in forming a sense of telepresence and/or co-presence

**Virtual Team Guideline 2:** Provide mechanisms that assist in forming a sense of telepresence and/or co-presence and encourage their use

This guideline is virtual unchanged because the situation is nearly identical – however, a non-game virtual team has the disadvantage that their work may be carried out with little to no audio or visual representation of each team member. Having occasional audio-visual communications between team members can not only increase the effectiveness of communication, but helps develop a sense of the other individual
facilitating longer-term trust formation. This is supported by work on corporate virtual teams that suggests that video conferencing was useful to establish trust, but once that trust had developed audio communication sufficed (Suchan & Hayzak, 2001).

*Design Guideline 3: Provide additional sources of information to verify player statements of behavior*

*Virtual Team Guideline 3: Provide additional sources of information to understand teammates’ skills, abilities, and work history*

A critical component in trust belief development is in creating the initial conceptualization of the trustee’s behavior. Providing a list of skills on paper does not fully communicate the abilities of an individual – particularly with respect to how they may work in a group. Suchan & Hayzak (2001) documented a solution used by one organization – the team leader held a face to face kickoff meeting for virtual teams that included small challenges. These challenges helped team members to understand each other’s abilities, while also verifying their performance and role within the group.

*Design Guideline 4: Provide mechanisms for players to manage multiple group identities and memberships, both internal and external to the game*

*Virtual Team Guideline 4: Provide mechanisms for team members to communicate their associations of both internal and external groups*

While this video game design guideline can be useful in developing a sense of trust by allowing a person to indicate associations with other groups and thereby facilitating belief formation delegation by group identity, it is important to note that games are still typically part of an individual’s personal life, rather than their professional one. It may be easier for an individual to readily provide these associations in like-groups, but this could be difficult (and in some cases undesirable) in a workplace situation.
Design Guideline 5: Designers, be open and engaging with your community regarding features and audience targeting

Virtual Team Guideline 5: Team leaders, be open and engaging with your team regarding their purpose and goals

The study by Suchan & Hayzak (2001) also highlighted the importance of this guideline stating that trust development in teams required a clear sense of purpose. They documented the implementation of this guideline during virtual team kickoff meetings. Team leaders used these meetings to help establish a sense of purpose for their teams, saying that this was an instrumental step required for group formation. Additionally, explicit, clear goals enable team members to organize their work and allocate team resources appropriately.

Design Guideline 6: In group scenarios, reward players for faithful appropriation of game features, activities, and roles

Virtual Team Guideline 6: In team scenarios, address and discuss appropriation attitudes and the faithfulness of appropriating roles, responsibilities, and technology

Virtual teams may use a variety of technologies to organize and coordinate their work – task tracking systems, content management, shared calendars, version control systems and repositories, etc. DeSanctis and Poole (1994) assert that unfaithful appropriation of technology is not necessarily negative – and the same is likely true of other types of appropriations. However, it is still important that all team members understand how these items are handled and that the group has an overall understanding of their intended function.

Design Guideline 7: Provide additional opportunities to share experiences with other players
Virtual Team Guideline 7: Provide additional opportunities for teammates to share localized, personal experiences

This is another guideline facilitated by the team kickoff meetings mentioned in (Suchan & Hayzak, 2001). However, while those are used to help form initial trust beliefs, this guideline expands upon that by suggesting the development of ongoing shared experiences. Certainly, by working together there is a certain degree of this already instrumented, but additional activities may also be beneficial. Coordinating face-to-face project updates, post mortems, lunches or other leisure activities could help strengthen trust development between team members. One of the key factors here is that these activities are implemented in such a way that the team members interact with each other to develop a shared history of experiences and strengthen group identity.

7.5 Swift Trust – Normal Raids and LFR

As mentioned in section 2.3, swift trust (Meyerson et al., 1996) was not considered a primary aspect of this research study. Recall that swift trust is indicated by the development of trust-like behavior where lack of a shared history precludes the ability of trust to develop. It is a common topic of studies involving temporary virtual teams. Despite not actively searching for information involving swift trust, detail arose that indicated there may be valuable information on this topic – particularly in LFRs inability to facilitate the formation of swift trust behaviors.

Meyerson et al. (1996) present a list of important characteristics relating to swift trust development:
1. Participants with diverse skills are assembled … to enact expertise they already posses

2. Participants have limited history working together

3. Participants have limited prospects of working together again in the future

4. Participants often are part of limited labor pools and overlapping networks

5. Tasks are often complex and involve interdependent work

6. Tasks have a deadline

7. Assigned tasks are nonroutine and not well understood

8. Assigned tasks are consequential

9. Continuous interrelating is required to produce an outcome (Meyerson et al., 1996, p. 169)

These factors are important because there is a stark contrast between how they align with normal raids and LFR. Each of these will be examined one at a time below.

1. Participants have limited prospects of working together again in the future

   (Meyerson et al., 1996, p. 169)

For normal raids within guilds, this is typically true. Raid members organize into specializations and roles using skills they've acquired during their time playing the game, through other raids, and through smaller groups working through 5-man dungeons. LFR is a bit different – while it requires the same specializations and roles, it does so to a lesser degree. LFRs don't require that each and every participant be fully knowledgeable regarding their role. As mentioned previously, this can lead to a lack of sense of competence between individuals or in the case where players engage in roles other than the ones they signed up for, a loss of belief in predictability.
2. Participants often are part of limited labor pools and overlapping networks (Meyerson et al., 1996, p. 169)

This guideline serves as a sieve separating swift trust development from typical trust. In a representative guild situation, this will be untrue since guild members will be continuously working together – suggesting that swift trust is not the normal method of trust instantiation. LFR is quite the reverse – most participants will have limited or no history working together – suggesting that if trust behavior exists, it will be in the form of swift trust.

3. Tasks are often complex and involve interdependent work (Meyerson et al., 1996, p. 169)

This is an interesting characteristic with regards to the cognitive trust beliefs – it enacts all three categories of trust beliefs. First, participants are working on interdependent tasks which invoke the reliance belief. This is strengthened because the work is complex, requiring individuals to use their expertise (and thus evaluate each other for competence). Finally, the interdependent nature of the work means that predictability is essential to success – any individual not fulfilling their role could put the work of others in jeopardy.

Since both normal and LFR raids involve many of the same mechanics, they both fulfill this guideline – but to different degrees. In normal raids, the risk is much higher for failures in interdependent tasks – for example, a single healer targeting the wrong ally for a moment can result in the raid falling apart. Likewise, a tank responsible for keeping enemies away from the healers could miss one, resulting in a similar chain of events. In LFR the interdependence is lessened – participants can change roles briefly to make up
for weaknesses in critical areas. Since the entire experience is typically easier, there are also far fewer cognitive demands on complexity – activities do not require as exacting timing and participant placement to succeed.

4. Tasks have a deadline (Meyerson et al., 1996, p. 169)

This guideline is a direct expression of temporal motivation – having a deadline creates a risk of failure that increases as the deadline approaches. The micro-level tasks within a normal raid each carry a risk of failing the entire activity if not completed within a timely manner. With LFR, the temporal motivation is severely relaxed since the activities are easier, there is a greater margin for error, and the raid may not even require all participants to be active.

5. Assigned tasks are nonroutine and not well understood (Meyerson et al., 1996, p. 169)

This characteristic is added to the list to emphasize that temporary teams are created to solve novel problems that require specialization and structures that don't exist elsewhere. When a player first engages any raid (normal or LFR), it presents a series of somewhat unique problems. The availability of online resources (video and webpage walkthroughs) can remove quite a bit of the novelty in both scenarios for most players, however. In fact, the guild leaders interviewed expressed that they expect their raid members to review this information before attempting a raid. That said, if the expected audience for LFRs are players with a limited amount of time to spend playing the game in general, it is somewhat unlikely that they will contribute significant effort into preparing using these external resources – creating a situation where LFR does present novel challenges for many in this audience.
While guilds provide the structure to succeed at LFRs, they may do so while requiring additional obligations that the LFR audience is not willing or able to commit to – making this structure somewhat inaccessible.

6. Assigned tasks are consequential (Meyerson et al., 1996, p. 169)

As with previous characteristics, this one highlights the importance of risk in trust development and instantiation but further emphasizes how this risk is interwoven into the specific roles of each participant. Meyerson et al. mention, "role-based interaction leads to more rapid development of trust than does person-based interaction" (1996, p. 181). They mention that role-based assessments are used as a kind of cognitive shortcut – in the similar way as the emergent factors mentioned in 6.2 of the result section and discussed in 7.1.4, Emergent Factors – Delegation of Trust Belief Formation.

That is, they allow an individual to defer belief evaluation to a category rather than an individual. In this way, success or failures are attributed to a category rather than an individual and even though a team might be temporary it is often the case that members of the team have worked with others within these categories at other times (which also facilitates a delegation of trust belief formation). This reduces the cognitive load of having to evaluate and attend to each specific individual in the temporary team.

This may be one of the keys to trust development in normal raids – assigned tasks are incredibly consequential with raid roles split between (typically) three primary groups: tanks, healers, and damage (damage per second, DPS). Within these roles there are typically further specializations, but only those within should need to attend to that level of detail. This is a different situation in LFR – while the overall roles are typically still important, there is a significant ability to be flexible. Meyerson et al. mentions this
specifically:  "Inconsistent role behavior and 'blurring' of roles will lead to a slower build of trust" (1996, p. 181) – which has been reflected by some interview responses. Clear, distinct roles make this deferment and delegation of trust formation easier.

7. Continuous interrelating is required to produce an outcome (Meyerson et al., 1996, p. 169)

Here, Meyerson et al. re-emphasize the importance of the interdependency of roles, and extend it by saying that this interdependence must be continual through the life of the overall endeavor. Again, this is typical of guild-based normal raids – each member must be successful in their interdependence. In LFRs, this is significantly impaired as each member is not necessary and often times can participate in more than one role.

