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# Leadership in Action: The Effects of Leader-Member Exchange on Outcomes within Virtual Organizations

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# LEADERSHIP IN ACTION: THE EFFECTS OF LEADER-MEMBER EXCHANGE ON OUTCOMES WITHIN VIRTUAL ORGANIZATIONS

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## ABSTRACT

Player-founded organizations, or guilds, within massively multiplayer online games (MMOG) are complex social entities with organizational forms that mirror real-world companies. These guilds require leaders who possess a diverse array of skills. Examples of the skills required read like the introductory course of a business management degree – mediating conflict, planning, controlling, motivating. These skills are important - just as with real-world companies, failures on the part of leaders may explain the high degree of guild failures witnessed.

The purpose of this purpose of this dissertation is to explore how relationships between leaders and members within this completely computer-mediated and synchronous environment affect member outcomes within guilds. I discuss how an exploratory study informs the choice of leader-member exchange theory to underpin this dissertation, develop a testable model which seeks to explain how relationship quality between leaders and members affects member outcomes as mediated by relational capital and the allocation of resources, and explain how this model will be operationalized and tested.

## Keywords

Virtual worlds, leader-member exchange, MMOGs, guilds, leadership, relational capital

## INTRODUCTION

Virtual worlds are rapidly emerging as an alternative means to the real world for communicating, collaborating, and organizing economic activity. Gartner Group predicts that by 2012, 80% of all active internet users and Fortune 500 enterprises will have an avatar or a presence in a virtual world. In total subscriber numbers, MMOGs (Massively-Multiplayer Online Games) are the fastest growing form of virtual world. As the borders between work, play, and learning dissolve, the demands of the virtual gaming generation are fundamentally changing how and where work gets done. In MMOGs, player-founded organizations, or guilds, are a key organizational governance structure, and like real world companies, are faced with tasks that are complex in nature and necessitate the coordination of resources and manpower in order to be successful. These tasks require that individuals, on a large scale (up to 54 in the context we propose to explore), synthesize heterogeneous skill-sets to perform work in situations defined by reciprocal interdependence (Thompson, 1967).

Recent scholars have suggested that the lines between work and play may not be simply black and white (Yee, 2006b). Yee (2006b) further argues that MMOGs may be construed as work platforms, with increasing similarity between the activities performed in MMOGs and real work within business corporations. Within MMOGs, much of the work is coordinated by guilds which are complex social entities (Williams, Ducheneaut, Xiong, Zhang, Yee and Nickell, 2006). Just like in real life, guild success requires leaders to coordinate and control individual activities to achieve common goals. These leaders must possess a diverse array of important skills - just as with real-world companies, failures on the part of leadership may explain the high fragility of guilds (Ducheneaut, Yee, Nickell and Moore, 2007).

Interest into the transferability of leadership skills built in virtual worlds to real world situations has attracted both academic and practitioner interest (e.g., Ives and Junglas, 2008). IBM, for example, has begun identifying IBM employees who lead guilds in virtual worlds and exploring demonstrated leadership characteristics and their applicability to management practice (IBM, 2006; Reeves, Malone, Yee, Cheng, Abecassis, Cadwell, Abbey, Scarborough and Read, 2007). While there has been significant interest in virtual worlds from an academic standpoint, questions remain on what practical organizational benefits or lessons may be attained from studying virtual worlds (Shultze, Hiltz, Nardi, Rennecker and Stucky, 2008). While I concede that there are certainly reasons to question why MMOGs, seen as a computer game to many people, represent a suitable organizational study context, there may be practical lessons to be gleaned.

In particular, exploring leadership-in-action within MMOGs may further our understanding of leadership phenomena in practical and relevant ways. The last two decades has seen an IT-enabled move away from traditionally organized firms to networked firms where work is performed by virtual teams (Jarvenpaa and Leidner, 1999). While there are striking similarities between guilds and virtual teams, when and how work occurs differs in two important ways. Unlike the asynchronous communications methods (e.g., e-mail) used within virtual teams, guild activities must be undertaken in a synchronous manner, necessitating coordination which spans time zones and countries within a completely computer-mediated communications (CMC) environment. Leaders also operate under a seemingly paradoxical condition – since participants in MMOGs receive no remuneration (i.e. direct pay), how may leadership control and motivate a workforce whose participation is voluntary? These unique circumstances motivate studies which seek to understand the influence of leadership within these challenging environments, and have the potential to greatly contribute towards management practices.

The outline of this proposal is as follows. I begin with a brief literature review on the MMOGs and virtual teams. Next, I discuss an initial study which informs this proposal and provides a backdrop and additional review for the context this dissertation will explore. Based upon the initial study's results, I introduce leader-member exchange (LMX) theory and propose a conceptual model that will be tested. I then discuss how the model will be operationalized and tested. Lastly, limitations, expected contributions, and interesting directions for future research will be discussed.

## **LITERATURE REVIEW**

### **MMOGs, Guilds, and Guild Leaders**

The number of MMOG participants has grown rapidly in the last few years. For example, Blizzard Entertainment's World of Warcraft (WoW) has been particularly popular with subscriber numbers nearly doubling from 6 million in 2006 to 11.5 million today (Blizzard, 2008; Ducheneaut, Yee, Nickell and Moore, 2006). Naturally, researchers have taken notice and there is small but growing body of literature that serves as a great primer for understanding the history, demographics, and mechanics of MMOGs (Castronova, 2005; Yee, 2006a; Yee, 2006d). Research into what actually goes on within MMOGs has motivated studies using a rich variety of approaches including surveys, qualitative analyses of interviews of MMOG participants, and in-depth ethnographies (e.g., Nardi and Harris, 2006; Williams, Yee and Caplan, 2008; Yee, 2006d).

