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Beyond Rank Attainment: Examining the Nature and Function of Dominance and Prestige in Teams

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Abstract

Social hierarchies are fundamental to human societies, shaping group dynamics and outcomes. Ongoing debates attempt to understand their functional and dysfunctional consequences. While the conflict account of hierarchy emphasizes the potentially detrimental conflict-inducing effects of hierarchies, the functionalist account proposes that hierarchies create contexts conducive to coordination. This study investigates if team-level dominance and prestige processes might account for these diverging consequences of hierarchy with dominance fueling conflict-prone environments and prestige nurturing coordination processes. Additionally, it examines whether the inherently competitive nature of team-level dominance yields more favorable outcomes in highly competitive, zero-sum, contexts.

Across two studies, I investigated the nature and consequences of dominance and prestige processes on team functioning employing novel methodologies and conceptualizations to shed light on their mechanisms. Crucially, this research investigates dominance and prestige processes at the team-level, avoiding the limitations of individual-level perspectives. The research goes beyond mean-level investigations by also considering the influence of differentiation within teams in dominance and prestige alongside fluctuations in team-level dominance and prestige over time.

Study 1 investigated the dynamics of team dominance and prestige within work teams by utilizing three years of longitudinal data situated within an ecologically valid context. Results demonstrated that group dominance positively related to conflict measures, highlighting its detrimental influences. Conversely, prestige was positively related to beneficial team dynamics including team potency and coordination. Furthermore, dominance and prestige differentiation had both positive and negative influences.

Study 2 explored these relationships in a more controlled laboratory setting using distinct methodologies, types of participants, and team contexts. Additionally, I investigated if zero-sum contexts moderated the relationships dominance had with team functioning variables. The results from Study 2 suggested that dominance was the primary driver of team conflict, whereas prestige was the primary driver of team potency. However, prestige's beneficial

influence on coordination and conflict measures only manifested in the more competitive context. This suggests that something in more competitive environments might activate the beneficial influence of prestige.

These findings provide insights into the nature and interplay between dominance, prestige, and team functioning. This research validates the group-centered approach and goes beyond solely relying on mean-level conceptualizations.

Keywords

Hierarchy, dominance, prestige, team dynamics, team functioning, zero-sum games, team potency, team coordination, relationship conflict, status conflict, performance, conflict, competition, teamwork.

Summary for Lay Audience

Social hierarchies are an integral part of human societies, influencing how groups work together and achieve results. Ongoing debates about hierarchies aim to uncover their positive and negative effects within teams. This study explores these debates and focuses on two different aspects of hierarchies within teams: dominance and prestige. The conflict account of hierarchy suggests that being in teams wherein some members have more influence than others can lead to conflicts, while the functionalist account proposes that such hierarchies can help teams better coordinate. The present research investigated whether dominance and prestige play distinct roles in creating these effects. These studies used team-level metrics and used novel ways to measure and analyze the data. Considering teams' average levels, the spread, and fluctuations over time, this study sought to understand how dominance and prestige affects team functioning.

In Study 1, I collected data from teams over three years to see how dominance and prestige impacted their team functioning and found that dominance in teams led to more conflicts, supporting the idea that hierarchies can create conflict in certain contexts. On the other hand, teams with higher prestige tended to report more coordination and confidence in their team, showcasing the positive side of hierarchies.

Study 2 took a closer look at these issues by creating controlled team scenarios in a laboratory to investigate if dominance and prestige had differing influences in more or less competitive situations. They found that dominance often led to conflicts, while prestige boosted team confidence and performance. Interestingly, the beneficial effects that prestige had on conflicts and coordination were most noticeable in highly competitive settings.

The findings from these two studies tell us that how teams operate can greatly depend on the balance of dominance and prestige within the team. Dominance can create conflicts, while prestige can improve teamwork, but these effects might be influenced by the level of competition a team faces. By exploring both dominance, prestige, and competitive contexts, these studies highlight the complex world of team hierarchies.

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Chapter 1

1   Introduction

Competition over limited resources has been a driving factor of dominance and aggression across human history. During the Age of Exploration, sailing technologies connected societies in an unparalleled manner. In 1492, Christopher Columbus landed in the Americas, an unknown continent to contemporary Europe (Columbus, 2004), and only 30 years later Ferdinand Magellan completed the first known circumnavigation of the globe (Pigafetta, 2012). Such explorations revealed to Europe a plethora of previously unknown peoples, resources, continents, religions, and cultures. In the following centuries, European powers competed with one another to assert control over the newly discovered countries, peoples, and resources through establishing colonies.

As competition intensified into the 18th and 19th centuries, countries rapidly sought to gain control over regions using dominance, exemplified in events such as the "Scramble for Africa," wherein every African country, except Liberia, which was a protectorate of the United States, fell under colonial control. The allure of expansion seduced even countries explicitly opposed to colonialism, such as the United States, which gained control over regions such as Alaska, Hawaii, Puerto Rico, Guam, the Philippines, and America Samoa. Expansion escalated into the 20th century where, at its height, the British Empire ruled 23% of the world's population, of which only 10% were British (Maddison, 2001), and controlled 27% of the world's land area, whereas by 1980 it had reduced its land control to only 0.02% (Taagepera, 1997).

Such dramatic examples show how dominance can have both benefits and detrimental outcomes depending on one's frame of reference and the nature of the situation. The countries that aggressively colonized had an increased availability of resources, employment, power, opportunity, and global influence. However, colonization required the subjugation of the indigenous inhabitants, and the colonizers' gains most frequently came directly from the losses of the colonized. Such a relationship not only violated what is contemporarily considered human rights, but had the practical deleterious effects of

breeding contempt, insurrection, and instability. Furthermore, even amongst their colonial peers, competition for colonies led to increased aggression, disputes, as well as direct and indirect wars.

Ironically, as the race to colonize and dominate foreign powers accelerated, domestically, westernized countries increasingly advocated a different way to gain influence and govern. The ideals and legislation of democracy were on the rise, with increasing advocacy for doctrines such as self-governance, proportional representation, broad suffrage, and the consent of the governed (Huntington, 1993; Ziblatt, 2006). Such systems operate through consent and collaboration rather than coercion and diktat. Such advocacy was designed to reward prestige and competency rather than dominance and force. However, these ideals were generally not applied to the indigenous populations in the colonies, nor did they appear to slow the rate of colonialism.

Why would countries speed their rate of dominance and subjugation towards other countries, while internally extoling the virtues of prestige-based power and collaboration? Internally, they profess egalitarianism, however, in situations of intense intergroup competition, they enact dominance. Could it be that the race for colonies resulted in conditions of scarcity, wherein countries desperately sought to grab vanishing resources before there was nothing left to grab? Was this a tragedy of the commons? Perhaps, despite any moral or practical objections, the zero-sum nature of the competition led to a favoring of decisive aggression and dominance rather than egalitarian processes. From this perspective, participating in the aggression and subjugation of other societies might be perceived as the most viable strategy for safeguarding group well-being and keeping pace with rival nations. This thinking is exemplified in Japan's reactive imperialism during the Meiji Restoration. Facing the threat of colonization, Japan pursued dominion over other regions, exemplifying the logic put forth by Shimazu Nariakira's that, "if we take the initiative, we can dominate; if we do not, we will be dominated" (Sakai, 1970).

What are the effects of groups employing such dominance- or prestige-based processes? Although the colonial powers appeared significantly more powerful than their colonies, their disproportionally dominant influence over the colonies did not last, nor did it inspire

sufficient loyalty for the colonized societies to stay under colonial rule after the threat of force was removed. Since the heights of colonialism, most colonized societies have wrested control away from their colonists through both peaceful and violent means. The dominant manner of colonial administration, rather than creating unity, seems to have spurred on resentment and conflict and to have deepened interpersonal divisions. Currently, there is a strong animosity in many countries towards the actions of the colonial powers and substantial efforts are being made to reconcile the actions and policies of the colonizers with the current states of former colonies. The dominant actions and policies of past colonist continues to resonate today and have an ongoing divisive impact on the progeny of the colonizers and colonized.

On the other hand, the more prestige-based governance style of the west, with democratic ideals, has not lost popularity, power, nor been generally viewed with disdain. In fact, democratic governance has expanded in several waves since the heights of colonialism (Huntington, 1993). These democratic ideals were not spread primarily through force, but through voluntary adoption by societies who viewed the ideals as valuable. The principles of pluralism and liberalism inherent in democratic governance are widely believed to possess the potential to diminish conflict and enhance collaboration within societies (Doyle, 1983).

In the current program of study, I will explore these concepts more closely. I will examine how a group's collective levels of dominance and prestige, as avenues to influence, might affect the relationships, functioning, and processes within the groups they operate, as well as how they influence objective intergroup team outcomes in laboratory and real-world settings. As an extension to this understanding, I will further conduct testing to investigate if the zero-sum competitive nature of a situation influences the degree to which dominance or prestige is beneficial to team functioning and outcomes.

Past research examining the effects of dominance and prestige has several limitations. First, the research has predominantly been cross-sectional and correlational in nature with very few longitudinal studies. Second, most research has investigated the effects of

dominance and prestige through the lens of leadership orientation without considering the dominance and prestige exhibited by other group members or the group-level culture of dominance or prestige. Third, studies have not investigated how contextual factors, such as the zero-sum nature of a situation, might shape the influence that dominance and prestige might have on performance and team functioning.

In the current program of study, I will delve into the impact of team-level dominance and prestige on team processes, emergent states, functioning, and outcomes. Furthermore, I will investigate how zero-sum beliefs influence team dynamics and if the zero-sum nature of a task moderates the influence that dominance and prestige have on team functioning. The questions I aim to answer include: What relationship does team-level dominance and prestige have with team functioning? To what extent does the differentiation of dominance and prestige amongst team members relate to team functioning? How do these dynamics evolve within teams over time? How does the zero-sum context of a situation moderate the influence of group-level dominance or prestige on team functioning? Prior to presenting my hypotheses and analytic strategy, I will first review the relevant literature and developments that underpin the rationale for the proposed program of research, drawing on the literature associated with hierarchy, team functioning, and game theory.

1.1   Hierarchies

Social hierarchies are ubiquitous across human societies (Anderson & Willer, 2014), a fundamental feature of social relations (Magee & Galinsky, 2008), and rapidly develop in novel groups (Koski et al., 2015) even when efforts are made to suppress hierarchy development (Fiske, 1992). One likely reason social hierarchies are so prevalent is due to the benefits hierarchies provide in interpersonal interactions. For example, social hierarchies may be necessary for promoting collaborative work (Pratto et al., 1994) because they give structure to interpersonal interactions and help dictate social protocols (Halevy et al., 2011). Hierarchical protocols might allow smoother social interactions, make social interactions more predictable, and enhance team performance (Bendersky & Hays, 2012; Carzo & Yanouzas, 1969).

The societal structure of hierarchies provides individuals with a sense of stability, meaning, and perceived control. During times of economic uncertainty (Kakkar & Sivanathan, 2017) and societal threats, people tend to gravitate towards hierarchy-supporting social structures for the sake of stability (Friesen et al., 2014). These findings align with the perspective of philosopher Thomas Hobbes, who argued that in the absence of a central hierarchy, humans exclusively pursue self-interests, resulting in a state of constant conflict, or a "war of all against all" (1651, p. 80), which anarchy causes life to become "solitary, poor, nasty, brutish, and short" (p. 78). He contended that to escape this chaotic state, individuals voluntarily enter a social contract, relinquishing some of their freedoms to a sovereign ruler or government. Hobbes further posited that threats to the established order would lead people to defend even flawed or corrupt systems, as any form of government is considered preferable to no government at all.

The desire for social status is considered a fundamental human motivation (Anderson et al., 2015), with individuals having an internal "hierometer" that tracks their levels of social rank and influences their pursuit of status (Mahadevan et al., 2016). Achieving high social rank comes with various personal benefits. Individuals who obtain high rank are the subject of adoration and increased power, with evidence suggesting they have better physical health, a longer life span (Crimmins & Saito, 2001), better psychological well-being (Anderson et al., 2015), and higher levels of performance (Akinola & Mendes, 2014). Social rank is also closely linked to self-esteem (Gregg et al., 2018; Twenge & Campbell, 2002). However, obtaining high social rank is an intensive process. It requires allocating substantial time and efforts to accurately perceive, navigate, maintain, and negotiate for social rank within context-laden social situations. Failure to achieve the desired rank not only wastes resources but can be uncomfortable and cause social repercussions (Mahadevan et al., 2016). Furthermore, even successfully obtaining a high social rank comes with increased responsibility and social expectations. Therefore, although social rank conferral has beneficial components, individuals do not universally or perpetually strive for higher social rank (Gregg et al., 2018).

Although hierarchies can provide social scaffolding that enhances group performance and coordination-enabling processes (Halevy et al., 2011), they can also have detrimental

aspects. Power differentials within hierarchies can lead to conflict and competition between teams, resulting in inter-team conflict (Greer et al., 2018), and research shows that hierarchies with power differentials can promote conflict-enabling states, which promote intra-team conflicts and competition (Greer et al., 2017, 2018). Additionally, some research has found steeper social hierarchies have a diminishing effect on team learning (Bunderson & Sutcliffe, 2003; Edmondson, 2003) and performance (Tost et al., 2013). One of the ways hierarchies can hurt performance is through the intragroup conflicts necessary for the development and maintenance of hierarchies (Bendersky & Hays, 2012). Such conflicts might cause group members to jockey for social rank and power rather than focus efforts on group tasks, pointing attention inwards towards team politics rather than team demands.

The functionality of hierarchies and power differentials has been a subject of extensive debate, leading many organizations to seek to flatten social hierarchies by reducing official chains of command (Vaara et al., 2021). Furthermore, research has found that individuals strategically downplay rank distinctions to ostensibly achieve social objectives, even within steep hierarchical structures (Benson et al., 2023). Research has long explored the consequences of flat versus tall organizations, studying the complexities of hierarchical structures (Carzo & Yanouzas, 1969; Greer et al., 2018; Halevy et al., 2011; Ivancevich & Donnelly, 1975). Given the multifaceted nature of hierarchical structures, it is possible that the detrimental and beneficial aspects of hierarchy might have distinct etiologies. By gaining a deeper understanding of these underlying processes, it may become possible to target and eliminate detrimental team functioning processes while fostering processes responsible for enhanced team performance more precisely. One potentially useful framework to investigate beneficial and detrimental team processes is that of the dual status-seeking processes of dominance and prestige.

1.2   Dominance and Prestige

Recent research shows social rank seekers utilize two distinct processes to attain social rank within groups—dominance and prestige (Cheng et al., 2013; Henrich & Gil-White, 2001; Maner, 2017). Dominance uses force, intimidation, and coercion to induce fear and

submission. Conversely, prestige uses competence displays to increase popularity and perceived social utility within the group, in hopes that others will voluntarily defer to them. Both methods have shown to be approximately orthogonal at the individual level, meaning the degree to which an individual demonstrates dominance has little to do with the degree they demonstrate prestige, and therefore, both processes can be simultaneously and independently used (Cheng et al., 2013; Magee & Galinsky, 2008). Both processes are viable for social rank attainment (i.e., the amount of respect and admiration an individual is accorded by others) and power (i.e., control over resources) and predict leadership emergence in novel leaderless groups (Cheng et al., 2013). The orthogonal nature of dominance and prestige suggest that such processes might have distinct motivations, purposes, and effects.

Traditionally, non-human groups are thought to determine social rank exclusively through dominance hierarchies wherein group members compete for social rank using physical hostility and antagonistic encounters (Chase et al., 2002; Perrin, 1955; Sapolsky, 2005a). Humans also utilize physical dominance displays, and physical size is one of the strongest predictors of perceiving someone as dominant (Witkower et al., 2020). However, human dominance is not limited to physical threats. It can also take the form of controlling rewards and punishments, using social threats such as public humiliation, social exclusion, limitation of resources, or public disclosures of undesirable information (Cheng et al., 2013).

Conversely, prestige is thought to be unique to humans (Cheng et al., 2010, 2013; Henrich & Gil-White, 2001), which compared to dominance is a relatively more context-dependent strategy as different cultures and groups value different types of competencies (Maner, 2017). As prestige processes aim to induce voluntary deferral, popularity within groups is crucial. Prestige displays often take the form of appearing to sacrifice self-interest for group interests or altruistic causes. In signal theory, this concept is known as costly signaling, wherein individuals demonstrate generous or extravagant behaviors as a form of social competition (BliegeBird & Smith, 2005). In this case, individuals demonstrate self-sacrificing behavior or provide benefits to others, in anticipation of conferred prestige.

This leads to several questions: where did this distinction between dominance and prestige come from? Why do two separate pathways to social status exist, especially when one pathway seems to be presented as more advantageous and efficient? What are the implications and consequences of these distinct processes? How can better understanding these processes translate into practical benefits for groups and organizations? Although psychology has only recently differentiated between dominance and prestige processes, philosophers have long considered the variations between these two routes to social rank.

1.2.1   The Origin of Dominance and Prestige

Friedrich Nietzsche, a prominent philosopher in the 19th century, not only distinguished between these two forms of hierarchies but proposed an explanation for their origins, purposes, and consequences from a perspective that might be described as proto-evolutionary psychology. He proposed the existence of two distinct systems of morality and social navigation known as master morality and slave morality (Nietzsche, 2009). According to Nietzsche, master morality emerged among the ruling class and was suited for autocratic leadership. Dominance was valued as the primary virtue, emphasizing qualities such as assertiveness, power, individuality, self-affirmation, excellence, and order, with dissent or opposition deemed as evil. Master morality, akin to dominance, prioritized individual advancement over harmonious relationships. In contrast, slave morality developed among the commoners so as to adapt to their followership role, emphasizing virtues such as compassion, cooperativeness, selflessness, humility, patience, egalitarianism, and empowering the weak. Slave morality aligns closely with prestige, prioritizing communal and harmonious relationships over individual advancement. Nietzsche proposed that it was only in recent times that the discontent amongst followers, inherent in systems of domination, led to slave morality perceiving master morality as evil. This resulted in the unification of commoners and catalyzed a revolution for democratization. Nietzsche viewed this as a pivotal moment in moral history, where the values of the strong (i.e., dominance) were redefined as evil and the qualities of the weak (i.e., prestige) were embraced as virtuous.

According to Nietzsche's perspective, societies centering around dominance or master morality would prioritize individual excellence, assertiveness, and aggression, establishing hierarchical structures and exerting dominance over other groups. This enables the group to benefit from the exploitation of weaker individuals or groups. Examples of pre-enlightenment dominance-oriented societies include the Akkadians, Babylonians, Achaemenids, Romans, Mongolians, and Ottomans. However, a society heavily favoring master morality can lead to negative outcomes. Nietzsche observed that prolonged oppression can instill corrosive resentment in oppressed groups, even after their liberation. This can lead the oppressed to seek a way to anaesthetize their distress, leading to destructive behaviors. Nietzsche vividly describes the potential outcomes, including violent uprisings or a state of deranged paranoid sadomasochism:

> They even enjoy being mistrustful and dwelling on wrongs and imagined slights: they rummage through the bowels of their past and present for obscure, questionable stories that will allow them to wallow in tortured suspicion, and intoxicate themselves with their own poisonous wickedness – they rip open the oldest wounds and make themselves bleed to death from scars long-since healed, they make evil-doers out of friend, wife, child and anyone else near to them. (Nietzsche, 2009, p. 94).

In essence, Nietzsche considered the dominance of master morality as socially and psychologically detrimental, despite its benefits for the group and those in positions of power. In contrast, societies that embrace slave morality, elevating prestige processes, should foster higher levels of equality, fairness, cooperation, and collaboration. This emphasis on egalitarianism enables groups to reap the benefits of individual differences, allowing for the inclusion of diverse perspectives and the generation of innovative ideas. Although master morality may facilitate the expansion of empires, the long-term sustainability and success of such empires largely depend on building relationships with local populations, granting appropriate levels of autonomy, and engaging in compromise to establish enduring partnerships and maintain peace. However, a society overly focused on slave morality may devalue ambition and individuality, prioritizing the marginalized over the majority. Moreover, the emphasis on humility and modesty may result in less

assertive cultures, which can be disadvantageous in contexts that require assertiveness, decisiveness, or aggressiveness for the group's success.

Understanding Nietzsche's perspectives provides insight into the potential causes and consequences of dominance and prestige processes within groups and societies. Subsequent anthropological research and evolutionary theory proposed by Henrich and Gil-White (2001) largely support Nietzsche's view of the divergent origin and consequences of dominance and prestige. Henrich and Gil-White suggest although virtually all social animals negotiate for power using dominance, the social nature of humans led to the unique development of prestigious followership traits, such as deference and cooperation, as adaptive processes that allows for the transition of cultural knowledge across diverse people and generations. This, in turn, gave rise to the emergence of prestige as a second viable pathway for individuals to negotiate social rank and power. Those who learned from others gain an adaptive advantage in social societies as they are likely to possess superior information and strategies. Therefore, those who were skilled in learning from others and willing to transmit knowledge and skills to others were viewed as highly valuable and thus had great power within societies. The ability to harness the cooperative nature of humans became a valuable resource, and prestige emerged as a distinct pathway to social rank and power.

1.2.2   Consequences of Dominance and Prestige

The literature shows dominance and prestige are viable and effective processes for obtaining social rank, leadership, and power (Cheng et al., 2013). Prestige is portrayed almost universally as the preferable strategy (Maner, 2017) whereas depictions of dominance most frequently paint it as a maladaptive, exploitative, short-term strategy with overall long-term deleterious effects on teams (e.g., Cheng et al., 2010; Kakkar & Sivanathan, 2017; Maner, 2017). However, is it true that prestige is universally more advantageous for team functioning than dominance? To what extent, and in what contexts, might dominance be advantageous within a group? It is important to critically examine the prevailing narrative that often oversimplifies the consequences associated with these processes.

The characterization of dominance as a negative team functioning process is not without cause. Individuals seeking social rank through dominance tend to view others as either allies or enemies (Maner, 2017), prioritize personal gain over popularity (Case et al., 2018), and place their own social rank above the well-being of the group when in leadership positions (Maner, 2017). Studies have also shown that dominant leaders can impede information sharing within teams (Eisenhardt & Bourgeois, 1988; Haleblian & Finkelstein, 1993; Rains, 2005), which might be tied to findings that competitive environments reduce information sharing (Toma & Butera, 2009). Furthermore, those high in dominance also display malevolent dark personality traits (Davis & Vaillancourt, 2023). Considering the negative consequences and processes of dominant individuals, it is unsurprising that dominant leaders are not well liked within their organizations (Cheng et al., 2010) and high-status dominant actors are punished more harshly for social transgressions than their prestigious counterparts (Kakkar et al., 2020).

The similarities between dominance and narcissistic traits have been studied extensively (McGregor et al., 2023; Zeigler-Hill et al., 2019), and this similarity might shed light on the mechanisms underlying the negative impact of dominance within teams. Narcissistic individuals are associated with behaviors detrimental to group functioning including reacting poorly to being assigned subordinate roles within groups (Benson et al., 2016), exhibiting increased levels of counterproductive work behaviors (Glad, 2002; Ying & Cohen, 2018), and deficits in information sharing, limiting the flow of crucial information within the team (Nevicka et al., 2011). Despite initially receiving high ratings of leadership potential, over time, they tend to receive lower ratings of performance and be perceived as increasingly self-interested, indicating a decline in their overall effectiveness as leaders (Lynch & Benson, 2023; Ong et al., 2016). Given the conceptual overlap and strong correlation between dominance and narcissism, it is possible that dominance might share in these detrimental processes and outcomes.

In contrast to dominance, prestige-based strategies use a more pro-social collaborative framework wherein communication, knowledge distribution, and generosity are utilized as assets to gain others' admiration, respect, and deference (Case et al., 2018; Henrich et al., 2015). The nature of prestige strategies promotes a distinct culture within the group,

increases collaboration, knowledge sharing, mutual interest, information flow, and seeks to help all group members raise their status and capabilities (Kakkar & Sivanathan, 2017; Offord et al., 2019). As popularity and respect are key objectives of prestige, it is unsurprising that those rated high in prestige are viewed as unthreatening and well-liked by their coworkers (Cheng et al., 2013).

However, even these seemingly ideal pro-social processes have their drawbacks. As desires for team affiliation and collaboration are key components of prestige, leaders who have a prestige orientation tend to prioritize popularity over performance, to the point that they will adhere publicly to group members' opinions and desires despite their own beliefs, or even at the expense of group outcomes or wellbeing (Case et al., 2018). In this sense, prestigious leaders act similarly to dominant leaders in that they are willing to sacrifice what they believe is best for the group in order to gain or maintain influence. In this way, perhaps the two pathways to influence are more similar than previously believed.

Although research has predominantly focused on the positive effects of prestige and the negative influence of dominance on team functioning and intergroup cohesion, there may be conditions in which these relationships may not hold or may be reversed (Ronay et al., 2020). For instance, in situations where group success requires aggression and decisiveness, prestige might not be as adaptive as in other contexts. In such circumstances, perhaps dominance, with its more aggressive predilections, might be more advantageous in competitions over scarce resources. Therefore, it is possible that the effects of dominance and prestige on team dynamics might be contingent upon various contextual factors, such as the competitive nature of the situation, or the specifics of the group task and demands. Furthermore, prestige may not predict *all* positive aspects of team functioning, and dominance may not necessarily correlate with all negative aspects of team functioning. Alongside the main objective of understanding the consequences of dominance and prestige, this program of research will also investigate the effectiveness of dominance and prestige processes in more or less competitive group contexts.

1.3   Team-Level Dominance and Prestige

One aspect in which the current research will add to the understanding of the functionality and consequences of dominance and prestige is by examining these social processes at the group-level rather than at the individual level. Previous research has predominantly focused on examining dominance and prestige at the individual level. Although this approach provides insights into how individual-level attributes influence team functioning, it ignores the inherent group nature of the establishment and maintenance of status, dominance, and prestige. Limited attention has been given to understanding *how* such influence is determined within teams. The implicit assumption that influence is uniformly incurred across groups regardless of team-level attributes is not always true (Kakkar & Sivanathan, 2021). Dominance and prestige within teams are inherently social phenomena that do not exist in isolation from other group members.

To underscore the importance of exploring these processes at the group level, consider how examining prestige exclusively at the individual level could influence interpretations in the following two team examples. One team is a senior-level committee with similarly prestigious team members. In this context, individuals within the team have distinct roles and competencies, which allow for the committee to divide up the work effectively and have a high degree of confidence in the team's capacity to accomplish their assigned duties. In this team, having multiple actors high in prestige allows the group to improve their team's functioning as everyone acts as a valuable contributor to group tasks and provides useful, but unique, insights. In contrast, the second team has a single prestigious member working with relatively low-prestige entry-level members. Because of the discrepancy in perceived capability and value, the low-prestige team members do not feel confident in accomplishing their tasks without the input and instruction from the highly prestigious member. In this group, the member high in prestige might act as a bottleneck to team functioning wherein other team members feel less empowered to make decisions on their own or contribute meaningfully to group tasks. In this comparison, focusing solely on the degree of prestige of an individual tells only a small part of the story. The degree of prestige within the group, and distribution of prestige amongst team members is crucial to understanding the relationship between prestige and team functioning.

Furthermore, considering dominance and prestige as group-level phenomena holds the potential to reconcile the ongoing debate surrounding the functional or dysfunctional nature of hierarchies (Anderson & Brown, 2010). Understanding how different patterns of rank acquisition may differentially influence functional and dysfunctional aspects of hierarchy dynamics could lead to an integrative explanation for why hierarchies are associated with both beneficial and detrimental outcomes. It is possible that dominance processes, with their more unpopular and coercive elements, may be primarily responsible for the more dysfunctional aspects of hierarchy, whereas prestige processes, with their more popular collaborative elements, may be disproportionally responsible for the more functional aspects of hierarchy. The potential utility of this approach is highlighted in primate research by Sapolsky (2005a), who reports variations in group outcomes, such as resource distribution and stress, depend on the type of hierarchical processes in play within the group (i.e., despotic versus egalitarian hierarchies).

The potential interplay of dominance and prestige at the group level raises several questions relating to team dynamics: Do teams adopt a culture of either dominance or prestige as their primary mode of operation within group tasks, or do they pursue both cultures independently? Do team members become more or less similar to one another in dominance and prestige over time? Are teams with members more similar or dissimilar in dominance and prestige more functional? Does team-level dominance and prestige exert similar influences on team functioning as individual-level dominance and prestige? What are the consequences of group-level dominance and prestige? To answer these and similar questions, the current research aims to conceptualized dominance and prestige at the team-level and seeks to investigate the impact they have on some of the most crucial team functioning processes including coordination, potency, conflict, and team performance. To investigate this, I will employ statistical methodologies to account for the interdependent nature of the data and to investigate these influences across different team contexts.

In addition to the potential influence of mean-level dominance and prestige on team functioning, there are also theoretical reasons to consider that the distribution or spread of dominance and prestige within teams might have varied and cascading influences on

team functioning. Differences in dominance and prestige amongst team members might reflect deep diversity of values, beliefs, and attitudes, which research has shown has the potential to negatively affect team states, processes, and performance (Triana et al., 2021). Furthermore, the influences of such differences might amplify over time (Harrison et al., 1998; Ronay et al., 2023). Although having a team with broad experiences and diverse toolsets might aid in the undertaking of certain aspects of team functioning (Jansen & Searle, 2021), the inherent differences in team members might also hinder unity and consensus as members hold more divergent opinions that need to be reconciled (Mohammed & Angell, 2004). The way in which power and status are distributed within a hierarchy has been referred to as "steepness" (i.e., aggregate differences between members in power and status) and "centralization" (i.e., the concentration of power in one or a few members) by Bunderson et al. (2016), which can have broad influences on team processes. As dominance and prestige are pathways to status and power, differences in dominance and prestige likely reflect differentiation in levels of power, status, or privilege within the team. Benderson et al. suggest that such inequalities lead to rivalry, conflict, and jealousy. However, differentiation in dominance and prestige might also have beneficial effects through the processes of clearer hierarchies, better role differentiation, clearer team protocols, and faster decision making (Bunderson et al., 2016). The exploration of differentiation in dominance and prestige has potential for furthering the understanding of the nature and consequences of group-level dominance and prestige. As such, the current study will examine the spread of dominance and prestige within teams in tandem with mean-level dominance and prestige. This approach will provide a more holistic paradigm to investigate the consequences of dominance and prestige group processes.