But there is an additional aspect of LFR that makes it a weak candidate for swift trust development. While a lot of swift trust research covers "temporary" teams, there is often the expectation that these teams are not as temporary as they sound:

If membership in a temporary system is a one-shot event with little prospect of future interaction, and if there is low dependence on any one project for continuing work, as well as limited diffusion of information about the project outcomes outside the system, then little is at stack reputationally. (1996, p. 177)

This thread follows through Meyerson et al. (1996) continually emphasizing that while the individual project the team was created for may be completed, the reputation of the team itself as well as its individual members may facilitate a sense of risk as well as help establish a sense of both individual and group identities. That is, while the team as a working group may cease to exist when the project is completed, the informational and
social essence of the team lives on long after completion – and that this essence, by creating a risk factor, is fundamental in the formation of swift trust.

In LFR, this is simply not the case. Teams are much more temporary than those expected by Meyerson et al. and other temporary team researchers, and they may also be quite a bit shorter in duration – lasting potentially half an hour to a few hours. Likewise, there is no easy method for communicating reputational information or establishing a sense of shared identity (see 6.2.2, 6.2.3, and 7.1.4).

Additionally, they emphasize further that the outcome of the temporary team is vital: "In temporary systems, everything is risked every time. It is rare for risks to be small and for disappointments to be mere nuisance" (Meyerson et al., 1996, p. 179). While normal raids carry with them a significant risk in time and game resources, LFRs are not nearly as risky – they take a shorter amount of time and there are few penalties for failure that are non-trivial.

In summary, guild-based normal raids support many of the characteristics suggested by Meyerson et al. for being important to swift trust development – aside from the defining characteristic that the temporary nature does not otherwise allow trust to develop. This is in contrast to LFR style raids that pass the sieve suggesting that swift trust could develop if other characteristics were properly supported. However, in many areas LFR is lacking in this regard. LFRs require a low level of interdependence and allow participants to engage in multiple roles without significant deterrent. Additionally, they are much too temporary and transient in membership to facilitate many of the expectations extant in the swift trust literature regarding the development of identity and reputation.
That said, this section has also illustrated that there may be a relationship between swift trust and the cognitive trust model – that they may not be completely independent phenomenon. Many of the characteristics mentioned have direct correlations to the cognitive trust beliefs or factors that emerged during analysis regarding trust belief formation delegation.

7.6 Game Features and Cognitive Trust

The experiences articulated by the participants of this study illustrate the interaction between game features and cognitive trust. Game features can be informational. This can be explicit, providing additional data for a person to evaluate a person's expectation (for example, indicating their competence). It can also be implicit, providing an experience that the trustor can evaluate relative to the individual. For example, knowing that a potential trustee plays primarily in LFRs may imply certain things about their approach to the game and general competence to the trustor.

Game features may also be transformative – participating long-term in a guild, playing normal raids leads to certain expectations of play and social norms that allow players to infer the predictability of an individual. Players will either adjust to those norms or leave – as suggested by social identity theory (Tajfel & Turner, 1978). Continued participation can lead to sense of reciprocity and obligation further enhancing the development of the predictability beliefs.

Providing context is another important aspect of game features – they present goals and challenges to the player to aspire to and overcome. The specific implementation of this context can instrument certain behaviors of play that contribute to success – for
example, raids are considerably too difficult for a single player, suggesting multiple players are a requirement. This is further enhanced by the fact that raid group management is built into the game. Being significantly difficult to require high levels of coordination and organization further suggests that these groups are organized for an extended duration – providing a source for shared history and trust development of the predictability belief between players. This feature also instruments reliance on specific individuals within a guild as they require specific role fulfillment to succeed. The context provided by LFR is quite the opposite – random players, loosely organized, easier challenges, with no intention (and limited ability) to interact with each other in the future, thus precluding the development of shared history and limiting the need to rely on each other.

It is also important to note how they can hinder trust development. Game features can remove the need to trust by reducing a social interaction to a game mechanic. The example of trading as a single transaction illustrates this. By removing the necessity to trust during a trade by making the transaction guaranteed, the players learn little about each other's behavior beyond that one is willing to trade if the other has something of value to offer. There is no judgement of trust beliefs and no information gained that would help form them.

While the activity could be considered shared history, the lack of social evaluations reduces the trade to a mechanism, rather than an interaction. There is little difference to one trader to consider if there is actually a person behind the avatar they are trading with – it might as well be computer controlled. Notably, these kinds of mechanisms are often requested by the community – by players who may already be distrustful after bad
interactions or those will little social energy and time to develop trust and maintain in-game social ties.

With respect to game features, trust occurs where the technology (game feature) ends and the social interactions begin. Mechanisms can prevent interactions and thus trust development. The opposite extreme isn't as true – features can shape social interactions and thus trust belief formation, but they do not force the development of beliefs to happen in a specific predefined way. They do so by providing information about other players and contexts of interaction that can be interpreted by each individual to make judgements involving trust.

7.7 Summary

This discussion focused on evaluating the results of analyzing interview data to create game design guidelines. These guidelines outline methods that designers can use to manage social risk, create additional sources of information to form initial trust beliefs, and provide for the development of trust over an extended timeframe. A brief example was given illustrating a modification of an existing feature (LFR) towards that end. The guidelines were discussed as they apply to a context agnostic concept – virtual teams. Finally, a brief analysis of swift trust in the context of guild-based normal raids and LFR was presented. These exemplify the ability of this research to be applied by the game industry to promote trust development within multiplayer game environments, while also demonstrating how game-based research may translate to other areas.
Chapter 8

CONCLUSION

This research has focused on how video game features effect trust development in an online gaming environment. Over the past few years, the world has seen a significant rise in the number of types of people engaging in online games. As this and other research has shown, they become intertwined in our daily real-world social lives while also providing an environment to engage others across the world in social activities.

At the same time, there are many changes happening in the industry. Production-ready commercial game engines, such as Unity3D and Unreal Engine have become almost cheap enough for any developer to afford while also significantly lowering the technological barrier for entry into the industry. Knowledge, guides on their usage, and support forums for assistance are abundant online. Distribution services, such as Steam, and social media have reduced the dependency of developers on locating and negotiating with publishers. This has led to a plethora of independent game studios publishing new, creative games implementing commercially risky ideas. These are all signs that the industry may be on the brink of a major revolution where the larger development studios are forced to take more risks and become more creative to stay competitive.

One of the tools they have adopted in that effort is the use of psychology and experimentation – which is a very reasonable starting point. However, deeper research on social interactions within games would give all developers (not just large ones) a basis for making preliminary design decisions without having to implement features for testing first. In this way, the player experience can be more fine-tuned, or even shaped to fit
specific audiences or elicit deeper immersion into the narrative. A game designed using broader social science could be elevated from simply being something we play, to something we experience at a deeply human level – combining the creative, the cognitive, and the social.

Additionally, a major risk faced by many online games is that of losing a significant number of players. These games are designed to work with players interacting and many game elements simply don’t work if too few players are available. This risk is compounded by the need these games have to change and update as time goes on – feature additions and changes are not only necessary to keep players interested in playing, but also contribute to risk that they may have unintended side-effects that lessen the experience for players. Often times, this happens through the replacement of social elements with mechanical ones that result in larger social changes which are difficult to predict. Qualitative analysis and the application of socio-cognitive theories can significantly reduce these risks.

The remainder of the conclusion is divided into four subsections. The first subsections (Trust, Realism, and Adaptive Narrative in Games) gives an example of how game designers could apply the research results and socio-cognitive theories presented here to facilitate a gameplay feature that is difficult and elusive to implement: deep narrative and socio-emotional connection to non-player characters. The second subsections presents the overall contributions of this research to different areas: Industry, Players, and Science. Limitations of the research conducted are covered in the third subsection. Next, areas for future research are discussed. Finally a brief summary is presented.
8.1 Trust, Realism, and Adaptive Narrative in Games

So far, the discussion has primarily focused on the observable behavior of players in response to game features. But there is another important aspect to trust development that deserves some attention – it is embedded in nearly all of our social interactions. As mentioned previously, when you remove the need to trust and to socialize, players become mere mechanism of gameplay to each other rather than social agents to interact with. What’s the difference between LFR and a raid instrumented with non-player characters (NPCs) instead of players with an attached chat room? While some players still enjoy the slightly social aspects of LFR, many (particularly those that don’t play normal raids) would find this difference negligible.

One of the “holy grails” of game design that is often sought, but less often implemented successfully is deep immersion of the player in the narrative. There have been great strides in the realism of graphics, sound, gameplay controls, and freedom of choice in games over the last several decades – these all assist players in becoming immersed in the world. But immersion in the personal story of the player character is somewhat elusive. Using role-playing video games as an example - they often become a predictable sort of miniature activities that follow a very formulaic workflow:

1. Go get twelve boar livers to create a vaccine.
2. Collect samples of these three mushrooms.
3. Escort the mayor across town – watch out for bandits!
4. Etc.

While there may be an over-arching story with dramatic shifts and dialog designed to shift emotion and keep the player engaged, there is often still a human element that is
classically missing or absent. The non-player characters, the other actors living the story with you, are very easy to replace. The game may go to great lengths to integrate their backgrounds and develop their character story, but at the end of the day, the player knows that their interactions are limited and most of their future is predetermined. This knowledge can effectively keep players from becoming too involved or emotionally attached to NPCs, to the detriment of the game’s potential for immersion.

This isn’t a universal truth, however. The developers of Portal used a masterfully creative narrative of isolation and inanimate friendship that drives players to become attached to a lifeless box – the weighted companion cube. The game forces players to destroy the cube to advance the story and many resist for a long time before proceeding. World of Warcraft attempted a similar plot device when they introduced Death Knights – players were forced to kill someone claiming to be an old friend to advance the quest line. However, the narrative was forced and there was little build up or background surrounding that moment. Many players were unattached and saw the interaction as a mechanism to continue playing, because that is what they had become accustomed to in that world.