One consistent theme that has emerged from research into MMOGs thus far has been the need for collaboration in order to achieve success (e.g., Dannecker, Richter, Lechner, Dressner, Fabisch and Ilsemann, 2008; Nardi et al., 2006). Past research has suggested that success in MMOGs is contingent upon very similar factors to success for real-life organizations. Many of the factors identified are within the scope of control of the leadership of a guild, such as conflict resolution, discipline, motivation, coordination, nurturing and emotional support, delegation, training, retention, recruitment, scheduling, and politicking (Castronova, 2005; Ducheneaut et al., 2006; Ducheneaut et al., 2007; IBM, 2006; Reeves et al., 2007; Steinkuelher, 2004; Williams et al., 2006; Yee, 2006c).

### **Emergent Leadership and Virtual Teams**

Yoo and Alavi (2004) present a compelling argument for the importance of understanding leadership and virtual teams. While they suggest that leadership has been a frequently studied topic in management and social psychology literature, they point out that past studies are frequently conducted in traditional organizational forms with mostly face-to-face communications. These studies neglect the new realities facing organizations, such as the move to non-collocated organizational forms and the subsequent need to virtually communicate with far-flung members via CMC methods (Bell and Kozlowski, 2002). As communications efficacy is essential to effective leadership, Yoo and Alavi (2004) further argue that these new realities require focused studies of leadership within virtual environments.

Guilds within MMOGs while typically larger than the size of virtual teams studied, share several common attributes. For example, virtual teams are geographically dispersed and members interact primarily through electronic media (Jarvenpaa et al., 1999; Powell, Piccoli and Ives, 2004; Yoo et al., 2004). In addition, Yoo and Alavi (2004) suggest that virtual teams in real organizations often are comprised of domain-specific subject matter experts from a range of sources including different departments (e.g., Maznevski and Chudoba, 2000). MMOGs are by definition an electronic media and there is evidence to support the similarity of guilds to virtual teams; as guilds utilize geographically dispersed participants with heterogeneous motivations (Yee, 2006d) and skill sets (Ducheneaut et al., 2007). However, there are key differences that demarcate guilds in MMOGS from virtual teams; table 1 summarizes these differences.

Virtual Teams (Jarvenpaa et al., 1999)	Guilds in MMOGs
New way of performing work (virtually)	Only way of performing work
Non-collocated participants	Collocated avatars
Asynchronous ways of performing work(e.g., e-mail)	Synchronous (same time, same place)
Group to team sizes (up to 15 individuals)	Group to organizational sizes (6-100)
CMC augmented	CMC required
“Extensive coordination and strong leadership” is required (Yoo et al., 2004)	Yee (2006c) begins a dialogue but many unresolved questions remain

**Table 1: Leading virtually, comparing virtual teams to guilds in MMOGs**

When comparing work performed by virtual teams and work performed within guilds in MMOGs, the importance of strong leadership becomes apparent. Within guilds, work is performed exclusively in relatively lean CMC environments, at the same time (e.g. synchronicity), and by a large number of virtually collocated individuals. These characteristics directly impact span of control and coordination issues. Moreover, unlike a regular organization, leaders have no formal control over their members (i.e. pay). Therefore, how leaders actually control, coordinate, and motivate in the MMOG environment may offer insights with considerable impacts for management practice.

To gain better understanding of guild leadership issues within MMOGS, a pilot study exploring emergent leadership was undertaken. Emergent leaders are potential leaders who “earn their status through incremental influences and contributions...” (Yoo et al., 2004). This study is discussed next in order to introduce readers to the MMOG and guild context, as well as to explain the choice of theoretical framework which underpins this proposal.

## PILOT STUDY

### Virtual World Context

The organization of study is a guild in the popular MMOG Everquest ([www.everquest.com](http://www.everquest.com)). Everquest, released in March 1999, is a subscription-based MMOG offered by Sony Online Entertainment (SOE). Subscribers participate by installing the gaming client software on their computers and connect to game servers via the Internet. Everquest is generally regarded by on-line gamers as being more difficult than other MMOGS (e.g., WoW) with highly challenging end-game content and tight interdependencies between participant roles, which necessitates extensive cooperation among participants. Moreover, Everquest’s guild content is tuned for 54 simultaneous participants. Naturally, larger numbers of individual participants present a non-linear increase in leadership duties and requirements (Steinkuelher, 2004). This high level of difficulty, tight interdependency between participants and large raid sizes make Everquest a fascinating context for studying leadership-in-action within guilds.

### Organizational Context

Bright Horizon (BH), was formed in 2000 by approximately 150 original members. The guild’s primary mission is to tackle end-game raid-oriented activities. The reasons underlying the formation of BH were to address the excessive coordination requirements to undertake raiding activities over a long period of time and provide a stable social backdrop which a guild provides (Ducheneaut et al., 2007). From inception to present day, over 500 participants have been involved in guild activities. BH enjoys a positive reputation and is recognized as the leading guild on its server, with cross-server recognition from numerous raiding accomplishments and guild longevity.