1.3.1   Key Variables of Team Functioning

To understand the impact that dominance and prestige has on team functioning, it is imperative to identify key variables that accurately represent team dynamics and functioning. These selected variables should possess both theoretical and practical significance within the realm of team functioning, covering a diverse array of functional aspects to ensure broad coverage. Ideally, these variables should have a rich history of

empirical investigation, allowing this study to deeply engage with existing findings and draw insights from the theoretical foundations established by prior research.

Broadly speaking, team functioning variables can be classified as either theoretically beneficial or detrimental to team functioning. Guided by the competing theories of functional and conflict accounts of hierarchy, I leveraged these opposing perspectives to inform the selection of theoretical variables that may hold the most significant influence within hierarchical contexts. As previously discussed, the functionalist theory of hierarchy suggests that rank differences promote advantageous processes in team functioning by facilitating coordination through improved role differentiation, establishing group protocols, and structural organization (Bunderson et al., 2016; Greer et al., 2017). Consequently, I include two variables to capture these functional aspects of hierarchies: team potency and team coordination. *Team potency* is the extent to which a team is confident in its general ability to succeed and perform well within any team task or demand (Guzzo et al., 1993; Lester et al., 2002). Underscoring the importance of team potency for team functioning, a meta-analysis showed that team potency correlated with team performance at $r = .37$ (Gully et al., 2002) and predicts team performance even after controlling for team members' cognitive ability. Group potency is also positively related to team learning behavior (Van den Bossche et al., 2006), teamwork engagement (Costa et al., 2014), and the probability that team members will persist, approach, and succeed in their given tasks (Salanova et al., 2011). *Team coordination* is an emergent state (Marks et al., 2001) wherein teams develop, regulate, and manage the interdependencies of individual goals, information, behaviors, and meanings, in the pursuit of a collective goal (Boos et al., 2011). Coordination is considered essential for effective team functioning as it integrates, synchronizes, and synergizes group efforts (Boos et al., 2011; Halevy et al., 2011). At its core, team coordination is a communicative phenomenon wherein either through explicit or implicit arrangements, teams regulate themselves in terms of roles, tasks, and efforts to optimize efficiency.

Conversely, the conflict account of hierarchy posits that hierarchies amplify processes detrimental to team functioning by heightening team conflicts arising from individual differences and disputes over status and position within the team. Team conflict (i.e.,

intragroup conflict) is the perceived differences or incompatibility amongst team members (De Wit et al., 2012). Team conflicts are inevitable in collaborative settings and manifest across a variety of conflict types. In fact, conflict is an impetus for team coordination as differences amongst members must be overcome to effectively align diverse goals, efforts, and processes (Greer & Dannals, 2017). As such, the continuous presence of conflict might be a general indicator of a lack of coordination, and it is likely that in this study conflict will negatively correlate with variables that are beneficial to team functioning such as team potency and coordination. For the current study, I am specifically interested in two types of conflict: relationship conflict, and status conflict. *Relationship conflicts* are interpersonal disagreements or animosity amongst team members. Team members may like or dislike each other for a myriad of different reasons. For example, differences amongst team members might result in negative team climates as clashes in ideas, values, or beliefs cause difficulties in team unity, consensus, or team effectiveness (De Dreu & Van Vianen, 2001). Indeed, relationship conflicts are perceived as almost universally negative and damaging to team performance and processes as they harm group cohesion, are emotionally distressful, and negatively affect mood (Greer & Dannals, 2017). Unsurprisingly, relationship conflicts negatively correlate with team satisfaction (De Dreu & Weingart, 2002). *Status conflicts*, on the other hand, are disagreements amongst team members about the relative status positions in a team's social hierarchy (i.e., social rank; Bendersky & Hays, 2012). Status conflicts represent unresolved hierarchical negotiation, and as such can negatively affect team performance by undermining information sharing (Bendersky & Hays, 2012). Such focus on social rank rather than pertinent task concerns is an impediment to—and distraction from—group performance (Greer et al., 2017).

Finally, at the forefront of essential variables for team functionality, is team performance. Team performance measures the degree to which a team effectively accomplishes its designated objectives. Especially in the case of teams formed with specific goals in mind, all other indicators of success inherently take on a secondary significance, ultimately playing a supporting role in the primary mission that the team was convened to accomplish. Although some groups, such as hobby clubs or families, might lack a distinct directive to gauge team performance, within workplaces, teams are typically assigned

core tasks for which they are evaluated on and remunerated for, which can be used to measure performance.

1.3.2   The Influence of Team-Level Dominance

The first research question I will be addressing in this program of study is:

> 1. How does team-level dominance and dominance differentiation impact team functioning, including team performance, potency, coordination, and conflict?

When considering the potential influence that dominance might have on team functioning, it is imperative to consider the theoretical pathways in which dominance might have an influence. Furthermore, careful consideration should be given to how dominance relates to team functioning when considering the average level exhibited by group members (i.e., group mean-level) as well as group differentiation (i.e., steepness). Overall, I expect that mean-level dominance will negatively influence team functioning. Prior research makes it evident that the establishment of team potency and coordination is contingent upon fostering an environment of safety, vulnerability, and mutual understanding (Edmondson, 1999; Pavez et al., 2021; Stoverink et al., 2020). Given this premise, it is reasonable to question whether a dominant cultural orientation, marked by tendencies toward antagonism and competition, could adequately foster the conditions necessary for high levels of team potency and coordination to flourish, as the conflict account of hierarchies suggest (Greer et al., 2017; Sapolsky, 2005a). Furthermore, elevated team-level dominance could signify the presence of multiple high dominance individuals who are likely simultaneously seeking status through dominance processes. In such contexts, competing dominant voices might impede the smooth coordination that a clear leader might facilitate. The prevalence of competition and potential power struggles could hinder the creation of a harmonious and collaborative atmosphere, thereby impeding effective team coordination and increase conflict states. In light of these considerations, I predict team-level dominance will lead to diminished levels of team potency and coordination while also increasing team conflict states. Given the theoretical

increase in conflict states and decrease in beneficial team dynamics, team performance is likely to be negatively related to team dominance.

Moving to the putative effects of dominance differentiation on team dynamics, prior research has shown that steeper hierarchies can both facilitate better group performance and intra-group coordination, as well as lead to worse group performance, lower motivation, and satisfaction among members (Anderson & Brown, 2010). These findings suggest differentiated hierarchies are not universally good or bad for organizations, but rather, their effects depend on a variety of contingencies. As the essence of coordination lies in achieving alignment among team members, inherent disparities reflected in more dissimilar dominance levels might impede consensus, coordination, or promote conflict. That is, when diverse viewpoints and perspectives require substantial effort to harmonize, achieving coordination becomes more challenging (Triana et al., 2021). On the other hand, opposing theories suggest that a significant variation in dominance might facilitate coordination under a more autocratic or dominance-oriented structure. In such scenarios, increased spread of dominance might amplify role differentiation, allowing each member to have a distinct function within the group. Consequently, this heightened differentiation could lead to a sense of enhanced coordination (Bunderson et al., 2016). Furthermore, in situations of uncertainty, individuals may exhibit a preference for dominant leaders due to a perceived reduction in personal control and self-assurance (Kakkar & Sivanathan, 2017; Laustsen & Petersen, 2015) and consequently, they may be more inclined to cede decision-making authority to high-status figures (Schoel et al., 2011). Finally the interpersonal circumplex models suggests that expressions of dominance possess the potential to elicit submission, contingent on the interpersonal dynamics within the team (Locke & Sadler, 2007). This may indicate that in scenarios where dominance differentiation is high, individuals with lower dominance might be inclined to submit to those with higher dominance, potentially leading to smoother interpersonal interactions and team coordination. That is, having a single individual high in dominance in a group might lead to some beneficial outcomes in teams, whereas having a team low in dominance differentiation might lead to confusion over who to defer to and could fractionalize the group. Therefore, having a more unilateral decision-making process could result in fewer overt disagreements or power struggles, further enhancing the

perception of coordination among group members. Given the theoretical positive and negative influences of dominance differentiation, it is unclear how differentiation in dominance will influence team functioning, or if these effects will predominantly help or hinder group functioning.

1.3.3   The Influence of Team-Level Prestige

The second research question I will examine is:

> 2. How does team-level prestige and prestige differentiation impact team functioning, including team performance, potency, coordination, and conflict?

It is reasonable to anticipate that higher levels of prestige within teams will align with elevated levels of team performance as a core component of being perceived as prestigious is being viewed as highly valued and competent. In fact, scales measuring prestige frequently include items evaluating perceived competency such as, "He/she is considered an expert on some matters by members of the group" (Cheng et al., 2010). If teams high in prestige are also generally viewed as highly competent, and such perceptions are grounded in reality, it follows logically that their objective performance metrics should reflect this superiority. Conversely, a lack of correspondence between prestige levels and actual performance could signify that the observed prestige is not strongly influenced by genuine competency, but rather represents false indications of proficiency. Furthermore, the social-learning aspects of prestige are likely to facilitate greater information flow and skill sharing over time, which are crucial for team performance in contexts where each team member has uniquely beneficial ideas or wherein collaboration is crucial. Applying this same line of reasoning, it is also logical to predict a positive correlation between prestige and team potency. Team potency embodies a collective assessment of the group's competency and prestigious individuals tend to exhibit competence. Given that competency is a core component of both prestige and team potency, they are likely positively related. Consequently, I hypothesize that team prestige will be positively related to both team performance and team potency.

Likewise, the relationship between prestige and team coordination is also expected to be beneficial. The correlation of prestige with attributes such as egalitarianism, information sharing, deference, and respect might translate into elevated levels of team coordination (Cheng et al., 2010, 2013; Maner, 2017). Within group contexts, the presence of these attributes may create an environment conducive to a robust exchange of ideas and perspectives, thus fostering a space where all viewpoints are considered. This sense of equality within the team may subsequently contribute to the enhancement of coordination efforts (Bourbousson et al., 2015).

I predict that prestige will exert an overall mitigating influence on team conflict states, drawing from the same mechanisms through which prestige is believed to enhance team coordination. The intrinsic qualities of communication, egalitarianism, and conciliation associated with prestige could lead to more effective conflict resolution by promoting collaborative and non-confrontational interpersonal methods. Even in situations where disagreements over social rank might arise, the more collaborative and egalitarian protocols of prestige hierarchies are likely to deter overt aggression or dissent as team members seek to preserve their image as prestigious and egalitarian individuals. These effects might be particularly pronounced in the context of relationship conflict, where the theoretical advantages of prestige, centered around enhanced communication and mutual respect, align more closely with the dynamics of interpersonal conflicts rather than disagreements over relative social status (Behfar et al., 2011).

When considering the potential impacts of prestige differentiation, much like differentiation in dominance, these effects are likely highly contextual, making broad predictions more tentative compared to mean-level expectations. Bunderson et al., (2016) suggested that vertical differentiation might aid in reducing conflicts through the establishment of clearer hierarchical social ranks. Having team members with differing levels of prestige might lead to enhanced role differentiation, with more prestigious and capable individuals naturally taking on leadership roles and managing more complex tasks whereas less prestigious individuals might handle tasks of lower complexity or lesser significance. However, in instances where team members possess comparable levels of prestige, the adverse conflicts observed among members exhibiting similar

dominance might not necessarily arise. As prestige is a more contextual process than dominance (Maner, 2017), team members might attribute prestige to team members for qualitatively different skillsets and experience. Consequently, even if team members possess relatively similar levels of prestige, these differences might not necessarily lead to conflicts as the similarity in prestige could reflect distinct domains of specialization, where team members do not directly clash but rather function in complementary domains. In such scenarios, patterns of deference might fluctuate in response to the unique demands of particular tasks and situations over time.

On the other hand, similar to dominance, inherent differences among individuals are likely to induce conflicts within teams, particularly when consensus and conformity is important. Additionally, in professional settings where employees are generally expected to possess similar levels of prestige and contribute distinct insights to the team, differentiation in prestige might signify that certain members are not contributing unique skill sets, expertise, or viewpoints that could benefit the group. Therefore, differentiation might wield a negative influence on team functioning through requiring more work to come to consensus and create more conflict within teams.

Given the potential positive and negative consequences for differentiation in prestige, I do not put forward any formal hypotheses on whether differentiation in prestige will predominantly help or hinder team functioning. However, if any effects were to emerge, I suspect prestige differentiation might have an overall negative impact on team functioning, reflecting the conflict associated with inherent disparities among team members.

1.4 Context-Specific Nature of Dominance and Prestige: The Role of Zero-Sum Games

In addition to understanding the direct effects of dominance and prestige on team functioning, it is important to examine the potential moderating role of contextual factors such as situation and culture, which can influence the manifestations of dominance and prestige in status conflicts (Redhead et al., 2019). For instance, individuals may behave differently in groups they perceive as more significant to their identity, more enduring, or

offering higher potential rewards or consequences based on social rank. Beyond group-specific attributes, economic, political, and inter-group environment can also have an influence. For instance, evidence suggests that in periods of economic uncertainty, individuals tend to prefer dominant leaders (Kakkar & Sivanathan, 2017; Laustsen & Petersen, 2015) and in situations involving societal threats, individuals tend to gravitate towards hierarchical social structures that support dominance (Friesen et al., 2014), as they align with the unilateral nature of dominant leadership and are preferable to anarchy (Hobbes, 1651). Moreover, research indicates that individuals are more likely to endorse dominant leaders in competitive intergroup situations compared to cooperative ones (Van Kleef et al., 2021). Research has also found that more autocratic leadership styles can have differential influences on team outcomes depending on the degree of power struggles within the group (De Hoogh et al., 2015). An interesting situational context, which will be examined in the current investigation, is the zero-sum nature of the situation or task (Halevy et al., 2012; Kakkar & Sivanathan, 2021). In addition to understanding the nature of group-level dominance and prestige and their influence on team functioning, I will investigate how zero-sum situational factors affect the extent to which teams demonstrate dominance and prestige, as well as the impact of such processes on team functioning.

1.5   Zero-Sum Games, Dominance, and Prestige

Although research often focuses on the detrimental aspects of dominance on team functioning, exploring whether dominance can have a positive influence on team dynamics could lead to harnessing its advantages while mitigating its detriments. To this end, the concept of zero-sum games might provide a framework to investigate the potential adaptive value of dominance. Zero-sum games is a concept originating from game theory, which is a framework for analyzing decision-making in interactive competitive activities (Myerson, 1999; Osborne, 2004; Von Neumann & Morgenstern, 1953). Game Theory relies on the theory of rational choice, meaning decision-makers tend to choose actions they believe will lead to the most preferred outcomes, and has been applied extensively in the social sciences to explain competitive phenomena such as oligopoly behavior (Friedman, 1976), collusion (Schwalbe, 2018), business competition

(Osborne, 2004), and political behavior (Munck, 2001). It has also been used to investigate longitudinal processes such as tragedies of the commons (Hardin, 2009) and evolutionary biology (Dugatkin & Reeve, 2000; Hammerstein & Selten, 1994). Zero-sum games involve situations where one side's advantage comes directly from the other side's loss (Von Neumann & Morgenstern, 1953). The framework of dominance and prestige and the framework for zero-sum games both focus on negotiations and pro- or anti-social behaviors in various group contexts. Due to dominance's heightened aggressive and antagonistic tendencies, it is possible that it might be better adapted to highly competitive zero-sum games. In such scenarios, dominant processes may lead to greater personal gain, albeit at the expense of others.

Dominance is characterized by heightened aggression and competition, which are attributes that have been viewed as an impediment to group cohesion and functionality. However, aggression and competition have long been viewed as double-edged swords, with both detriments and benefits to personal, interpersonal, and intergroup interactions. Given the fundamental proclivity for human competition, it undoubtedly has had adaptive value in humans' evolutionary history. Although it is often derided as caustic, many philosophers and anthropologists have acknowledged the utility of dominance. Hesiod described some manifestations of competition as cruel and evil, but also recognized it as wholesome for humanity and a driver of excellence (1988). Similarly, Hegel proposed that conflict and competition led to the development of new, more advanced ideas and systems (1979). Hobbes posited that human nature is inherently egoistic, driven by self-interest without consideration for others' well-being, but could benefit the group if a social contract aligned individuals' self-interest with the collective benefit (1651). Indeed, governing bodies have played a crucial role in regulating individuals' anti-social and selfish tendencies, including modern-day free-market capitalism, which acknowledges the premise of self-interest in human nature, but aims to harness this tendency for the greater societal good (Smith, 1776). Furthering this idea, anthropologist Christopher Boehm claimed that expressions of dominance were the first behaviors to be outlawed by groups (2000). These perspectives highlight the that the competitive nature of dominance does not only result in detriments to society but can also have functional utility if harnessed in the right context. The competitive nature of the situation itself, that

is, the zero-sum nature of the context, could be a pivotal contextual attribute that determines the degree to which dominance is adaptive or maladaptive to group functioning.

Although no research to this point has examined the putative influence of zero-sum contexts on the efficacy of dominance processes, the theoretical relationship between the competitive nature of dominance and the context of zero-sum games has captured the attention of some researchers. One notable study by Kakkar and Sivanathan (2021) found that dominant leaders transmitted zero-sum mindsets to their followers through social learning (Bandura & Walters, 1977), which led to reduced helping behaviors. These findings validate the theoretical link between dominance and zero-sum beliefs while also highlighting the need to investigate dominance and prestige at the group-level. Another investigation by Halevy et al. (2012) showed that seemingly dominant behaviors, such as stealing from other groups, might be viewed as prestigious rather than dominant when out-group hostility is viewed as necessary for in-group success. This study further validates the theoretical link between zero-sum games and dominance and shows that the competitive nature of the context can moderate perceptions of dominance. Furthermore, these results suggest dominance might be viewed as useful and acceptable in highly competitive contexts, perhaps because dominance processes are better suited to more zero-sum scenarios. Despite the insights these studies give on the relationships between dominance, prestige, and zero-sum games, it remains unclear what influence zero-sum perceptions and contexts have on team functioning when taking into account team-level dominance and prestige. The current research aims to fill this gap by investigating the influence of dominance and prestige, as well as zero-sum situational factors, on various aspects of team functioning.

Research questions 1 and 2 center on the impacts of dominance and prestige on team functioning, hypothesizing that dominance will exert a negative influence while prestige will yield a positive effect. Expanding on the analysis of these primary associations, research question 3 seeks to understand how such relationships might differ across more or less competitive, zero-sum, contexts. Therefore, research questions 3 seeks to answer the question:

3. How do the relationships between team dominance, team prestige, and team functioning (i.e., performance, potency, coordination, and conflict) vary depending on the zero-sum beliefs and contexts of the group?

Game theory and the tragedy of the commons have shown that zero-sum contexts can motivate individuals to make decisions that prioritize personal benefit over group benefit (Diekert, 2012; Hardin, 2009; Rankin et al., 2007). In zero-sum situations, dominance strategies may appear more advantageous, especially when resources are scarce or cooperation yields suboptimal personal benefits (Halevy et al., 2012; Osborne, 2004). The self-serving dynamics of dominance might be particularly advantageous in highly competitive situations where resources are limited, wherein less assertive or more egalitarian processes might result in personal losses. Furthermore, this self-serving behavior likely extends to group dynamics, where more dominant groups might prioritize their group's benefits over broader intergroup benefits. Taking these factors into account, I propose that the zero-sum nature of an intergroup environment will moderate the expected negative effect of team-level dominance on team functioning. Specifically, in zero-sum contexts, dominant teams will prioritize the interests of their team over others, and this alignment between dominant processes and the competitive context will attenuate the otherwise negative aspects of dominance. However, I do not anticipate that zero-sum situations will moderate the influence of prestige on team functioning, given the lack of theoretical rationale for such an effect.

1.6   Summary of the Current Research Aims

Past research has established strong connections between dominance and prestige processes and their impact on team functioning. However, a gap in research remains as previous investigations have not explored these issues at the team level, taking into consideration the interpersonal and social nature of teams. Moreover, more nuanced analytical techniques such as social relations modeling (SRM) and consensus emergence modeling (CEM) have yet to be utilized to examine the nature of dominance and prestige, nor has longitudinal research utilized multilevel structural equation modeling (MSEM) to investigate how fluctuations in team dominance or prestige influence team functioning.

To address these gaps and align with research questions 1-2, Study 1 aims to explore the relationships between dominance, prestige, and team functioning through these analytical techniques whereas Study 2 will extend these findings by experimentally manipulating the zero-sum nature of the team task.

Study 1 sought to understand how dominance and prestige influenced team functioning in a large student population organized into semester-long work groups wherein their grades were dependent on group performance and functional interpersonal relationships. These groups operated within the context of a naturalistic engineering course designed to replicate real working conditions. The study spanned a 15-week semester, and data was collected and aggregated across three consecutive annual courses (2019-2021). By utilizing novel statistical methods, the study aimed to assess how team-level dominance and prestige related to team functioning and objective team performance. Additionally, Study 1 examined the impact of zero-sum beliefs on team dominance, prestige, outcomes, and performance.

Study 2 was designed to confirm and extend the findings of Study 1 in a laboratory environment with greater control, a shorter duration, a different inter-team context, and a distinct population of university students. This paradigm tested the generalizability of the relationships found in Study 1 and investigated if studying this topic in more contrived environments would nevertheless yield similar results. Furthermore, Study 2 addressed research question 3 by experimentally manipulating the zero-sum context of the team task to investigate if the relationship between dominance and team functioning was moderated by the zero-sum nature of the group environment.

1.7   Research Questions

Both studies centered around investigating my three primary research questions (RQ):

1. How does team-level dominance and dominance differentiation impact team functioning, including team performance, potency, coordination, and conflict?

2. How does team-level prestige and prestige differentiation impact team
    functioning, including team performance, potency, coordination, and
    conflict?

3. How do the relationships between team dominance, team prestige, and
    team functioning (i.e., performance, potency, coordination, and conflict)
    vary depending on the zero-sum beliefs and context of the group?

Studying these research questions will provide insights into the effects of dominance and prestige on team functioning and how these relationships might be influenced by the zero-sum nature of the team context. Table 1 and Table 2 provide an overview of the rationale behind the hypothesized relationships between dominance, prestige, and selected key outcome variables of team functioning. These tables include citations to relevant literature and descriptions of how the metrics can be operationalized at the group level. Although predictions about the skew of dominance and prestige are included in the tables, the current program of inquiry does not use the skew of dominance and prestige as a predictor. The decision to focus on variance rather than skew was made after preliminary analysis in Study 1 showed minimal relationships between skew and team functionality, contrary to initial expectations. To maintain a focused scope in this investigation, the results and discussion of skew are not detailed here. Nevertheless, these findings and hypothesized relationships might warrant future research into understanding if and how skewness in team-level dominance and prestige might relate to team functionality.

Table 1. The Hypothesized Consequences of Dominance on Team Functioning

Construct	Hypothesized Consequence	Theoretical Grounding		Operationalization	
		Rationale	Citation	Metric	Calculation
High levels of dominance within the team	Hinders group functioning	Dominance is characterized by more antagonistic and fear-based behavior and is linked to negative team functioning such as less team-based communication. As such, I hypothesize that teams with higher average levels of dominance will manifest similar deficits in team processes and outcomes.	Cheng et al., 2010 Kakkar & Sivanathan, 2017 Maner, 2017 Sherf et al., 2018 Bunderson et al., 2016	Mean of group-member dominance	$\mu = \dfrac{\sum X}{N}$
High variance of dominance within the team	Ambiguous influence	The degree to which the variance in individual dominance affects teams' outcomes and processes is unknown. Although the conflict-enabling and coordination-enabling hierarchy perspectives would predict that variance in dominance might influence team efficiency, such predictions would depend more on *how* the scores are dispersed within the team rather than the *degree* of dispersion.	Anderson & Willer, 2014 Greer et al., 2018 Tiedens & Fragale, 2003 Bunderson et al., 2016	Standard deviation of group-member dominance	$\sigma = \sqrt{\dfrac{\sum (x_i - \mu)^2}{N}}$
Most members high in dominance with a few low (Negatively Skewed)	Hinders group functioning	Having most team members highly dominant might be indicative that team members are actively engaging in dominance competitions, which is not consistent with an established uncontested rank-order hierarchy. Therefore, the team would not reap the relevant functionalist benefits of stable hierarchy but would still be exposed to the increased relationship and status conflict inherent to hierarchies.	Anderson & Willer,2014 Greer et al., 2011 Greer, et al., 2018 Tiedens & Fragale, 2003	Skew of group-member dominance	$\tilde{\mu}_3 = \sqrt{\dfrac{\sum_i^N (x_i - \bar{x})^3}{(N-1) * \sigma^3}}$
Most members low in dominance with a few high (Positively Skewed)	Benefits group functioning	The functionalist account of hierarchy suggests a single undisputed chain of command increases group efficiency through improving team coordination, resource allocation, and the common understanding of roles within the team. Therefore, having only a few highly dominant individuals might indicate that team members know their place within their established hierarchy and will reap the associated benefits of stability and clear lines of communication and authority.	Anderson & Willer,2014 Greer, et al., 2011 Greer, et al., 2018 Tiedens & Fragale, 2003	Skew of group-member dominance	$\tilde{\mu}_3 = \sqrt{\dfrac{\sum_i^N (x_i - \bar{x})^3}{(N-1) * \sigma^3}}$

Table 2. The Hypothesized Consequences of Prestige on Team Functioning

Construct	Hypothesized Consequence	Theoretical Grounding		Operationalization	
		Rationale	Citation	Metric	Calculation
High levels of Prestige throughout the team	Benefits group functioning	Individual prestige is linked to several positive team outcomes and processes. As such, I hypothesize that teams with higher average levels of prestige will manifest similar positive processes and outcomes. Furthermore, prestige is thoracically linked to voice decentralization, which would result in high quality team communication, information sharing, and performance.	Cheng et al., 2010 Henrich & Gil-White, 2001 Kakkar & Sivanathan, 2017 Maner, 2017 Sherf et al., 2018 Offord et al., 2019	Mean of group-member prestige	$\mu = \dfrac{\sum X}{N}$
High variance of prestige throughout the team	Ambiguous influence	It is theoretically unclear if the degree of prestige variance within a group influences team functioning or outcomes. As such, I have no predictions associated with the variance of team-level prestige but will explore if any such relationships exist.	N/A	Standard deviation of group-member prestige	$\sigma = \sqrt{\dfrac{\sum(x_i-\mu)^2}{N}}$
Most members high in prestige, with a few low (Negatively Skewed)	Ambiguous influence	Although having a group composed predominantly of prestigious members would likely benefit group functioning due to having highly competent members, it is unclear if negatively skewed prestige within a group affects team functioning. Even though such a group would likely result in clear hierarchies, having large gaps in capability is probably not beneficial for most complex tasks. As such, I have no predictions associated with the skew of team-level prestige but will explore if any such relationships exist.	N/A	Skew of group-member prestige	$\tilde{\mu}_3 = \sqrt{\dfrac{\sum_i^N (x_i - \bar{x})^3}{(N-1) * \sigma^3}}$
Most members low in prestige, with a few high (Positively Skewed)	Ambiguous influence	Although having most members low in prestige would likely be detrimental to group functioning, I have no theoretical predictions for how the skew of prestige will affect team functioning. As such, I have no predictions associated with the skew of team-level prestige but will explore if any such relationships exist.	N/A	Skew of group-member prestige	$\tilde{\mu}_3 = \sqrt{\dfrac{\sum_i^N (x_i - \bar{x})^3}{(N-1) * \sigma^3}}$

Chapter 2

2 Study 1: A Longitudinal Investigation of Dominance and Prestige

Study 1 had two main purposes. First, given that there have been no previous investigations conceptualizing dominance and prestige at the team-level, this initial study sought to understand the nature of team-level dominance and prestige and establish them as team-level constructs to lay the groundwork for hypothesis testing across Study 1 and 2. Secondly, Study 1 investigated the research questions to understand how dominance and prestige related to team functioning. By adopting a longitudinal approach, the study not only considered the relationships mean-level dominance and prestige had on team functioning, but also examined how fluctuations in team-level dominance and prestige related to team functioning.

2.1 The Nature of Team-Level Dominance and Prestige

To establish the legitimacy of viewing dominance and prestige as constructs at the team level, Study 1 lays the groundwork by examining the differences and similarities between dominance and prestige at the individual-level versus the group-level. Although research has shown that individual-level dominance and prestige can have important consequences on team-level outcomes and processes (Kakkar et al., 2020; Maner, 2017; Ronay et al., 2020; Waal-Andrews et al., 2015), it is unclear if such relationships would persist when aggregating dominance and prestige to the group level. Through understanding the parallels and disparities between individual and group-level conceptualizations, a better understanding can be gained on the extent to which research findings focused on the individual-level can apply to the group-level. Furthermore, if disparities emerge in how dominance and prestige influence team functioning at the individual- and group-levels, this might indicate the potential for novel and distinctive group-level insights.

In seeking to understand the intricate processes of group-level dominance and prestige, Study 1 sought not only to understand how mean-level dominance and prestige relate to

team functioning and outcomes, but also how such processes develop over time. Prior examinations into the relationships between dominance, prestige, and team functioning have frequently used a single timepoint of measurement (e.g., Cheng et al., 2013; Johnson et al., 2007; Offord et al., 2019; von Rueden et al., 2010), which while useful, does not take into account the evolution and dynamic nature of dominance and prestige within teams over time. Taking a broader perspective to understand how team-level dominance and prestige processes develop, Study 1 employs a longitudinal approach with multiple data collection times, which offers the ability to understand not only how a teams' mean-level dominance and prestige relate to team functioning, but also the effect that fluctuations in dominance and prestige over time have. This analytical framework sheds light on if the relationship between dominance, prestige, and team functioning primarily hinge on the composition of the team, with the core relationships remaining relatively stable after team formation, or if the ebb and flow of dominance and prestige within teams over time also play a role in influencing outcomes. To model time in such ways, the interdependent nature of the data needs to be accounted for through methodologies such as Multilevel Structural Equation Modeling (MSEM), which allows analysis to be conducted on multiple hierarchical levels. As such, Study 1 used MSEM to investigate the influence of team-level dominance and prestige both at the average team level, as well as fluctuations over time. To further understand how dominance and prestige developed over time, Study 1 also used Consensus Emergence Modeling (CEM) to examine whether teams converged or diverged in their levels of dominance and prestige across time, which yielded further insights into their developmental trajectory. The outcomes of these analyses not only offered novel perspectives on the evolution of dominance and prestige within teams and their impact, but the relationships they uncovered that were distinct from individual-level findings demonstrate the utility of conceptualizing dominance and prestige as group-level constructs.