In many respects, a sense of trust accentuates the difference between the two game scenarios. In Portal, for much of the beginning of the game there is only one other character that the player interacts with. This character, the artificial intelligence GLaDOS, is introduced to assist the player through their first challenges, and over time her dialog becomes increasingly sinister and untrustworthy. She has no physical appearance within the game at this point, but is discerned only as a voice over an intercom. As her deception begins to become more apparent, the player is introduced to the companion cube. The
player, having just survived a room attempting to kill them and proceeding thus far virtually alone, is likely to welcome the physical presence of another, even if it is an inanimate object\(^\text{51}\).

But the game is also effectively helping the player build trust beliefs around the weighted companion cube. The narrative given by GLaDOS anthropomorphizes the cube quite a bit, asking the player to take care of it and suggesting somewhat that it may be alive:

\emph{This Weighted Companion Cube will accompany you through the test chamber. Please take care of it...The Enrichment Center reminds you that the Weighted Companion Cube cannot speak. In the event that the Weighted Companion Cube does speak, the Enrichment Center urges you to disregard its advice...While it has been a faithful companion, your companion cube cannot accompany you through the rest of the test. If it could talk - and the Enrichment Center takes this opportunity to remind you that it cannot - it would tell you to go on without it because it would rather die in a fire than become a burden to you (GLaDOS, Portal - Test Chamber 17)}

The player also shares a sense of identity with the cube – being the only non-threatening thing encountered in the game, they are unmistakably in this together. The cube is very predictable – it sits there and moves when you pick it up – and clearly holds no malice towards the player. There is little risk involved with interacting with the cube,

\[^\text{51}\text{In other media, the movie Cast Away presents a very similar situation when the main character befriends the volleyball, Wilson.}\]
but there is considerable risk in leaving the cube behind – the player would be effectively alone again in a dangerous environment. All of this contributes to building trust and attachment in an inanimate, digital object.

Being an isolated environment, the world of Portal is somewhat special. Replicating these kinds of interactions in a world populated by many characters is no easy task. Looking at the trust factors discussed thus far, it is possible to form an idea of what an engaged, trustable NPC and facilitating game might look like.

The following sections begin with a description of adaptive narrative and explain how this feature can be implemented to support many of the Design Guidelines. The remaining sections illustrate more in detail how adaptive narrative could be used to addresses each of the factors in the socio-cognitive trust model developed in this research.

**8.1.1 Risk, Temporal Motivation, and Adaptive Narrative**

First and foremost, development of trust requires some form of risk taking or other temporal motivation. Currently in most RPGs, non-player characters are treated with a very static sense of risk – they will do what they are meant to do to fulfill the story. In many cases, the game will protect them so that they cannot be removed from play unless it is an element of the larger story\(^5\). For companions that travel with the player, this often means that there is no long-term threat to injury to the NPC or critical risk in taking them along.

\(^5\) Some RPGs, particularly “open world” games will allow the player to attack and kill a story-critical non-player character. However, they will also notify the player that the story will be broken from that point on and cannot be completed.
Additionally, they are typically treated as a mechanic – they are an additional resource to help facilitate a task (McGee et al., 2011). The player asks them to complete a task, or fulfill a role, and there is little question whether or not they will complete that task. On the off chance the NPC can fail at the task, it is usually a very mechanistic failure that can be attributed to a game statistic or random roll of a dice, rather than to a decision made by the NPC.

To facilitate trust building, there needs to be a sense of risk with regards to the NPC that is otherwise not attributable to the game itself. The player needs to perceive the NPC as a cognitive agent independent from (but still connected to) game mechanics. This would help facilitate a sense of co-presence between the player and the NPC (Design Guideline 2).

The first issue above is a bit difficult to address – developers want to present a consistent story to the player, often involving the non-player characters that accompany the player. While not commonly used in commercial games, academic research provides a solution – adaptive narrative.

El-Nasr provides several examples of adaptive narrative architectures (2007). While detailing them is beyond the scope of this section it is important to note that many of these systems are capable of continuing a story despite unforeseen interactions with the player. As an example, if a specific NPC isn’t around for a particular event, the architecture may alter the narrative to use a different event for the same effect, change the composition of NPCs required for the event, or postpone the event and alter the gameplay to allow the NPC to be there when it occurs. Having an adaptive story frees NPCs from being game mechanics that are required in an exact composition and specific times.
It also allows for a story to build between the player and the NPC that is somewhat independent from the primary narrative of the game. Yes, there’s the story of how the how Avakard faced many challenges to eventually form the High Guard and defeat the ancient Kyrowa army. But there’s the potential for other stories – the story of how he trained a young prince in diplomacy, the story of how he befriended an angel, the story of his rivalry with his sister. These other stories aren’t necessary to the plot, but provide context that larger plot points can adapt around. If allowed to develop on their own with flexibility and without exact determinism, they create memorable roles that affect the player’s personal story. Providing this level of depth, not only helps create a sense of co-presence, but also helps create a rich shared history between the NPC and the player (Design Guideline 7) – with events of the story providing supporting structure for statements and actions made by the NPC (Design Guideline 3).

But it isn’t just having an adaptive story that is important. There needs to be risk involved in that story and interacting with the NPC. There should be a sense that they’re following their own motivations, which may occasionally mean asking for the player’s help, or abandoning the player at a critical moment – but driven by the NPC, rather than by a game event: decisions, rather than just dice rolls. The player’s interactions with the NPC and the NPC’s observations of the player should change the NPC’s behavior towards them. Perhaps the NPCs as a group decide the player is endangering their Epic Quest and head out on their own while the player is asleep!

NPCs with the ability to choose their own paths create a sense of risk that establishes trust as a component for interacting with them, while it could also add an element of planning and time sensitivity. The player thinks they’ll need an NPC’s help for an event
occurring soon – do they ask immediately or do they take the time to wine and dine the NPC first with the event rapidly approaching?

Additionally, since the player can choose to engage in the story of an NPC or not (as the narrative will adapt around that decision), it not only provides a sense of control over the game increasing enjoyment (Ryan et al., 2006), but also allows them to manage their preference to play with specific NPCs (Design Guideline 1).

8.1.2 Competence

In most RPGs, NPCs perform various functions in combat or provide certain skills the player can use. There are the occasional issues with artificial intelligence where the NPC may not choose the best option during combat or runs into a wall because they can’t find a path around it. But in general, other than gaining new skills, they don’t really display much competence in their activities – they are either binary can/can’t complete, or naively facilitated in gameplay.

A trustworthy NPC should display more awareness of their situation and develop competence at tasks over time. They should be capable of recognizing new patterns and adapting to them with the skills they have – even suggesting a course of action to the player. Likewise, the player should be able to tell when an NPC is having difficulty and suggest a change of strategy. To a degree, these are activities that already exist in many games – primarily real-time strategy games and first-person shooters – but far less often in RPGs.
8.1.3 Reliance

This is a component already found in many role playing games with non-player characters. Typically, the player must rely on NPCs to facilitate various parts of the story or assist in combat. They are often dependent on NPCs. This could be increased, however, in an adaptive narrative where specific skills are limited to certain NPCs. This would force a strong dependence on those NPCs for certain activities. An adaptive narrative could couple this with a concept of losing the NPC to create a risk and temporal motivation to develop a deeper relationship between them.

Adaptive narratives also provide a mechanism for uncertain fulfillment reliance belief. The NPC has its own motives, its own story. To ask the NPC for help, the player has to evaluate what they know of that background to determine if the NPC would intend to fulfill the request – and perhaps they might not.

8.1.4 Predictability

The predictability beliefs are also an area that could use some uncertainty. For example, the willingness belief: is the NPC willing to attempt a given task. They could have reasons not to be willing – ulterior motives, a recent conflict with the player, or (overlapping with another predictability belief), they may not be self-confident in their ability to complete the task successfully. Suppose the NPC fails, or encounters significantly more challenge then they had expected – will they persist and keep trying? This introduces another potential addition to their interactions: providing more than one way to accomplish a goal within a game. NPCs (and players) could assess the goal and
attempt to fulfill using the method that best suits their skills \textit{and fulfills the spirit of the request} (faithfully appropriates the task). Method selection and if they choose to consider the spirit would both be reflected from their predisposition, covered in the next section.

\textbf{8.1.5 Predisposition}

This factor was touched on slightly in the previous section – like people, NPCs should be predisposed to certain types of behavior. This is accomplished in existing games to an extent, through narrative and story elements. However, typically this is all pre-scripted. The key here is having NPCs that are (mostly) free to act on their own, but do so in different ways. This adds an additional element of risk for the player, in that they can’t necessarily treat each NPC the same way and expect the same response.

This also provides a mechanism for how the NPC responds to interactions with respect to how they develop trust in the player – maybe their personality makes them unlikely to try again if they fail a task? Perhaps they’re critical of players who ask for help too often. Even further – their own story, interacting with other NPCs has made them weary of trusting anyone in the game world.

\textbf{8.1.6 Delegation Factors}

It isn’t enough to simply let the player make their own judgements about a potential trustee NPC. They should be able to draw on external information to assist in the initial formation of trust beliefs. They could query other NPCs for information, rumors, or knowledge that facilitates forming the reputation of the NPC in the mind of the player.
Likewise, affiliations of groups within the game should give some indicator of the NPCs values and behaviors.

These are components often found within existing RPGs as static or predefined dialog elements and associations. An adaptive narrative would give the NPC the ability to decide their own group memberships and reputation would be reactive of the NPCs behavior, rather than predefined. This transforms dialog that can often be ignored in RPGs into a necessary element that requires attention and helps establish trust beliefs of the NPCs.