Participants in guild activities comprise three groups: leaders, full members, and invites. Leaders are comprised of a guild leader along with guild officers. The current guild leadership is notable for its egalitarian approach, deferring to seniority in the leadership only during extreme situations. Officers are promoted from full members following a vote by active leaders. Some reasons for promotions include vacancies due to attrition, guild growth, and when a perceived need arises. Full members are regular members with specific rights and responsibilities and form the majority of the guild. Invites are potential candidates for membership with limited rights and responsibilities. These candidates are subject to an “invite period”, in which their performance is carefully monitored and their personalities judged for fit with current guild members and guild goals. Overall, BH’s membership demographics and membership processes are relatively similar to other MMOG guilds (e.g., Ducheneaut et al., 2007).

BH's leadership duties, just as in real-life, vary significantly and are split between the leaders. Yee (2006c) interviewed guild leaders in MMOGs and identified leadership roles such as mediating conflict, maintaining order, listening and being a good confidant, and learning how to delegate. In BH, other leadership duties also include communications on raids, strategy formulation, recruitment of new members, and support activities (moderating chat, posting banners, managing guild message board, maintaining the attendance database). Decomposing leadership duties into smaller delegated manageable portions may serve as valuable stress relief, as Yee (2006c) suggested that an obligation to "play" and burnout were issues for guild leaders who tried to do it all.

### **DKP Database**

As with other MMOGs, the purpose of end-game raiding is to beat events designed by the game developers. One of the biggest motivators to continually engage in such activities is the "carrot" - the rare and powerful items and resources (commonly called "loot" by players) which comes from beating a raid. However, given that the ratio of the number of players to the number of items or resources derived from each raid is extremely high, the fair allocation of loot is a subject of great debate. Ducheneaut et al. (2007) suggested that internal politicking over access to loot has contributed to the failure and breakup of many guilds.

The dragon kill point (DKP) system was implemented by BH in the hopes of providing an objective method for assessing the allocation of loot. The underlying reasoning for the use of a DKP system is that loot should be allocated to individuals who contribute most to the guild. Therefore, there is both an attendance and performance dimension to the DKP system. Participants only earn DKP by showing up for and actively contributing to guild activities. DKP values are decided by the leadership and are awarded for hourly attendance and the successful completion of raids. More difficult raids and raids which are deemed essential to guild progression are awarded higher DKP values

Leadership is responsible for putting price tags on loot, with rare and powerful items costing more DKP points. Members may then use the DKP points they have accumulated like a virtual currency in a competitive bidding or auction-like system whenever loot they desire is obtained by the guild. Another important philosophical foundation in BH's DKP system is that everyone earns the same amount of DKP for each event. This emphasis on equality was necessary in order to achieve buy-in for the original DKP system proposal by the general guild membership.

The DKP system has evolved over time to be used for other guild functions outside of loot. For example, guild sanctions for inappropriate behavior may include a costly DKP fine. Also, in order to minimize free riding, the DKP database generates a PDKP (percentage dragon kill point) statistic every day which represents the rolling percentage of points earned by each member over a 90 day period. Individuals who fall below active status, defined as less than 60% PDKP, are ineligible to bid on loot and are subject to guild removal. Individuals who are inactive over 90 days are subject to a "DKP wipe" in which their accumulated DKP are removed, a most serious consequence. The DKP system also serves as an important motivational device with guild members challenging each other to earn more points.

The DKP database offers a great deal of potential for studying the activities of guilds in MMOGs. To our knowledge, accessing and analyzing a longitudinal dataset of this nature has not been attempted. As the DKP database serves as a guild historian of sorts, with participant data recorded for each official guild activity, we are hopeful that an analysis of the DKP database will reveal insights into the research questions at hand.

### **Data Analysis**

Our initial analyses utilized a subset of the DKP database representing one Everquest expansion. An expansion is the packaged release of new game content (i.e. new raids and items) and usually offers new ways in which to strengthen and improve one's avatar along with new game mechanics. Participants in MMOGs generally view expansions as a fresh start, with older members returning to participate, and new challenges for the guild to overcome. As such, an expansion represents a logical way to partition the data available from the DKP database into a meaningful period of time for analysis.

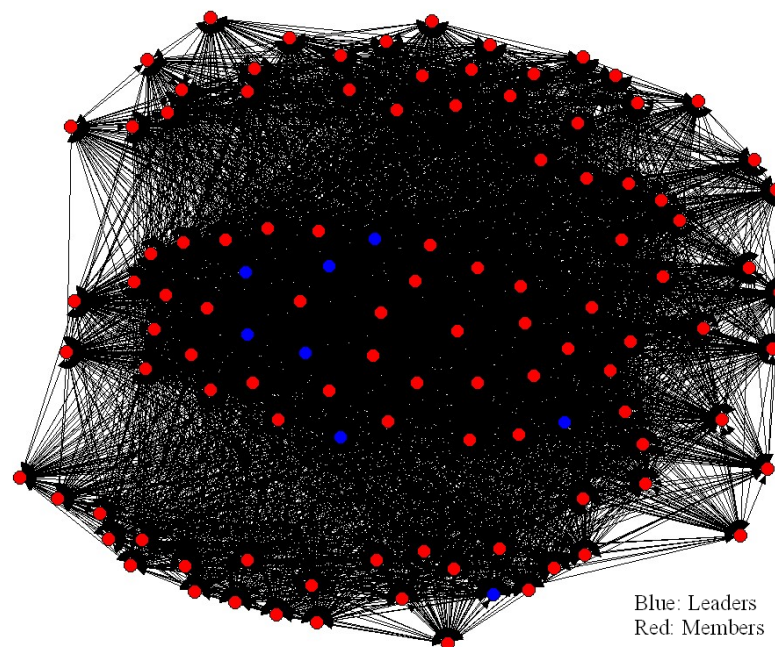
The data analyzed one expansion, representing a 11 month time frame (11/18/2007 to 10/13/2008). Utilizing a web scraping program, we downloaded and saved data for each individual in each raid in the time period. A custom text parsing program was written to extract the relevant data: raid, attendance, percentage of DKP earned (PDKP), Percentage of DKP spent on loot (SPDKP), tenure, class, social role, and gender. Raid attendance was calculated by a count of the number of raids an individual attended. PDKP was calculated as a ratio of an individual's earned DKP to the total possible earned DKP of the time period. SPDKP was calculated as a ratio of an individual's spent