2.2   Hypothesis Testing

Study 1 investigated hypotheses derived from the research questions pertaining to dominance, prestige, and zero-sum beliefs within the framework of an ecologically valid longitudinal team task, utilizing university student groups engaged in a two-semester

course. Although Study 1 touched upon issues related to zero-sum games, these investigations were more exploratory in nature and focused on the influence that individuals' beliefs about life as a zero-sum game had on team functioning, with no formal hypotheses presented. This study sought to understand how zero-sum beliefs influenced dominance, prestige, and team functioning as a foundation for Study 2, which set out to investigate how zero-sum contexts influence the processes of team-level dominance and prestige. The hypotheses in Study 1 are categorized into two groups corresponding to research questions one and two. Hypotheses 1a-e pertain to the theorized influence of team dominance, while Hypotheses 2a-e relate to the theorized influence of team prestige.

2.2.1   Hypotheses for Dominance and Team Functioning

Hypotheses 1a-e, derived from research question one, focus on the team outcomes associated with dominance. As discussed in Chapter 1, dominance is often viewed as a detrimental trait within teams, leading to deficiencies in information sharing, egalitarianism, and collaboration. Consequently, I hypothesize that higher levels of team-level dominance, reflecting a prevalence of dominance in team processes, will be linked to more negative team outcomes. Thus, in Study 1, I propose:

H1a. Team-level dominance will have a negative association with team potency.

H1b. Team-level dominance will have a negative association with team coordination.

H1c. Team-level dominance will have a positive association with relationship conflict.

H1d. Team-level dominance will have a positive association with status conflict.

H1e. Team-level dominance will negatively predict team performance.

In testing these hypotheses, I approached dominance from two perspectives: a group's (1) aggregated mean-level dominance, and (2) dominance differentiation, as measured by group-level standard deviation of dominance. Furthermore, using MSEM, these relationships were tested both at the team-mean level as well as variations over time. This multi-level approach allowed the potential to detect more nuanced relationships. For

example, perhaps average team-level prestige might be beneficial to team coordination, however, fluctuations of team-level prestige across time might have a negative influence.

2.2.2   Hypotheses for Prestige and Team Functioning

Hypotheses 2a-e are extensions of research question two and revolve around the impact of prestige on team outcomes. As covered in Chapter 1, prestige serves as an alternative process to dominance, characterized by its communal and egalitarian nature. Within teams led by a prestigious individual, the leader is well-liked, and follower ideas are valued and respected. Consequently, I anticipate that the overall level of team prestige (reflecting a prevalence of prestige processes) will be positively associated with team functioning. Thus, I propose the following hypotheses:

H2a.   Team-level prestige will be positively associated with team potency.

H2b.   Team-level prestige will be positively associated with team coordination.

H2c.   Team-level prestige will be negatively associated with relationship conflict.

H2d.   Team-level prestige will be negatively associated with status conflict.

H2e.   Team-level prestige will positively predict team performance.

Similar to the examination of dominance, I will also analyze prestige by considering not only the mean tendency of prestige within teams but also exploring its differentiation. Using MSEM, these relationships will be tested both at the team-mean level as well as variations over time.

2.3   The Influence of Zero-Sum Beliefs

Theoretical perspectives suggest an intriguing link between zero-sum game beliefs and team functioning (Kakkar & Sivanathan, 2021; Różycka-Tran et al., 2015). It is plausible that teams with a high degree of zero-sum beliefs may prefer dominance strategies, as these competitive beliefs about the world align with the competitive and forceful approach of dominance. In contrast, prestige strategies may appear less congruent with the competitive worldview. If dominance is related to zero-sum beliefs, it suggests that

teams with elevated levels of zero-sum beliefs may perceive dominance tactics as advantageous or adaptive. For example, if individuals in a team view their environment as highly competitive, they may view dominance processes and strategies as suitable and effective. This might lead teams to perceive dominance more positively and associate dominance within their team with coordination and potency . In short, teams with higher levels of zero-sum beliefs may view dominant teams more positively than teams with lower levels of zero-sum beliefs (Halevy et al., 2012; Kakkar & Sivanathan, 2017).

Based on these implications, this study aimed to empirically examine whether zero-sum game beliefs were related to dominance and team functioning variables. By exploring the influence of zero-sum beliefs on dominance processes, I sought to understand the underlying mechanisms through which dominance influenced team functioning. Furthermore, this examination served as a foundation for Study 2, wherein I manipulated the zero-sum nature of the team environment.

2.4 Methods

2.4.1 Participants

The initial sample for this study consisted of 1,735 students in a year-long undergraduate engineering design course. Most participants were adolescents ($M = 18.08$, $SD = 1.07$) and male (73.43%, 25.64% female, 0.93% other). Most participants had some work experience ($M = 87.03\%$), with an average of 1.41 years of worked ($SD = 1.55$). In terms of ethnicity, the sample was primarily composed of individuals identifying as White (48.99% white), Asian (22.00%) or East Indian (10.52%), and the majority spoke English as their first language (75.71%). For more detailed demographic information, refer to Table 3.

Table 3. Study 1 Participants Demographics

	2019	2020	2021	Merged
Gender				
% Male	76.70	73.93	69.73	73.43
% Female	22.94	25.74	28.14	25.64
% Other	0.37	0.33	2.12	0.93
Age				
Mean	18.10	18.03	18.10	18.08
SD	1.13	1.13	0.95	1.07
Ethnicity				
% White	52.31	47.24	47.60	48.99
% Asian	26.40	23.85	15.54	22.00
% East Indian	6.60	5.96	19.50	10.52
% Middle Eastern	9.57	8.64	9.09	9.09
% Black	3.80	3.43	4.96	4.04
% Hispanic	4.46	4.02	2.48	3.67
% Aboriginal/Native	1.16	1.04	0.83	1.01
% Mixed Race	10.46	14.69	7.79	11.07
Work Experience				
% Never Worked	13.50	16.80	8.56	12.97
Mean Years Worked	16.59	16.15	17.93	16.86
SD Working Years	16.17	21.88	17.03	18.54

Over the course of three years, I collected a total of 4,573 responses from 1,777 students. The participation rate was high, with 92% of students responding to at least one of the three surveys administered throughout the academic year. On average, I obtained a 78.70% participation rate, which ranged from 72.06% to 82.29% across the different years. For more information on participation rates, please refer to Table 4. Over the course of the study, a total of 1,937 students were organized into 353 project groups. The average team size was 5.49 (*SD* = 0.56), with two thirds of groups being mixed-gender (66.86%), and one third being male-only groups (33.14%). There were no female-only groups. For more detailed information on group characteristics, please refer to Table 5.

Table 4. Participation Rates

Year	Enrolled Students	Participants			Participation Rate
		t1	t2	t3	
2019	550	416	356	417	72.06%
2020	683	534	578	534	80.33%
2021	704	578	587	573	82.29%
Total	1,937	1,528	1,521	1,524	78.70%

Table 5 Group Characteristics

Year	Groups	Mixed Gender	Group Size			
			M	SD	Min	Max
2019	103	72.82%	5.34	0.51	4	6
2020	125	68.80%	5.46	0.60	4	6
2021	125	60.00%	5.63	0.55	3	6
Total	353	66.86%	5.49	0.56	3	6

During the academic year, some team members left the class, team compositions were altered, or participants failed to complete surveys at specific timepoints. Consequently, the dataset exhibited a range of complex missing data issues. To ensure data integrity and maintain a focus on the team level, I applied strict measures prior to data analysis. Specifically, I excluded data from teams that experienced membership changes or had fewer than three responses at any timepoint.

2.4.2   Procedure

I collected data over multiple years within the context of a first-year engineering university design course. This annual course spans two 15-week semesters and was designed to replicate the working conditions experienced by engineers. The course places a strong emphasis on collaboration and teamwork. In the first semester, students were assigned to teams. During this semester, as part of a collaboration with the college of engineering, my research lab provided teamwork training to these students. In the second semester, students were assigned to new teams, and the course thereafter focused on the design and logistics of constructing a product that would benefit an external organizational partner in the city. Throughout the semester, student teams worked together on various tasks related to this product. They eventually presented their proposal

both orally and in written form at the end of the semester. The students' final grades were heavily influenced by the performance of their group and peer evaluations on their team interactions and relative contributions.

At the beginning of each academic year (September), participants in the study completed a variety of self-reported measures that varied slightly over the three-year collection period. These measures also included demographic information such as sex, age, ethnicity, and work experience, as well as personality scales. Study 1 primarily focuses on team processes collected in the second semester, but a comprehensive list of the measures can be found on the open science framework (https://osf.io/5p7bf/, Jensen, 2023).

2.4.2.1 Belief in a Zero-Sum Game (BZSG).

The only relevant personality measure collected during the first semester was the Belief in a Zero-Sum Game (BZSG) scale (Różycka-Tran et al., 2015), which was completed exclusively by the 2021 cohort of participants. Therefore, 36% of the current student sample had the opportunity to respond to this measure. The BZSG scale assesses individuals' beliefs about the antagonistic nature of social relationships, where one person's gains often come at the expense of others. It consists of 8 items, such as "If someone gets richer, it means that somebody else gets poorer," rated on a six-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). The scale has demonstrated satisfactory psychometric properties in the United States ($\alpha = .89$) and has been validated cross-culturally (Różycka-Tran et al., 2015, 2021). In the current sample, the scale showed a similarly strong reliability ($\alpha = .86$).

2.4.3 Semester Two Measures

At the start of the second semester (January), students were assigned to new groups with varying sizes of 3-5 teammates, taking into consideration ethical considerations for team gender composition. Employed engineers are disproportionally male (73.5%; U.S. Bureau of Labor Statistics, 2020), as was the engineering student sample (73.43%; see Table 3). Concern over gender differences in engineering careers and female attrition rates have been voiced for years (Fouad et al., 2016). For example, qualitative feedback

has suggested lone females in engineering groups report being isolated, ignored, and having their abilities doubted by their male teammates (Hatmaker, 2013). To address such issues, the course instructor requested that no lone female was assigned to a group of males, and therefore any mixed-gender groups were required to have at least two females.

Across the second semester, which focused on creating an engineering product for the community, data collection occurred at three time points: mid-January (t1), late-February (t2), and late-March (t3). Participants voluntarily completed online surveys at each time point in exchange for bonus marks in the course. Although the specific survey content varied slightly year over year (see the OSF page for more information; https://osf.io/5p7bf/; Jensen, 2023), the core questions of interest for this study remained consistent across each year. Across each of the three timepoints, participants completed measures of dominance, prestige, team coordination, team potency, and team conflict.

2.4.3.1   Dominance and Prestige

At each timepoint in semester two, participants were asked to evaluate each member of their team on dominance and prestige using a condensed four item version of the peer-report Dominance-Prestige Scales (Cheng et al., 2010). Participants rated each other in a round-robin manner on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The condensed scales consisted of two items measuring dominance (i.e., "[name of team member] is willing to use aggressive tactics to get his/her way" and "[name of team member] often tries to get his/her own way regardless of what others in the group may want.") and two items measuring prestige (e.g., "[name of team member]'s unique talents and abilities are recognized by others in the group" and "Members of your group respect and admire [name of team member]"). Previous studies have demonstrated adequate psychometric properties of the full Dominance-Prestige Scales (Cheng et al., 2010). Given that the condensed version consists of only two items for each facet, calculating Cronbach's alpha for reliability might not be appropriate (Eisinga et al., 2013). Instead, I report the Spearman-Brown reliability coefficient, which indicated good reliability for both the dominance ($\alpha = .86$) and prestige ($\alpha = .83$) measures.

2.4.3.2   Team Coordination

Team coordination was assessed using a previously validated 5-item team coordination measure (Lewis, 2003), with response options ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Participants rated their agreement with statements such as "Our team works together in a well-coordinated fashion." These items were adapted from a longer instrument with appropriate psychometric properties (Guzzo et al., 1993). In this sample, the measure showed acceptable reliability with a Cronbach's alpha coefficient of .70.

2.4.3.3   Team Potency

Team potency was measured using an 8-item Likert scale ranging from 1 (*To no extent*) to 5 (*To a great extent*) consisting of items such as, "This team feels it can solve any problem it encounters." These items were adapted from a previously validated instrument (Guzzo et al., 1993), and the scale demonstrated strong reliability in this sample ($\alpha = .91$).

2.4.3.4   Relationship and Status Conflict

Participants rated the extent to which their team experienced different forms of conflict on a scale ranging from 1 (*A very small amount*) to 5 (*A lot*). Relationship Conflict was assessed using a four-item scale, including items such as "How much friction is there among members of your team?" (Bendersky & Hays, 2012; Canary et al., 1995). The measure demonstrated strong reliability in this sample with a Cronbach's alpha coefficient of .90. Status Conflict was measured using a four-item scale, including items such as "My team members disagreed about the relative value of members' contributions" (Barker et al., 1988; Bendersky & Hays, 2012). The measure also exhibited strong reliability in this sample with a Cronbach's alpha coefficient of .88.

2.4.4   Team Performance

At the end of the semester, student groups presented their final community project both verbally and in writing. The course instructor evaluated their performance based on the quality of their writing, ideas, presentation, and overall work throughout the semester. Teams were assigned a final score, which was determined by the quality of the final project, related projects, and drafts submitted throughout the semester. Individual grades

were influenced by peer evaluations of their performance and contributions, ensuring individuals were motivated to contribute to their groups. For the purposes of this study, I utilized the end-of semester final group grade as an indicator of the groups' overall performance.

2.4.5   Analytic Strategy

To gain a better understanding of how dominance and prestige operate at the group level, I employed social relations modeling (SRM; Back & Kenny, 2010) to disentangle the variance in dominance and prestige round-robin ratings into four sources: (1) rater judgement bias, (2) a target's reputation, (3) relationship idiosyncrasies of particular dyadic relationships, and (4) the residual error. As the primary aim of my research questions was to examine how round-robin scores were influenced by the actions and characteristics of the target, this process allowed me to partition out variance attributable to other causes such as rater bias or dyadic relationship dynamics. Through isolating the target effects, I refined the estimations of team-member dominance and prestige, allowing for more precise testing of my hypotheses.

In conjunction with SRM, a multi-level structural equation model (MSEM) was employed to explore the relationship between dominance and prestige processes and team outcomes. The data are inherently nested, with individuals' responses nested within timepoints, and timepoints nested within teams. Given the primary focus of this study was to examine the associations between dominance and prestige with team functioning at the group level, examining variations within individuals across time was not relevant to the core research questions. As such, I nested each timepoint within its respective team to account for deviations in team-levels across time (Level-1), and at the between-team level (Level-2). Within these MSEM, I modeled the associations that both mean-level dominance and prestige, as well as the distribution of such scores, had with team functioning and conflict. The Level-1 predictor variable 'time' was also included to control for potential linear changes in team functioning throughout the semester. All MSEM analyses were conducted using Mplus version 8.6 (Muthén & Muthén, 2017).

The hypothesis testing took a model-building approach, constructing three additive MSEM for each outcome measure. Model A examined the main effects of dominance and prestige on the dependent variable. Model B extended Model A by incorporating the element of 'time' to investigate how the outcome variables changed over time. For example, over time, teams reported higher levels of conflict as the final deadline approached. By accounting for this temporal shift, the study aimed to eliminate potential confounding effects and better isolate the consequences of dominance and prestige. Finally, Model C accounted for the differentiation of both dominance and prestige within the team by using standard deviation to assess whether the heterogeneity or homogeneity of dominance and prestige predicted the outcome variables.

In addition to hypothesis testing, I conducted data exploration to gain insights into participant characteristics and the overall relationships among variables. This exploration was crucial for understanding the dynamics of dominance and prestige within a team context and their interactions. Although this investigation was not the central focus of the research questions pertaining to the impact of dominance and prestige on team outcomes, it was necessary to understand the formation of dominance and prestige cultures within teams. The findings from this exploration hold potential for future studies and contribute to understanding the impact of dominance and prestige at the group level compared to the individual level.

2.5   **Results**

In this section, I first review the structure and nature of dominance and prestige to pave the way for more appropriate hypotheses testing and interpretations. After laying this groundwork, I explore the MSEM results, which test this study's hypotheses.

2.5.1   The Structure of Dominance and Prestige

2.5.1.1   Social Relations Modeling

I utilized SRM to analyze the round-robin ratings and identify the specific effects associated with each relevant variable. This analysis allowed for the partitioning of variance within the round-robin ratings into different sources: (a) perceiver effects, (b)

target effects, (c) relationship effects, and (d) residual error estimation. The examination of variance sources stemming from round-robin ratings revealed that ratings were primarily influenced by perceiver biases in both dominance (53.39%) and prestige (39.02%), suggesting that the proclivities of raters tended to be the strongest determinant of peer-ratings rather than a target's reputation or the relationship the rater had with the target. Additionally, the analysis showed that dominance target effects accounted for a smaller proportion of the variance (6.80%) compared to the variance attributed to relationship effects (12.19%). In contrast, in prestige ratings, target effects accounted for a greater proportion of the variance (16.40%) compared to relationship effects (13.49%) (see Table 6). These findings validate the efficacy of utilizing SRM to untangle distinct variance sources within round-robin ratings, challenging the often-implicit assumption that peer ratings predominantly reflect target attributes. The predominant influence of perceiver biases in both dominance and prestige ratings, even after months of interaction, suggests that individuals' subjective judgments and personal biases strongly shape their assessments of others' dominance and prestige, and this tendency might not substantially alter even after given sufficient time to know others better. This finding highlights the importance of considering individuals' perspectives and biases when using dominance and prestige scales in future research.

Table 6. Dominance and Prestige Social Relations Modeling Variance

	t2	t3 (Δ)		t4 (Δ)		Total
Dominance						
Perceiver	46.84%	55.63%	(8.78%)	57.70%	(2.08%)	53.39%
Target	7.68%	4.72%	(-2.96%)	8.00%	(3.28%)	6.80%
Relationship	16.50%	8.17%	(-8.33%)	11.90%	(3.73%)	12.19%
Error	28.98%	31.48%	(2.50%)	22.40%	(-9.08%)	27.62%
Prestige						
Perceiver	40.66%	41.68%	(1.02%)	34.73%	(-6.94%)	39.02%
Target	14.75%	14.88%	(0.13%)	19.57%	(4.69%)	16.40%
Relationship	14.56%	10.80%	(-3.76%)	15.11%	(4.31%)	13.49%
Error	30.03%	32.64%	(2.61%)	30.59%	(-2.05%)	31.08%

Note. Proportional sources of variance in the SRM and change of such over time. Delta (Δ) values represent percent change since previous timepoint.

Significant proportional differences in variance were observed between dominance and prestige round-robin ratings. The variance in dominance ratings were more influenced by

dyadic interpersonal relationships than by target variance, indicating that perceptions of dominance are more relational, rather than driven by general behaviors or characteristics of individuals. On the other hand, variance in prestige ratings were more strongly associated with the behaviors and attributes of individual targets than to the idiosyncrasies of the dyadic relationship, suggesting that perceptions of prestige are driven more by the specific characteristics and actions of individual targets. These findings highlight the distinctiveness of dominance and prestige processes, showing that perceptions of dominance and prestige are derived in distinct ways, supporting the notion that these dimensions represent separate pathways to status with different underlying mechanisms and processes.

In the subsequent analyses using dominance and prestige, the individual target effects were employed instead of relying on the raw scores, as these raw scores were largely influenced by factors unrelated to the target. This decision allowed for a more appropriate perspective by extracting only the proportion of peer-ratings that pertained to the behaviors, attributes, and reputation of individual targets, while discarding confounding components related to perceiver or relational biases.

2.5.1.2   Descriptive Statistics

Average peer-rated dominance in Study 1 was relatively low ($M = 1.79$) and exhibited a moderate positive skew (Skewness = 1.48), suggesting a potential floor effect. On the other hand, peer-rated prestige had a relatively high average score ($M = 5.48$), and displayed a less pronounced negative skew (Skewness = -1.21).

Aligned with previous research (Cheng et al., 2013), peer-rated dominance and prestige did not exhibit a significant correlation with one another at timepoint 1 or 2. However, a very small negative yet statistically significant correlation between dominance and prestige emerged during timepoint 3 ($r_{avg} = -.09$, $p < .000$; see Table 7). Despite this small correlation, the degree to which one communicates dominance had little connection to the degree they communicate prestige at the individual-level.

Table 7. Individual Dominance and Prestige Over Time

| Variable | M | Median | SD | Gini | Skew | Time 1 | | Time 2 | | Time 3 |
						1	2	3	4	5
Timepoint 1										
1. Dominance	1.62	1.44	0.67	0.21	1.80					
2. Prestige	5.22	5.38	0.86	0.09	-0.94	-.01				
Timepoint 2										
3. Dominance	1.89	1.80	0.73	0.21	1.16	.59***	-.03			
4. Prestige	5.58	5.75	0.83	0.08	-1.30	.02	.68***	.01		
Timepoint 3										
5. Dominance	1.87	1.71	0.80	0.23	1.47	.53***	-.08**	.68***	-.06†	
6. Prestige	5.65	5.85	0.94	0.09	-1.40	-.07*	.62***	-.07*	.75***	-.09***

Note. Individual dominance and prestige target effect statistics and correlations over timepoints. †$p < .1$. *$p < .01$. **$p < .01$. ***$p < .001$.

Upon aggregating dominance and prestige to the group level, they exhibited similar descriptive statistics as at the individual-level with only minor differences such as showing less prominent skewness (see Table 8). Table 9 presents the descriptive statistics and correlations between the key group variables of interest. These statistics are derived from averaging team metrics and do not account for variations across different timepoints—a limitation which is addressed later using MSEM. These correlations show some positive changes in team functioning over the three-year period with cohorts in later years reporting less relationship and status conflict and more team coordination. Additionally, marginally significant evidence suggests that later years reported more team potency and a decrease in dominance differentiation. This suggests that in later years, teams demonstrated better team functioning and less conflict. It is worth noting that these findings may have been influenced by the COVID-19 pandemic, which occurred 10 days prior to the final timepoint in the second year, 2020, resulting in a sizable portion of the subsequent coursework being conducted in virtual or hybrid formats.

The correlations pertaining to group-level dominance align with hypotheses, showing a positive association with team conflict measures and a negative association with team coordination and potency. Conversely, prestige exhibited inverse relationships to dominance, displaying positive associations with team coordination and potency and negative relationships with team conflict variables. Although these results are consistent

with the study's hypotheses, to fully test these relationships, MSEM were conducted, which accounted for the interdependent nature of the data. The outcomes of these analyses are explored later in the results section.

An additional question investigated was whether teams with higher levels of belief in the zero-sum nature of life would exhibit higher levels of dominance. However, the results revealed minimal associations between belief in a zero-sum game (BZSG) scale and the key variables of interest, with the exception that team-level BZSG was associated with more conflict (see Table 9). The absence of a significant correlation between dominance and zero-sum beliefs suggests that perceiving the world as competitive does not automatically lead to a preference for dominance as a means of achieving status and power. That is, just because someone views the world as a competitive environment does not necessarily mean they demonstrate increased levels of dominance. Perhaps those high in zero-sum beliefs do not have the same drive to compete as those high in dominance, or perhaps they do not necessarily consider dominance as the most suitable approach for gaining status and power. Taken together, these results set the stage for a more in-depth analysis using MSEM.

Table 8. Group Dominance and Prestige Over Time

| Variable | M | Median | SD | Gini | Skew | Time 1 | | Time 2 | | Time 3 |
						1	2	3	4	5
Timepoint 1										
1. Dominance	1.62	1.48	0.55	0.18	1.39					
2. Prestige	5.23	5.22	0.62	0.07	-0.25	-.14*				
Timepoint 2										
3. Dominance	1.89	1.83	0.64	0.18	0.97	.58***	-.22**			
4. Prestige	5.57	5.60	0.63	0.06	-0.32	-.13†	.65***	-.19**		
Timepoint 3										
5. Dominance	1.87	1.75	0.67	0.20	0.99	.50***	-.29***	.67***	-.25***	
6. Prestige	5.65	5.75	0.69	0.07	-0.38	-.22***	.59***	-.24***	.70***	-.27***

†*p* < .1. *p* < .01. **p* < .01. ***p* < .001.

2.5.1.3   The Divergence of Group-Level Dominance and Prestige

Although dominance and prestige are largely independent at the individual level, their relationship at the group level consistently showed negative correlations across all

timepoints (r_{avg} = -.20), with the strength of the relationship magnifying over time (r_{t1} = -.14, r_{t2} = -.19, r_{t3} = -.27; see Table 8). These findings suggest that teams may display a tendency to gravitate towards either a dominance or prestigious culture, which becomes increasingly distinct and mutually exclusive as time progresses. To further explore this possibility, a CEM was conducted to examine whether group dominance and prestige levels become more similar across timepoints.

Table 9. Group Correlations and Descriptive Statistics

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. Year	—	—									
2. Dominance	1.80	0.55	.07								
3. Prestige	5.47	0.60	-.02	-.23***							
4. Dominance SD	0.27	0.29	-.10†	.44***	-.48***						
5. Prestige SD	0.45	0.41	-.08	.12*	-.62***	.61***					
6. BZSG	3.77	0.76	—	.12	.04	-.01	.09				
7. Rel. Conflict	1.46	0.38	-.16**	.60***	-.40***	.52***	.37***	.24*			
8. Status Conflict	1.47	0.36	-.20***	.63***	-.38***	.58***	.35***	.30**	.90***		
9. Coordination	3.77	0.36	.21***	-.36***	.52***	-.30***	-.28***	-.06	-.51***	-.49***	
10. Potency	5.67	0.55	.10†	-.23***	.62***	-.28***	-.32***	.06	-.41***	-.36***	.72***

†*p* < .1, *p < .01, **p < .01, ***p < .001.

2.5.1.4 Similarity or Dissimilarity in Dominance and Prestige Over Time

Consensus Emergence Modeling (CEM) allowed me to test if participants became more similar or dissimilar in dominance or prestige over time. I also conducted CEM for each of the outcome models to test if teams became more similar in their ratings of team functioning variables over time, the results of which can be viewed on the OSF (https://osf.io/5p7bf/; Jensen, 2023). The CEM approach uses two models to test for changes similarity—the null model and the CEM. The null model serves as the baseline model, which does not model changes in the residual variance over time. On the other hand, the CEM included a variable measuring similarity ($\delta 1$) to account for changes in the residual variance across time. A chi-squared analysis is then performed to compare the fit of these models and determine whether the CEM provided a better explanation of the data compared to the null model. If the chi-squared analysis indicates a statistically significant difference between the models, it implies that team members became more or less similar over time. Specifically, a positive residual variance of time ($\delta 1$) suggests that teams became less similar over time. Conversely, a negative residual variance of time indicates that teams became more similar over time.

The CEM results, reported in Table 10, revealed that team-dominance tended to increase over the course of the semester ($\gamma 100 = .11$, $p = .007$), but prestige showed no significant change over time ($\gamma 100 = .05$, $p = .473$). This asymmetry is intriguing, and it is possible that team-level dominance naturally exhibits more changes and fluctuations than prestige over time. It might also be that team members adopted more dominant behaviors in response to increased conflict and heightened stress as team demands intensified throughout the course of the semester.

To examine whether team members became more or less similar in dominance and prestige levels over time, the fit of the CEM was compared to the null models using chi-squared analysis. The improved log-likelihood values and significant chi-square test statistics indicated that the CEM for both dominance $\chi^2(8, N = 1,424) = 4.05$, $p = .044$, and prestige $\chi^2(8, N = 1,424) = 7.89$, $p = .005$ provided a better explanation of the data

compared to the null models. The magnitude of δ1 coefficients provides a measure of effect size (Lang et al., 2018). In both models, δ1 showed substantial reductions in residual variance, demonstrating strong effect sizes. This suggests that teams did not maintain a constant level of similarity in dominance and prestige over time, rather, the positive residual variance of time observed in both the dominance and prestige CEMs indicates a trend of dissimilarity amongst groups over time. This suggests that as the semester progressed, team members rated each other as increasingly dissimilar in dominance and prestige.

Table 10. Dominance and Prestige Consensus Emergence Models

Parameters	Dominance				Prestige			
	Null		CEM		Null		CEM	
Intercept ($\gamma00$)	1.41	***	1.43	***	5.17	***	5.13	***
Time ($\gamma100$)	0.12	**	0.11	**	0.03		0.05	
Group intercept variance ($\upsilon00$)	1.07		0.26		2.40		2.05	
Group slope variance ($\upsilon11$)	0.13		0.00		0.42		0.34	
Covariance ($\upsilon01$)	-0.95		0.07		-0.97		-0.94	
Person intercept variance ($\tau00$)	0.11		0.13		0.09		0.44	
Residual variance ($\sigma2$)	0.09		0.01		0.36		0.00	
Time ($\delta1$)			0.41				1.24	
logLik	-1225.97		-1228.00		-1718.61		-1714.67	
df	8		7		8		7	
$\chi2$ vs. previous model			4.05	*			7.89	**

Note. CEM's adds Time variable ($\delta1$) to if it is a better fit than the NULL model ($\chi2$ test), which would show groups becoming more ($\delta1<0$) or less ($\delta1>0$) similar over time.
†$p > .1$, *$p \leq 0.05$, **$p < 0.01$, ***$p < 0.001$.