8.1.7 Summary

An adaptive narrative system in roleplaying video games would provide significant opportunities to aid in the realism of non-player characters. Likewise, it provides mechanisms that would be vastly useful in creating a framework to develop trust between a player and an NPC. Trustworthy NPCs present opportunities for the player to form deeper connections to the overall story, providing anchors of emotional attachment, which could potentially increase the immersion and overall enjoyment of the game.

8.2 Contributions

The primary contributions of this research include an understanding of how game features affect trust development – by being sources of information, by being transformative and facilitating social norms, by being sources of context for interactions to take place and shared history to develop. This illustrates that trust development can be
shaped by the rules and structural properties imposed upon people, or even negated if social interactions are eliminated or replaced by an automatic mechanism.

These are emphasized by the development of the design guidelines for trust in game development:

Design Guideline 1: Provide mechanisms for players to manage their preference to play specific activities with other specific avatars (i.e., manage social risk)

Design Guideline 2: Provide mechanisms that assist in forming a sense of telepresence and/or co-presence

Design Guideline 3: Provide additional sources of information to verify player statements of behavior

Design Guideline 4: Provide mechanisms for players to manage multiple group identities and memberships, both internal and external to the game

Design Guideline 5: Designers, be open and engaging with your community regarding features and audience targeting

Design Guideline 6: In group scenarios, reward players for faithful appropriation of game features, activities, and roles

Design Guideline 7: Provide additional opportunities to share experiences with other players

The following subsections further detail the contributions of this research to science, industry, and the players.
8.2.1 Science

This research supported contributions to several areas of science – psychology (cognitive and behavioral), sociology, socio-technical systems, and game studies. This included new applications of existing sociological theories, additional support for existing psychological theories, and new knowledge gained about the methods used to form trust beliefs. The following sections detail the contributions to behavioral and cognitive psychology, sociology, and game studies.

8.2.1.1 Behavioral and Cognitive Psychology and Economics

This research contributed to Castelfranchi and Falcone’s cognitive model of trust (Castelfranchi & Falcone, 2010) by providing specific instantiated examples of this theory. Player testimony sustained each cognitive belief category and its importance in forming trust decisions. Their experiences include descriptions of how competence, reliance, and predictability were all important parts of determining if an individual could be trusted – and just as important, noted that a lack of these beliefs, or a disruption to them was typically related to distrust or low ability to trust.

Additionally, the proposed extensions and emergent themes connected the development and evaluation of those cognitive factors to behavioral components. Particularly, it was found that the way each individual personally evaluated and defined risk within the game was related to how they evaluated trust with respect to time sensitive motivations. This extends temporal motivation theory to include that not only is relative time to deadline important to evaluating the risk versus value of an activity, but also their
individual motivations. This also further emphasizes the importance of deep narrative contexts in the creation of game-theory style experiments.

In effect, this research confirmed that trust decisions are highly relative to the task context surrounding the decision and reinforced the importance of supplying and/or understand the rich narrative surrounding trust decisions in research studies or experiments.

8.2.1.2 Sociology

Sociological methodology and theory was expanded by this study and its use of structuration theory (Giddens, 1984) and adaptive structuration theory (DeSanctis & Poole, 1994) to analyze behavior in a game environment. Adaptive structuration theory (and to a lesser extent structuration theory) as a useful tool for studying behavior related to technology, has gone virtually (if not completely) unused in studies of games – this research could be the first major example of such usage.

Structuration theory provided critical framing for interview responses by viewing them as relative to a strategic conduct and social positioning. In many games, particularly role playing games, players are given options to decide which activities they will participate in (and sometimes, these can also be completed using different methods). This is compounded in online games, as player activity selection can have social repercussions and alters their experience over time. Analyzing these activities with respect to group norms, authority, communication, and social positioning provided a much richer level of detail than could be gained through other methods or without a specific lens.
Adaptive structuration provided useful functions as well. Since game features were viewed as technological features that provided structural properties for agents and groups, it allowed them to be analyzed with respect to appropriation faithfulness and instrumental meaning. This facilitated a deeper understanding of comparative features and how they influenced player beliefs and behavior. This technique could be applied to many other areas while studying behavior within games and virtual environments.

Additionally, it extends the usefulness of adaptive structuration to include the analysis of game design and further creates a bridge that may allow the translation of results between game design and other areas within sociology. Likewise, it further emphasizes the use of games to study socially complex phenomenon.

Lastly, the results of this study raised an interesting point regarding faithful appropriation and the spirit of technology. While it is important to understand the designers' intentions with regard to how technology should be appropriated, the views of the users regarding the faithful usage of that technology are also important – as they can be important factors in understanding inter-group conflict and differing usage of that technology. This effectively connects the perception of faithful appropriation of technology with the cognitive trust model, providing an additional usefulness for analysis using adaptive structuration theory.

8.2.1.3 Organizational Science

The design guidelines for game development derived in sections 7.1 and 7.2 provide a useful framework for game features that would promote trust development. However, this research also illustrates how game-specific research can be transformed to apply to
different context. Section 7.4, Design Guidelines for Virtual Teams, provides such a translation by presenting the design guidelines as they could apply to the management of virtual (distributed) teams for long term trust development:

Virtual Team Guideline 1: Provide mechanisms for team members to express preference for working on specific activities with other specific team members (manage social risk)

Virtual Team Guideline 2: Provide mechanisms that assist in forming a sense of telepresence and/or co-presence and encourage their use

Virtual Team Guideline 3: Provide additional sources of information to understand teammates’ skills, abilities, and work history

Virtual Team Guideline 4: Provide mechanisms for team members to communicate their associations of both internal and external groups

Virtual Team Guideline 5: Team leaders, be open and engaging with your team regarding their purpose and goals

Virtual Team Guideline 6: In team scenarios, address and discuss appropriation attitudes and the faithfulness of appropriating roles, responsibilities, and technology

Virtual Team Guideline 7: Provide additional opportunities for teammates to share localized, personal experiences

This transformation includes references to relevant literature that support the design guidelines for virtual teams as factors that would encourage the development of trust. In this way, this research not only adds to the body of work for trust development in virtual
teams, but does so by considering guilds within WoW as a subset population of virtual teams. This should help support future work where extant multiplayer video games are used as analogs for researching other real-world scenarios.

Additionally, while not initially a target of the research, swift trust was briefly examined with regards to the research results. The comparison between normal guild-based raids and LFR participants provided an example that illustrated similarities between factors that contribute to both trust and swift trust development. That is, it tied the cognitive trust beliefs, the model extensions, and emergent properties directly to characteristics that have been found to be critical to the development of swift trust. This is important because swift trust is often considered independent from existing models of trust and these results indicate that at a cognitive level there may be significant overlap between the phenomenon.

### 8.2.1.4 Game Studies

This research adds to the growing field of Game Studies by providing a holistic social science approach to understanding player behavior within a game environment. A model from cognitive psychology was modified and extended using sociological methods. This provided extensions to the model that are useful in explaining how behavior is modified as a result of technological changes. Additionally, it allowed for the comparison of players and their behavior between two similar features within the same game.

This extends game studies with the application of theories in the areas of psychology and sociology – not only broadening their coverage, but also providing an example of how real-world socio-cognitive theories apply to the social aspects of gameplay. It
bridges these areas by providing an example of how game features act like attractors within a complex adaptive system by providing additional sources of structural properties.

Additionally, this research shows the potential for games to be used as observational and experimental virtual environments. Changes and additions to game features, while potentially not under the control of the researcher, provide a mechanism for changing social context and socio-cognitive beliefs within the game. By properly qualifying these changes, they can be used to gain insights into related human behaviors and social theory.

8.2.2 Industry

The previous section 8.1, Trust, Realism, and Adaptive Narrative in Games, provided a more in-depth example of how trust theory could be applied to role playing games. This section focuses on why that is an important contribution to industry – and more specifically, the gaps in current use of social science and design that these kinds of activities fill.

There has been a recent trend in industry to evaluate designs not simply through standard playtesting and feedback, but incorporating additional elements of theory developed through research. At the most basic level, this includes analytics of player behavior and A/B testing of features to determine player engagement. This can help designers align features and adjust them to better fit a defined audience. However, this approach is very shallow, limited in nature, and is primarily retrospective with little predictive ability for new creative features or gameplay elements. It can be used to show that a behavior happens but includes an inadequate view of why it occurs.
As an improvement on this model, several companies now employ on-site research psychologists to evaluate gameplay elements and offer theory-driven suggestions to game designers – Valve, ZeniMax/Bethesda, and Ubisoft are all examples of this. These researchers typically employ survey instruments and measurement during gameplay using biofeedback to determine arousal (excitement) and valence (positive/negative evaluation) of the player to certain game elements (Ambinder, 2011). These provide reasonably straightforward methods to tweak gameplay elements and features to promote greater engagement while also allowing the player adequate rest between scenarios (as fundamental to enjoyment, as posited in flow theory). Notably, these kinds of measurements often overlook the third aspect of affect – motivational intensity.

Research psychologists founded the company Immersyve to address this need. Immersyve specializes in evaluating games using well-reviewed research on self-determination-theory (SDT) to evaluate the motivations of players after gameplay (Ryan et al., 2006). The related publications suggest that this is done through the use of psychometric survey instruments that measure factors such as: enjoyment, intuitiveness of controls, sense of autonomy, sense of competency, relatedness to the game, etc.

These are all useful metrics that can definitely help designers understand their players, target wider audiences, and fix troublesome elements of their design. However, while they have some prescriptive power, it is very limited - particularly to single-player games with restricted branching in options available for players to appropriate game features.