DKP to the DKP they earned in the time period. Tenure represents the total amount of time (not just within the sampling period) an individual had been a member of the guild. Class represents the class of the avatar (i.e. warrior, cleric, and shaman). Social role represents the socially-constructed role an individual is supposed to take (i.e. Healer, Tank, damage dealer (DPS)). Lastly, gender represents the gender of the avatar (defined as male or female in Everquest).

Overall, this allowed for the inclusion of 1,631 DKP raid entries representing formal guild activities. Each raid was attended by an average of 51 participants. Based upon the hourly DKP points awarded, we estimate that BH guild activities range from 15-25 hours a week; as such the data represents roughly 60,000 “avatar-hours” of work. In total, we were able to identify 112 unique individuals, of which 8 were designated leaders. The data were analyzed using UCINET to assess individual network centrality measures and to create a visual representation of the overall guild structure, and SPSS to assess the significant predictors of leadership.

## RESULTS

Figure 1 offers a visual representation that speaks to the central participants within BH. Red circles represent regular members and invites, blue circles represent leaders. Per Figure 1, the leaders within the guild are very central in the guild’s activities. An analysis based upon a one-way ANOVA which compared current designated leaders to regular members indicated that leaders attended significantly more raids ( $F=12.114$ ,  $df=1$ , 110,  $p$ -value  $< 0.001$ ), earned more DKP ( $F=11.07$ ,  $df=1$ , 110,  $p$ -value  $< 0.001$ ), and had a higher PDKP ( $F=11.07$ ,  $df=1$ , 110,  $p$ -value  $< 0.001$ ), tenure ( $F=27.208$ ,  $df=1$ , 110,  $p$ -value  $< 0.0001$ ), and centrality ( $F=12.085$ ,  $df=1$ , 110,  $p$ -value  $< 0.001$ ) than regular members. Interestingly, leaders did not have a significantly different SPDGP than regular members, indicating that leaders did not spend more DKP to obtain loot than regular members.



**Figure 1. Affiliation network of BH activities comparing leaders and members**

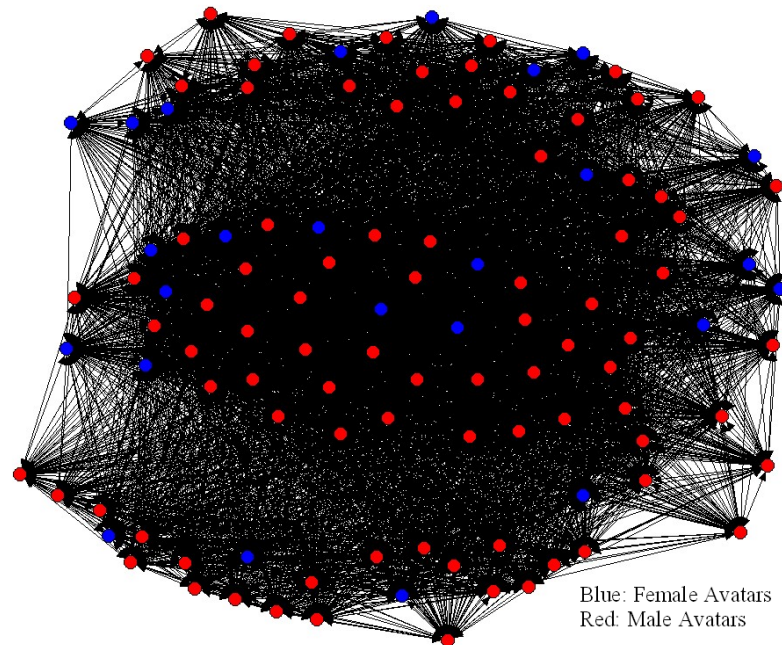
In examining which attributes predicted leadership, significant correlations were found for three variables, PDKP (.306), Tenure (.433), and degree (.317). Given these results and that we were interested in being able to differentiate between the attributes of formal versus potential emergent leaders, we sorted the dataset by PDKP and tenure in descending order. While PDKP and degree are conceptually distinct constructs, they were not statistically so, therefore we present only PDKP (overall participation) results. We then ran one-way ANOVA analyses for the attributes of the top 20 individuals. While we are aware that choosing the top 20 is somewhat arbitrary, we felt it was a reasonable cut-off in order to balance investigative comparisons of formal leaders with the other most active members and members with longest tenure. Overall, 7 of the 8 leaders were in the top 20 for both analyses, with 12 other regular members (see table 2). We noted variation in the names of the regular members who were in the top 20 for tenure and participation, while the designated leaders remained constant.