2.5.2   Multilevel Structural Equation Modeling

To test the hypotheses regarding the influence of dominance and prestige on team functioning, a series of multilevel structural equation models (MSEM) were conducted using the longitudinal team data. For a team's data to be included, each group's timepoint responses had to have a minimum of three participants who completed the survey, which minimum was necessary to extract the SRM target effects. The final sample consisted of 558 valid timepoint responses nested within 267 groups. Missing data were accounted for using maximum likelihood estimation in the MSEM analysis.

The MSEM showed that the key outcome variables systematically changed over the course of the semester. Notably, team potency exhibited a significant increase, suggesting that teams developed a greater sense of confidence and optimism in their collective ability to perform effectively and overcome obstacles. In contrast, team coordination decreased as the semester progressed, indicating a decline in the perceived effectiveness of team coordination. Both status and relationship conflict tended to increase over time, indicating a higher level of conflict within the teams as the semester progressed.

2.5.2.1   H1a-b: Dominance and Beneficial Team Dynamics

Although Hypotheses 1a-b expected dominance to negatively relate to beneficial team dynamics, teams higher in dominance showed no difference in their reported potency (see Table 11). Although Model 1b showed that at timepoints where teams exhibited higher than usual levels of dominance, they also reported more team potency, this was only marginally significant and did not persist once the spread of dominance and prestige were taken into account in Model 1c. However, at timepoints when teams were particularly dissimilar in dominance levels, they reported less team potency ($\beta_{m1c} = .13$, $p = .018$), suggesting that when disparities in dominance amongst team members grew, they felt less capable as a team, even though the teams' average level of team dominance had no direct relationship with potency. This suggests changes in dominance differentiation is more influential than the team's average dominance level when it comes to team potency.

Pertaining to the relationship dominance has with team coordination, Model 3a indicated that at timepoints when team-level dominance was higher than usual, team coordination tended to be lower ($\beta_{m2c} = -.14$, $p = .002$). However, when subsequent models controlled for the linear changes in variables over time, this relationship became non-significant, suggesting that the initial significance may be attributed to changes in the variables over time rather than a causal association between dominance and team coordination. There is also some evidence to suggest that teams with higher mean-levels of dominance report less team coordination ($\beta_{m2a} = -.17$, $p = .015$), but the relationship was only marginally significant after accounting for the standard deviation of dominance ($\beta_{m2c} = -.15$, $p = .075$). On the whole, this provides some evidence to suggest that mean-level dominance

might have a negative influence on team coordination, but the findings are not very clear or robust.

Hypothesis 1a-b proposed that dominance would have an overall negative relationship with beneficial aspects of team functioning. Although some evidence of this was found, the relationship that dominance had with beneficial team dynamics was weaker and more contextual than hypothesized, which only provided minimal support for these hypotheses.

2.5.2.2   H1c-d: Dominance and Team Conflict

Hypothesises 1c-d expected dominance to amplify team conflict (see Table 12). Supporting this, across all models, teams higher in dominance also reported more relationship conflict ($\beta_{\text{m3c}} = .61$, $p < .001$). Furthermore, at timepoints where teams reported higher than average dominance, they also reported more relationship conflict ($\beta_{\text{m3c}} = .29$, $p < .001$). Additionally, at timepoints where the spread of dominance within the team was particularly wide, teams reported higher levels of relationship conflict ($\beta_{\text{m3c}} = .12$, $p = .065$), suggesting that changes in dominance differentiation over time might induce relationship conflict.

Additionally, across all models, dominance showed strong positive relationships with status conflict. Teams that were higher in dominance reported more status conflict ($\beta_{m4c} = .55$, $p < .001$), and at timepoints when teams reported particularly high dominance, they also reported more status conflict ($\beta_{m4c} = .33$, $p < .001$). This suggests that team-level dominance, both in terms of average levels and changes over time, might strongly influence the occurrence of status conflict. Beyond mean-level dominance, teams with a wider range of dominance within their members also reported higher levels of status conflict ($\beta_{m4c} = .24$, $p = .015$). Furthermore, at timepoints where there was a greater spread of dominance within the team, teams reported more status conflict ($\beta_{m4c} = .11$, $p = .037$). Overall, the average differentiated of dominance within teams increased status conflict as did teams becoming more differentiated in dominance over time.

Hypothesis 1c-d proposed that dominance would have an overall positive relationship with team conflict. These findings provided robust support for hypotheses 1c-d, as

dominance showed a strong positive association with both relationship and status conflict.

2.5.2.3   H2a-b: Prestige and Beneficial Team Dynamics

Hypothesises 2a-b proposed that prestige would generally amplify beneficial team dynamics. Prestige showed a strong positive relationship as teams higher in prestige reported greater confidence in their team's capability ($\beta_{m1c} = .97$, $p < .001$) as well as reporting more potency at timepoints wherein prestige within the team was higher than normal ($\beta_{m1c} = .21$, $p < .001$). Moreover, teams that showed a wider spread of prestige reported more team potency ($\beta_{m1c} = .33$, $p < .001$), suggesting that not only the average level of prestige, but also the degree of hierarchical differentiation in prestige, play a significant role in shaping team potency.

Across all models, teams higher in prestige reported more coordination ($\beta_{m2c} = .73$, $p < .001$), and at times where teams were particularly high in prestige, they also reported more coordination ($\beta_{m2c} = .20$, $p < .001$), suggesting that team coordination is strongly influenced by both average team-level prestige, and changes in prestige over time. Although only marginally significant, teams with a wider spread of prestige reported a trend towards higher levels of coordination ($\beta_{m2c} = .18$, $p = .065$). This finding mirrors the relationship between prestige and team potency, wherein teams with more hierarchical differentiation in prestige were associated with greater team potency.

Hypothesis 2a-b proposed that prestige would have an overall positive association with beneficial team dynamics. These findings provided robust support for these hypotheses, as prestige had a strong positive association with both team coordination and potency.

2.5.2.4   H2c-d: Prestige and Team Conflict

Hypotheses 2c-d proposed that prestige would generally dampen team conflict functioning. In the final models, however, there was no statistically significant link between prestige and relationship ($\beta_{m3c} = -.09$, $p = .315$) or status conflict ($\beta_{m4c} = -.08$, $p = .376$). Although Model 3b showed that teams with higher prestige reported less relationship conflict ($\beta_{m3b} = -.26$, $p < .001$), after controlling for the differentiation of

dominance and prestige within teams, this relationship became non-significant ($\beta_{m3c} = -.09$, $p = .315$). At timepoints wherein teams reported higher than average prestige, they also reported less relationship conflict ($\beta_{m3c} = -.26$, $p < .001$), but no more or less status conflict ($\beta_{m4c} = -.04$, $p = .443$). These findings suggest that it is not so much the average level of prestige in a team that mitigates relationship conflicts, but the fluctuations of team prestige over time. In addition, teams with a higher degree of prestige differentiation reported experiencing more relationship conflict ($\beta_{m3c} = .17$, $p = .037$). Therefore, the inconsistent relationship prestige has with team conflict variables provided only minimal support for these hypotheses.

Table 11. MSEM Dominance and Prestige on Team Functioning

	Team Potency						Team Coordination					
	Model 1a		Model 1b		Model 1c		Model 2a		Model 2b		Model 2c	
Predictor	Within	Between	Within	Between	Within	Between	Within	Between	Within	Between	Within	Between
Dominance	-.07	.13	-.09†	.04	-.04	.08	-.14**	-.12	-.08	-.17*	-.06	-.15†
Prestige	.23***	.78***	.20***	.71***	.21***	.97***	.12**	.62***	.20***	.60***	.20***	.73***
Time			.12*		.12*				-.28***		-.29***	
Dom. SD					-.13*	.07					-.05	.03
Pres. SD					.04	.33***					.03	.18†

Note. Reporting standardized betas of 558 timepoint-specific responses and 267 teams. "Within" represents variations across timepoints. "Between" represents variations across teams. †$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

Table 12. MSEM Dominance and Prestige on Team Conflict

	Relationship Conflict						Status Conflict					
	Model 3a		Model 3b		Model 3c		Model 4a		Model 4b		Model 4c	
Predictor	Within	Between	Within	Between	Within	Between	Within	Between	Within	Between	Within	Between
Dominance	.40***	.65***	.34***	.63***	.29***	.61***	.43***	.61***	.25***	.65***	.33***	.55***
Prestige	-.03	-.21**	-.12*	-.26***	-.11*	-.09	.02	-.20**	-.04	-.25***	-.04	-.08
Time			.34***		.33***				.25***		.25***	
Dom. SD					.12*	.13					.11*	.24*
Pres. SD					-.01	.17*					.00	.12

Note. Reporting standardized betas of 558 timepoint-specific responses and 267 teams. "Within" represents variations across timepoints. "Between" represents variations across teams. †$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

Table 13. MSEM Fit Indices for Models 1-2

Model	Model 1a		Model 1b		Model 1c		Model 2a		Model 2b		Model 2c	
	Within	Between	Within	Between	Within	Between	Within	Between	Within	Between	Within	Between
AIC	3832.93		2350.19		2632.45		3486.39		1968.14		2261.55	
BIC	3876.18		2389.11		2688.67		3529.64		2007.06		2317.77	
χ^2	58.48		0.00		0.00		80.77		0.01		0.01	
RMSE	0.18		0.00		0.00		0.22		0.01		0.01	
CFI	0.70		1.00		1.00		0.58		1.00		1.00	
TLI	0.29		1.00		1.00		0.03		1.00		1.00	
SRMR	0.11	0.02	0.01	0.01	0.01	0.01	0.13	0.01	0.01	0.01	0.01	0.01
r^2	.05	.53	.07	.48	.08	.56	0.03	0.46	.10	.45	.10	.47

Table 14. MSEM Fit Indices for Models 3-4

Model	Model 3a		Model 3b		Model 3c		Model 4a		Model 4b		Model 4c	
	Within	Between	Within	Between	Within	Between	Within	Between	Within	Between	Within	Between
AIC	3520.00		1976.85		2251.66		3365.71		1852.11		2121.90	
BIC	3563.25		2015.77		2307.88		3408.95		1891.03		2178.11	
χ^2	112.89		0.01		0.01		85.23		0.01		0.01	
RMSE	0.26		0.01		0.01		0.22		0.01		0.01	
CFI	0.62		1.00		1.00		0.71		1.00		1.00	
TLI	0.10		1.00		1.00		0.33		1.00		1.00	
SRMR	0.14	0.01	0.01	0.01	0.01	0.01	0.13	0.01	0.01	0.01	0.01	0.01
r^2	.16	.58	.26	.58	.27	.62	0.19	0.55	.24	.55	.25	.61

2.5.2.5   Exploratory Research: Zero Sum Game Beliefs

In addition to my primary objectives of examining the relationship dominance and prestige had on team functioning, this study also aimed to investigate the direct or indirect influence that zero-sum beliefs had on team functioning. These findings showed that zero-sum beliefs did not exhibit any significant correlations with dominance, prestige, team potency, or team coordination. To examine the potential moderating role of BZSG on the relationship between dominance and team outcomes, I utilized the same MSEM approach previously outlined. However, in addition to including dominance and prestige as predictors of team outcomes, I also introduced group-level BZSG as both a predictor and an interaction term with dominance to explore the potential moderation effect. BZSG, being a personality measure, was assessed at a single time point, resulting in no variance within teams over time. Results from these analyses are found in Table 15 and Table 16.

The BZSG models differed in some of their significant findings from the previous MSEM, but the BZSG variable itself had no influence on any of the outcome measures nor did the interaction term between dominance and BZSG. This suggests that BZSG did not have a meaningful direct or moderating influence on team functioning. Furthermore, as including the BZSG measure into these models uniformly worsened model fit indices, any interpretations of these models should be done so with caution and the models without BZSG should be preferred.

Table 15. MSEM Zero-Sum Game Beliefs on Team Functioning

	Team Coordination				Team Potency			
Variable	Within	Between	Within	Between	Within	Between	Within	Between
Time	.01		-.03		.05†		.17†	
Dominance	-.23***	.95	-.24***	.16	-.08*	.86	-.14†	-.46
Prestige	.19*	.63***	.21*	.78***	.15**	.82***	.21**	.87***
BZSG		.97		.44		.54		.00
Dom*BZSG		-1.63		-.71		-.25		.25
Dom. SD			.03	.24†			-.04	.36*
Pres. SD			.04	.15			-.04	.11

Note. Reporting standardized betas of 236 timepoint-specific responses within 97 teams. W = "Within," representing variations across timepoints. B = "Between," representing variations across teams.
†$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

Table 16. MSEM Zero-Sum Game Beliefs on Team Conflict

	Relationship Conflict				Status Conflict			
Variable	Within	Between	Within	Between	Within	Between	Within	Between
Time	.45***		.38***		.36***		.31***	
Dominance	.36***	.25	.34***	.58	.44***	.41	.42***	.00
Prestige	-.16*	-.15	-.12	-.10	-.14	-.21*	-.11	-.16
BZSG		-.29		-.15		-.05		-.29
Dom*BZSG		.64		.33		.40		.84
Dom. SD			.08†	-.17			.08†	.13
Pres. SD			.07	.19			.03	.84

Note. Reporting standardized betas of 236 timepoint-specific responses within 97 teams. "Within," represents variations across timepoints. "Between," represents variations across teams.
†$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

2.6   Hypothesis 1-2e: Predicting Performance

Due to the nature of team performance in this study, that is, the teams' end-of-semester grade, which was predominantly determined by the final assignment at the end of the semester, a traditional regression approach was deemed more appropriate than an MSEM. Unlike the other outcome variables that were measured repeatedly throughout the semester, team performance was assessed as a single indicator at the end of the semester with no variations over time to explain.

In the regression, I controlled for the year in which the teams interacted, to consider the potential effects resulting from changes in the course, assignments, and class protocols between years. There was a general trend of increasing group grades over the three years, suggesting that, on average, later years achieved higher grades compared to earlier years. This trend indicates a potential improvement in cohort performance over the years. The regression analysis predicting group grades (see Table 17), revealed that dominance did not statistically predict grades, $F(3, 325) = 0.56$, $p = .543$. However, the findings showed a strong relationship between prestige and group grades $F(3, 325) = 5.36$, $p < .001$ with higher levels of prestige predicting higher group grades, highlighting the importance of prestige in contributing to overall group performance. I also examined whether a group's belief in a zero-sum game predicted performance. Interestingly, contrary to theoretical rationale and previous literature findings, the group's belief in the zero-sum nature of the world had no influence on their group's performance $F(1, 108) = 1.19$, $p = .284$.

Overall, although Hypothesis 1e, that dominance would negatively predict team performance, was not supported, Hypothesis 2e, that prestige would positively predict team performance was strongly supported. This suggests that although dominance may not have a strong influence on the performance of the team, the prestige of group members can positively impact the collective success of the team.

Table 17. Dominance and Prestige Predicting Group Grade

Variable	Full Model B		Time 1 B		Time 2 B		Time 3 B	
Dominance	0.56		0.44		-0.04		-0.58	
Prestige	5.36	***	4.48	***	4.00	***	4.15	***
Year	4.03	***	5.03	***	4.03	***	3.79	***

Note. Reporting unstandardized betas of 290 teams. Full Model averages group dominance and prestige levels across timepoints.
†$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

2.7   Discussion

The findings from Study 1 provide insights into the dynamics of dominance, prestige, and zero-sum beliefs within teams. The differential effects of dominance and prestige on team outcomes highlight the importance of considering both processes when trying to understand team functioning. The study also emphasizes the significance of fluctuations in team-level dominance and prestige over time, indicating that the distribution and variability of these factors within a team can influence team outcomes. Furthermore, the investigation of zero-sum beliefs contributes to the understanding of how competitive beliefs impact team functioning. Although many of the findings were consistent with my hypotheses, suggesting support for the proposed theoretical relationships, several findings deviated from expectations or revealed interesting contingencies. In this section, I will explore the implications and significance of these findings, considering their impact on the hypotheses and their relevance for broader descriptive and investigative goals.

2.7.1   The Nature of Dominance and Prestige

A primary objective of this study was to better understand the nature of dominance and prestige, and how it operates within social contexts. A key distinction and contribution of this study is that it goes beyond examining these inherently interdependent and complex social processes at the individual level and investigates them more holistically as group-level emergent processes. The results from this effort validate the utility and importance of considering dominance and prestige as group-level emergent processes, highlighting the need for more granular and multidimensional investigations of these processes that consider group-level mechanisms and developments over time.

Another strength of this study lies in its longitudinal and ecologically valid approach to investigating the dynamics between dominance and prestige. I examined these constructs at both the individual and group level and through multiple time points across an academic semester, providing an understanding of their interplay over time. Additionally, I explored the interdependence of dominance, prestige, and the spread of these attributes within teams. To the best of my knowledge, this study is the first of its kind to address these issues.

Despite dominance and prestige being considered distinct pathways to status and power (Cheng et al., 2010; Cheng & Tracy, 2014), this study revealed a robust negative correlation between these constructs at the group level ($r = -.23$, $p < .001$), suggesting that teams tend to develop a dominant or prestigious culture within their group dynamics over time. The convergence on either a dominant or prestigious culture likely occurs very early in team formation as the correlation between group-level dominance and prestige was evident during the first collection period, only a few weeks after group inception. These findings align with previous work showing that group-level shared constructs emerge soon after group formation and tend to vary little across time (Allen & O'Neill, 2015). To explore this further, I employed CEM to investigate whether team members became more or less hierarchically differentiated in dominance or prestige over time. Team members tended to become more dissimilar in their ratings of dominance and prestige over time, indicating they increased in vertical differentiation in dominance and prestige over the course of the semester. Therefore, although teams tend to converge on either dominance or prestige processes over time, they actually increased their relative distinctiveness in dominance and prestige during this process.

Future research seeking to better understand the nature of dominance and prestige in group contexts should focus on delving into the early stages of group formation to gain deeper insights into the factors that influence the development and maintenance of dominance and prestige cultures within teams. By examining the underlying causes and consequences of these processes, interventions may be able to be designed to prevent dysfunctional team dynamics from emerging, or used in team construction to identify suitable team members given the contextual environment and team demands.

One possible explanation for teams becoming more dissimilar in dominance and prestige over time is that team members might adapt and respond to the dominant or prestigious actions demonstrated by their teammates, adjusting their own manifestations of dominance and prestige within the team's social hierarchy. As individuals assert their dominance or gain prestige within the team, it may lead other members to adjust their positions accordingly to facilitate harmonious team processing and to lower conflict. In such scenarios, team members might align with the established hierarchy by adjusting their behaviors and actions to fit with the dominant or prestigious individuals within the team. This could explain the increasing dissimilarity observed in dominance and prestige levels as individuals recognize and respond to existing power dynamics and status hierarchies and may consciously or unconsciously adapt their behaviors to fit within the established structure. Although hierarchical differentiation occurs rapidly (Koski et al., 2015), these results suggest that these hierarchical differences became more pronounced over time as groups approach the end-of-semester deadline.

2.7.2   Mean-level Dominance and Prestige

In line with hypotheses, average team-level prestige exhibited a positive relationship with team coordination, potency, and performance. These results align with theoretical predictions that emphasize the significance of prestige in promoting beneficial team dynamics, possibly through the utilization of coordination-enabling processes within groups (Greer et al., 2018; Halevy et al., 2011). The strong positive effect of prestige on team performance further emphasizes its importance in driving overall group success. However, contrary to theoretical assumptions, the average amount of dominance in teams did not significantly negatively correlate with team coordination, potency, or team performance, suggesting that dominance may not necessarily hinder team coordination and potency at the group level.

On the other hand, dominance showed a strong negative relationship with team conflict measures, having an inverse pattern compared to prestige. This supports the notion that dominance leads to dysfunctional team dynamics, perhaps through the cultivation of conflict-enabling states (Greer et al., 2018; Halevy et al., 2011). In contrast, the

relationships prestige had with team conflict were relatively limited, suggesting that its role in reducing conflict may be less prominent than initially hypothesized.

Taken together, the pattern of results across models imply that prestige primarily enhances positive team functioning rather than directly mitigating team conflict. Conversely, dominance is more closely associated with increased conflict rather than impeding beneficial team dynamics. Indeed, when considering the ultimate measure of a teams' success, performance of its core objectives, prestige is strongly positively related to team performance at all time points whereas dominance showed no relationship. These findings suggest that dominance does not significantly impair positive team outcomes, and prestige does not substantially mitigate team conflict as previous literature has suggested (Maner, 2017), which underscores the multifaceted nature of these constructs within team contexts.

The findings from this study highlight the significance of examining dominance and prestige relationships at both the mean-level as well as examining variations in these processes over time. Moreover, the implications of this longitudinal study have significant practical and research implications. The strong relationships dominance and prestige have with team functioning across timepoints suggest that interventions aimed at increasing team members' prestige may positively impact team dynamics. By fostering a culture that values and recognizes the expertise and contributions of team members, teams might enhance coordination, trust, and overall performance. Similarly, reducing levels of dominance within a team may help alleviate conflict and promote more harmonious team environments.

Although variations in mean-level dominance and prestige over time had significant relationships with team functionality, these were often relatively minor compared to the enduring impact of initial team composition. This emphasises the importance of carefully considering team composition when forming teams, with special attention given to the specific needs and demands of the groups. For teams that prioritize egalitarianism, coordination, and trust, focusing on recruiting highly prestigious members may prove to

be a valuable strategy for achieving optimal team outcomes. Moreover, if conflict within teams is unacceptable, screening out dominant applicants would be important.

2.7.3 Prestige Differentiation

In addition to how mean-level prestige was related to team functioning, the spread or differentiation of prestige within teams also emerged as a relevant factor. Notably, differentiation in team prestige was associated with positive team outcomes, including enhanced team potency and coordination. Teams that are more differentiated in prestige may encompass a wider range of perspectives, abilities, and approaches, which might lead them to perceive themselves as having a more diverse toolkit capable of handling various demands and challenges, thereby resulting in a stronger sense of collective ability and confidence in their team. Prestige differentiation also positively related to team coordination, which might be surprising as previous work suggests skill differentiation is detrimental to team coordination due to barriers to communication (Schaubroeck & Yu, 2017). However, differentiation in prestige may also contribute to distinguishing the unique roles of each team member, facilitating coordination within the team (Bunderson et al., 2016), which might outweigh the negative influence inherent differences in prestige might pose to coordination. Overall, differentiation in prestige appears to have a positive influence on team potency and coordination, perhaps due to the diverse skills, abilities, and perspectives within the team, which in turn leads to more distinct roles for each team member, and a broader set of skills to draw from.

Paradoxically, despite prestige differentiation being associated with increased potency, it was also found to have a positive association with relationship conflict, which is consistent with theories suggesting hierarchical and skill differentiation increases team conflict (Bunderson & Sutcliffe, 2002; Greer et al., 2018; Schaubroeck & Yu, 2017). This might suggest that when team members have fundamentally different perspectives and approaches, it leads to difficulties in understanding and agreeing with one another (Triana et al., 2021), resulting in increased conflict in interpersonal relationships.

These results demonstrate the importance of considering the spread of prestige in team members alongside of mean-levels. The distinct effects of prestige differentiation suggest

rich patterns of influence, providing information above and beyond solely considering mean-level prestige. This paradigm offers a framework to test theories poised about the relationship between hierarchy differentiation and team functioning. Given both the positive and negative influences that prestige differentiation has in results and theory, future research could seek to more closely examine these findings to gain a better understanding of how differentiation in prestige influences team functioning.

2.7.4   Dominance Differentiation

Teams with more differentiated levels of dominance reported more status conflict despite previous theories suggesting dissimilar levels of dominance would reduce status conflicts through clarifying hierarchical roles (Halevy et al., 2011; Ronay et al., 2012). A potential explanation for this might be that in teams where dominance is not the primary method of status negotiation, a broader range of team dominance might lead to more status conflicts as individuals higher in dominance might feel entitled to assume leadership roles over those who are lower. However, if social rank is predominantly determined by other factors, such as prestige, dominant individuals may feel unrecognized and dissatisfied with subordinate positions within the hierarchy. This could lead to resentment and conflicts over status, with those individuals who would prefer a dominance-based hierarchy exercising their dominance in an effort to change the basis of how the teams' hierarchical structure is negotiated. This pattern of behavior would align with research showing that those high in narcissism, a trait closely related to dominance, react poorly to subordinate roles and can undermine group functioning in such circumstances (Benson et al., 2016). It is also possible that the context of the group moderates the influences that dominance differentiation has on status conflict. Study 1 took place in an egalitarian context with no inter-group aggression and few time-sensitive tasks. It is possible that the benefits of dominance differentiations manifest in more competitive, or more time-sensitive environments, such as a military context wherein quick consensus and team agility is paramount. Research should further investigate the influences of dominance differentiation on status conflict to reveal the causes of this discrepancy between theory and findings.

Fluctuations over time in the degree of dominance differentiation were also negatively associated with team functioning. At timepoints where differentiation in dominance was elevated, teams reported lower potency and heightened relationship and status conflict. This suggests that at timepoints where teams were more dissimilar in dominance levels, they experienced reduced confidence in their ability to succeed, more interpersonal struggles, and increased disagreements about the social ranking of group members. One possible explanation for this finding might be that a teams' shift towards a more differentiated distribution of dominance is indicative of a move towards dominance-based negotiations. When hierarchies are determined based on the rank-order of team members dominance, the relative differences between team members becomes more salient to group members as the relative comparisons of team members' dominance serves as the primary method by which social rank is established. Therefore, when team members report more dissimilarity in dominance amongst their team, this might be an indication that the comparisons of relative dominance levels are being used to establish a dominance-based hierarchy. This is not to suggest that an increase in the spread of dominance is indicative of an increase in dominance, as these effects emerge when controlling for mean-level dominance, but only that teams are considering dominance more when determining social rank.

This study highlights the importance of maintaining stability in dominance levels within teams over time as alterations in team dominance differentiation appears to be detrimental to team functioning. It might be ideal for dominance levels to become more similar over time, as this could contribute to a more harmonious and effective team dynamic. Further research into this topic might inform practical interventions to prevent the differentiation of dominance within teams.

2.7.5   The Minimal Influence of BZSG

Surprisingly, the results indicate that a group's aggregated zero-sum beliefs had minimal influence on this study's key team processes or outcomes. As past individual-level research suggested (Różycka-Tran et al., 2015), there was a modest association between a groups' zero-sum perceptions and increased group conflict. However, the measure of zero-sum beliefs (BZSG) had the weakest relationship with conflict amongst all the

variables studied and were not significant when MSEM was used to account for the influence of other key variables. Furthermore, when analyzing the impact on beneficial team outcomes, BZSG showed no significant effect. These findings challenge the notion that zero-sum beliefs play a prominent role in team functionality. However, the specific context of the study may have influenced the results. The engineering course environment explicitly discouraged zero-sum game mentalities both through formal instruction and in-class team workshops, which instead encouraged them to adopt an egalitarian and cooperative mindset, possibly steering students away from zero-sum thinking. This instruction might have steered those high in BZSG away from behaviors that might have otherwise manifest. Additionally, the structure of the class provided little opportunity or motive to compete against other groups, which might be necessary for zero-sum beliefs to have an impact (Różycka-Tran et al., 2015). BZSG might only be activated in the presence of a perceived 'other' or out-group. If individuals are aligned with their team and view their teammates as allies in a common cause, their BZSG might only have an influence when confronted with external threats that might compete with the groups' interests. In a context lacking clear inter-group competition, the impact of BZSG on team functioning might not have been activated.

Despite the theoretical and research connections between individual-level dominance and BZSG (Andrews-Fearon & Davidai, 2023), I found no significant correlation between these constructs at the group level. This discrepancy might be the result of the context, the measures used, or the process of aggregating to the group level. Regardless of the cause, this suggests that perhaps a teams' competitive worldview does not necessarily translate into teams pursuing competition using dominance processes. Perhaps this implies that even in more inherently competitive, they do not view dominance as the optimal strategy for competition. Research has shown that dominance strategies have many drawbacks and are not always the most effective approach for navigating social hierarchies (Kakkar et al., 2020; Kakkar & Sivanathan, 2017). Thus, individuals who view the world as more competitive may not necessarily be predisposed to dominance. This might also reflect a fundamental difference between dominance and zero-sum beliefs, as those who are predisposed to dominance, are often willing to compete and aggress even in contexts that do not explicitly warrant competition (Anderson & Kilduff,

2009), but perhaps those who view the world as more competitive do not feel similarly compelled to use dominance as the primary mode of status attainment.

Although BZSG shows little promise as an antecedent of team functioning, Study 2 will seek to replicate these findings in a shorter, more controlled, and more competitive environment. If BZSG continues to show weak associations with team functioning measures even in dissimilar conditions, it would be robust evidence suggesting that BZSG is not a primary driver of beneficial team dynamics or team conflict. In addition to investigating BZSG as an antecedent, Study 2 will investigate zero-sum games as a contextual moderator by experimentally manipulating the degree of inter-group competition across conditions. This manipulation will allow for an examination of how contextual factors influence competitive behaviors, conflict, and team functioning.

2.8   Limitations and Future Directions

Study 1 had several limitations that should be considered when interpreting these findings. Firstly, this study was observational in nature, lacking experimental conditions, which limits the ability to establish causal relationships. Future research employing experimental designs could provide stronger evidence of the causal effects of dominance, prestige, and zero-sum beliefs on team dynamics.

The generalizability of the findings may also be limited due to the specific context of the engineering design course in which the study was conducted. The self-selecting nature of the engineering student population, which consisted mostly of young males with limited education and work experience, may not represent the broader population. Replicating the study in different contexts and with more diverse samples would enhance the generalizability of the findings. Additionally, the collaborative nature of the class and the limited interactions between groups may have influenced the observed dynamics. In more interactive and diverse work environments where individuals must collaborate across teams, different patterns, relationships, and behaviors may emerge. Examining team dynamics in such contexts would provide further understanding of the factors influencing team functioning. Lastly, participants in the study were students within an academic setting where their grades were at stake. The dynamics observed in this context may not

fully reflect the dynamics that occur in real-world organizational settings. Future research involving working professionals in various industries and organizations would enhance the applicability of these findings to different workgroup contexts.