Typically, but not universally – notably, the researchers employed by Ubisoft have contributed significantly to theory involving MMORPG gameplay.
With multiplayer games employing multiple methods of play and social interactions between players, this becomes much more difficult. As seen with the example of LFR / normal raids, often times, developers will tend to categorize or dichotomize their player base into distinct audiences or distinct categories of behavior as a target for certain features. This approach suffers two major flaws:

1. It tends to overlook or minimize the fact that player types and behavior occur over a spectrum, rather than distinct categories
2. It typically results in developing game features that one or the other group will find favorable, with little effort to finding a solution that may be favorable to both groups (albeit with some potential compromise).

In the discussion section, an example was given of a modification to LFR gameplay that could potentially create an environment where LFR was favorable to the entire continuity of players between the current population of LFR raiders and those that primarily play normal raids with their guilds. This example shows the application of a larger range of social science techniques (sociology and behavior psychology) to video game design. Online multiplayer games implicitly encourage socialization and socio-behavioral development of relationships. This necessitates the use of techniques outside of experimental psychology and psychometric tests to facilitate a more complete understanding of how game features may affect players – not just at an individual level of enjoyment and engagement, but as a population that adjusts in response to these changes.

The design guidelines developed during the discussion (sections 7.1 and 7.2) illustrate clear examples how other areas of social science can be used to assist in encouraging specific social behaviors among players. Features facilitating these guidelines would
shape the player experience without lowering enjoyment or breaking the immersion but still promoting the development of long term trust.

The current study has shown the importance of understanding social and task contexts embedded within the environment and how subtle changes can have unintended effects on the larger population (in this case, with trust formation). Psychometric tests and biofeedback experiments cannot have such predictive power as they emphasize control as intrinsic to their methodology. Social interactions between players operate without controls and often times outside of the mechanics of the game. However, as demonstrated, game mechanics can be created that facilitate or shape social interactions with the appropriate use of social theory and qualitative research. This provides an additional source of information for designers to leverage while working on new or modified game features that can be used to either target audiences more widely or even to focus down to specific audiences or foster specific kinds of player behavior.

8.2.3 Players

Many of the contributions provided to industry also directly benefit players, since they give designers tools to better understand players and their behavior within games – hopefully leading to games that are more enjoyable to players. The two subsections explain contributions to player supported addon development and how social theory and this research on trust can aid players engaged in collective action or otherwise upset with developers regarding game feature changes.
8.2.3.1 **Player Supported Addon Development**

This research is beneficial to addon/mod player communities of games such as WoW. Addons, such as oQueue, provide alternative methods for players to form random cross-realm raids other than through LFR. However, these implementations are somewhat naïve. The example of trust-friendly LFR provided earlier could be adapted and implemented within an addon, providing an embedded method of forming trust-friendly random raid groups. This would address the issue of declining overall trust, and provide an additional trust network from which to draw players for guild formation and normal/heroic raid activities.

But there is a secondary goal in supporting addon development – addons with a massive number of users communicate meaning from players to the publisher. Player comments, complaints, and discussions can get lost in the noise of the developer-supported forums. It is difficult to discern a clear voice that matches an audience from forum posts alone – especially with the number of players of the top MMORPGs. Addon download numbers provide a clear message from players that a certain percentage of them want a specific feature in the game. Some examples of addon features that eventually led to the development of game features\(^{54}\): quest help and navigation, inventory management, worn equipment set management, equipment comparison, and rare spawn trackers. Addons directed by social theory would also provide the developers with key insights into how they may implement similar features within the game.

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\(^{54}\) To be clear, while features were implemented to fulfill functions similar to these, it does not mean that they were implemented in the exact same way or that they provide *all* of the functions of the addon.
8.2.3.2  Player Rights and Collective Action

The subject of player rights of online games and virtual environments is a tricky one. In many ways, while developers consider the enjoyment of players and attempt to target audiences with features, player rights aren’t typically a consideration for design. After all, players are more than free to simply not play the game. A deep discussion of legitimation of player rights is beyond the scope of this research – however, it is useful to note that when players feel that their rights have been violated, they often turn to collective action as recourse to communicate their message to designers and publishers.

According to Blodgett (2011), protests in virtual worlds are different from those in real life in a variety of ways, one of which is that “they require an understanding of BOTH the technological and the social aspects in order to be fully understood” (Blodgett, 2011, p. 157). Knowledge of how game features affect trust development and how trust works as a multilevel phenomenon within a game provide protesting players with a solid foundation to construct arguments on these bases. It also facilitates communication between the players and the developers to help the developers understand how a feature change may have had an unintended consequence at a global scale or as the result of interacting with social properties they didn’t fully understand.

The use of social theory, particularly those involving group dynamics and/or trust gives players a vocabulary and scientific data they can use to structure their arguments. That is, instead of simply expressing that they are dissatisfied with a change or activity, the players can articulate more precisely how those actions effected the player population. Additionally, it gives both the players and the developers the tools of theory-driven design
to suggest alternatives, modifications, or other solutions to the problem that are far more likely to succeed then in the absence of such information.

The use of this research is not limited simple to collective action in response to feature changes either. At a larger level, an understanding of social behaviors and trust within games can empower players to lobby the industry as a whole to effect change. As mentioned earlier, the existing psychometrics and other evaluations used by industry to assess enjoyment and engagement in games do little to provide information on social interactions within multiplayer environments. Additionally, they may not take into consideration cultural differences or large social issues that surround game development and design. Groups that feel disenfranchised or mistreated by the games industry - and content or interactions within games - often find their voices unheard or ignored by developers.

A deeper understanding if trust (and its multilevel nature) benefits these players by giving them insight into how the industry could be violating their sense of trust, and thus power to lobby the industry for change along those lines.

### 8.3 Limitations

This study was limited by only considering behavior within a single game environment – World of Warcraft. There are undoubtedly additional insights that could be gained by studying the same behaviors across multiple games and performing a cross-comparison of how similar features are appropriated by the different populations. The discussion section included several instances illustrating how EVE Online already
implements some of the design guidelines for trust development, making it a useful starting point for continued study.

Additionally, the population interviewed for this study was somewhat small and self-selecting – those interviewed typically provided a view through the lens of players who have played WoW for several years and engage actively in normal raids within guilds (PvE). A broader understanding of behavior could be gained by actively seeking players of different sub-populations within the same game to provide additional lenses for comparison (for example, interviewing players that primarily play LFR instead of normal raids, players engaged primarily in PvP activities, or players that play primarily on role playing (RP) servers).

Similarly, the majority of players participated primarily in the same guild type (small guilds) on official WoW servers. It would be useful to compare their experiences against players in other guild sizes and types from C.H. Chen et al (2008) as well as with more players of private WoW servers. These factors likely had a significant bias effect on evaluation of game features (in particular, LFR and other cross realm features).

Along those lines, the investigator for this study was indeed a player of WoW – which assisted greatly in interpreting responses – but has not actively engaged in raiding activities and has limited experience within guilds in WoW. Further experience in these areas could yield additional insights or context surrounding responses.

There was also a limitation in the analysis of responses. They were only coded by a single individual. Stronger support and additional emergent themes would be gained by including additional qualitative coders. Additionally, this would support the ability to
calculate intercoder reliability to strengthen arguments and provide more rigorous data analysis.

Data collection was also limited in consistency by interview type. While most participants used online audio methods for interviews, two were conducted via online text chat, and three were in person. The three in-person interviews did not seem to differ in quality from the online audio recordings, however one of the online text chats did exhibit shorter responses than were typical. Additionally, only a limited amount of demographic information was collected, limiting the ability to analyze data by demographic categories.

Lastly, while strategic conduct was considered and found to be useful where it was used, it could have been quite a bit more detailed. The analysis of guild structure and leader behavior was comparatively shallow and a deeper understanding of these structural features would provide a greater understanding of player behavior and self-selection of players into different guilds.

### 8.4 Future Research

While the current study yielded significant insights, there are still many areas that could be investigated for further knowledge. For example, the emergent factors (reputation, group identity, telepresence) could use additional research independently and as a group. It would be useful to know more details about their role in trust belief formation (can all belief formations be delegated, or just some), how flexible they are, and determine if there are other ways in which belief formation is delegated.
As mentioned in the limitation section, it would also be useful to see how these results compare to those in different games but with similar activities. A common suggestion from participants and social media users was to look at EVE Online, as the environment itself provides few mechanisms that replace trust (and thus trust is required to a much greater extent than within WoW). It may also be useful to see changes that happen within WoW as they occur – the behaviors and beliefs in this study all represent a retrospective look several years after feature additions/changes were implemented. Observing behavior and opinion changes as they occur may yield insights into the trust belief formation process and show how they change over time. WoW releases expansions fairly frequently, making this kind of study time consuming, but viable.

One particular trust theory was considered out of scope for this research – swift trust (Meyerson et al., 1996). However, upon examining the data, it suggests that there are many factors of swift trust that are represented in player’s experiences (explicit roles, team identity, future interactions, etc.). Notably, some of these features are different between LFR and normal raids, suggesting that a study similar to the current one could facilitate this area of research. Additionally, it was found that many of the characteristics supporting swift trust development may be highly related to the categories of the cognitive trust model and trust belief delegation factors that emerged during the analysis of interview data – suggesting that swift trust may have a foundation including aspects of the cognitive trust model. Further investigation in this area is highly recommended.

Temporal motivation theory (TMT) (Steel & König, 2006) was useful in understand some aspects of risk related to trusting others in WoW. However, there are few truly time-sensitive tasks in WoW that incur much risk. Therefore, it was not possible to provide a
thorough examination of TMT and risk’s role in trust decisions. A different game or even a real-world scenario would likely yield more valuable insights and useful information regarding the interactions between these theories and the evaluation of a task context related to a trust decision.