Our results indicate that when comparing designated and potential emergent leaders for the top 20 in participation, designated leaders had higher tenure ( $F=4.615$ ,  $df=1, 19$ ,  $p\text{-value} < 0.05$ ). When comparing designated and potential emergent leaders for the top 20 in tenure, designated leaders had a higher PDKP ( $F=5.665$ ,  $df=1, 19$ ,  $p\text{-value} < 0.05$ ) and degree ( $F=5.633$ ,  $df=1, 19$ ,  $p\text{-value} < 0.05$ ). These results suggest that formal leaders are those who have participated in guild activities the most frequently and also for the longest period of time.

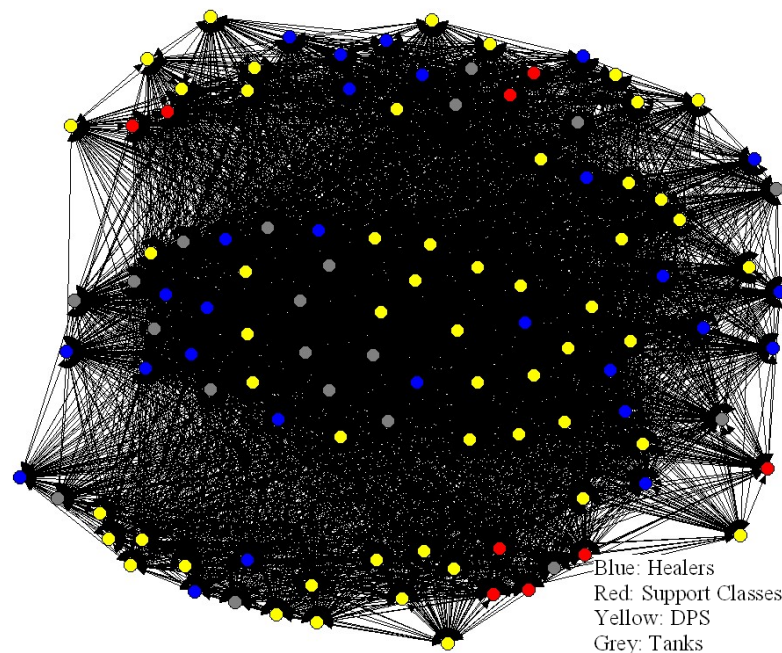
Name	Top 20	Status	DKP Earned	PDKP	SPDKP	Class	Social Class	Gender	Tenure (Months)
Vas830	Both	L	45392	100.00	33.93	Bard	DPS	M	60
Cal697	Both	O	44777	98.65	36.91	Paladin	Tank	M	70
Dem794	Both	O	41364	91.13	31.07	Warrior	Tank	M	78
Dra383	Both	O	43422	95.66	35.35	Monk	DPS	M	47
Fry367	Both	O	40807	89.90	38.90	Bard	DPS	M	46
Jan345	Both	O	38861	85.61	44.52	Wizard	DPS	M	78
Sen926	PDKP	O	37947	83.60	41.04	Rogue	DPS	M	23
Bah838	Both	M	41617	91.68	40.54	Cleric	Healer	F	26
Fun787	Both	M	45292	99.78	32.62	Shaman	Healer	M	47
Hea511	Both	M	37077	81.68	46.26	Cleric	Healer	M	72
Mix419	Both	M	41944	92.40	3.70	Wizard	DPS	M	47
Pol869	Both	M	40601	89.45	33.00	Bard	DPS	F	45
Tlu730	Both	M	42099	92.75	32.66	Cleric	Healer	F	56
Zak615	Both	M	39932	87.97	52.28	Warrior	Tank	M	46
Bla508	PDKP	M	43427	95.67	34.25	Druid	Healer	M	34
Cas286	PDKP	M	40214	88.59	44.76	Beastlord	DPS	M	25
Ebo455	PDKP	M	44142	97.25	36.13	Druid	Healer	M	27
Hun897	PDKP	M	44592	98.24	45.13	Ranger	DPS	M	43
Iks439	PDKP	M	43522	95.88	40.90	Monk	DPS	F	38
Rih565	PDKP	M	44397	97.81	40.43	Paladin	Tank	M	17
Bat694	Tenure	M	36654	80.75	54.63	Warrior	Tank	M	47
Bel544	Tenure	M	35551	78.32	50.28	Warrior	Tank	M	45
Ela439	Tenure	M	29428	64.83	50.63	Cleric	Healer	F	55
Fal830	Tenure	M	27901	61.47	50.54	Rogue	DPS	M	46
Jer892	Tenure	M	34754	76.56	32.87	Druid	Healer	F	47
Kos772	Tenure	M	26334	58.01	56.58	Paladin	Tank	M	68
Kre378	Tenure	M	21523	47.42	39.49	Bard	DPS	F	47
Pul826	Tenure	M	37891	83.48	42.53	Monk	DPS	M	78

**Table 2. Combined top 20 members by participation and tenure**

We did identify two major differences between formal leaders and potential emergent leaders. While many emergent leaders on the top 20 lists were from the healer class, none of the formal leaders are healers. Similarly, while many of the emergent leaders are female, all of the leaders are male. Therefore, in terms of leadership, discrimination may play a role in formal promotion systems in guilds, just as in regular organizations. Visually, this pattern of possible discrimination is depicted in figures 2 and 3. From figure 2, while there were female avatars central to guild activities, none of these females were officers. From figure 3, while healers were central in guild activities, none were formal leaders. Also from figure 3, no individuals with support roles were formal leaders.