In addition to limitations derived from the context and participants, the analytic methods employed might have exerted an influence on the findings. The data analysis methods employed in the study, such as SRM, CEM, and MSEM, were appropriate and produced robust results. However, alternative approaches and statistical techniques could provide further insights and contribute to the understanding of team dynamics. Employing different analytic methods might strengthen the robustness of the findings. Additionally, although the study collected data at multiple time points, a single semester may not capture the full complexity and evolution of team dynamics. Examining longer time periods or implementing more frequent assessments could provide a more detailed understanding of how team dynamics evolve over time. Specifically, given the seemingly early development of group-level dominant or prestigious cultures, a closer examination of the initial weeks of group formation could provide valuable insights. Furthermore, it is worth noting that the measures used in Study 1 represent only a subset of variables related to team functionality. Exploring additional variables and outcome measures could provide a broader understanding of team dynamics. Future research should consider including variables such as communication patterns, task interdependence, and individual characteristics that may influence team dynamics.

Looking to the future, although Study 1 has revealed intriguing and novel relationships, future work could investigate the mechanisms underlying the observed patterns and explore potential moderators or mediators that may influence the relationship between dominance, prestige, and team functioning. Future investigations could focus on contingencies of these relationships, situational attributes in which groups are placed, or investigate if these relationships are based on the idiosyncratic composition of the team. Furthermore, given the preliminary evidence that team-level dominance and prestige are related at the group level, it would be valuable to more closely examine how teams settle into either dominance- or prestige-focused processes and cultures over time.

Another potential avenue for future research would be to employ alternative measures of team inequality and differentiation. In this study, inequality within the team was measured using steepness via the standard deviation of dominance and prestige. Future work could examine team inequality through the lens of centralization using Freeman or Gini indexes to estimate the concentration of power (Bunderson et al., 2016).

2.9   Conclusion

These findings suggest that dominance has a predominantly negative influence on team functioning by increasing conflict through promoting conflict-enabling states whereas prestige had a predominantly positive influence on team functioning by increasing team perceptions of coordination and potency through the cultivation of coordination-enabling processes (Greer et al., 2017). However, there are salient nuances to these relationships that require attention. This work demonstrates that not only does the elevation of dominance and prestige (i.e., central tendency) affect team outcomes, but also differentiation in dominance and prestige (i.e., steepness). Furthermore, these results suggest that the influence dominance and prestige have on team functioning is influenced by mean-level differences between teams as well as teams' variations in dominance and prestige over time.

Chapter 3

3 Study 2: Laboratory Investigation of Dominance, Prestige, and Zero-Sum Contexts

Study 2 sought to replicate and expand the findings of Study 1 in a controlled laboratory setting. Utilizing experimental conditions enables better control over the variables, allowing for a more rigorous examination of the relationships between team-level dominance, prestige, and their impact on team functioning and performance. This approach addresses some of the limitations imposed by the ecologically valid context of Study 1 and enabled the manipulation of the zero-sum nature of the team task, heightened control over group composition, and the ability to minimize the influence of and external factors.

Study 2 also sought to re-evaluate the relationship between zero-sum beliefs on team functioning and performance. However, beyond zero-sum beliefs, Study 2 sought to investigate the relevance of zero-sum games as a contextual moderator for dominance, prestige, and group functioning. Specifically, it aimed to determine if the degree of competition in the environment influences the impact of dominance and prestige on team functioning, as previous theory has proposed that contexts of inequality might favor dominance (Ronay et al., 2020). In this way, both studies examined zero-sum matters, but they tested different processes to understand how the theory of zero-sum games might influence dominance, prestige, and team functioning, making them not directly analogous.

The hypotheses in Study 2 are organized similarly to those in Study 1, with two sets of hypotheses: (1) Hypotheses 1a-e, which pertain to relationships relating to dominance, and (2) Hypotheses 2a-e, which pertain to relationships relating to prestige. Study 2 will be conducted in a controlled setting with the aim of re-testing and extending the findings from Study 1. By testing the limits of generalizability, the study will provide further insights into the dynamics between dominance, prestige, and zero-sum perceptions within teams. The results will contribute to the advancement of theoretical knowledge in the

field of team dynamics and also have practical applications in team management and collaboration.

3.1   Hypotheses for Dominance and Team Functioning

Hypotheses 1a-e extend the research conducted in Study 1 by focusing on team outcomes related to dominance and the zero-sum nature of the situation. In addition to examining the effects of dominance and prestige on team dynamics, Study 2 investigates whether the zero-sum nature of the context moderates the impact of dominance or prestige on team outcomes. The hypotheses for Study 2 mirror the theoretical relationships and hypotheses presented in Study 1. This approach, rather than reconstructing the hypotheses based on the results from Study 1, maintains consistency with previous theories and between these two studies. In addition to the hypothesized the main effects of dominance on team functioning, I also hypothesize that dominance, with its more competition-based orientation, might be better suited to more competitive contexts due to the more aggressive and self-interested nature of dominance. In such zero-sum contexts, the competitive nature of dominance might be useful in securing in-group benefits (Ronay et al., 2020). It is possible that while the innate aggression exhibited by dominant individuals and groups may have negative effects within their groups, these traits could prove adaptive when directed towards intergroup competition, where the common enemy becomes the focus of the aggression and competition is necessary for group success. Based on this, the following hypotheses are proposed:

H1a. Team-level dominance will be negatively associated with team potency, but this association will be weaker in zero-sum contexts.

H1b. Team-level dominance will be negatively associated with team coordination, but this association will be weaker in zero-sum contexts.

H1c. Team-level dominance will be positively associated with relationship conflict, but this association will be weaker in zero-sum contexts.

H1d. Team-level dominance will be positively associated with status conflict, but this association will be weaker in zero-sum contexts.

H1e. Team-level dominance will be negatively associated with team performance, but this association will be weaker in zero-sum contexts.

As in Study 1, I test these associations using both mean-level dominance and prestige and differentiation (i.e., spread) in dominance and prestige within teams. This approach allowed for a broader understanding of how dominance and prestige operate and influence team functioning.

3.2   Hypotheses for Prestige and Team Functioning

Hypotheses 2a-e pertain to how prestige is related to team functioning. I hypothesize, as outlined in Study 1, that prestige will be positively related to beneficial team dynamics and negatively related to team conflict. Due to a lack of theoretical rationale, I make no hypotheses regarding the relationships that zero-sum contexts might have on these relationships. As such, I hypothesize that:

H2a.   Team-level prestige will be positively associated with team potency.

H2b.   Team-level prestige will be positively associated with team coordination.

H2c.   Team-level prestige will be negatively associated with relationship conflict,

H2d.   Team-level prestige will be negatively associated with status conflict.

H2e.   Team-level prestige will be positively associated with team performance.

Similar to the examination of dominance, in Study 2, I will not only assess the mean tendency of dominance and prestige within groups, but also explore how the differentiation of prestige within teams relates to team functioning.

I am also interested in examining how a zero-sum context influences team functioning more broadly. Specifically, I aim to understand if a zero-sum context directly impacts team performance, potency, coordination, and conflict, independent of the effects of

dominance and prestige. Addressing these exploratory questions and hypotheses aims to deepen our understanding of the interplay between dominance, prestige, zero-sum perceptions, and team functioning.

3.3   Method

A repeated measures laboratory experiment was conducted to manipulate the zero-sum context in which groups interacted. This experimental design allowed for the investigation of whether the relationships observed in Study 1 would extend to a controlled laboratory environment characterized by shorter interaction durations and reduced personal consequences. By including participants from a different population and a distinct group context, the study aimed to test the generalizability of the observed relationships in Study 1.

3.3.1   Participants

Participants for Study 2 were recruited from the psychology SONA pool at Western University. Unlike Study 1, which mainly involved engineering students who were predominantly male, the SONA pool consisted primarily of female psychology students. A total of 512 undergraduate psychology students participated in the study, attending a 90-minute laboratory session, and receiving course credit in return alongside the opportunity to obtain raffle tickets towards one of three $50 Amazon.ca gift cards, commensurate with their teams' performance. The participants were divided into cohorts of 4-5 individuals, with most assigned to a large party (consisting of 3-4 participants) and one assigned as a party of one. This resulted in a total of 90 cohorts, comprising 90 large parties and 90 parties of one.

The final sample had a mean age of 18.33 years ($SD = 1.61$) and was predominantly female (66.91%). In terms of ethnicity, the majority of participants identified as Asian (45.06%) or White (39.52%). Most participants reported being native English speakers (73.19%), with only 1.45% indicating English proficiency below a professional working level (see Table 18 for detailed demographic information). Of the large parties, 54 were mixed gender (60.00%), 33 were all-female (37.77%), and 3 were all-male (3.33%). On average, the large parties contained 41.11% males ($SD = 14.00$).

In comparison to the engineering sample in Study 1, the Study 2 sample displayed a reversal in gender distribution, with 66.91% of participants being female compared to the 26.57% in Study 1. Although both samples had a significant representation of Asian and White participants, Study 2 had a higher percentage of Asian students ($M_{S1} = 45.06\%$, $M_{S2} = 22.00\%$) and a lower proportion of White students ($M_{S1} = 39.52\%$, $M_{S2} = 48.99\%$). However, variations in ethnicities between the two studies may have been influenced by differences in the availability of ethnic categories. For instance, Study 2 did not include "East Indians" as a selectable category. For more information on participant demographics, see Table 18.

Table 18. Study 2 Individual Demographics

Variable	Small Team	Large Team	Total
Gender			
% Female	60.00%	68.62%	66.91%
% Male	36.67%	31.38%	32.61%
% Other	2.22%	0.00%	0.48%
% Missing	1.11%	0.00%	0.24%
Ethnicity			
% Asian	44.44%	45.23%	45.06%
% White	36.67%	40.31%	39.52%
% Middle Eastern	7.78%	6.46%	6.75%
% Black	6.67%	2.15%	3.13%
% Indigenous	0.00%	0.31%	0.24%
% Mixed Race	1.11%	2.15%	1.93%
% Ambiguous	0.00%	0.31%	0.24%
% Missing	3.33%	3.08%	3.13%
Language			
% English	73.33%	72.92%	73.19%
% ESL	26.67%	27.08%	27.05%
% Below Proficient	1.11%	1.54%	1.45%
Age			
M	18.33	18.34	18.33
SD	1.18	1.71	1.61
Minimum	17	17	17
Maximum	25	38	38

3.3.2   Procedures and Measures

Participants were recruited in sets of five to six from the psychology undergraduate research participant pool via SONA. They were instructed to arrive at the lab up to 10 minutes prior to the hour and a half session. To prevent interaction with other participants or knowledge of the number of participants, they were taken into individual rooms as they arrived and were given a printout of their Letter of Information (LOI) (see Figure 1). Also provided on this printout was their identification information necessary for this study (i.e., session number, person number, person color). This allowed participants the opportunity to withdraw after the study closed and allowed the researchers to track participants across the various surveys conducted throughout the session. Once participants consented to continue, they completed a battery of self-reported measures

related to demographics and personality. Several measures were not directly applicable to the current study's research questions but a complete list of the demographic and personality questions can be found on the Open Science Framework (https://osf.io/5p7bf/; Jensen, 2023).
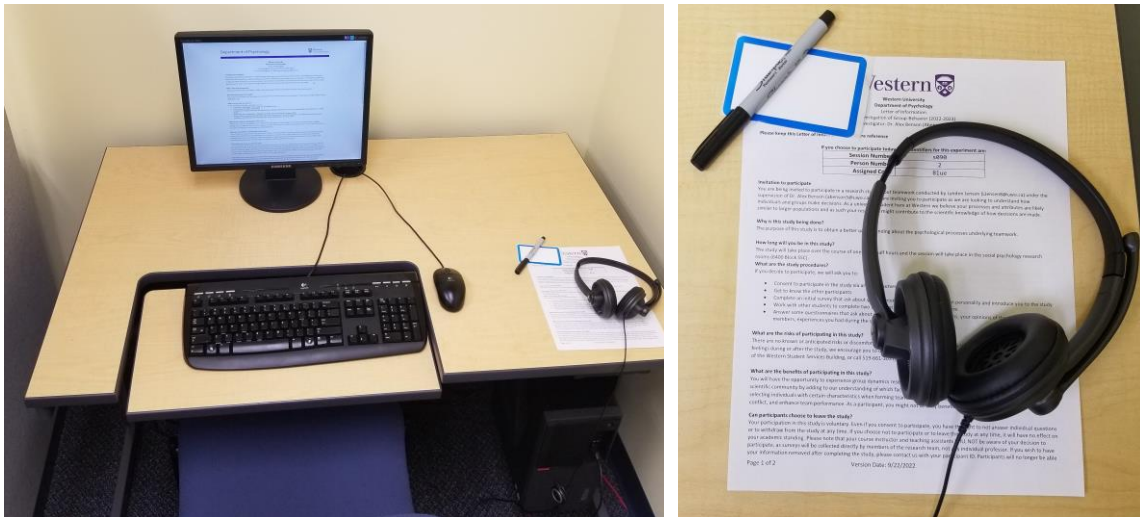
Figure 1. Individual Room Setup and Letter of Information

3.3.2.1 Dominance and Prestige Scales

Participants completed the self-reported dominance and prestige scales, which consisted of 17 Likert-scale items. Within the scale, participants rated their level of dominance (e.g., "I am willing to use aggressive tactics to get my way") and prestige (e.g., "Others seek my advice on a variety of matters") on a seven-point Likert scale, ranging from 1 (*not at all*) to 7 (*very much*). The psychometric properties of this instrument have previously shown good internal consistency ($\alpha_{Dominance} = .88$, $\alpha_{Prestige} = .85$) (Cheng, Tracy, & Henrich, 2010). Similarly, within this study the scales found acceptable reliability ($\alpha_{Dominance} = .77$, $\alpha_{Prestige} = .79$).

3.3.3 Belief in a Zero-Sum Game Scale

Similar to Study 1, participants completed the Belief in a Zero-Sum Game (BZSG) scale (Różycka-Tran et al., 2015). The scale has demonstrated satisfactory psychometric properties in the United States ($\alpha = .89$) and has been validated cross-culturally

(Różycka-Tran et al., 2015, 2021). The scale in the current sample exhibited acceptable reliability ($\alpha = .76$).

3.3.4   Experimental Task

After completing the initial survey, participants watched video instructions (available online, Jensen, 2022) that introduced and explained the basic rules and objectives of the forthcoming team interaction and informed them of the potential rewards. They were informed that they were part of a study conducted between laboratories across Canada and they would be playing two games with two other parties located at other universities. In reality, the large party, and the party of one played the games with each other. The purpose of this minor deception was to prevent issues related to learning effects, reciprocity, or retaliation across the two interactions.

3.3.4.1   A Note on the Party of One

Unbeknownst to the party of one, they were utilized in a manner equivalent to a confederate. Their role was that of an opposing decision-maker, interacting with the large party, comprised of 3-5 members. The primary focus of the study was on the large party members, with less emphasis placed on the opinions, perceptions, and processes of the single participant. The decision to utilize a randomly selected participant in the opposing role, rather than employing a confederate decision-maker, was based on several advantages. Firstly, unlike a confederate, the party of one was unaware of the study's purpose, which ensured greater impartiality and reduced the potential for systematic biases or researcher influence. Secondly, due to random assignment, the party of one's individual attributes varied across cohorts, which helped to mitigate systematic biases that could arise from using a limited number of confederates. Thirdly, the party of one was likely to be more similar to the large party, as both were drawn from the same population, enhancing the ecological validity of the study. Lastly, the party of one did not participate in multiple sessions and was not subject to practice or long-term learning effects. Their level of task experience always matched that of the large party, making them more similar with the large party than a confederate.

Several alternative solutions were considered but were deemed suboptimal. Eliminating the party of one and relying on predetermined decisions for each round would have resulted in unrealistic and less meaningful situations. Such a protocol would have lacked dynamicism, social repercussions, and consequences for actions, thereby diminishing the realism and importance of participant choices, and raising concerns about result generalizability. Using a computer program to make verisimilar interactions would have been challenging to develop and would have relied on assumptions about human nature made by programmers. Additionally, it would have led to a lack of variance in response actions, at best incorporating algorithmic chance differences, which does not capture the intricacies of human decision-making. Another potential solution would be to use of machine learning artificial intelligence to simulate group decision-making, but this would have required existing data on two-team interactions in the task, which was not available. Consequently, it was determined that recruiting an independent individual to make decisions would more closely resemble group decision-making compared to using a confederate, predetermined actions, or a computer program.

3.3.4.2 The Game

The game employed an intergroup competition paradigm based on game theory and prisoner's dilemmas (Von Neumann & Morgenstern, 1953). The game was an interactive two-party resource allocation task with two conditions: One game was less competitive and zero-sum, referred to as the low zero-sum game (LZSG) condition, whereas the other was more competitive and zero-sum, referred to as the high zero-sum game (HZSG). Each cohort completed both games in a randomized counterbalanced order. Within this framework, participants were tasked with reaching a consensus on the allocation of limited team resources, aiming to maximize collective gains. The allocation options encompassed gathering, raiding, or protecting resources, which mirrors real-world scenarios where groups make decisions based on potential risks and rewards within their specific contexts. In the modern corporate landscape, similar decision-making occurs as teams strategize how to maximize their personal and group-based gains. Groups are often tasked with considering how they will allocate limited resources, whether that be through generative actions (e.g., innovation, technology advancement, process optimization),

benefiting through competitive actions (e.g., market competition, talent acquisitions, buy-outs), or safeguarding their assets (e.g., intellectual property, agreements, employee retention). This framing of the games aimed to mimic common intergroup dynamics, allowing for a more relevant examination of the hypotheses surrounding the relationships between team-level dominance and prestige and their relationships with team functioning.

Success was measured by the number of resources obtained by the end of the game and the total number of resources attained across the entirety of the session. At the end of the session, participants had the opportunity to receive raffle tokens proportional to the number of resources their team garnered. These raffle tokens were later used to randomly select three individuals to win a $50 gift card. Therefore, the likelihood of a reward was tied to the success of the team in obtaining points across the two games.

The games used a thematic narrative of a hunter-gatherer collective living in close proximity to an unknown foreign group, similar to their own, with unknown intentions. This neighboring group presents both dangers and opportunities for the group. In the game, participants take on the role of a leadership council tasked with making decisions on how to allocate the groups' limited labour resources. The groups started with 250 resources and used 10 worker tokens to indicate the division of labor within the collective. In each of the five rounds, the council divided these 10 tokens into one of three actions: gathering, raiding, and protecting.

For each token allocated to "gather," the group obtained a predetermined number of resources from the surrounding environment, which varied by condition. Gathering was the only option that generated resources within the game. Each token allocated to "raid" had a probability of stealing a set number of resources from the other party thereby increasing in-group benefits at the detriment of the out-group. Lastly, tokens allocated to "protect" increased the likelihood of foiling opposing raids against the village.

The likelihood of a raids' success was unknown to either party as it depended on how many tokens the other party had allocated to protection. Tokens allocated to protect increased the likelihood of foiling opposing raids across conditions. Without any tokens

allocated to protection, the success rate of raids was 95%, but decreased with subsequent allocated protectors to a minimum success rate of 35% (i.e., 0 = 95%, 1 = 75%, 2 = 55%, 3 = 45%, 4 = 35%) (see Figure 4). To determine the success or failure of each raid, participants roll one 20-sided die for each token they allocated to raid.

In these games, groups could adopt a less competitive approach by focusing on collecting resources from the surrounding environment. This approach would maximize the overall gain between the two groups, as all labor was directed towards generative actions. Alternatively, teams could attempt to raid resources from the opposing team, which could be more efficient than gathering the resources themselves if the opposing team had weak defenses. This approach could maximize in-group benefit at the cost of the out-group. However, such behaviors could escalate into retaliation and conflict as the focus might shift from resource generation to raiding and defending.

3.3.4.3   Administrating the Game

After all participants completed their surveys and task instruction videos, all (except one randomly selected participant) were guided to a larger shared room where they were seated at a table facing one another (see Figure 2) and given five minutes to get to know each other under the pretense that they were waiting to be matched with another university team. Meanwhile, the remaining participant remained in their original room and received additional information about the purposes of the research study. They were informed that one aspect of the study aimed to examine differences in decision-making between individuals and groups and that they had been randomly selected to play the games as a party of one, supposedly playing with other groups. However, in reality, these two parties would be playing both games against each other.

Both parties received the game board for the first game (Figure 2), 10 tokens, 10 20-sided dice, a player scorepad, and a pen (see, Figure 3 and osf page for more details; https://osf.io/5p7bf/; Jensen, 2023). They were informed that they would start with 250 resources, and the gathering action would be worth either 15 resources per token if playing the LZSG or 10 resources per token if playing the HZSG. Successful raids would result in stealing 25 resources, and the team with the highest resources at the end of the

game would receive a bonus of either 250 resources if playing the LZSG or 500 resources if playing the HZSG.

The parties were given an additional three minutes to determine their strategy and indicate their token allocation for the initial round. Researchers then recorded their choices, and the participants rolled a number of 20-sided dice equal to the tokens they had allocated to the raid option. Each token represented an attempt to raid the opponent's stockpile, and the outcome of the die roll would determine the success or failure of that raid, after taking into account the number of defenders assigned by the opposing team.

Researchers used a program in a separate room to calculate the game-end outcomes and informed each of the parties of their starting resources, resources lost to raids, resources gained from raiding, resources gathered, and their round-end balance. Each of the parties recorded this information on their participant scorepad. Parties were never informed about the number of attempted raids made against them or how the other team's tokens were allocated.

This process repeated for each of the five rounds, with deliberation periods shortened between rounds to only one minute instead of the initial three minutes. At the conclusion of the final round, the parties were notified whether they had won the game-end bonus. However, the specific scores at the end of the game were not disclosed to the parties.

After finishing the first game, participants completed the Game 1 Survey, which rules and processes will be discussed in detail later on (see page 85). Once the participants finished the surveys, the parties were informed that they would be matched with a new team located at a different university. After a three-minute waiting period, under the premise of waiting to be matched to a new team, the second game started and was played in a similar manner as the first but using the opposite game board.

At the conclusion of the second game, participants were informed of their total resource acquisition across the two games and were asked to complete the Game 2 Survey, which is detailed below (see page 86).
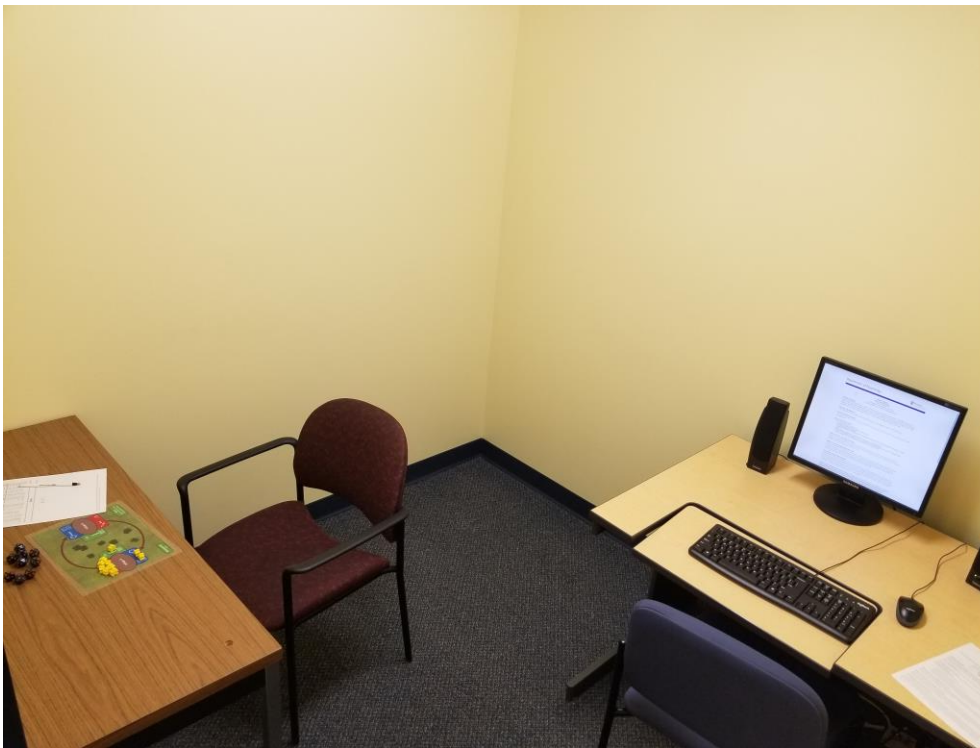
Figure 2. Large Party Room

Figure 3. Small Party Room
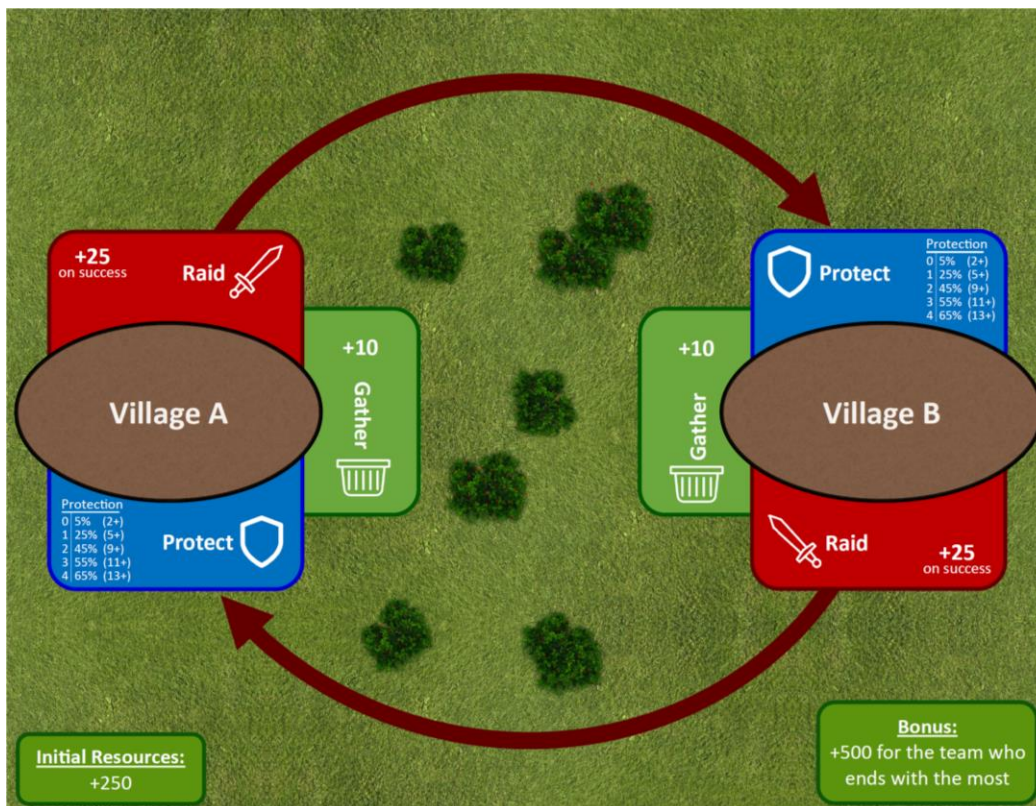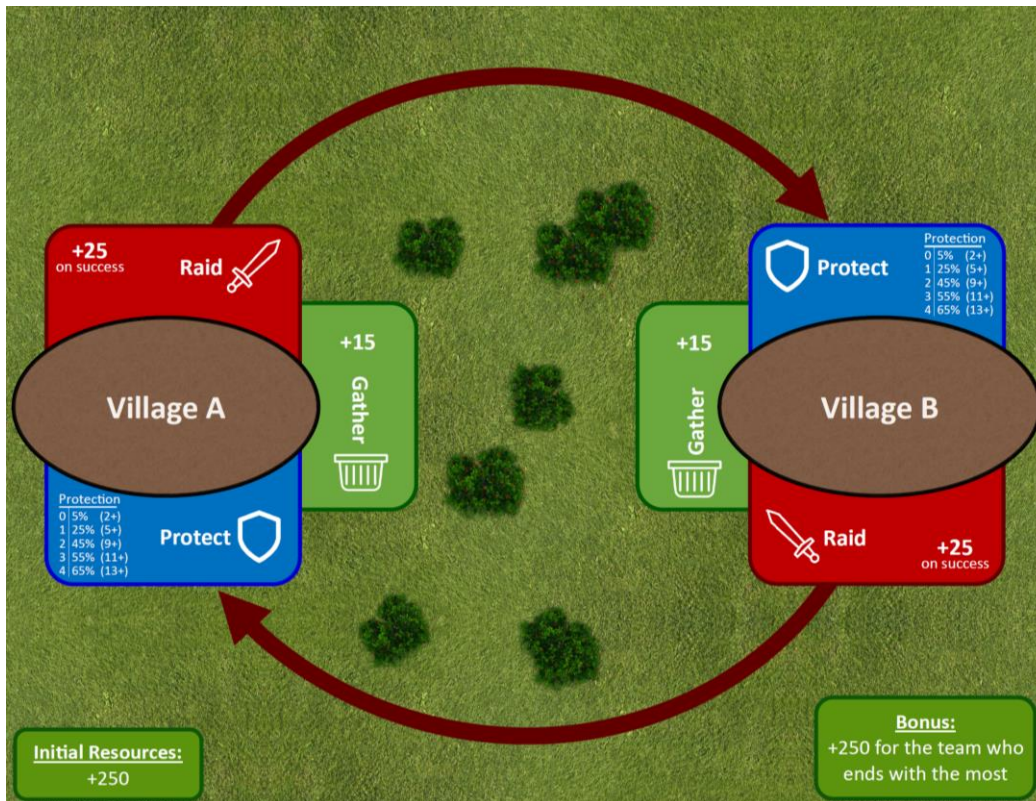
Figure 4. Game Boards. HZSG (top) and LZSG (bottom)

3.3.5   Game 1 Survey

After the completion of game 1, the large party engaged in round-robin ratings, providing assessments of their team members' dominance and prestige using the peer-rated version of Dominance and Prestige Scales (Cheng et al., 2010). These items were adapted to the context of the task by slightly modifying the time frame to pertain to the game (e.g., adapted *"He/she is willing to use aggressive tactics to get his/her way* <u>within the task</u>" to "[In this task,] He/she ~~is~~ [was] willing to use aggressive tactics to get his/her way <u>within the task</u>"). Additionally, round-robin data was collected on participants' perceptions of each team member's contributions, quality of ideas, leadership, intergroup aggression, likability, and importance to the group.