Lastly, the current study has provided valuable insights into the way the cognitive trust model interacts with social and task contexts. Within Goudge and Gilson’s trust research framework (2005), this step fulfills the requirement of qualitatively investigating trust. This framework suggests that the next step is quantifying trust. The findings in the current study support that there may be aspects which can be measured using something such as a survey. However, it is important to note that any survey questions must be provided in relation to a specific task context that is familiar and important to the survey participants. Likewise, any initial instrument should include open-ended questions and potentially follow-up interviews to better understand the results and determine any overlooked factors that could influence the interpretation of the task context.

8.5 Summary

This research has provided support for the socio-cognitive model of trust (Castelfranchi & Falcone, 2010) and extended it with additional features. It extended three additional theories (swift trust, adaptive structuration, and temporal motivation theory) by analyzing them as they related to research results. Further, the data resulting from this facilitated the creation of general design guidelines, which can be used to encourage trust development within multiplayer game environments. Two examples were provided to illustrate implementation of these guidelines: one using an existing game
feature (a trust-friendly version of LFR, section 7.3), and one in the creation of a new game feature (adaptive narrative, section 8.1). Finally, the design guidelines were recomposed to show how research on trust within games could provide results in other, more context agnostic areas (in this case, management of virtual teams, section 7.4).

Despite limitations in the research design, the results contribute significantly to multiple different areas in both industry and science. Games - as unique platforms that can combines the creative, the cognitive, and the social – will continue to provide an amazing potential for understanding people, their motivations, and their behaviors.
APPENDIX

A. Glossary

Addon

A modification or addition to the game interface using items exposed by the game publisher for this purpose.

Battleground

An instance based zone that provides a goal-oriented activity for semi-random PvP teams.

Bind on Equip

BoE, equipment that becomes bound to an avatar (cannot be sold or traded) once it has been worn once.

Bind on Pickup

BoP, Equipment that becomes bound to an avatar immediately as it is picked up

BoE  see Bind on Equip

BoP  see Bind on Pickup
Class

A specialization chosen during character creation that allows a player avatar to use specific skills and abilities during gameplay. Typical examples are Cleric, Warrior, and Mage.

Cross Realm

Any feature in the game that allows players from one realm to interact with players of another realm.

Cross Realm Zones

CRZ, areas (zones) within the game world that are setup to host individuals from multiple realms at the same time.

CRZ  See Cross Realm Zones

Daily  See Daily Quest

Daily Quest

Daily, a quest that can be completed again after a set amount of time, typically a day.

Damage per Second

DPS, the amount of damage done by an avatar per second. This is also used to signify a specific combat role (those intending to do the most damage).

DKP  see Dragon Kill Points
**DPS**  see *Damage per Second*

**Dragon Kill Points**

*DKP*, A player created economic system first described in EverQuest for the allocation of rewards based on points given for participation. These points are used to “bid” on rewards, with the highest bidder giving up their DKP for the reward.

**Dungeon**

An *instance* environment intended for small groups averaging five players.

**End Game Content**

Game content and challenges intended to be approached once an avatar has reached the maximum level the game provides. These are typically *raids*.

**Equipment**

Virtual armor, clothing, weapons, and trinkets that are worn and wielded by an avatar in a specific *equipment slot*.

**Equipment Slot**

A slot available for a specific type of equipment, for example a “head slot” for hats and helmets.
Experience Points

XP, Points awarded for conquering challenges. Each level is achieved by acquiring an ever increasing number of XP.

Flex Raid

*Flex, Flexible Raid*, a specialized type of raid instance that scales difficulty and reward relative to the number of participants.

Gear

*See Equipment*

Guild

In WoW a guild is a long-term group formed for socialization and/or challenging team oriented activities (such as raids and dungeons). These are analogous to clans and corporations in other multiplayer games.

Guild Leader

The individual in charge of a particular guild. They have access to guild management functions such as setting permissions available for specific activities, joining new members, kicking out transgressors, and organizing the rank hierarchy.

Healer

A combat role intended for healing other avatars.
Heroic Raid

*Heroic*, a special difficulty of *raid instance* that presents considerably more challenge than normal difficult.

Holiday Quest

A *quest* only available during certain times of the year.

Instance

A *zone* that exists outside of the normal game world where a new copy is created for each group entering. Changes by one group do not affect other groups also engaging the same instance. *See also dungeon and raid.*

Level

The primary marker of advancement in WoW. Subsequent levels provide increases in player abilities allowing them to successful challenge more difficult content

LFR  See *Looking for Raid*

Looking for Raid

*LFR, Raid Finder*, a specialized type of *raid instance/raid group* comprised of random players from across multiple *realms*. They present easier challenges and require less effort and coordination.
Loot

Items, equipment, and currency that are rewards for overcoming specific challenges (such as defeating an enemy) or opening treasure chests.

Loot Council

A player created loot distribution system where officers of the guild vote to determine which avatar will receive specific loot.

Loot Master

A loot distribution system (originally player created, now supported by the game) where a single individual is in charge of determining which avatar will receive specific loot. Additionally, this may specify a role given to a guild member, and may also be used in conjunction with a player created loot distribution system.

Loot Ninja

Ninja, a player or avatar known for stealing loot before others have seen it.
MMO

*Massively Multiplayer Online*, denotes an online game that is intended to be played by a large number of people simultaneously.

MMORPG

*Massively Multiplayer Online Role Playing Game*, an online role playing game intended to be played by hundreds or thousands of players within a shared environment.

Mount

An animal or vehicle used by an avatar within WoW to facilitate faster travel.

MUD

*Multi-User Dungeon (or domain/dimension)*, Text based multiplayer online games that were the predecessors to today’s *MMORPGs*. These were often played with terminal software using the telnet protocol.

Ninja

The act of stealing *loot* before others have been able to see it. See also *loot ninja*.

Non-Player Character

*NPC*, an avatar that is not controlled by a player but is controlled by automated processes within the game. These are typically humanoid.

NPC  See *Non-Player Character*
**Officer**

A member of the guild given higher rank as well as specialized privileges and responsibilities such as the *guild leader, raid leader, or loot master*. This may also be used to signify a long-term trusted guild member.

**Overgeared**

Having significantly more powerful armor, weapons, and equipment than is required to succeed at a specific challenge.

**Party**

A small temporary group supported by game features in WoW.

**Player versus Environment**

*PvE*, a style of play where the focus is on players attempting challenges provided by the game.

**Player versus Player**

*PvP*, a style of play where the focus is on players challenging each other in combat or other activities (such as “capture the flag”).
**Private Server**

An instance of the World of Warcraft game server and world that is not hosted by Blizzard Entertainment, but instead by private third parties. The legality of private servers is questionable, as they were created by reverse-engineering the WoW server code and their use is not condoned by Blizzard. Often, they run older versions of WoW then the current commercially available version, and/or run with alterations to game settings to make progression easier or more difficult.

**Profession**

A specialization chosen for an avatar that allows them to engage in secondary activities in the game, such as gathering, crafting, and fishing.

**PvE**  See *Player versus Environment*

**PvP**  See *Player versus Player*

**PvP Arena**

A specialized instance where players challenge each other as individuals or teams in *player versus player* combat.
**Quest**

A game feature where a specific goal is provided to the player with the promise of a special reward upon completion.

**Quest Chain**

A workflow where the availability of specific quests is determined by the completion of other quests and objectives.

**Race**

A required character creation feature that allows an avatar to have a specialized appearance, access to certain classes, and cultural background embedded in the game narrative.

**Raid**

An instance that is provided typically as *end game content* and intended for medium to large groups (10-40 participants).

**Raid Finder**  see *Looking for Raid*

**Raid Group**

A group formed with the intention of completing a *raid*. These may also be referred colloquially as a “raid”.

**Raid Leader**

Individual in charge of organizing participants in a *raid*. 
Realm

In WoW, a realm refers to a specific instance of the game world shared among a subset of players. Realms may be *PvP*, *PvE*, or *RP-PvE*, *RP-PvP*.

Role

Also *combat role*, a specialization of an avatar that indicates they intend to use specific abilities to assist a group in a specific way. See also *tank*, *healer*, *DPS*.

Server

See *realm*.

Shard

See *realm*.

Tank

A combat role specializing in taking damage and protecting other members of the group from harm.

Undergeared

Not having proper armor, weapons, and other equipment to conquer a certain challenge.

Vanilla WoW

*Vanilla, Classic WoW*, the version of World of Warcraft that existed prior to the first expansion which introduced radical changes in gameplay – and set the pattern for similar radical changes in subsequent expansions.
Whisper

A communication type where messages are sent directly from one avatar to another and cannot be seen by other players

XP  See experience points

Zone

An area of the world that denotes specific land features, sub-areas (such as cities and towns), creatures, and other activities
B. Expanded Model of Trust

Figure 11-Expanded Model of Trust
C. Predicate Logic for Expanded Model of Trust

D. Variables

\( G_p \): A group

\( G_q \): A public group

\( G_r \): A private group

\( X_t \): Trustor, a cognitive agent instantiating a trust action with regards to a Trustee. This will be an agent interested in increasing their engagement within a group \((G_p)\).

\( Y_f \): Trustee, an agent, object, or group being trusted by a trustor.