**Figure 2. Affiliation network of BH activities comparing male and female avatars**



**Figure 3. Affiliation network of BH activities comparing different social roles**

### Interviews

Based upon our initial data analysis, we conducted a series of in-world follow up interviews with the leadership of BH. We were able to secure interviews with 4 of the 8 guild leaders (3 officers and the formal guild leader). Of the individuals who we were unable to interview, 3 had quit the game and were unreachable, and the last declined for time reasons. The interviews consisted of two sections. First, a semi-structured interview which sought to understand in greater detail the backgrounds of the individuals, the duties which they performed, and the process by which potential emergent leaders were identified and promoted. Second, we utilized a repertory grid technique to elicit constructs from our subjects, with regards to characteristics of potential emergent leaders. Our subjects were



presented with 10 elements selected by the researchers. These elements provided were the names of guild members with a variety of participation and tenure, chosen specifically to reduce the total time of the interview as well as to elicit constructs with more variety (Curtis, Wells, Higbee and Lowry, 2008). We utilized 10 random triads in minimum context form, the difference method, and laddering to probe for bent constructs to develop the rep grids (for an in-depth explanation of the method please see Curtis et al., 2008). Each interview took an average of 2 hours. Table 3 summarizes the demographics of our subjects as well as the constructs identified.

	Leader 1	Leader 2	Leader 3	Leader 4
Age	38	34	31	32
Location	London, UK	Austria	Washington, USA	Utah, USA
Year promoted	2000	2006	2004	2006
Constructs identified	Ability to be Firm	Ability to Listen	Activeness	Attendance
	Attendance	Attendance	Attentiveness	Attitude
	Attentiveness	Emotionality	Class	Commitment
	Emotionality	Helpfulness	Commitment	Loyalty
	Longevity	Patient	Emotionality	Passion
	Performance	Performance	Reliability	
	Reliability	Respected	Respected	
	Respected	Tolerant	Temperament	
	Skill	Well-liked	Trustworthy	
	Stubbornness			
	Tenure			

**Table 3: Summary of demographics and constructs identified from the repertory grid technique**

The results from the interviews help to further understand how potential emergent leaders may be identified. For example, attendance, as suggested from the quantitative analysis, is also very important qualitatively. However, the relationships between constructs appear to be much more complex than the quantitative data alone suggests. For example, when asked why attendance was so important and how they dealt with motivating individuals, the following comments were elicited (emphasis ours):

*“There can be lots of ways to **earn respect**. **Pulling your weight** is one that may gain most officers their respect. They're going to typically have **higher attendance**, they may be one of the people who **overachieves** vs. others of their class and by doing that, they are **respected** more. Another way is **being there** for your fellow guild members, maybe it's being there to help them with specific things in game from time to time. Another way is being there to **listen and help** with in game or out of game matters. Like I said before, there is some times where I've actually sat and listened to people's problems out of the game. Illnesses, family problems, marriage problems, passing of family or friends. By **being there** for people to be a **shoulder to lean on** in and out of game also gains you much **respect**”.*

*“The people that play this game know that they don't have to listen to any of the officers. We aren't a dictatorship so we don't force anyone to log in. Yet, they still come because it is what they want. They log in because it is my belief that **respect is earned and not forced upon**. People **respect leaders that choose to act and lead** people to the path were we want to be. We couldn't be anywhere without the current roster and I like to think that the leadership had a bit to do with that.”*

*“...partly reward based (dkp, loot, etc), and partly the usual human leader/follower aspect of obeying orders from someone of a senior rank. **Trust is a big part too**, while we're successful people are more likely to give us the benefit of the doubt when it comes to decisions they might not personally agree with... combination of success and the overall impression that we **have the guild's interests at heart rather than any personal gains**.”*

*“...the only real way for people to listen and follow what you have to say is that you have some sort of **good reputation**... one can also say **respect** is needed, in that the people listening do know the people giving orders are trying to get things done as efficient as possible... **respect both ways** that is, people listening also have to understand that **the leadership at least expects the listener to return so called favor** in running the guild.”*

The qualitative interviews provide several insights into characteristics successful leaders in MMOGS must have in coordinating a heterogeneous workforce within synchronous, non-located, entirely computer-mediated environments where the workforce serves on a voluntary basis. It appears from the constructs elicited that the traditional method of control, or the exchange relationship (i.e. direct pay), is not the primary method by which MMOG leaders influence members. Instead, leaders rely on building relationships over a long period of time and through successful interactions which in turn foster respect, affect, trust, loyalty, and commitment, and obligations from their members. The findings from this pilot study motivate this proposal to broadly to ask: **“How does the relationship between leaders and members affect member outcomes in virtual organizations?”**

### LEADER-MEMBER EXCHANGE THEORY

The broad area of leadership has been the subject of a great deal of academic research. Recently, as a rebuttal to the average leader style perspective which informs prior research, LMX theory has emerged (Van Bruekelen, Schynes and Le Blanc, 2006). Broadly, LMX theory (Dansereau, Graen and Haga, 1975; Graen, Novak and Sommerkamp, 1982) suggests that leaders have different relationships with their subordinates. These differential relationships are the result of a negotiated process of role-making and role-taking between leaders and new subordinates. The outcome of this process determines if a subordinate is relegated to an “in-group” or an “out-group”. As the label implies, being a member of the “in-group” brings with it many benefits. These benefits include access to the leader’s network of resources, better job assignments, more job latitude, and a relationship based upon high degrees of mutual trust, respect, and loyalty. In contrast, being a member of the “out-group” means that the leader-member relationship is regulated by exchange mechanisms with lower degrees of trust and poorer outcomes. LMX is posited to be related to both hard (e.g., access to resources) and soft (e.g., organizational citizenship behaviors, organizational identification, commitment, innovative behavior and other forms of social capital) outcomes.