Core to my research aims, participants reported various measures of team functioning using the same scales as reported in Study 1. These measures included team coordination (Lewis, 2003), team potency (Guzzo et al., 1993), relationship conflict (Bendersky & Hays, 2012), and status conflict (Bendersky & Hays, 2012). Participants also provided feedback on their perceptions of the group as a whole, including assessments on how they perceived their team's performance in the task compared to other groups.

Measures related to team and individual assessments were not applicable to the party of one, as there was no social interaction, coordination, or relative rating involved. Instead of completing the previously mentioned scales, the party of one completed the 60-item HEXACO personality measure (Ashton & Lee, 2009) and the Positive and Negative Affect Schedule scale (Watson et al., 1988). These measures were primarily used to match the duration of the large party survey and were not analyzed within the scope of this study.

3.3.5.1   Manipulation Check

Additionally in the Game 1 Survey, participants provided feedback on the nature of the task itself, indicating their beliefs about whether the task was a zero-sum game and the degree they believed dominant or prestigious teams would be beneficial to the game.

3.3.5.2   A note on round-robin identification

One crucial consideration when having participants complete round-robin ratings in a
minimal acquaintance paradigm is that they may face challenges in remembering or
identifying the participants they interacted with when asked to rate them. To address this
potential issue, I provided multiple visual cues, such as name tags, colors, seating charts,
and colored paper to support participants in accurately recognizing and rating their fellow
group members. These measures enhance the reliability and validity of the round-robin
ratings. Table 5 shows an example of how participants rate one another, which indicates
individual by their color, name, and seat location. More details can be found on the OSF
(https://osf.io/5p7bf/; Jensen, 2023).

Figure 5. Qualtrics Round-Robin Example

3.3.6   Game 2 Survey

After completing the second game, the large party proceeded to complete the same
measures as in the Game 1 Survey. They provided ratings on team coordination, potency,
relationship conflict, status conflict, their perceptions of the group as a whole, and how
well they believed they had performed in the task compared to other groups. On the other

hand, the party of one was asked to assess their own performance in the task and complete another PANAS survey to gauge their emotional state.

Following this, parties provided demographic information, including age, gender, ethnicity, and language. Subsequently, participants advanced to the debriefing portion of the study, where they were provided with an explanation of the true nature and purpose of the study and were informed that there were only two local parties involved and that the purpose of the minor deception was to prevent any carry-over effects. They were then given the opportunity to submit raffle tokens commensurate to their final resource total for a chance to win one of three $50 Amazon.ca gift cards.

3.3.7   Assessing Performance

Hypotheses 1-4e aim to test the theory that dominance and prestige related to team performance. To assess team performance within this study, various metrics were used to capture distinct aspects of performance. Firstly, participants reported the percentage of teams they believed they outperformed in each game, measuring perceived performance on a 0-100% scale. Additionally, the number of resources acquired by each team served as an objective performance measure. These metrics were used to assess resource attainment in each game, pre- and post-bonuses, and combined to estimate overall session success. Moreover, differences in scores between the large party and the party of one were examined to determine if one team outperformed the other in either game or across the entirety of the session. These diverse performance measures encompass both subjective and objective aspects, with some measures being more competitive in conceptualization whereas others were independent of the other team's performance. The consideration of multiple performance metrics provides a broad perspective on the relationship dominance and prestige have with team performance.

3.3.8   Analytic Strategy

Although I had planned to perform Social Relations Modeling (SRM) on Study 2's data in a similar manner as Study 1, due to the nature of the data, I decided to analyze the raw mean-level results instead of target effects. In SRM a minimum of four round-robin raters is required (Kenny, 1998; Schönbrodt et al., 2022). However, due to difficulty in the

feasibility of recruiting large cohorts, Study 2 aimed to recruit four-person teams from five-person cohorts, allowing for either three or four individuals to be each team. Although I had hoped to be able to recruit primarily four-person teams, which would thus enable the use of SRM, a substantial number of groups in Study 2 ended up having fewer than four team members. As a result, I decided to analyze raw mean-level results instead of target effects in the analyses. This decision was based on the estimation that the increase in sample size would have a greater impact on the investigation than using a more precise target effects with a much smaller sample size.

3.3.8.1   Mixed-Model Approach

Due to the repeated-measures design, correlations between repeated measurements, hypothesized interactions, and task variations, a mixed model approach was adopted to test the hypotheses. For each hypothesized group functioning variable, a series of four mixed-model regressions were performed. These regressions used team-level constructs and held group identification as a random effect to account for individual team differences while modeling change across the two games. The order in which teams played the games was controlled using a dummy-coded variable called 'Game Order' to distinguish between teams experiencing the LZSG condition first (coded as '0') or the HZSG condition first (coded as '1'). An interaction term was included between dominance, prestige, and game condition to assess if the relation dominance or prestige had with the outcome varied between the conditions. If a significant interaction effect was detected, a simple slopes analysis was conducted to unpack the nature of the interaction.

In this model-building approach, four models were constructed to examine the predictors of the outcome variable. Model 1 utilized group dominance and prestige levels as predictors. Model 2 included both mean-level dominance and dominance differentiation (i.e., standard deviation) as predictors. Model 3 used mean-level and differentiation in prestige to predict the outcome variable. Lastly, Model 4 encompassed all previous predictors, including both the mean-level and standard deviation of dominance and prestige. This final model aimed to explore the combined effects of dominance and

prestige, as well as their distributions within teams, on the outcome measure. These series of models present a lens through which my hypotheses can be tested.

Across all team functioning variables, except team potency, there was evidence to suggest that dominance or prestige had differential associations with team functioning between the two conditions. This interaction implies that the influence of dominance and prestige on team functioning might be moderated by the zero-sum nature of the condition, as hypothesized. To avoid erroneous inferences that might arise from interpreting main effects when interactions are present, I report the simple slopes analysis whenever there was evidence suggesting the presence of an interaction. The simple slopes analyses split apart the main analysis across condition, creating two separate models, each focusing on a specific level of the game condition (i.e., LZSG versus HZSG models). This method allowed for a detailed examination of how dominance and prestige interacted with the game condition and how they affected team dynamics.

These simple slopes approach aimed to address the potential interactions and complexities in the data, providing a better understanding of the relationships between dominance, prestige, and team outcomes. However, in the case of the team conflict measures, the evidence of interaction was only marginally significant, and interpretations should be cautious.

3.4 Results

Before delving into the core research questions and hypotheses, it is important to gain an understanding of the participants' behaviors within the game, their perceptions of the games and their teammates, as well as examining the teams' outcomes and correlations of the key variables of interest. Exploring these preliminary aspects establishes a foundation for further analysis and interpretation of the data.

3.4.1   Resource Acquisition Between Conditions

The games were designed with similar possibilities for teams to win resources in both conditions. As expected, despite the differences in the zero-sum nature of the games, there were no significant differences in overall resource accumulation between the two

conditions after bonus allocation ($\Delta = 44.94$, $p = .265$), suggesting that teams were able to perform equally well across either condition in terms of accumulating resources. These results support the effectiveness of the game design in creating comparable conditions and provide confidence in the study's ability to examine the relationships between zero-sum beliefs, team behavior, and outcomes.

3.4.2   Team Engagement and Sociability

Participants in the large party rated the game as fun and engaging, with a mean score of 5.90 on a 7-point scale, and more so than the party of one ($\Delta = 0.80$, $p < .000$). Additionally, the large party perceived the game as minimally frustrating, with a mean score of 2.12, which was significantly lower than the party of one ($\Delta = 1.00$, $p < .000$). This might reflect inherent affective benefits of social work with similar tasks being more enjoyable and less frustrating with colleagues.

In terms of effort, the large party reported working moderately hard to do well in the games, with a mean score of 4.88, and significantly harder than the party of one ($\Delta = 0.50$, $p = .003$). In the second game, regardless of condition, the large party reported working harder ($\Delta = 0.28$, $p = .027$) and marginally significant findings suggest they found the second game more fun and engaging ($\Delta = 0.19$, $p = .095$), frustrating ($\Delta = 0.23$, $p = .080$), comfortable ($\Delta = 0.18$, $p = .063$), and had to work less to get their teammates talking ($\Delta = 0.18$, $p = .063$).

Participants exhibited high levels of engagement and made significant efforts to perform well in the task. This level of engagement is noteworthy considering the relatively minor rewards associated with team success or the investment game itself. The participants' investment in the task might resemble the investments team members might have in real-world scenarios, wherein the outcomes are important for team members. Furthermore, the deepening of engagement, frustration, sociability, and effort in the second game suggests that teams are making efforts to understand and operate well within the task and within their group, reinforcing the relevance of the study's findings to real-world team dynamics.

3.4.3 Manipulation Check: The Zero-Sum Nature of the Games

One of the core objectives of the study was to investigate how teams interacted under two different conditions: one condition being a highly zero-sum game and the other being a lesser zero-sum game. Therefore, it was crucial to verify if teams perceived the conditions as competitively different, which would be reflected in their adoption of more aggressive strategies to maximize in-group benefits. Confirming this, compared to the LZSG condition, participants in the HZSG condition allocated fewer tokens to gathering resources ($\Delta = -1.71$, $p < .000$) and more tokens to raiding ($\Delta = 1.30$, $p < .000$), whereas the allocation for protection remained unchanged ($\Delta = 0.04$, $p < .658$). Furthermore, if the HZSG condition was more of a zero-sum game than the LZSG condition, inter-team aggression should be more necessary and efficacious for group success. Indeed, in the LZSG, gathering resources was found to be an effective strategy for accumulating resources ($\Delta = 25.64$, $p = .002$), whereas raiding had a negative impact (-24.74, $p = .002$). On the contrary, within the HZSG condition, gathering was particularly ineffective in resource attainment (-64.09, $p = .037$), and raiding, rather than being a detrimental strategy, showed no significant influence on resource acquisition (27.27, $p = .276$). This finding supports the efficacy of the zero-sum manipulation as raiding was relatively more viable in the HZSG than the LZSG condition and gathering was less advantageous in the face of increased competition.

3.4.4 Group Size, Gender Composition, and Game Success

Although not central to my research, I discovered evidence suggesting that the group size and gender composition of the large parties may have influenced their success in obtaining resources. Moreover, the impact of this success differed between the LZSG and HZSG conditions. In the HZSG condition, having a team of four members had a marginally detrimental effect on resource attainment before the bonus allocation (-36.83, $p = .063$), which became fully significant after bonus allocation (-131.18, $p = .037$). However, no relationship was found between team size and performance in the LZSG condition.

Gender composition also played a role in team performance. In both conditions, mixed gendered teams obtained fewer resources (See Table 19). Interestingly, although the percentage of male team members in the group did not have a significant effect on performance in the LZSG condition (-56.78, p = .503), in the more competitive HZSG condition, teams with a higher percent of males had a negative influence on team performance both before bonuses (-95.03, p = .012) and after (-26.48, p = .042).

Table 19. Predicting Resource Attainment by Group Characteristics

| | LZSG | | | | HZSG | | | |
| | Pre-Bonus | | Post-Bonus | | Pre-Bonus | | Post-Bonus | |
Variable	b	p	b	p	b	p	b	p
Team Size	-6.88	.795	-39.64	.399	-36.84	.063	-131.18	.049
Mixed Gender Teams	-70.10	.011	-94.12	.056	-50.96	.014	-180.69	.010
Percent Male	-56.78	.264	-60.57	.503	-95.03	.012	-260.48	.042

3.4.5   Performance in the Large Party Versus the Party of One

A number of differences were observed between the small and large parties. Firstly, the large party demonstrated a significant advantage, obtaining more resources in 60.00% of the sessions (p = .007). However, further analysis revealed this advantage was only present in the HZSG condition (60.47%, p = .006), not the LZSG condition (55.68%, p = .133). This suggests that the benefits of a larger party might be more prominent in highly competitive environments, potentially due to an increased willingness to engage in aggressive actions as the group setting may provide social validation for such actions and distributed responsibility, thus promoting aggression towards other groups. Additionally, the large party was more likely to win in the first game (60.47%, p = .006), but not the second game (55.68%, p = .133). However, as the order of game conditions were counterbalanced, these differences are not of significant concern for the following analyses.

Table 20. Large Party Resource Attainment

	Pre-Bonus		Post-Bonus		
	LZSG	HZSG	LZSG	HZSG	Session
M	486.11	369.94	625.00	669.94	1,294.94
SD	122.98	218.32	218.32	312.41	401.79
Min	110	135	110	135	245
Max	800	590	1,050	1,090	2,060

3.4.6 The Nature of Dominance and Prestige

3.4.6.1 Individual-level Dominance and Prestige

Participants had relatively low levels of dominance, whether assessed through self-ratings ($M = 3.24$, $SD = 0.94$) or peer-ratings ($M = 2.58$, $SD = 0.65$), however, individuals tended to rate themselves higher in dominance than their peers did ($\Delta = .65$, $p < .001$). Conversely, participants had relatively elevated levels of prestige, whether assessed through self-ratings ($M = 5.09$, $SD = .77$) or peer-ratings ($M = 5.06$, $SD = 0.57$), with no significant difference in ratings between self- and peer-ratings ($\Delta = .03$, $p = .745$). The correlation between self- and peer-rated dominance was small but significant ($r = .14$, $p = .025$), as was the correlation between self- and peer-rated prestige ($r = .13$, $p = .029$). Although there was a modest association between self- and peer-perceptions, which finding is supported by recent investigations (Liu et al., 2021), this association was quite small, suggesting that self- and peer-ratings of dominance and prestige might be measuring different aspects of dominance. In alignment with Study 1 and previous work (Cheng et al., 2010, 2013; Maner, 2017), although self-rated dominance and self-rated prestige demonstrated a small, yet significant, correlation ($r = .11$, $p = .039$), peer-rated dominance and prestige showed no significant correlation ($r = 0.03$, $p = .582$). Finally, there were no significant changes in average dominance ratings over time ($\Delta = 0.12$, $p = .548$); however, marginally significant evidence suggested a modest increase in prestige ($\Delta = 0.16$, $p = .075$). These findings suggest that although dominance ratings remained relatively stable, there may have been a slight upward trend in prestige ratings across the duration of the session.

I examined whether individual-level BZSG correlated with self- or peer-ratings of dominance and prestige. Congruent with theory, BZSG positively correlated with self-

rated dominance ($r = .18$, $p = .001$) and negatively correlated with self-rated prestige ($r = -.13$, $p = .021$). However, replicating the findings of Study 1, individual BZSG showed no significant relationship with peer-rated dominance or prestige in either condition (see Table 19).

Table 21. Individual Dominance and Prestige Correlations

Variable	Self-Rated			Peer-Rated		
	1	2	3	4	5	6
Self-Rated						
1. Dominance						
2. Prestige	.11*					
3. BZSG	.18***	-.13*				
Peer-Rated						
4. T1 Dom	.07	.05	.01			
5. T1 Pres	.06	.12*	.03	.10†		
6. T2 Dom	.12*	.03	.00	.78***	.04	
7. T2 Pres	.12*	.12†	.01	.03	.83***	-.01

Note. T1-3 = Timepoint 1-3. †$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

3.4.6.2 Group-level Dominance and Prestige

Consistent with the findings from Study 1, peer-rated dominance and prestige at the group level were significantly negatively correlated ($r = -.22$, $p = .037$), suggesting the emergence of distinct cultures of either dominance or prestige within teams over time. When examining the correlations at each timepoint, the negative relationship between dominance and prestige persisted, but was only marginally significant (see Table 22). These results indicate that teams tended to gravitate towards either a dominance or prestige culture even within the relatively short duration of this laboratory study.

Table 22. Group Dominance and Prestige Correlations

	Self-Rated			Peer-Rated		
Variable	1	2	3	4	5	6
Self-Rated						
1. Dominance						
2. Prestige	.15					
3. BZSG	.24*	-.30**				
Peer-Rated						
4. T1 Dom	.30**	-.08	.05			
5. T1 Pres	-.03	.41***	.12*	-.21†		
6. T2 Dom	.35**	-.06	.03	.79***	-.17	
7. T2 Pres	.03	.38***	.12†	-.24*	.87***	-.20†

Note. T1 = Timepoint 1. T2 = Timepoint 2. †$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

3.4.7 Dominance and Prestige Key Correlations

Across the two game conditions, all key group variables were consistent, with high correlations and no significant differences (see Table 23). Neither group-level dominance nor prestige differed between the two conditions. Table 24 presents the correlations between variables of interest within the LZSG condition, whereas Table 25 shows the correlations within the HZSG condition. Although the correlations generally support my hypotheses, there were some differences in these relationships between the LZSG and HZSG conditions. Subsequent mixed models were constructed to gain a more holistic understanding of these relationships, testing these associations while controlling for the interplay between variables.

Table 23. Descriptive Statistics of Key Variables Over Condition

	LZSG		HZSG			
Variable	M	(SD)	M	(SD)	t	r
Dominance	2.55	(0.44)	2.61	(0.44)	-0.88	.78***
Prestige	5.04	(0.46)	5.07	(0.48)	-0.40	.83***
SD Dominance	0.74	(0.30)	0.71	(0.29)	1.62	.39***
SD Prestige	0.71	(0.31)	0.69	(0.33)	0.58	.72***
Team Potency	5.72	(0.60)	5.69	(0.65)	0.26	.73***
Team Coordination	4.27	(0.36)	4.24	(0.42)	0.58	.54***
Status Conflict	1.38	(0.36)	1.36	(0.31)	0.47	.66***
Relationship Conflict	1.24	(0.25)	1.25	(0.30)	-0.32	.59***
Perceived Performance	51.32	(14.16)	52.34	(16.09)	-0.45	.54***
Pre-Bonus Performance	486.11	(122.98)	369.94	(92.76)	7.15***	.15
Post-Bonus Performance	625.00	(218.32)	669.94	(312.41)	-1.12	.12
Winner	55.68%		60.47%		-0.64	0.14

Table 24. LZSG Key Correlations

Variable	M (SD)	1	2	3	4	5	6	7	8	9	10	11
1. BZSG	2.81(0.32)											
2. Dominance	2.55(0.44)	.12***										
3. Prestige	5.04(0.46)	-.15**	-.20**									
4. SD Dominance	0.74(0.30)	-.14**	.18	.12								
5. SD Prestige	0.71(0.31)	-.09	.13	-.21**	.13							
6. Team Potency	5.72(0.60)	-.05	-.17**	.46***	.03	.00						
7. Team Coordination	4.27(0.36)	-.12	-.31***	.29**	.22*	-.09	.52***					
8. Status Conflict	1.38(0.36)	-.11	.49***	-.11	.09	.01	-.20**	-.38**				
9. Relationship Conflict	1.24(0.25)	-.12	.33***	-.12	.04	.00	-.32***	-.48***	.77***			
10. Pre-Bonus Performance	486.11(122.98)	.08	-.02	.17***	-.14**	.05	.49***	.25**	.03	-.10		
11. Perceived Performance	51.32(14.16)	.05	-.10	.23**	.00	.03	.36***	.23**	.00	-.08	.47***	
12. Winner	55.68%	.18	-.04	.04	-.06	.02	.36***	.34***	-.17**	-.22***	.53***	.58***

'†$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

Table 25. HZSG Key Correlations

Variable	M (SD)	1	2	3	4	5	6	7	8	9	10	11
1. BZSG	2.81(0.32)											
2. Dominance	2.61(0.44)	.14***										
3. Prestige	5.07(0.48)	-.02	-.18**									
4. SD Dominance	0.71(0.29)	.01	.11	-.04								
5. SD Prestige	0.69(0.33)	-.02	-.01	-.25	.09							
6. Team Potency	5.69(0.65)	.09	-.09	.46***	-.06	.00						
7. Team Coordination	4.24(0.42)	.03	-.41***	.31**	-.20*	-.20*	.55***					
8. Status Conflict	1.36(0.31)	.07	.55***	-.30**	.36	.15	-.19**	-.49***				
9. Relationship Conflict	1.25(0.30)	.08	.45***	-.31**	.29**	.20	-.18**	-.55***	.62***			
10. Pre-Bonus Performance	369.94(92.76)	.03	.12	.13	.00	.04	.52***	.34***	-.04	.00		
11. Perceived Performance	52.34(16.09)	.10	-.13	.28**	-.07	-.03	.61***	.47***	-.26**	-.28**	.59***	
12. Winner	60.47%	.18	.02	.28**	-.07	-.03	.58***	.44***	-.21**	-.28**	.69***	.70***

†$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

3.4.8 Group-Level Zero-Sum Beliefs and Team Functioning

Study 2 found that a groups' zero-sum beliefs had no significant influence on team functioning variables or outcomes (see Table 26), replicating the findings of Study 1. In total, these findings provide robust evidence that zero-sum beliefs do not strongly influence team functioning.

Table 26. BZSG Predicting Key Group Variables

Variable	Perceived Performance	Team Coord.	Team Potency	Status Conflict	Relationship Conflict	Win Rate	Game Points	Session Points
BZSG								252.18†
Time 1	3.34%	-0.09	0.06	0.13	0.10	16.96%	53.51	
Time 2	2.04%	-0.01	0.02	0.06	0.07	37.39%*	-5.53	
LZSG	3.65%	-0.14	-0.10	0.13	0.10	28.05%†	18.78	
HZSG	1.73%	0.04	0.19	0.07	0.08	26.30%	29.20	

Note. Numbers represent regression coefficients. Perceived performance is measured by group aggregated perceived percentile. †$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

3.4.9 Mixed-Model Hypothesis Testing

3.4.9.1 Hypotheses 1a-b: Dominance and Beneficial team dynamics

Hypotheses 1a-b proposed that team-level dominance would be negatively correlated with team potency and coordination. However, these hypotheses also theorized that this negative relationship would be mitigated in more competitive contexts, as these traits might be better suited for such situations.

Contrary to Hypothesis 1a, dominance did not show a significant relationship with team potency, suggesting that dominance may not strongly be detrimental to team potency in this context (see Table 27). In contrast, consistent with Hypothesis 1b, mean group-level dominance consistently showed a strong negative correlation with team coordination, congruent with the theory that the presence of dominance within groups lowers team coordination (see Table 28). Furthermore, marginally significant results indicated that differentiation in dominance within a team negatively related to team coordination, suggesting the spread of dominance might also have detrimental influences. Due to a significant interaction between differentiation in dominance and the experimental

condition in the coordination model, a simple slopes analysis was conducted. These simple slope models showed that although dominance had a consistent negative association with coordination across both conditions, dominance differentiation only had a negative relationship with coordination in the less competitive LZSG condition.

Taken together, these results provided mixed support for the theory that dominance was detrimental to beneficial team dynamics. Hypothesis 1b received strong support, as the mean-level of dominance negatively related to team coordination and the differentiation of dominance negatively related to coordination in the LZSG condition. However, Hypothesis 1a was not supported, as dominance had no statistically significant relationship with team potency. These findings suggest that the impact of dominance on different aspects of team functioning may vary depending on the competitive nature of the context.

3.4.9.2   Hypotheses 1c-d: Dominance and Team Conflict

Hypotheses 1c-d proposed that team-level dominance would be positively correlated with relationship and status conflict. However, these hypotheses also proposed that this relationship would be less pronounced in more competitive contexts, as these traits would be better suited for such situations.

As hypothesized, dominance had an overall positive association with both relationship and status conflict across all models, suggesting teams with more dominance tend to experience more conflict (see Table 29 and Table 30). Additionally, the differentiation of dominance within teams was also positively associated with both relationship and status conflict, indicating that teams with a wider range of dominance levels tended to experience more conflict in their relationships.

Both conflict models showed marginally significant evidence that the relationship that differentiation in dominance had with the conflict measures differed between experimental conditions. Simple slopes analyses showed, as hypothesized, that team-level dominance was positively associated with both relationship and status conflict. Furthermore, as the marginally significant interactions foreshadowed, the spread of

dominance had differential effects on conflict in that teams with members more differentiated in dominance also reported more relationship and status conflict, but only in the more competitive HZSG condition.

Overall, these findings generally support Hypotheses 1c-d, indicating that dominance has an overall positive association with conflict, as both group-level dominance and the differentiation of dominance within teams positively correlated with conflict. However, contrary to the hypothesis that dominance would be associated with less conflict in more competitive environments, not only was mean-level dominance still detrimental in the HZSG condition, but differentiation in dominance amongst team members also demonstrated a negative relationship with conflict, which was not present in the LZSG condition.

3.4.9.3 Hypotheses 1e: Dominance and Team Performance

Hypothesis 1e predicted a negative association between team-level dominance and performance, with the expectation that this association would be weaker in zero-sum contexts. Contrary to hypotheses, dominance showed no association with any measure of performance including perceived performance, pre- or post-bonus resource attainment, the likelihood of outperforming the party of one in either game, or across the session.

3.4.9.4 Hypotheses 2a-b: Prestige and Beneficial team dynamics

Hypotheses 2a-b proposed that team-level prestige would have a positive relationship with team potency and coordination. In support of this, across all the main models, prestige significantly predicted both team potency (see Table 27) and team coordination (see Table 28). Furthermore, marginally significant evidence also suggested that the differentiation of prestige within teams positively correlated with team coordination.

However, as previously mentioned, there were significant interactions between the differentiation of dominance and the zero-sum nature of the game, which led to the creation of a simple slopes analysis. The results from the simple slope analysis found that the positive association between prestige and coordination differed between the two experimental conditions. Although prestige showed a marginally significant positive

relationship with team coordination in the more competitive HZSG condition, in the less competitive LZSG condition, prestige no longer had a significant relationship with coordination.

Overall, Hypotheses 2a-b, which proposed that prestige has a positive association with beneficial team dynamics, was supported as the results showed that mean-level prestige had positive relationships with both team potency and coordination. However, the simple slopes results showed evidence of contingencies in the relationship between prestige and team coordination.

3.4.9.5   Hypotheses 2c-d: Prestige and Team Conflict

Hypotheses 2c-d proposed that team-level prestige would have a negative association with relationship and status conflict. The results provided support for these hypotheses, as prestige was negatively associated with both relationship and status conflict across all the main models (see Table 29 and Table 30). However, there was marginally significant evidence suggesting that the differentiation of prestige within teams interacted with the experimental condition in predicting team coordination, and that mean-level prestige interacted with the experimental condition in predicting status conflict. Due to these interactions, simple slopes analyses were conducted to investigate if the relationship prestige had with conflict differed between conditions. In the highly competitive HZSG, higher levels of prestige were associated with lower levels of relationship and status conflict, suggesting prestige might have a potential role in mitigating conflicts within teams. However, in the LZSG, no significant effect of prestige on relationship or status conflict was observed, implying that in contexts with a lesser focus on competition, prestige may have less impact on conflicts.

Overall, Hypotheses 2c-d that posed prestige would be negatively associated with team conflict was moderately supported as the results show that mean-level prestige had negative associations with both relationship and status conflict. However, the simple slopes results showed evidence that the theorized beneficial influence that prestige has on team conflict might be more significant in more competitive environments.

3.4.9.6 Hypotheses 2e: Prestige and Team Performance

Hypothesis 2e predicted a positive association between team-level prestige and performance, which was generally supported by the findings of Study 2. Although prestige failed to show a relationship with perceived performance (see Table 31), teams with higher levels of prestige obtained more resources prior to the end-of round bonuses (see Table 32) and after bonuses (see Table 33). The lack of a relationship between prestige and perceived performance indicates that prestige ratings were not generally based on the perceived performance of the group, and therefore the associations between prestige and objective performance are unlikely to have been influenced by teams being informed at the end of the round whether they did or did not obtain more resources than the other team. Additionally, although more prestigious teams tended to outperform the party of one in the HZSG condition and the session as a whole, prestige had no relationship with outperforming the other team in the less competitive LZSG condition (see Table 34).

Overall, Hypothesis 4e was supported in that these findings suggest that objective, but not subjective, performance related to team-level prestige as teams with higher prestige tend to achieve better objective performance, as indicated by their ability to accumulate more resources. However, the relationship between prestige and performance may vary depending on the specific game conditions.