\( K_t \): A piece of Knowledge

\( \tau_m \): An Intended Task

\( \tau_u \): An Unintended Task

\( k_n \): Time, treated as a discrete interval\(^{55}\)

\( \theta_s \): The threshold

E. Variable Relationships

\( Engaging(X_t, G_p, k_n) \): The trustor is engaging in activities with or for a group \((G_p)\) at interval \(k_n\)

\( Engaging(Y_f, G_p, k_n) \): The trustee is engaging in activities with or for a group \((G_p)\) at interval \(k_n\)

\( Predisposition(X_t, k_n) \): The predisposition the trustor has for forming trust beliefs at interval \(k_n\)

\( Context_s(X_t, Y_f, G_p, k_n) \): The trustor and trustee share a social context at interval \(k_n\)

\( Context_s(X_t, Y_f, G_p, k_n) \rightarrow Engaging(X_t, G_p, k_n) \land Engaging(Y_f, G_p, k_n) \land Predisposition(X_t, k_n) \):

\(^{55} \) \( t \): time, treated as continuous, used in Temporal Motivation Theory utility model
Engagement\((X_i, G_p, k_n)\): The engagement of the trustor with a group at interval \(k_n\)

Reliance\((X_i, Y_j, \tau_m, k_n)\): The trustor’s belief that he is reliant on the trustee to complete the task at interval \(k_n\)

Competence\((X_i, Y_j, \tau_m, k_n)\): The trustor’s belief that the trustee is competent at the task at interval \(k_n\)

Predictability\((X_i, Y_j, K_i, k_n)\): The trustor’s belief that the trustee’s actions are predictable with relation to the knowledge shared at interval \(k_n\)

Belief\((X_i, Y_j, k_n)\): The beliefs the trustor has about the trustee at interval \(k_n\)

\[
Belief\(X_i, Y_j, k_n) \\
\rightarrow \left( \text{Reliance}(X_i, Y_j, \tau_m, k_n) \land \text{Competence}(X_i, Y_j, \tau_m, k_n) \land \text{Predictability}(X_i, Y_j, K_i, k_n) \land \text{Engagement}(X_i, G_p, k_n) \land \text{Contexts}(X_i, Y_j, G_p, k_n) \land \text{Belief}(X_i, Y_j, k_{n-1}) \right) \\
\lor \left( \text{Reliance}(X_i, Y_j, \tau_m, k_n) \land \text{Competence}(X_i, Y_j, \tau_m, k_n) \land \text{Predictability}(X_i, Y_j, K_i, k_n) \land \text{Engagement}(X_i, G_p, k_n) \land \text{Contexts}(X_i, Y_j, G_p, k_n) \right)
\]

Know\((X_i, K_i, k_n)\): A piece of Knowledge \((K_i)\) is relevant to a task \((\tau_m)\) at interval \(k_n\)

Relevant\((K_i, \tau_m, k_n)\): A piece of Knowledge \((K_i)\) is relevant to a task \((\tau_m)\) at interval \(k_n\)

Share\((X_i, Y_j, K_i, k_n)\): The trustor shares a piece of knowledge with the trustee at interval \(k_n\)

Utility\((X_i, X_i, \tau_m, k_n)\): The trustor’s perceived utility of the trustor performing the task at interval \(k_n\)

Utility\((X_i, Y_j, \tau_m, k_n)\): The trustor’s perceived utility of the trustee performing the task at interval \(k_n\)

Perform\((Y_j, \tau_m, k_n)\): The trustee performs the intended task

Perform\((Y_j, \tau_u, k_n)\): The trustee performs an unintended task

Risk\((X_i, Y_j, Share(X_i, Y_j, K_i, k_n), k_n)\): The risk to the trustor of sharing the piece of information with the trustee

Contexts\((X_i, Y_j, \tau_m, k_n)\): The trustor and trustee share a task context at interval \(k_n\)

Contexts\((X_i, Y_j, \tau_m, k_n) \rightarrow \text{Contexts}(X_i, Y_j, G_p, k_n) \land \text{Predisposition}(X_i, k_n) \land \text{Risk}(X_i, Y_j, K_i, k_n)\)
BeliefThreshold\left(\text{Belief}(X_i, Y_j, k_n), \text{Context}_i(X_i, Y_j, \tau_m, k_n)\right): The belief threshold relative to the task context that must be exceeded to intend a trusting action

Desirable(X_i, Share(X_i, Y_j, K_i, k_n), \tau_m, k_n): The result of the trustor sharing knowledge with the trustee is desirable.

Greater \left(\text{Utility}(X_i, Y_i, \tau_m, k_n), \text{Utility}(X_i, X_i, \tau_m, k_n)\right) \land \text{Exceeds} \left(\text{BeliefThreshold}\left(\text{Belief}(X_i, Y_j, k_n), \text{Context}_i(X_i, Y_j, \tau_m, k_n)\right)\right):

Outcome(X_i, Y_j, K_i, \tau_m, k_n): The potential outcome of the trustee being delegated a task with a piece of knowledge at interval k_n

\begin{align*}
\text{Positive} \left(\text{Outcome}(X_i, Y_j, K_i, \tau_m, k_n)\right) & \rightarrow \text{Desirable}(X_i, \text{Share}(X_i, Y_j, K_i, k_n), \tau_m, k_n) \land \text{Share}(X_i, Y_j, K_i, k_n) \land \text{Perform}(Y_j, \tau_m, k_n) \\
\text{Negative} \left(\text{Outcome}(X_i, Y_j, K_i, \tau_m, k_n)\right) & \rightarrow \text{Desirable}(X_i, \text{Share}(X_i, Y_j, K_i, k_n), \tau_m, k_n) \land \text{Share}(X_i, Y_j, K_i, k_n) \land \text{Perform}(Y_j, \tau_m, k_n)
\end{align*}

Intend(X_j, Share(X_i, Y_j, K_i, k_n), \tau_m, k_n): The trustor intends for the trustee to perform a task at interval k_n

\[ \text{Intend}(X_j, \text{Share}(X_i, Y_j, K_i, k_n), \tau_m, k_n) \rightarrow \text{Positive} \left(\text{Outcome}(X_i, Y_j, K_i, \tau_m, k_n)\right) \]

Trust(X_i, Y_j, K_i, k_n): The trustor gives knowledge to the trustee

\[ \text{Trust}(X_i, Y_j, K_i, k_n) \rightarrow \text{Intend}(X_j, \text{Share}(X_i, Y_j, K_i, k_n), \tau_m, k_n) \land \text{Share}(X_i, Y_j, K_i, k_n) \]
Figure 12-Predicate Logic for Expanded Model of Trust
F. Interview Guide

Prompt for interviewer:

Hello, I’m Jeremy Lothian, and I’ll be asking you about some of your experiences playing this game. During this interview, we are going to discuss topics related to game mechanics, interacting with other players, and the risks associated with those interactions. This can cover the full range of gameplay from simple trading between you and another individual, to completing game objectives, player-versus-player activities, inviting them to your group, or transporting and harvesting goods.

<table>
<thead>
<tr>
<th>Primary Questions</th>
<th>Additional</th>
<th>Clarifying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you generally inclined to ask for help if you feel you need it or it would make a task easier?</td>
<td>• Do you prefer to abandon a goal rather than ask for help?</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>• Would you rather work alone or in groups?</td>
<td></td>
</tr>
<tr>
<td>Could you tell me about some instances in the game where there was a risk but you have had to ask someone to perform a task for you?</td>
<td>• Could you have done this yourself?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Was this activity time or location sensitive?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is there anyone else that could have helped you?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• How well do you know this individual?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is this someone you would generally ask for help?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Before this instance, had they helped you in the past?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Would you have given the task to someone new to the group that you didn’t know as well?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Do you feel that you had to trust these individuals?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• What were the consequences if you didn’t complete the task?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Do you think that others in the group would view you differently if you didn’t complete the task?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Were there consequences if they didn’t accept the task from you?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• What were the consequences is they accepted the task but failed to complete it?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Would the group punish them somehow if they didn’t complete the</td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Possible Follow-up Questions</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Would you ask one of the group leaders to help you complete this task?</td>
<td>Why do you think that is?</td>
<td></td>
</tr>
<tr>
<td>Have you been part of groups where you were more or less likely to ask for the help of members?</td>
<td>How was that person better for this task?</td>
<td></td>
</tr>
<tr>
<td>If you had longer to complete this activity, would you have done it differently?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you ever ask this person to help you again?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In retrospect, could you have chosen a better person to help you?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Could you tell me about a time when you asked someone for help with something important and the results turned out badly for you?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think this feature could be improved?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What would this interaction be like if this feature didn’t exist?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think you would still enjoy the game if this feature wasn’t included?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tell me a little bit about how certain game features inform your decisions when interacting with other players</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you heard anyone criticize or praise this feature?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What would it be like without this feature?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think people abuse this feature for other purposes?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[if this is a new feature] How did you respond when this feature was added?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are there any game features that you think make it easier for you to delegate a task to someone?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think people abuse this feature for other purposes?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[if this is a new feature] How did you respond when this feature was added?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there a game feature (or change in game mechanics) that you think has made it more difficult to ask someone to help you complete a task?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think people abuse this feature for other purposes?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[if this is a new feature] How did you respond when this feature was added?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think that the game provides appropriate assurances that someone will complete a task for you as you expect?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Is there something you wished the game provided to help with that?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
G. Qualitative Coding Guide