There have been several criticisms of LMX research. First, Graen and Uhl-Bein (1995), in a 25 year review of LMX, suggested a lack of multi-level analyses (e.g. group or organizational) of the effects of LMX. Second, while many studies have looked at soft outcomes based upon individuals’ perceptions of the LMX relationship, few studies have looked at hard outcomes, such as access to specific types of resources and objective performance. Moreover, the specific causal mechanisms through which LMX impacts individual performance has remained largely elusive. Lastly, Van Breukelen et al., (2006) suggested that LMX research has been focused tightly on the dyadic relationships between leaders and followers, neglecting organizational phenomena such as group dynamics and group politics. These gaps present several opportunities for research. **First, how does LMX and categorization into the in-group versus out-group impact an individual’s access to resources? Second, based upon our pilot study, how does leadership impact the development of relational capital? Lastly, what are the underlying causal mechanisms between LMX and individual performance - is the impact of LMX on performance mediated by group dynamics or relational capital?**

### THEORETICAL MODEL

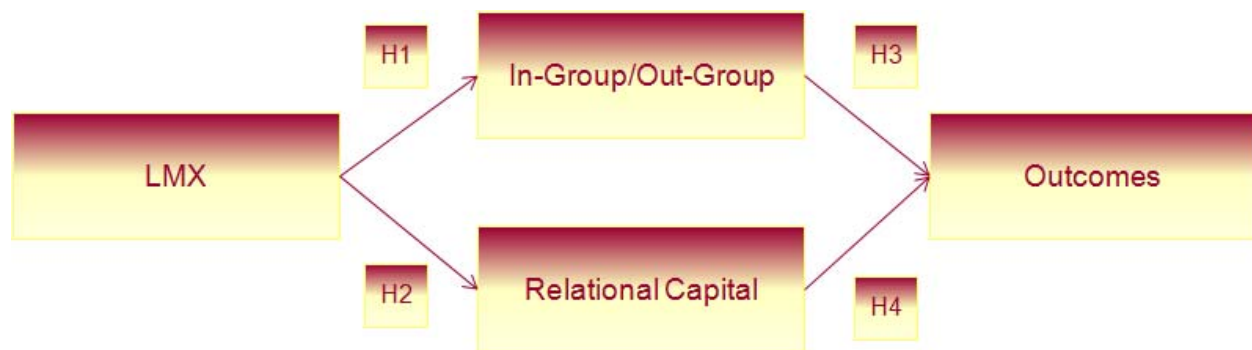


Figure 4: Theoretical model

LMX theory suggests that, unlike prior leadership theories, the relationship between leaders and members may vary. The reasoning behind this differential treatment contends that it is difficult for leaders to have high quality relationships with everyone. Similar arguments exist, for example in social network theory such as Granovetter’s strong and weak tie arguments. Assignment to the in-group or out-group is therefore a result of a leader balancing time and resource constraints (Graen et al., 1995). Therefore, I hypothesize,

**H1: LMX quality will be positively related to assignment to the in-group**

Prior research suggests that relationship quality has positive impacts on “soft outcomes”. Some of these outcomes include organizational commitment and identification, mutual trust, respect, and obligation, job latitude, and shared goals (Gerstner and Day, 1997; Van Bruekelen et al., 2006). However, there is a lack of consensus surrounding these constructs, in that researchers have previously investigated these as correlates, antecedents, and moderators of LMX relationships (Van Bruekelen et al., 2006). Based upon the results from the pilot study, and consistent with the propositions of social capital theory, one way to conceptually group these outcomes is to view them as relational capital (Nahapiet and Goshal, 1998). Relational capital is a form of social capital established through repeated interactions between members of a bounded social entity and includes trust, norms, obligations, and identification. Therefore, a high quality relationship between leaders and members is posited to affect the development of relational quality,

**H2: LMX quality will be positively related to a member's relational capital with the organization**

LMX theory suggests that being in the in-group entails benefits such as access to resources. Leaders afford members of the in-group better job assignments, better opportunities, more latitude, and both tangible and intangible resources (Gerstner et al., 1997). These resources allow for more effective work-related activities. Therefore, being assigned to the in-group may have a positive impact on member outcomes and I hypothesize that,

**H3: Assignment to the in-group will be positively related to member outcomes**

Members who are more committed, trust in, identify with, and feel more obligated to the organization should have better outcomes (Nahapiet et al., 1998). Similarly, LMX theorists suggest that in high quality leader-member relationships “...followers are willing to exert effort by engaging in activities that are not specifically prescribed by the organization...” (Graen et al., 1982). The transformational nature of LMX and higher levels of relational capital should therefore positively affect member outcomes. My last hypothesis is thus,

**H4: Relational capital with an organization will be positively related to member outcomes****PROPOSED METHODOLOGY**

I propose to test my theoretical model using the same guild and MMOG context discussed in the pilot study. I expect a sample size ranging from between 45 to 65 individuals. Data will be collected from four sources – 1) a web-based survey 2) in-game logs 3) archival data 4) personal interviews. A summary of the constructs, their operationalization, control variables, sources of items for the survey which will be reworded for the MMOG context, and the source of data for the constructs is listed in table 4.