Table 27. Mixed Model with Dominance and Prestige Predicting Team Potency

Variable	Model 1	Model 2	Model 3	Model 4
Dominance	-0.02	-0.07		-0.03
Prestige	0.61***		0.20**	0.63***
SD Dominance		-0.02		-0.01
SD Prestige			0.20	0.21
Game Order	-0.04	-0.01	-0.05	-0.05
Game Condition	-0.16	0.14	-0.52	-0.31
Dominance * Condition	-0.05	-0.10		-0.06
Prestige * Condition	0.06		0.09	0.08
SD Dominance * Condition		0.16		0.01
SD Prestige * Condition			0.11	0.12

Note. Group identifier was included as a random effect. Numbers represent unstandardized coefficients. Game order was dummy coded with 0 indicating LZSG game was played first. For game condition, 0 indicated LZSG and 1 indicated HZSG. †$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

Table 28. Mixed Model with Dominance and Prestige Predicting Team Coordination

Variable	Main Models				Split by Condition	
	Model 1	Model 2	Model 3	Model 4	LZSG	HZSG
Dominance	-0.34***	-0.37***		-0.35***	-0.25**	-0.36***
Prestige	0.25**		0.26**	0.21**	0.13	0.17†
SD Dominance		-0.22†		-0.19†	0.29*	-0.21
SD Prestige			-0.19	-0.21†	-0.06	-0.18
Game Order	0.20	0.01	0.05	0.00	0.06	-0.05
Game Condition	0.45	-0.62*	-0.16	-0.87		
Dominance * Condition	0.15†	0.10		0.12		
Prestige * Condition	0.02		0.01	0.03		
SD Dominance * Condition		0.50***		0.45**		
SD Prestige * Condition			0.19	0.19		

Note. Group identifier was included as a random effect. Numbers represent unstandardized coefficients. Game order was dummy coded with 0 indicating LZSG game was played first. For game condition, 0 indicated LZSG and 1 indicated HZSG. †$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

Table 29. Mixed Model with Dominance and Prestige Predicting Relationship Conflict

Variable	Main Models				Split by Condition	
	Model 1	Model 2	Model 3	Model 4	LZSG	HZSG
Dominance	0.24***	0.25***		0.24***	0.18**	0.27***
Prestige	-0.15**		-0.17**	-0.13*	-0.03	-0.12*
SD Dominance		0.19*		0.17*	0.00	0.23*
SD Prestige			0.08	0.08	-0.05	0.13
Game Order	0.00	0.00	-0.02	0.00	-0.02	0.02
Game Condition	-0.23	0.28	-0.21	0.10		
Dominance * Condition	-0.06	-0.06		-0.04		
Prestige * Condition	0.07		0.06	0.05		
SD Dominance * Condition		-0.19†		-0.16		
SD Prestige * Condition			-0.15†	-0.16†		

Note. Group identifier was included as a random effect. Numbers represent unstandardized coefficients. Game order was dummy coded with 0 indicating LZSG game was played first. For game condition, 0 indicated LZSG and 1 indicated HZSG. †$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

Table 30. Mixed Model with Dominance and Prestige Predicting Status Conflict

Variable	Main Models				Split by Condition	
	Model 1	Model 2	Model 3	Model 4	LZSG	HZSG
Dominance	0.33***	0.34***		0.31***	0.39***	0.34***
Prestige	-0.16**		-0.19**	-0.15*	0.00	-0.11*
SD Dominance		0.24**		0.23*	0.01	0.31**
SD Prestige			0.07	0.06	0.05	0.08
Game Order	-0.02	-0.02	-0.05	-0.02	-0.04	0.00
Game Condition	-0.59	0.12	-0.27	-0.42		
Dominance * Condition	0.03	0.02		0.04		
Prestige * Condition	0.11†		0.10	0.10		
SD Dominance * Condition		-0.19†		-0.18		
SD Prestige * Condition			0.00	-0.03		

Note. Group identifier was included as a random effect. Numbers represent unstandardized coefficients. Game order was dummy coded with 0 indicating LZSG game was played first. For game condition, 0 indicated LZSG and 1 indicated HZSG. †$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

Table 31. Mixed Model with Dominance and Prestige Predicting
Perceived Performance

Variable	Model 1	Model 2	Model 3	Model 4
Dominance	3.02	2.87		3.33
Prestige	5.02		4.78	5.36
SD Dominance		-2.28		-2.21
SD Prestige			1.65	2.52
Game Order	-3.50	-2.85	-3.96	-3.32
Game Condition	0.36	9.33	-17.26	-6.00
Dominance * Condition	-3.07	-3.33		-0.83
Prestige * Condition	1.34		2.66	2.56
SD Dominance * Condition		-1.97		-4.24
SD Prestige * Condition			4.09	4.26

Note. Group identifier was included as a random effect. Numbers represent
unstandardized coefficients. Game order was dummy coded with 0 indicating LZSG
game was played first. For game condition, 0 indicated LZSG and 1 indicated HZSG.
$\dagger p < .1$, $*p < .05$, $**p < .01$, $***p > .001$.

Table 32. Mixed Model with Dominance and Prestige Predicting
Pre-Bonus Resources Attainment

Variable	Model 1	Model 2	Model 3	Model 4
Dominance	-17.60	-25.02		-16.49
Prestige	51.13*		55.13*	52.13*
SD Dominance		-15.77		-14.83
SD Prestige			7.67	8.13
Game Order		0.64	-1.41	-2.39
Game Condition	-2.17	105.11	26.89	8.40
Dominance * Condition	49.70	-2.24		2.08
Prestige * Condition	3.49		14.60	16.50
SD Dominance * Condition	11.50	21.06		1.58
SD Prestige * Condition			23.88	27.20

Note. Group identifier was included as a random effect. Numbers represent
unstandardized coefficients. Game order was dummy coded with 0 indicating
LZSG game was played first. For game condition, 0 indicated LZSG and 1
indicated HZSG. $\dagger p < .1$, $*p < .05$, $**p < .01$, $***p > .001$.

Table 33. Mixed Model with Dominance and Prestige Predicting
Post-Bonus Resources Attainment

Variable	Model 1	Model 2	Model 3	Model 4
Dominance	5.95	-25.08		12.82
Prestige	190.29**		196.42**	197.88**
SD Dominance		-78.99		-75.72
SD Prestige			43.31	50.33
Game Order		-42.78	-41.36	-39.25
Game Condition	-39.20	-69.62	446.62	519.98
Dominance * Condition	565.52	-12.91		-33.84
Prestige * Condition	-27.26		-98.67	-102.02
SD Dominance * Condition	-106.15	79.12		46.35
SD Prestige * Condition			14.47	13.74

Note. Group identifier was included as a random effect. Numbers represent
unstandardized coefficients. Game order was dummy coded with 0 indicating
LZSG game was played first. For game condition, 0 indicated LZSG and 1
indicated HZSG. †$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

Table 34. Mixed Model with Dominance and Prestige Predicting Winner

Predictor	LZSG		HZSG		Session	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Dominance	-0.04	-0.04	0.02	0.04	-0.06	-0.04
Prestige	0.06	0.08	0.28*	0.30*	0.13*	0.13*
SD Dominance		-0.08		-0.09		-0.15
SD Prestige		0.12		0.10		0.02
Game Order	-0.19†	-0.19†	-0.08	-0.08	-0.18†	-0.12

Note. Group identifier was included as a random effect. Numbers represent unstandardized
coefficients. Game order was dummy coded with 0 indicating LZSG game was played
first. For game condition, 0 indicated LZSG and 1 indicated HZSG. †$p < .1$, *$p < .05$, **p
$< .01$, ***$p > .001$.

3.5   Discussion

The present study delved into the dynamics of dominance and prestige within a

controlled laboratory setting, aiming to discern their relationships with team functioning

and performance variables. The findings illuminate the multifaceted relationships

between dominance, prestige, conflict, and various team outcomes, offering insights into

the interplay of power and status within a team context. These results hold significance

not only for further research but also for potential applications in corporate settings, where understanding group dynamics is of paramount importance.

3.5.1   Dominance and Team Functioning

Turning to the hypothesis testing, both mean-levels and differentiation in dominance in groups showed strong relationships with key team functioning variables. The results of the hypothesis testing align with the theory that dominance leads to more team conflict as mean-level dominance consistently positively correlated with relationship and status conflict within teams. These findings support the idea that team-level dominance, reflecting aggression and dominance negotiations within teams, can cause team conflict and may represent a pathway in which hierarchies manifest dysfunction through the development of conflict-enabling states (Greer et al., 2017, 2018). This explanation for the observed results is supported by individual-level findings suggesting that dominant leaders cause more conflict (Ronay et al., 2023) and can encourage followers to adopt more detrimental mindsets (Kakkar & Sivanathan, 2021).

When examining the hypothesized negative relationship dominance had with beneficial aspects of team functioning, however, the results were less consistent. Although dominance was strongly negatively correlated with team coordination, it had no significant relationship with team potency, suggesting that team-level dominance did not significantly relate to the team's belief in their own capabilities to perform well. Therefore, although it seems apparent that dominance can hinder certain beneficial aspects of team functioning, it is not clear that dominance is broadly detrimental to beneficial team dynamics. Furthermore, when it came to performance, dominance had no statistically significant relationship to subjective performance, objective resource acquisition, or the likelihood of outperforming the other team. This is particularly interesting as the more competitive HZSG condition was specifically designed to be conducive to processes of dominance. Although this does imply that team dominance does not help team performance, even in competitive contexts, team dominance also did not impair team performance, as the conflict perspective of hierarchy might suggest (Greer et al., 2017). Accordingly, given the inconsistent relationships dominance had

with beneficial team processes and performance, it might be more appropriate to investigate such issues on a case-by-case basis.

The findings regarding the relationship dominance differentiation had within teams, or the steepness in the dominance hierarchy, contribute to the understanding of conflicting theories about the functionality or dysfunctionality of power dispersions within teams. According to the conflict account of hierarchies, power differentiations negatively impact team processes and outcomes through increased conflict (Boehm, 2000; Greer et al., 2017; Greer & van Kleef, 2010; Ronay et al., 2012). Conversely, the functionalist account of hierarchies suggests that power differentiations drive positive outcomes by maintaining an established chain of command and order (Anderson & Willer, 2014; Greer et al., 2017). Surprisingly, the present study's findings support both functionalist and conflict accounts of hierarchy as dominance differentiation had a positive relationship with team conflict measures in the competitive condition, while also being positively associated with team coordination in the low-competition condition. Thus, the spread of dominance had both functional and dysfunctional associations with team processes, differing by the competitive nature of the context. These results raise several questions: What does differentiation in team dominance imply? What is the potential explanation for these divergent relationships? Why does the functionality of differentiation differ by the zero-sum conditions that the team is embedded within?

Dominance differentiation, or how different team members are in dominance levels, likely reflects disparities in team members' thoughts, skills, perspectives, and contributions, particularly in aggression-prone contexts, which differences amongst team members might promote hierarchical processes (Anderson & Brown, 2010). Moreover, the emergence of dominance differentiation could also indicate team members are actively comparing and differentiating between team members on their relative dominance, hinting at a team operating within a hierarchy of dominance. Therefore, I propose that vertical differentiation in dominance is likely to reflect the usage of dominance as a determinant of hierarchies and fundamental differences amongst team members in attributes related to aggression and competitiveness. Therefore, in alignment with the functionalist account of hierarchy, I assert that differentiation in dominance has a

positive impact on team coordination stemming from the establishment of clearer hierarchies, which contribute to stability, order, well-defined protocols, and improved role differentiations arising from inherent variations among team members. Conversely, I also propose, in line with the conflict account of hierarchy, that dominance differentiation can negatively affect coordination through the pathways of increased conflict. The inherent differences in thoughts, skills, and perspectives, coupled with individuals vying for status through dominant behaviors, could lead to conflict, anger, frustration, and contention, thereby potentially impairing coordination and other functional team processes (Greer et al., 2017; Triana et al., 2021). These pathways might represent the dual influence of dominance differentiation on team functioning.

I propose that these pathways might become more or less salient and used depending on the perceived utility of dominance differentiation within the specific group context. As an example, in contexts with relatively low intergroup competition, where aggression is possible but not essential for success, the inclusion of a minority of team members with conflict-oriented perspectives might prompt teams to consider the potential gains of inter-group aggression, as well as consider the potential risks associated with aggressive actions from other teams. In such circumstances, when team differences result in novel insights applicable to the team's tasks, differences might be viewed as advantageous, with members viewing each other as having diverse, yet useful, opinions and predilections leading to role differentiation and increased feelings of coordination. However, in contexts of heightened intergroup competition where aggression toward the outgroup is necessary for success, differences in dominance might not offer the same unique perspectives as aggressive considerations are forefront in the context. Subsequently, when differences in dominance are no longer seen as useful, differences might be increasingly viewed as a hindrance to consensus, particularly in a highly competitive context where the group is in danger or resources are scarce (Kakkar & Sivanathan, 2017; Laustsen & Petersen, 2015). In conditions of heightened conflict, the previously positive impact of differences in the spread of dominance on the perceptions of team coordination may be eroded, and the differences are then viewed as impediments to consensus contributing to conflict, thereby reducing perceptions of team coordination.

In summary, it is plausible that when differences among team members are viewed as advantageous, contributing useful insights and utility to the group, these differences enhance perceptions of team coordination, with these differences not primarily seen as hindrances to group functioning. However, in situations where the value of these team differences is not apparent, especially in highly inter-group competitive contexts where consensus is crucial, these differences might predominantly translate into conflict. This could arise from team members harboring more diverse viewpoints, strategies, and visions for the future, leading to escalated conflict and, consequently, diminished perceived coordination. This theory would help to explain why dominance differentiation was associated with increased coordination in the low inter-group-competition condition, but more conflict in the high-inter-group-competitive condition.

In light of these speculative associations, the study's findings imply that having a diversity of dominance within a team, particularly with one or two individuals higher in dominance, could have beneficial effects when contemplating intergroup aggression that may ultimately benefit the group's interests. Moreover, the presence of an individual who is conflict-oriented and shares their perspective might assist the team in preparing for potential aggression from other groups. Conversely, in high-stakes consensus-driven competitive contexts, such differences in dominance cease to have positive influences on coordination.

These findings support the idea presented earlier that the beneficial and detrimental processes associated with hierarchy stem from distinct etiological pathways, having unique associations and consequences. As such, hierarchy should not be seen as a unidimensional process with predictable effects. Instead, it should be viewed as an intricate interplay of diverse and distinct processes that contribute to its establishment and continuity. Approaching hierarchy investigations in this more granular way will avoid generalizations that might be misleading and could also result in more practical and specific strategies to combat dysfunctional processes in group dynamics.

Although this perspective provides a plausible reconciliation between the functionalist and conflict accounts of hierarchies, the interpretations of these findings are speculative

and based on the current data. Therefore, future research could unveil alternative pathways through which the differentiation of dominance impacts functional and dysfunctional team processes. It is conceivable that variables associated with hierarchy and functionality are more context-dependent and variable specific than initially assumed (Brand & Mesoudi, 2019). Consequently, future research should prioritize exploring and understanding the mechanisms driving both functional and dysfunctional processes within hierarchies.

Taken together, the multifaceted relationships between dominance, dominance differentiation, and team functioning underscore the significance of investigating team dynamics at the group-level and carefully considering how contextual factors influence such relationships. The mean-level findings imply that interventions targeting team dominance reduction or the establishment of teams with lower dominance levels could be effective in mitigating conflict and enhancing perceptions of team coordination. However, as mean-level dominance showed no correlation with team potency or performance, further exploration might assess the extent to which dominance negatively impacts other beneficial aspects of team functioning. The findings also suggest that dominance differentiation levels within teams need to be considered in light of the specific inter-group context to optimize team coordination and minimize conflicts. Moreover, the differential effects of dominance distribution on team coordination across different game conditions call for further investigation into the underlying mechanisms and contextual factors influencing team functioning. Future research could explore variables such as task complexity, interdependence, and the degree of intergroup versus intragroup competition on team functioning, providing a more detailed understanding of these relationships. These future explorations might help to reveal under what circumstances dominance might hinder or even potentially help beneficial team processes.

3.5.2   Prestige and Team Functioning

In contrast to dominance, team-level prestige consistently showed a positive association with team potency, indicating that teams with higher prestige tended to have a greater belief in their ability to succeed in future team tasks. This relationship aligns with

theoretical expectations, as perceiving others as prestigious is often linked to their competency (Jiménez & Mesoudi, 2019), and previous research has underscored the advantages of having knowledgeable and respected team members (Anderson & Kilduff, 2009). Therefore, a group's high competency level appears to translate into a collective perception of enhanced capability and contributes to the confidence in the team's potential for future success. These findings validate the conception of team prestige as a meaningful group-level variable and are consistent with prior research underscoring the influence that team-level factors can have on team potency (Guzzo et al., 1993; Gully et al., 2002). By investigating the impacts of power and status variables on team potency, this study offers further insights, revealing that power and status dynamics within teams are also crucial in shaping team members' confidence in their joint capabilities.

The implications of these findings are relevant for organizations and teams aiming to enhance team potency and overall team performance. Recognizing and promoting the expertise and skills of team members through the cultivation of prestige can contribute to a stronger collective belief in the team's capacity to succeed. Organizations can foster an environment that values and supports the development of expertise and provides opportunities for team members to showcase and improve their skills. This, in turn, may enhance team potency and facilitate better performance outcomes.

Turning to team coordination, the findings went against the study's hypotheses that team-level prestige would positively relate to team coordination. In fact, prestige only exhibited a marginally significant positive relationship with team coordination in the more competitive HZSG condition. In other words, teams with higher levels of prestige tended to report slightly better coordination in the high-zero-sum game condition. However, the effect was not strong enough to reach conventional levels of statistical significance. Given the marginally significant nature of the finding, more research is needed to understand the possible influence that team-level prestige has on team potency, and what contextual factors might be at play. The specific nature of the team experiment in this study may not have provided the ideal conditions or longevity to fully activate prestige's positive influence on team coordination. The subsequent comparison of these

findings to the results from Study 1 in Chapter 4 might be crucial in informing interpretations of this data.

Shifting focus to team conflict, Study 2's results corroborated the hypothesis that prestige was negatively associated with conflict, although this effect was evident only in the more competitive HZSG condition. In highly competitive contexts where intergroup rivalry is intense and coordination is pivotal, individuals with elevated prestige levels might alleviate conflicts and foster positive team dynamics. These findings align with the impact team prestige had on team coordination, wherein higher team prestige was positively related to coordination in the HZSG condition, but not in the LZSG condition. This suggests that in settings characterized by intergroup competition and the imperative for quick coordination, the presence of esteemed and knowledgeable team members could contribute to reduced conflicts and heightened coordination, as team members willingly defer to those they perceive as competent and authoritative.

Turning to team performance, across the entirety of the session, prestige was positively correlated with the accumulation of resources as well as outperforming the other team. However, when comparing this association across game conditions, the connection between prestige and outperforming the party of one was only evident in the highly competitive HZSG scenario, with no association with prestige observed in the LZSG context. This observation lends support to my theory that elements specific to the more competitive HZSG environment activate the advantageous impacts of prestige on team functioning and outcomes. Surprisingly, the study found no significant link between prestige and perceived performance. One might have presumed that having capable and esteemed team members would increase a team's estimation of relative performance. However, the absence of this correlation implies that prestige ratings are not primarily influenced by the group's perceived performance; thus, they remain distinct from judgments of performance. Consequently, the established relationships between prestige and other critical variables cannot be solely attributed to prestige being derived from performance-based evaluations.

The relationships and findings associated with mean-level prestige underscore the contextual nature of prestige's impact on team functioning and outcomes, particularly evident in its absence of positive influence on team performance, coordination, and conflict in the less competitive context. It is conceivable that within highly competitive environments, where resources are limited and team success is critical, team members might elevate processes associated with competence and prestige in an effort to maximize efficiency and accuracy. This deference to competency might activate the beneficial influences of prestige as teams rely more on hierarchies of prestige. Hence, the luster of prestige might shine brightest in competitive settings, where competence is more likely to take center stage and serve as the cornerstone of social hierarchies.

These interpretations remain speculative and should be further explored in future research. Conducting qualitative studies or employing additional measures could provide deeper insights into team members' perspectives and experiences regarding the influence of dominance and prestige on conflict in different conditions. Moreover, examining a broader swath of competitive versus non-competitive contexts might replicate, extend, or show the boundary conditions of these findings.

Differentiation in prestige within groups had no significant relationship with any of the key team functioning variables. This finding contrasts with past studies that have suggested that hierarchical differentiation should have a positive influence on team functioning (Halevy et al., 2011; Ronay et al., 2012), as was the case with dominance differentiation. This research contributes to calls to investigate the differentiation of prestige on team functioning (Ronay et al., 2012), and further suggests that prestige operates in a manner fundamentally different than dominance, and does not share the same, or inverse, pathways and correlations. Given that prestige is associated with the pursuit of status through cooperative deference, an egalitarian ethos, and focusing on getting along rather than getting ahead (Waal-Andrews et al., 2015), the dynamics within prestige hierarchies may be more accommodating of similarly prestigious team members compared to dominance hierarchies, which are more authoritarian in nature. In dominance hierarchies, the emphasis on personal advancement might lead individuals to perceive fellow team members as either allies or rivals (Maner, 2017), potentially leading

them to view similarly dominant peers as threats to their status. In contrast, within prestige hierarchies, the potential tension and conflict arising from comparable levels of prestige may be less pronounced due to their more cooperative and harmonious nature. Consequently, the influence of the spread of dominance on team functioning, rooted in tensions from similar dominance levels, might not manifest to the same extent within prestige hierarchies where comparable prestige levels could be more tolerated, potentially leading to a different impact on team dynamics.

These explanations are speculative and ought to be considered in more detail in future research. However, in practical terms, these findings could hold significant implications for both research and corporate settings. From a research perspective, the differential effects of dominance and prestige on team dynamics highlight the need for a more granular exploration of rank dynamics within groups. Future studies should expand on these findings by investigating the influence that prestige differentiation has on team processes and outcomes in different contexts. Specifically, investigating these issues in more corporate or organizational contexts might aid in issues of team construction, promotion, and interventions.

Taken together, the study's findings shed light on the role of prestige in shaping conflict dynamics within teams. To more fully understand the underlying mechanisms and contextual factors driving these relationships, further research is needed, delving deeper into factors such as task complexity, interdependence, and the influence of intergroup dynamics on conflict within teams.

3.6   Limitations

Despite the advantages of studying highly similar groups in a controlled setting, there are trade-offs associated with this approach, which may limit generalizability to real-world contexts. Although the decisions made by participants have parallels to real-world scenarios, the relatively short duration and limited interactions amongst strangers might limit the generalizability of the findings. Some processes might need more time to manifest, or their overarching effects might change over time, which this study's configuration might not be capable of observing. Furthermore, the groups were

leaderless, which is not a common configuration in real-world work teams. It is possible such a structure influences the relationships and behaviors found in this study. Specifically, having an official leader might increase coordination and decrease conflict through increased role clarity and decreased need or tolerance for status-seeking behavior due to the formal establishment of a hierarchy. Additionally, the undergraduate student sample consisted predominantly of young females who self-identified as Asian or white, which may not represent the average working population in the United States or Canada. These characteristics may limit the generalizability of the findings to more diverse and experienced workgroup settings. Future research could explore these relationships in more ecologically valid circumstances within established workgroups to account for broader demographic representations.

A second limitation was how the context in which competition between groups was configured. Study 2 utilized indirect interactions between the parties wherein groups lacked the ability to directly know, communicate, or see the other party. Although faceless competitions are common in the corporate world, these findings may not fully reflect situations with more well-known competitors or when the competitions occur internally within organizations. Furthermore, although the task conditions in the studies were designed to represent low and high zero-sum contexts, there are other ways to generate zero-sum contexts with varying degrees of strength, which might result in different effects on team decision-making. Future research could explore how interactive contexts and the degree to which they are zero-sum in nature might influence these relationships.

Lastly, a limitation of this study is that it examines dominance at the group level. The measure of dominance used in the study focuses on internal group behaviors aimed at gaining power within the group. However, examinations into dominance behaviors exhibited *between* groups might provide different insights into team performance in zero-sum games. Although this study did not find evidence to suggest a positive relationship between dominance and objective team performance, isolating intra-team dominance from inter-team dominance could yet reveal an association between intra-team dominance and team performance. Perhaps although intra-team dominance is detrimental

to team functioning, inter-team dominance would be beneficial through the increased willingness to compete over vital resources. Future research could develop scales to better understand the difference between inter-group and intra-group dominance and prestige, providing a more precise understanding of their effects on team dynamics and outcomes.

Taking into account both the current studies, several limitations are mitigated by recognizing the distinct nature of Study 1 and Study 2. These two studies were designed in tandem to complement each other's shortcomings and offer a broader perspective for investigating these matters. Despite their methodological differences, the outcomes of Study 1 and 2 broadly align, bolstering confidence in the findings and relationships. A detailed comparison and exploration of this is undertaken in Chapter 4.

3.7   Conclusion and Future Directions

This study provided insights into the dynamics of team dominance and prestige and investigated their influence on team functioning across zero-sum contexts. Although the moderating effect of the zero-sum condition was not as strong as initially hypothesized and did not always go the direction expected, these findings significantly contribute to understanding how team dynamics evolve over time and can differ between zero-sum conditions. At the individual level, dominance and prestige are processes that confer advantaged to those who exhibit them, in the form of rank and social influence (Cheng et al., 2013; McClanahan et al., 2021; Sapolsky, 2005b). Nevertheless, these routes to personal gain take distinct trajectories when considering the outcomes and drawbacks at the collective level of analysis. The overall pattern revealed that mean-level dominance appears to hinder rather than help team functioning, whereas mean-level prestige appears to benefit team functioning. However, a closer examination of the data revealed intriguing complexities that differentiate these effects across variables and in more or less competitive environments.

The results highlighted the contingent nature of the influence of dominance and prestige. The negative impact of group-level dominance on team coordination and its positive association with relationship and status conflict were relatively consistent across the zero-

sum conditions. On the other hand, the positive effect of group-level prestige on team coordination and its negative association with conflict were evident mainly in the more competitive zero-sum condition, perhaps suggesting that some elements of competition activate the beneficial influences of prestige.

Moreover, the study identified the role dominance differentiation within teams. Although the mean-level dominance had consistent effects on team functioning, the spread of dominance exhibited contingent influences. In the less competitive environment, more differentiation in dominance was positively correlated with team coordination, suggesting the benefits of hierarchical differentiation, and diversity in perspectives. However, in the more competitive environment, a greater similarity in dominance levels was associated with increased team conflict, potentially due to the need and difficulty in reconciling more divergent individuals within contexts where consensus and alignment on intergroup actions are most critical. These findings underscore the importance for future research to consider the specific context and dynamics of zero-sum situations when examining the influence of dominance differentiation on team functioning.

The nature and function of dominance and prestige at the individual level do not always translate to the group level. Taking a group-centered approach revealed that teams tend to organize themselves around either dominance or prestige hierarchies, underscoring the importance of examining these group-level phenomena. Furthermore, the research paradigm demonstrated the substantial impact of team-level attributes, such as the zero-sum context, on team functioning. The interplay between dominance and prestige, especially within different competitive environments, highlights the intricate and context-dependent nature of their effects and emphasizes the necessity of broadly considering the influence of dominance and prestige using both the mean-level metrics as well as considering differentiation. In totality, these findings hold implications for effective team management and offer a solid foundation for future investigations into these factors within real-world organizational settings.

Chapter 4

4 Convergence of Findings

In recent years, there has been a growing interest in understanding the dynamics of dominance and prestige within teams and their impact on team functioning (Boehm, 2000; Henrich & Gil-White, 2001; Maner, 2017). The two studies presented here contribute to this area of research by conceiving dominance and prestige as team-level constructs. The studies buttress each others' weaknesses and provide a robust vantage point to examine how group-level dominance and prestige relate to team functioning. Study 1 employed a longitudinal design involving engineering students assigned to newly formed work groups. The study prioritized verisimilitude with real working environments while minimizing potential limitations associated with field research, such as non-random team composition and pre-existing team cultures. In contrast, Study 2 comprised a controlled laboratory experiment with psychology undergraduate students. This approach emphasized experimental control while validating the robustness of Study 1's results and investigating potential contextual influences. This experimental paradigm, characterized by a high degree of control and uniformity, facilitated a precise examination of how changes in context or team composition influenced team processes and outcomes. Together, these two studies strengthen the weaknesses of each other and offer a robust understanding of how the relationships between dominance, prestige, and team functioning emerges. The

4.1 Conceptualizing Dominance and Prestige as a Group Process

A notable difference of this study from previous work, and thereby a substantial contribution to the existing research, lies in the novel conceptualization of dominance and prestige as group-level constructs, achieved by aggregating peer-ratings of dominance and prestige. This approach shifts the focus from individual constituents to the group as an entity, avoiding the assumption that individual-level processes translate directly to group-level processes (i.e., assumption of isomorphism). Prior literature has underscored the importance of investigating variables at the group level, particularly when constructs

are influenced by collective dynamics (Roux & Sobel, 2015; van Mierlo et al., 2009). Validating this perspective, viewing dominance and prestige as group-level constructs unveiled novel insights. Perhaps most notably, although an orthogonal relationship between dominance and prestige tends to be observed at the individual-level (Cheng et al., 2010; Maner, 2017), dominance and prestige at the group level exhibited a substantial negative correlation across both studies and at all timepoints. This intriguing finding suggests that teams might coalesce around either a culture of dominance or prestige at the group level. This divergence appears early in team formation, as the negative correlation between group-level dominance and prestige was evident from the time of first data collection within both studies, in line with prior research indicating that shared group constructs can develop shortly after team formation and remain relatively stable over time (Allen & O'Neill, 2015).

These findings underscore the limitations of solely investigating the processes of dominance and prestige at the individual level, neglecting the collective development of shared processes as individuals come together at the group level. Future research could benefit from delving deeper into the initial formation, driving forces, evolution, potential adaptability, and resultant outcomes of these distinct team cultures. Moreover, these insights hold practical implications for organizations and teams aiming to elevate their functioning and performance. Understanding the interplay between dominance and prestige within group dynamics can guide leadership and management strategies. For example, teams coalescing around counterproductive or undesirable cultures could be restructured or targeted for interventions to reshape the team culture to be more advantageous. Additionally, by uncovering the root causes of such cultures, organizations can proactively shape team culture during the early stages of group development to enhance the likelihood of adopting an optimal culture. This research offers insights for fostering effective team dynamics and optimizing performance, both in theory and practical applications.

4.2   The Relationships Between of Dominance, Prestige, and Team Functioning

The distinct yet complementary methodologies employed in Study 1 and Study 2 collectively provide a framework to better understand how dominance and prestige relate to team dynamics. Although each study's analytical methods were tailored to address specific research questions and contexts, comparing these results enhanced the overall understanding of the relationships under investigation. To gain insight into the similarities and differences in the relationships across these two studies, Table 35 and Table 36 provide an overview of the variables at the between-team levels that were included across both models. Due to considerations of simplicity, only the final full models for Study 1 and Study 2, along with any conducted simple slopes models, are presented in these tables. Although these results offer a basic understanding of the main relationships of interest, they do not encompass all variables or nuances of the studies. However, the combination of these findings allows for a broader exploration of the interplay between dominance, prestige, and team functioning across their distinct research settings.