Provided here are the initial qualitative codes for coding interactions during the study. Additionally, coders should look for patterns and concepts not indicated here but related to the study for any potential patterns and provide new codes as needed.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Subcategories</th>
<th>Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust Beliefs</td>
<td>(B)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>Bc</td>
<td>Assessment of a potential trustee’s competence</td>
<td></td>
</tr>
<tr>
<td>Predictability</td>
<td>Bp</td>
<td>Assessment of a potential trustee’s predictability</td>
<td></td>
</tr>
<tr>
<td>Reliance</td>
<td>Br</td>
<td>Assessment of the degree to which a trustor must rely on a trustee</td>
<td></td>
</tr>
<tr>
<td>Task Context</td>
<td>(T)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Tl</td>
<td>Indication that the location of the interaction is important</td>
<td></td>
</tr>
<tr>
<td>Timing</td>
<td>Tt</td>
<td>Indication that the timing of the interaction is important</td>
<td></td>
</tr>
<tr>
<td>Social Positioning (task)</td>
<td>Tsp</td>
<td>Reflects the trustors social position relative to relevant others specific to this task</td>
<td></td>
</tr>
<tr>
<td>Risk</td>
<td>Tr</td>
<td>Assessment of potential risk related to the task or completion of the task</td>
<td></td>
</tr>
<tr>
<td>Social Context</td>
<td>(S)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Positioning (organizational)</td>
<td>Ssp</td>
<td>Indicates social awareness of how decision will be viewed by others in the group</td>
<td></td>
</tr>
<tr>
<td>Organization</td>
<td>So</td>
<td>Indicates structural feature of involved organizations and memberships</td>
<td></td>
</tr>
<tr>
<td>Domination</td>
<td>Sd</td>
<td>Indication of power, authority, authorization (including rules)</td>
<td></td>
</tr>
<tr>
<td>Norm</td>
<td>Sn</td>
<td>Expression involving social norms</td>
<td></td>
</tr>
<tr>
<td>Legitimation</td>
<td>Sl</td>
<td>Expression involving the potential exercise of power</td>
<td></td>
</tr>
<tr>
<td>Predisposition</td>
<td>P</td>
<td>Expression that decision or information is influenced by past experience or instinct</td>
<td></td>
</tr>
<tr>
<td>Game Feature</td>
<td>F</td>
<td>Expression that a game feature influences a decision or interaction (or provides source for a structural property)</td>
<td></td>
</tr>
<tr>
<td>Structural Property</td>
<td>Fs</td>
<td>Indication that a feature supports or influences the instantiation of certain social structures</td>
<td></td>
</tr>
</tbody>
</table>

286
<table>
<thead>
<tr>
<th>Categories</th>
<th>Subcategories</th>
<th>Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legitimation</td>
<td>FL</td>
<td></td>
<td>Expression of how a game feature provides a mechanism for exerting dominance or control over others</td>
</tr>
<tr>
<td>Communication</td>
<td>FC</td>
<td></td>
<td>Expression regarding the information passed between multiple individuals and between an individual and the game</td>
</tr>
<tr>
<td>Unfaithful</td>
<td>FU</td>
<td></td>
<td>Game feature is not being used as the designer intended</td>
</tr>
<tr>
<td>Appropriation</td>
<td>FF</td>
<td></td>
<td>Game feature is being used as the designer intended</td>
</tr>
<tr>
<td>Instrumental</td>
<td>FM</td>
<td></td>
<td>Indicates meaning derived from the use of a game feature</td>
</tr>
<tr>
<td>Meaning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriation</td>
<td>FA</td>
<td></td>
<td>Indication of attitude towards adopting a new or changed game feature</td>
</tr>
<tr>
<td>Emergent Themes</td>
<td>R</td>
<td></td>
<td>Related to development of reputation (self or group)</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td></td>
<td>Identifying with a group and recognizing others as part of a group</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td></td>
<td>Respect for or fear of sanctions by group or others for perceived misconduct</td>
</tr>
<tr>
<td></td>
<td>Tele</td>
<td></td>
<td>Telepresence as helpful for trust development</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Title of Project: A Cross-Game Study of Trust in Massively Multiplayer Role Playing Games

Principal Investigator: Jeremy Lothian, Graduate Student
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(814) 865-8952; jlothian@psu.edu

Advisor: Dr. Andrea Tapia
301B Information Sciences and Technology Building
University Park, PA 16802
(814) 865-1524; atapia@ist.psu.edu

Below is the script to acquire verbal consent from group leaders and group interviewees.

Hello, I’m Jeremy Lothian. I’m a researcher at Penn State University. I’m conducting this study for research purposes.

More specifically, the purpose of this study is to provide a better understanding of how trust decisions are made by individuals in gaming environments and how game features alter how those decisions are made. If you have any questions, you can ask them immediately or email me later at jlothian@psu.edu. I will not be asking you or any of your group members for any private, sensitive, or personally identifying information. Do you understand? <wait for response>

For this part of the study, I’m engaging in observation to view typical activities that [guild or corporation] members participate in and conducting semi-structured interviews to clarify what I’m seeing and to help me understand the thought process being used during these decisions. I may also ask questions regarding hypothetical scenarios. I’ll be conducting these observations and interviews for approximately 20 hours over the next 5 days. Do you have any objection to this timeframe? <wait for response>

I will be making copies of text chat logs of conversations that are visible to anyone in the group. Do you have any objections to this? <wait for response>

You and your group’s participation in this are voluntary. If anyone does not want to talk to me, they do not have to. You can exclude me from any group activities you do not want me to observe. If at any time you no longer want me to continue my observations and interviews you can ask me to leave.

You are in a position of leadership for this group and have the authority to allow me access to group communications, activities, and chats? [wait for response]

Do you understand the nature of this study and consent to participating? [wait for response]

Thank you. You can recognize me in the game by the avatar name [AVATAR NAME].
I. Verbal Consent Script-Interviewee

Title of Project: A Cross-Game Study of Trust in Massively Multiplayer Role Playing Games

Principal Investigator: Jeremy Lothian, Graduate Student
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Below is the script to acquire verbal consent from group leaders and group interviewees.

Greetings, I’m Jeremy Lothian. I’m the researcher at Penn State University that has been observing your group. Would you be able to spare some time for a few questions or would you mind if I traveled with you a bit to see some of your normal activities? If you agree to participate, you will be compensated with a digital game-time card for one month of game time.

I’m conducting this study for research purposes. More specifically, the purpose of this study is to provide a better understanding of how trust decisions are made by individuals in gaming environments and how game features alter how those decisions are made. If you have any questions, you can ask them immediately or email me later at jlothian@psu.edu. I will not be asking you for any private, sensitive, or personally identifying information. Do you understand? <wait for response>

I will be making copies of text chat logs of conversations between us during this process. Do you have any objections to this? <wait for response>

Your participation in this is voluntary. If you do not want to talk to me, you are under no obligation to do so. You can exclude me from any activities you do not want me to observe. If at any time you no longer want me to continue my observations or the interview you can ask me to stop. All interview questions are optional. We can skip any that you do not want to answer or that make you uncomfortable.

Do you understand the nature of this study and consent to participating? [wait for response]

Thank you.
J. Group Notification Script-Leader

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Group,

I have invited Jeremy Lothian, a researcher from Penn State University, to observe our group activities. You can find him in the game by the name [Avatar name]. He’s researching how game features affect how people make decisions to trust others within a group.

I have given him permission to view group activities, record chat logs, and request interviews from you. You are under no obligation to participate if you do not want to. For willing participants, he is offering a card for a month of game time.

If you have any questions or concerns, please contact either one of us to discuss them.

He will provide more details and introduce himself shortly.

[Leader’s name]
K. Group Notification Script-Researcher

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Hello everyone,

As you have already been told, my name is Jeremy Lothian. I’m a researcher at Penn State University conducting a research study on the cognitive and social components of trust in groups. More specifically, the purpose of this study is to provide a better understanding of how trust decisions are made by individuals in gaming environments and how video game features alter how those decisions are made.

If you have any questions, comments, or concerns, you can contact me in-game, or at my email address (jlothian@psu.edu).

For the time being, I will simply be observing and participating in group activities and chat with everyone to better understand how things generally work in your group, and your day to day activities within the game. Eventually, I would like to interview a few people. No one is under any obligation to participate in interviews and no personal information will be collected. Those who do participate will be given a game-time card for a month of game time.

If you want to volunteer to participate as an interviewee, please contact me for further details.

Thank you for your time. I look forward to working with you.

Jeremy Lothian, [Avatar name].
L. Call for Participation

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There will be two call formats. A short-format for social networks and in-game chat and a long-format for game forums. The short format will provide a link to the long format that provides all the needed details. Stylistic elements of the long format may change based on the abilities of forum (graphics and justification may be omitted, font sizes may be removed). Formatting changes will never highlight compensation.

M. Short format

Hello, I’m a Penn State University Researcher seeking group leaders for a research study on game features and trust. Opportunities to earn a month of game time. Contact me for more details or visit this page: [URL]

N. Long format

(see next page)
Call for participation in research study
The Pennsylvania State University

Title of Project:
A Cross-Game Study of Trust in Massively Multiplayer Role Playing Games

Principal Investigator: Jeremy Lothian
307G Information Sciences and Technology Building
University Park, PA 16802
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Researcher Seeking Group Leaders for Study of Game Features and Trust

Research Study Details

Penn State Researcher is looking for group leaders to volunteer their group to participate in a research study of how game features affect the decisions to trust individuals within a group. This research will help game designers to design features specifically to create high or low trust gaming experiences, enhancing gameplay for a target audience of players, or balancing these elements to fit a wider audience.

The research study will consist of the researcher observing group activities and chats, participating in group activities, and interviewing volunteering members of the group. For the duration of the study, the researcher will join the in-game group. This phase of the study is expected to be completed within a week for each selected group. The researcher will be observing, participating, and interviewing over the course of five days for blocks of up to five hours at a time. Interviews are expected to last approximately 1 to 2 hours. No personally identifying information will be collected.

Eligible group leaders must be in a position of authority that allows them to volunteer their group for the study. Groups must only contain members 18 years or older.

Participating group leaders and group interviewees will be compensated with a game time card worth a month of game time.

Please contact me if you are an eligible group leader and would like more details. I can be reached in-game at [Avatar’s name] and by email at jlothian@psu.edu

Thank you for your time,
REFERENCES


Blodgett, B. M. (2009). And the ringleaders were banned: an examination of protest in virtual worlds.


Costa, P. T., & McCrae, R. R. (1992). Revised neo personality inventory (neo pi-r) and neo five-factor inventory (neo-ffl): Psychological Assessment Resources.


VITA

Jeremy Lothian

Education

The Pennsylvania State University, University Park, Pa.
Ph.D, Information Sciences and Technology (2015)
Southeast Missouri State University, Cape Girardeau, Mo.
B.S. Applied Computer Science, Minor Anthropology (2009)
Cum Laude, with Distinction in Computer Science

Publications

Journal Articles


Conference Papers


Tech Reports