<b>Construct</b>	<b>Instrument</b>
<b>LMX</b>	Graen & Uhl-Bien, 1995 (LMX-7)
<b>In-Group/Out-Group</b>	Objectively assessed (logs)
<b>Relational Capital</b>	
Organizational Commitment	Mowday et al., 1979
Organizational Trust	McAllister, 1995; Jarvenpaa, 1998
Organizational Norms	Faraj & Wasko, 1998
Organizational Identification	De Cremeer et al., 2006
<b>Member Outcomes</b>	
Overall satisfaction	Gerstner & Day, 1995
Intentions to turnover	Gerstner & Day, 1995

Performance (self-assessed)	Gerstner & Day, 1995
Performance (objective)	Objectively assessed (logs)
<b>Control Variables</b>	
Organizational Tenure	From DKP Database
Dyadic Tenure	From DKP Database
Role/Class	Objectively assessed (logs)
DKP spent	From DKP Database

**Table 4: Summary of constructs and control variables**

In-group and out-group dynamics will be assessed by in-game logs. Based upon these logs, I will be able to determine which group individuals were assigned to. The group composition, and the degree to which the group members' roles complement and enhance each other's performance, will reflect if an individual has been assigned to an in-group or an out-group. I will then count the number of times during the data collection time period that an individual was assigned to the in-group.

For performance, individual performance will be objectively assessed utilized text-parsing utilities on in-game logs. As the vast majority of guild interactions are codified and recorded within these logs, an analysis of them provides a unique opportunity to objectively assess member performance. The use of objective performance data in other LMX-based studies has been extremely rare (Gerstner et al., 1997).

We propose collecting data from in-game logs and the DKP database for 1 month, administering the survey to collect LMX and relational capital data, and continuing to collect in-game logs and DKP data the preceding month. The data will be analyzed using structured equation modeling (SEM) techniques following the suggested guidelines (Gefen, Straub and Boudreau, 2000).

#### **LIMITATIONS**

First, the use of a singular guild naturally raises generalizability and replicability concerns. Our personal experiences suggest that this limitation may not be overly biasing. While MMOGs may be very different, guilds are surprisingly isomorphic and adopt practices from other guilds which are perceived to be successful. Accordingly, the use of a points system of sorts to track attendance and participation is the norm for many high-end guilds.

Also, the guild selected for this analysis is a high-end guild, representing only one of other possible types of guilds suggested by Williams et al. (2006). However, we felt justified in our choice given that BH, as a raiding guild, represents a good fit to study organizational and leadership phenomena given that its stated goals and activities more closely match real-world organizations than a socially-oriented guild.

#### **EXPECTED CONTRIBUTIONS AND DIRECTIONS FOR FUTURE RESEARCH**

Over two decades after LMX theory was first proposed, consensus remained elusive. House and Aditya (1997) suggested that LMX theory was "still in the making" while Gerstner and Day (1997) remarked that "there is surprisingly little agreement on what LMX is". Nearly a decade later and despite the earlier efforts to systematically integrate and clarify LMX theorizing (e.g., Graen et al., 1995), Van Bruekelen et al. (2006) offers a more recent critique of the state of LMX research:

*"There is a lack of clarity on what constitutes the dimensions or components of the leader-member working relationship itself, what are the antecedents or correlates of a low- or high-quality relationships, and, finally, what are its consequences."*

A theoretical contribution of this dissertation is to clarify the relationship of LMX on member outcomes by proposing how in-group/out-group dynamics and relational capital mediate the effects that relationship quality has on member outcomes. The interviews from our pilot study suggest that much like real life, leaders in MMOGs must be versed in encouraging a myriad of factors such as trust and respect. Unique to the MMOG context, it appears that these factors and a leader's ability to build relational social capital with members is a key mechanism by which control may be exerted over members who work on a voluntary basis. Understanding how leaders, may influence

members indirectly, outside of normal exchange relationships (i.e. pay), by achieving member buy-in and organizational relational capital may have significant implications for management practice.

Given that the hypotheses posited have yet to be tested, some observations about possible contributions by this dissertation even if the hypotheses fail should be noted. For hypothesis 1, LMX theory suggests that leaders relegate subordinates to in or out-groups based upon relationship strength. There may however, be other causal mechanisms by which this occurs; for example our initial interviews with guild leaders indicate that group assignments (and access to better capital) may be a function of taking turns, or “spreading the wealth”. This stands in stark contrast to LMX which holds that group assignments should be a function of individual performance over time. Highlighting a disconnect of this nature would be a useful theoretical contribution. For hypothesis 2, I posited that LMX quality would be positively related to relational capital. A non-significant finding would indicate that future research should identify other ways in which leaders may influence individual performance.

For hypothesis 3, I posited that assignment to the in-group would be positively related to individual performance. A non-significant relationship here would indicate that there are other factors at other levels (i.e. individual attributes such as knowledge, skills, and abilities) that must be examined in this context. Given the control variables that I will be using, one potential contribution might be to further explore these as possible influences. Lastly in hypothesis 4, I posited that higher levels of relational capital would positively affect individual performance. Relational capital is one of three types of social capital. A non-significant finding here may suggest that other forms of capital be considered. One interesting post-hoc consideration here would be to see if social capital, as operationalized by DKP earned, is more influential than relational capital.

Future research should seek to extend LMX by exploring multi-level analyses, for example, group and organizational cross-comparisons. Exploring how the LMX relationship develops over time within virtual settings, and identifying antecedents of LMX quality remain understudied (Graen et al., 1995). MMOGs and guilds are involved in activities which mirror real-world organizations and work. While there remain questions about the transferability of skills and concepts from MMOGs to the real-world, I remain hopeful that this dissertation may demonstrate how studies into virtual worlds may contribute to relevant leadership practices.

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