Table 35. Comparative Analysis of Team Potency and Coordination

| Predictor | Team Potency | | | Team Coordination | | | | |
| | Study 1 | | Study 2 | Study 1 | | | Study 2 | |
	Within	Between		Within	Between	Full	LZSG	HZSG
Dominance	-.04	.08	-0.03	-.06	-.15†	-0.35***	-0.25**	-0.36***
Prestige	.21***	.97***	0.63***	.20***	.73***	0.21***	0.13	0.17†
SD Dominance	-.13*	.07	-0.01	-.05	.03	-0.19†	0.29*	-0.21
SD Prestige	.04	.33***	0.20	.03	.18†	-0.21†	-0.07	-0.18

Note. Study 1's MSEM results report standardized betas whereas Study 2 reports unstandardized coefficients. "Within" model's variations across timepoint. "Between" model's variations across teams. "LZSG" shows the Low Zero-Sum Game condition. "HZSG" shows the High Zero-Sum Game condition.
†$p < .1$, *$p < .05$, **$p < .01$, ***$p > .001$.

Table 36. Comparative Analysis of Group Conflict States

| Predictor | Relationship Conflict | | | | | Status Conflict | | | | |
| | Study 1 | | Study 2 | | | Study 1 | | Study 2 | | |
	Within	Between	Full	LZSG	HZSG	Within	Between	Full	LZSG	HZSG
Dominance	.29***	.61***	0.24***	0.18**	0.27***	.33***	.55***	0.31***	0.39***	0.34***
Prestige	-.11*	-.09	-0.13***	-0.03	-0.12*	-.04	-.08	-0.15***	0.00	-0.11*
SD Dominance	.12*	.13	0.17***	0.00	0.23*	.11*	.24*	0.23***	0.01	0.31**
SD Prestige	-.01	.17*	0.08	-0.05	0.13	.00	.12	0.06	0.05	0.13

Note. Study 1's MSEM results report standardized betas whereas Study 2 reports unstandardized coefficients. "Within" model's variations across timepoint. "Between" model's variations across teams. "LZSG" shows the Low Zero-Sum Game condition. "HZSG" shows the High Zero-Sum Game condition.
†$p < .1$, *$p < .05$; **$p < .01$; ***$p > .001$.

4.2.1   Dominance and Beneficial Team Dynamics

In a broad sense, the findings underscore the significance of dominance in the exploration of team dynamics. Generally, when dominance related to beneficial team dynamics, it had a negative relationship, and conversely, when dominance related to team conflict, it had a positive relationship. These outcomes align with the overarching hypotheses and theories proposing that prestige is beneficial to team functioning whereas dominance is detrimental. However, delving into the specifics of these findings reveal instances where these general trends did not hold true, or where their applicability was contingent on contextual characteristics within the group or the task at hand.

Interestingly, dominance had less of a detrimental relationship with positive team functioning than previous theory or my hypotheses would have suggested. Dominance had no significant relationship with team performance in either study (i.e., team grades in Study 1 or team resource acquisition in Study 2). Moreover, when scrutinizing the purported adverse impact that team-level dominance was believed to have on team functioning, the findings from both studies consistently reveal that the average dominance level within a team had no discernible effect on team potency. Put simply, the inclination of a group toward conflict and leveraging status through coercion did not manifest as a negative influence on objective gauges of team performance, nor did it diminish the team's self-assurance in their collective ability to confront future challenges. These findings challenge the notion that dominance inherently undermines team performance or the team's self-perception of their capabilities (Greer et al., 2017).

Although dominance showed a negative relationship with team coordination in some conditions, they were not as robust or as strong as theorized. Results from Study 2 suggest that, irrespective of the zero-sum nature of the context in which teams were placed, the negative influence of dominance – rather than the positive influence of prestige – emerged as the primary driver of team coordination. However, the more longitudinal Study 1 suggests the opposite, finding prestige had the predominant relationship, with dominance only demonstrating a marginally significant relationship with team coordination. These divergent findings suggest that although dominance might

negatively relate to team coordination, this link might hinge on the duration of interactions or the contextual nature of the team. Hence, the overarching assertion that team-level dominance hampers team functioning found inconsistent support. Instead, the relationship between dominance and team functioning appears more contingent than initially hypothesized.

Differentiation in dominance also exhibited relationships with advantageous team dynamics. Specifically, Study 2 revealed that teams with greater differentiation in dominance tended to exhibit higher levels of coordination in the low competition condition, but not in the high competition condition. As elaborated in the discussion of Study 2, this finding aligns with the coordination account of hierarchy, wherein teams with more pronounced vertical differentiation and power distribution establish clearer hierarchies through distinct role differentiation, resulting in more structured protocols and well-defined order (Anderson & Brown, 2010; Greer et al., 2017). In scenarios with low competition, particularly in short tasks, a higher degree of dominance differentiation might lead to a broader spectrum of skills and strategies within the team. The presence of a few members who are more inclined towards conflict-oriented approaches could yield advantages in situations where intergroup competition exists as a possibility but is not a necessity. In such cases, individuals oriented towards conflict might highlight the potential gains from aggressive actions against other teams, while also causing the team to consider the potential vulnerabilities associated with adversarial actions from other teams. These unique perspectives might cause team members to appreciate the diversity of insights within the team, enhancing team coordination in low-competition contexts through teams. However, in conditions of heightened competition where intergroup conflict is more essential and conspicuous, more conflict-centered perspectives might not add the same novelty or utility and thus cease to promote perceptions of coordination. Furthermore, as the conflict account of hierarchy might suggest (Greer et al., 2017), scenarios where the need for consensus is heightened might be negatively affected by individuals with high dominance tendencies exacerbating conflicts, which might undermine perceptions of team coordination.

A discovery from Study 1 showed that during time periods when team members exhibited greater differentiation in dominance, they also reported reduced levels of team potency. Curiously, a team's overall dominance levels showed no correlation with team potency, nor did the average degree of dominance differentiation within the team. This implies that team potency is linked to the extent to which teams experience shifts in dominance differentiation over time, rather than being influenced by the team's average dominance level or the average degree of dominance differentiation. One possible explanation for this relationship is that a shift from a more distributed power to a more unequal distribution within the team may lead to a more authoritarian style, which diminishes perceptions of team capability. In such situations, individuals with dominating behavior and control may restrict collaboration and limit input from other team members in decision-making processes, which could undermine team processes (Greer et al., 2017; Kakkar & Sivanathan, 2021; Ronay et al., 2023). This toxic environment may decrease feelings of capability and increase conflict, which hinders teamwork, communication, and effective collaboration, ultimately resulting in decreased team potency. These findings suggest that it's the fluctuations of team dominance over time and the shift towards an authoritarian dynamic, rather than the baseline level of team dominance or the degree of dominance differentiation, which could potentially undermine team potency.

4.2.2   Dominance and Team Conflict

Turning attention to the relationship dominance had with team conflict measures, it is interesting to note that the relationships between conflict measures in Study 2 closely resembled one another with every statistically significant association mirrored in both conflict types. In contrast, Study 1, employing a longitudinal design, unveiled distinct patterns in the interplay between relationship and status conflict, despite the two forms of group conflict being even more correlated with one another than in Study 2 ($r_{s1} = .90$, $p < .001$; $r_{s2} = .77$, $p < .001$). This might suggest that during the initial phases of team development, team members may have difficulty distinguishing between relationship and status conflict or perhaps the subtle disparities between these forms of conflict might become more evident over time. In the early team development stages, members may still be in the process of acquainting themselves with one another and solidifying their roles

and positions within the team. Consequently, conflicts arising from personal relationships and those stemming from power and status differences might become intertwined and challenging to disentangle. However, as the team matures and members gain a deeper understanding of each other's personalities, skills, and capabilities, the nuanced delineations between relationship conflict and status conflict may gradually emerge.

In contrast to the contextually driven relationship that dominance exhibited with beneficial team dynamics, its impact on team conflict displayed a consistent negative pattern across both studies and all models. Furthermore, Study 1 revealed that the influence of dominance on conflict was not solely restricted to mean levels, but that the variation in team dominance over time also influenced conflict. Specifically, at timepoints of particularly high team dominance, teams reported more conflict. Study 2 revealed that dominance had a positive relationship with team conflict measures across both the LZSG and HZSG conditions. The positive relationship between dominance and team conflict measures represents the most robust finding from this program of inquiry and underscores the qualitatively distinct ways in which individuals navigate rank dynamics within groups. When team members primarily seek to establish rank through dominance, it can have detrimental consequences for overall team functioning, whereas negotiation ranks through prestige can have beneficial effects.

The differing processes that teams cultivate over time and the distinct methods they employ to negotiate for social rank contribute to the notion that teams actively construct their protocols through hierarchical crafting (Benson et al., 2023). Furthermore, the observation that differentiation in dominance adversely affects team functioning serves as an important contribution to this discourse. This pattern of results provides empirical support for the conflict theory of hierarchy (Greer et al., 2017), suggesting dominance might be a primary process responsible for the negative effects of hierarchies.

When dominance differentiation had an association with relationship or status conflict in these studies, it had a positive association, suggesting dominance differentiation has the potential to increase group conflict. Although this purported influence was contextual, only presenting through fluctuation in Study 1 and in the HZSG condition in Study 2. The

negative influence of dominance differentiation further supports the central tenet of the conflict account of hierarchies, positing that hierarchies inherently foster conflict, which can detrimentally influence team functioning (Greer et al., 2017). In contrast, these relationships stand in opposition to functionalist theories of hierarchies, which poise that differentiation in power results in more adaptive team functioning (Bunderson et al., 2016), optimizes decision-making efficiency, and mitigates conflicts over status and control (Anderson & Brown, 2010). If this functionalist theory were accurate, one would anticipate that status conflict, involving disagreements about the status and relative rank of team members, would be minimized when power differentiation is large. However, in these studies, dominance differentiation increased status conflict.

Some potentially pertinent research by Greer and van Kleef (2010) show that differentiation can have both conflict-increasing and conflict-reducing effects on teams. Through field experiments they show that the relationship between power dispersion and conflict resolution is contingent on the power levels of group members. When group members hold low levels of power, power dispersion is good for conflict resolution. Conversely, in groups with higher levels of power, power dispersion is bad for conflict resolution. These findings suggest that power differentiation might be beneficial in low-power groups, but counterproductive to resolving conflicts in high-power groups. However, the degree to which this relates to the current study is not straightforward as neither of the present samples had groups embedded in a larger organization nor were there any inter-group hierarchies. However, it is interesting that the current studies only show instances where dominance differentiation leads to more conflict, demonstrating similar patterns to high-power groups. It is possible that the conditions in these studies were more similar to high-power groups, potentially explaining the absence of functionalist implications associated with dominance differentiation in this research.

Future research could delve deeper into the underlying mechanisms and contextual factors that drive the relationship between dominance, prestige, and conflict outcomes. Exploring the longitudinal development of team conflict and investigating how these conflicts manifest and interact over time will provide a better understanding of team dynamics. Additionally, examining the influence of different competitive settings and

conditions on conflict outcomes will shed light on the generalizability and applicability of these findings. Understanding the potential sources of conflict within teams and the differential effects of dominance and prestige could guide the development of interventions and strategies for conflict management. Fostering an environment that promotes effective communication, collaboration, and equal participation while recognizing and valuing diverse perspectives can help mitigate conflict and enhance team performance. Furthermore, considering the competitive context in which teams operate could inform team composition, role assignments, and decision-making processes to minimize conflict and maximize team effectiveness.

Taken together, the findings across Study 1 and Study 2 investigating how dominance differentiation relates to team functioning suggest that the degree of differentiation can have both advantageous and disadvantageous influences. This observation is in line with previous research, which has indicated that hierarchal steepness has the potential to both facilitate and impede team performance, emphasizing that the impact of hierarchy differentiation is not universally positive or negative, but rather dependent on contextual factors and the specific variables under consideration (Anderson & Brown, 2010). The present results emphasize the need to further examine how differentiation in dominance shapes team potency and coordination, exploring the circumstances in which differentiation proves beneficial or detrimental, and the underlying mechanisms at play. Such investigations could yield insights into the temporal dynamics of team interactions and their implications for overall team effectiveness, ultimately informing practical strategies for team formation and management.

4.2.3   Prestige and Team Functioning

Turning to the insights derived from the research on prestige, prestige had a few straightforward associations with team functioning, but most of the relationships were contingent on the zero-sum nature of the task. As far as non-contingent influences, prestige had a strong relationship with the ultimate measure of team success—team performance. Across both studies, team-level prestige was related to better objective team performance and team potency, or the degree to which teams believe they had the tools necessary to be successful in the future. Moreover, teams with greater differentiation in

prestige tended to report elevated team potency. These findings may be attributable to clearer role distinctions within the group, perhaps stemming, as previous work as suggested, from a broader range of competencies resulting in better vertical role differentiation (Bunderson et al., 2016). Furthermore, Study 1 showed team coordination was higher in teams with high prestige levels, higher at timepoints marked by elevated prestige, and marginally higher by teams who were more differentiated in prestige.

Although prestige also had associations with the team conflict measures, these relationships were much more restricted and contingent. Study 1 found that although the average prestige level of teams did not exhibit a significant correlation with relationship conflict, variations in prestige over time did. That is, at time points characterized by higher levels of prestige, teams reported lower relationship conflict, suggesting that a stronger emphasis on prestigious processes might contribute to conflict reduction. Moreover, Study 1's analysis indicated that teams displaying greater differentiation in prestige tended to experience higher levels of relationship conflict, which aligns with existing research demonstrating that inherent differences within teams can lead to disagreements and conflicts (Triana et al., 2021). These detrimental outcomes associated with prestige differentiation are particularly interesting in light of the beneficial influence that prestige differentiation had on team potency and coordination. This indicates the prestige differentiation can have both beneficial and detrimental influences on team functioning, being associated with more potency and coordination, but also more relationship conflict, supporting both functional and dysfunctional accounts of hierarchy (Greer et al., 2017).

Study 2 revealed that across the measures of outperformance, coordination, relationship conflict, and status conflict, prestige only had an influence on team outcomes in the competitive HZSG conditions, and that these relationships were universally beneficial to team functioning. What is to explain this effect? One possible explanation as to why prestige is related to beneficial outcomes in more competitive contexts is that specific conditions, more common in competitive situations, might activate the beneficial effects of prestige. Event system theory suggests that when events that are novel, disruptive, or critical, they might trigger changes in behaviors or dynamics (Morgeson et al., 2015).

Using this framework, it is conceivable that during phases marked by heightened stress, criticality, or competition, when the stakes of group performance are escalated, teams might defer to members or processes perceived as more proficient and capable. Such deference could enable the influential processes associated with prestige to bestow beneficial effects upon key team functioning variables, such as coordination, team performance, and conflict resolution. The longitudinal and high-stakes nature of Study 1 might have activated some of these influences, as prestige strongly related to team coordination in Study 1, whereas in Study 2 it is only manifest in the HZSG condition. Although this hypothesis necessitates validation through future research, its potential substantiation holds the promise of yielding practical insights into effectively harnessing the beneficial facets of prestige to elevate overall team functioning.

The concept of contingent activation of prestige, and some substantial disparities in the associations between Study 1 and Study 2, prompts the consideration of temporal influences on prestige processes. Discrepancies between these studies or the zero-sum conditions might be an indication that prestige processes in teams might manifest more slowly or be more contextually driven than dominance processes. This is supported by theory as prestige is viewed as a more specialized tool that necessitates an understanding of the team and its context to wield effectively, in contrast to dominance, which represents a more generalized tool that can be readily employed in a variety of contexts (Henrich & Gil-White, 2001). This perspective might also shed light on the phenomenon of dominant leaders losing their luster over time (Ong et al., 2016), as perhaps over time, when obstacles emerge and performance becomes more crucial, teams might attempt to turn to more prestige and competency-based processes and individuals. Future research could benefit from investigating how dominance and prestige processes and consequences shift over time.

In conclusion, these findings suggest prestige may exert positive influences on team functioning, contributing to both beneficial team processes and the mitigation of detrimental processes. Additionally, the revelation that differentiation in prestige yields both advantageous and disadvantageous effects on team functioning underscores the importance of examining differentiation itself and scrutinizing its effects on a case-by-

case basis, considering the intricacies inherent in these relationships. Although these findings provide compelling and thought-provoking insights, it is essential to emphasize the need for further empirical and theoretical exploration to unearth the underlying causal determinants. Taken together, although prestige tended to positively influence team functioning and attenuate levels of team conflict, the results pointed to more contingent relationships then expected, and suggest that future work is needed to understand the relationships prestige has with team functioning.

4.3   IV. Applications, Limitations, and Future Directions

This exploration of group dominance and prestige has not only provided insights into the underpinnings of team dynamics but has also raised numerous intriguing questions that warrant further investigation. Comparing the ecologically valid workgroup sample in Study 1 with the more contrived laboratory workgroup sample in Study 2 resulted in robust findings; however, the differences in relationships between studies highlight the need to investigate the influence of dominance and prestige in a variety of group contexts and configurations. Both studies revealed meaningful and significant relationships, suggesting that many of the dynamics observed in real-world working groups can be replicated in laboratory settings. However, there were also substantial differences in the patterns of relationships between the two studies. These differences might be attributed to the longitudinal nature of the research, with the laboratory study capturing early-stage processes and relationships, while the longitudinal study explores more mature team functioning and changes over time. These findings highlight the importance of considering different contexts and methodologies when studying group dynamics.

Previous theories have proposed simpler and more generalized relationships compared to the findings of the current study. I hypothesized, according to theory, that prestige would enhance team functioning while reducing team conflict, whereas dominance would drive team conflict and hinder beneficial team dynamics (Cheng et al., 2013; Greer et al., 2017; Maner, 2017). However, the results of this study paint a more nuanced picture. Although prestige generally increased team potency and coordination, its association with relationship and status conflict was highly contextual. On the other hand, dominance had

a significant positive impact on conflict, but it had no influence on team potency, and its relationship with team coordination, particularly over time, was less pronounced.

These findings have implications for team composition and coaching. Based on theory, previous interventions seeking to reduce conflict might have focused on increasing team prestige whereas interventions seeking to improve team performance or potency may have done so by trying to reduce team conflict. However, the current investigation demonstrated that conflict is not closely associated with prestige, nor is dominance related to team performance or potency. Therefore, for interventions seeking to improve potency and performance, the primary focus should be on creating or developing highly prestigious teams as prestige has a beneficial influence at both the within-team and between-team levels. Conversely, interventions aimed at reducing team conflict should focus on constructing or developing teams with minimal levels of dominance. Through the information provided in this study, practitioners can more effectively enhance team dynamics, reduce conflict, and promote positive team functioning.

This research also highlights the significance of factoring in the zero-sum context of the group environment when deliberating on matters of team composition. The advantageous aspects of prestige appear to be activated in highly competitive contexts. Consequently, when evaluating highly competitive work teams, careful attention should be given to the members' prestige levels or the potential to leverage the positive influence of prestige processes. However, the precise mechanism underlying this activation, whether linked to intergroup competition, heightened stressors, or other factors, remains unexplored and warrants further investigation. To draw more definitive causal inferences and confidently recommend interventions based on the competitive nature of the environment, further research should delve deeper into these matters. Future research on this matter has potentially significant implications for considering team composition in tasks with diverse contextual demands and for designing interventions that are more contextually appropriate to optimize team functioning and performance.

Another avenue of research that could build on these results would be to investigate the influence that dominance and prestige have on different team functioning variables.

Although team potency and coordination are key aspects of positive team functioning with a rich history of investigation, other dimensions of team functioning may have different relationships. Through broadening the nomological network of dominance and prestige, a better understanding of the functionality and dysfunctionality of hierarchies can be obtained. Team variables such as knowledge sharing, psychological safety, group identification, role perceptions, or team cohesion might be explored to understand how dominance and prestige more broadly relate to team functioning.

This research sought to unpack the theoretical overlap between dominance and zero-sum beliefs. Surprisingly, although dominance and zero-sum beliefs were correlated as expected, zero-sum beliefs had almost no influence on team outcomes. This suggests that although individual and teams who are high in dominance have the tendency to view the world as more zero-sum, it is not likely that these beliefs account for the influence dominance has on team outcomes. Although I hypothesized that dominance would have a beneficial influence on team outcomes in highly zero-sum games, the current findings do not provide support for this hypothesis. However, it is possible that dominance may be more beneficial in zero-sum contexts, but Study 2 did not have a large enough distinction between the LZSG and HZSG conditions for such an influence on manifest. Furthermore, the competition was largely indirect and within relatively internally focused environments, which may bias the results towards internal dynamics rather than external considerations.

In a similar vein, the measurement of dominance in these studies primarily focused on aggression directed inward towards the group rather than outward towards other groups. Measures that specifically target inter-group dominance may be better suited to uncovering positive relationships with team functioning in highly competitive environments. Future research examining intergroup conflict might employ both inter-group and intra-group dominance measures to better understand the potentially adaptive and maladaptive outcomes of group dominance.

Furthermore, the descriptors for dominance and prestige themselves are phrased in a manner that conveys dominance as negative and prestige as positive. Consequently, peer

ratings of dominance may only capture the detrimental aspects of dominance. Additionally, given the inherent negativity in dominance ratings, a floor effect for dominance is common, making it challenging to interpret variations around dominance and limiting the scope of investigable questions. Future research could, therefore, aim to develop more neutrally worded dominance measures or construct a dominance measure with more central ratings.

Future research could also extend these findings by seeking to understand what additional factors might mediate the relationship between dominance, prestige, and team functioning. While the current research showed that zero-sum context moderated these relationships, other group factors might also work as moderators such as if the group is required to come to consensus, if the group has an official leader, if the group task is additive, conjunctive, or disjunctive, or the relative importance of the task to the team members.

Understanding the potentially adaptive aspects of dominance could be highly valuable when considering practical applications, such as team composition and development. For example, in a military group where uniformity and prompt unilateral decision-making is vital, a dominance-leaning composition may be more advantageous. Individuals with heightened threat awareness and a willingness to fight for the group's interests could contribute to success, even if it comes at the expense of harmony and communication within the team and between the groups. Conversely, in forming the optimal composition of a local charity board, the needs of the group should likely prioritize egalitarianism, harmony, diversity, and open communication might be beneficial, incorporating diverse perspectives and skills for improved performance. In such a case, high team dominance may not be ideal and instead cause conflict without a benefit.

Although these studies have only scratched the surface in addressing these questions, they have laid the necessary groundwork to further explore these issues. By gaining a better understanding of how dominance and prestige interact with each other and impact team functioning within-teams, over time, in more or less competitive environments, in

real-world environments, and even in short, contrived games, this serves as a baseline understanding of these relationships.

4.4   VI. Conclusion

Taken together, this program of inquiry investigated the effects dominance and prestige had on team functioning in a more precise, appropriate, and granular way than previously attempted. The conceptualizing and operationalizing of dominance and prestige as group-level constructs offered valuable insights into how these group processes are socially constructed and influenced by team members, showing that team settle into a culture of either dominance or prestige over time. Juxtaposing the longitudinal, real-world dynamics of Study 1 with the highly controlled experimental design of Study 2 unearthed robust and nuanced patterns of influence. Moreover, using MSEM revealed that the effects of dominance and prestige extend beyond a group's average levels, but also through the team's fluctuations in dominance and prestige over time. In its entirety, this research program has established a foundation for future inquiries into group-level dominance and prestige dynamics, while also furnishing insights applicable to corporate contexts.

This work contributed to the ongoing debate surrounding the functional or dysfunctional nature of hierarchies. Furthermore, it highlights the criticality of considering both the manner in which individuals and teams navigate hierarchical relations and pursue social rank, as well as the magnitude of the power and status difference within teams. These results show that highly prestigious teams are associated with beneficial team dynamics. Conversely, highly dominant teams generally have a negative influence on team dynamics. Furthermore, the differentiation in dominance and prestige within teams had both functional and dysfunctional influences. These findings support the functionalist and conflict-theories of hierarchy and help explain how both perspectives can be true. Furthermore, these findings provide direct suggestions on how to foster functional hierarchies and beneficial team processes while at the same time minimizing dysfunctional hierarchies and detrimental team functioning processes.

Although some findings were consistent across studies and conditions, others revealed more contingent and contextual insights. Nevertheless, the practical implications of this research are significant and intriguing. These studies' results and potential implications justify future research and investigations into these relationships and the use of similar paradigms to better understand team processes. Such research could inform interventions and strategies to foster positive team functioning and mitigate conflict within teams, contributing to more effective teamwork and improved team outcomes.

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Appendices

All study materials can be found on the associated OSF page (Jensen, 2023).

Study 1 Ethics Approval

Western Research

Date: 13 August 2018

To: Dr. Alex Benson

Project ID: 112318

Study Title: Understanding engineering project teams (2018-2019)

Application Type: NMREB Initial Application

Review Type: Delegated

Full Board Reporting Date: 07/Sep/2018

Date Approval Issued: 13/Aug/2018 09:29

REB Approval Expiry Date: 13/Aug/2019

Dear Dr. Alex Benson

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. All other required institutional approvals must also be obtained prior to the conduct of the study.

Documents Approved:

Document Name	Document Type	Document Date	Document Version
Letter of information ENG 2018 July 26	Written Consent/Assent	26/Jul/2018	2
Letter of information Implied Consent ENG 2018 July 26	Implied Consent/Assent	26/Jul/2018	2
Recruitment Script 2018 07 05	Oral Script	05/Jul/2018	1
Study materials ENG 2018 All Time Points July 20 2018	Online Survey	26/Jul/2018	2
Study materials ENG 2018 All Time Points July 20 2018	Paper Survey	26/Jul/2018	2

Documents Acknowledged:

Document Name	Document Type	Document Date	Document Version
Alternative Assignment July 26 2018	Supplementary Tables/Figures	26/Jul/2018	2

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Katelyn Harris, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Study 2 Ethics Approval

Date: 9 September 2022

To: Dr. Alex Benson

Project ID: 121514

Study Title: An Investigation of Group-Behavior

Short Title: Dom and Pre Experiment

Application Type: NMREB Initial Application

Review Type: Delegated

Full Board Reporting Date: 7/Oct/2022

Date Approval Issued: 09/Sep/2022 13:31

REB Approval Expiry Date: 09/Sep/2023

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Dear Dr. Alex Benson

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. **All other required institutional approvals and mandated training must also be obtained prior to the conduct of the study.**

Documents Approved:

Document Name	Document Type	Document Date	Document Version
Low Zero-sum Game Board	Online Survey	05/Aug/2022	1
High Zero-sum Game board	Online Survey	05/Aug/2022	1
DS2_Measures_V3	Online Survey	22/Aug/2022	3
DS2_InstructorsScript_v7.3	Online Survey	22/Aug/2022	3
AdForRecruitment_v3	Recruitment Materials	22/Aug/2022	3
DS2_Letter of Information_v3	Implied Consent/Assent	22/Aug/2022	3
Debriefing_v4	Debriefing Letter	06/Sep/2022	4
ReminderMessage_v4	Recruitment Materials	07/Sep/2022	4

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Ms. Zoë Levi, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Curriculum Vitae

Education

November 2023	**Ph.D.**, Industrial and Organizational Psychology Western University, London, Ontario, Canada
August 2019	**M.Sc.**, Social Psychology Western University, London, Ontario, Canada
April 2015	**B.Sc.**, Psychology Brigham Young University, Provo, Utah, USA

Publications

Benson, A. J., **Jensen, L. D**., & Patryluk C. E., (Under Review). Mapping the Traits Desired in Followers and Leaders onto Fundamental Dimensions of Social Evaluation. *Journal of Experimental Psychology: Applied.*

McGregor, A., Baird, N., **Jensen, L. D**., & Bensons, A. J., (2023). Narcissism and Seeing Red: How Perceptions of Social Rank Conflict Fuels Dominance. *Personality and Individual Differences, 214, 112328.*

Jensen, L. D., Patryluk, C. E., Vinoo, P., & Campbell, L. (2022). How dark personalities gain workplace influence: A replication and extension. *Personality and Individual Differences*, *190*, 111515.

Conference Presentations

Jensen, L. D., Benson, A. J., & Cheng, J. T. (2023, April). Beyond rank attainment: How dominance and prestige relate to team functioning. Poster to be presented at the annual meeting of the Society for Industrial and Organizational Psychology (SIOP). Boston, MA.

Jensen, L. D., Woodley, H. J. R., Hardy, J., & Benson, A. J. (February, 2020). Do great followers make great leaders? Disentangling the traits valued in followers and leaders? Presented at the Society for Personality and Social Psychology (SPSP) Preconference: Bringing intragroup processes back to social psychology, New Orleans, Louisiana.

Jensen, L., Heerey, E. (2019). An Exploration of Narcissism, Leadership, Dominance and Prestige Displays. Presentation to the Western-Waterloo-Wilfrid Laurier conference (WWW), Waterloo, Ontario.

Jensen, L., Heerey, E. (2019). An Exploration of Narcissism, Leadership, Dominance and Prestige Displays. Society for Personality and Social Psychology (SPSP), Portland, Oregon.

Jensen, L., Heerey, E. (2018). An Exploration of Competency, Leadership Emergence, and Social Cues. Presentation to the Western-Waterloo-Wilfrid Laurier conference (WWW), Waterloo, Ontario.

Jensen, L., Hook, C., Braithwaite, S., Fincham, F. (2015). Causal Relationships Between Casual Sex and Depressive Symptoms. Presentation to the Association for Behavioral and Cognitive Therapies (ABCT), Chicago, Illinois.

Research Experience

2023-Present Leadership Researcher
Haskayne School of Business
Advisor: Nick Turner, Ph.D.

2019-2023 Industrial and Organizational Researcher
Western University
Advisor: Alex Benson, Ph.D.

2017-2019 Social Psychology Researcher
Western University
Advisor: Erin Heerey, Ph.D.

2014-2017 Sexuality Psychology Researcher
Brigham Young University
Advisor: Scott R. Braithwaite, Ph.D.

2013-2015 Organizational Behavior Research Assistant
Marriott School of Business
Advisors: Sheli Sillito Walker, Ph.D., Katie Liljenquist, Ph.D.

Work Experience

2023-Present Senior Research Analyst
Monark

2022-2023 Undergraduate Thesis Supervisor
Western University

2019-2023 Teaching Assistant to the Undergraduate Psychology Honours Thesis Program
Western University

2017-2019 Teaching Assistant to Introduction to Psychology
Western University

2018-2019 Undergraduate Thesis Supervisor
Western University

2015-2017 Employee Insights Consultant
Qualtrics

2014-2015 Assistant to the Human Resources Manager
BYU Office of Information Technology