Hierarchical Team Structures Limit Joint Gain in Interteam Negotiations: The Role of Information Elaboration and Value Claiming Behavior

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ABSTRACT

Although teams of negotiators are widely assumed to be better at unlocking integrative solutions than individual negotiators, the interteam negotiation context is characterized by unique challenges which can make effective collaboration between teams difficult. We extend our theoretical understanding of interteam negotiations by offering novel insights about when and why teams realize their potential in integrative negotiations. Specifically, we propose a theoretical model that explains how hierarchical team structures reduce information elaboration *within* teams, which reinforces "fixed-pie" assumptions that prompt the reliance on value claiming behaviors *between* teams and lower high-quality outcomes such as the joint gain achieved. Across four studies, each involving interactive team-on-team negotiations, we provide support for the hypothesized effects of formal intrateam hierarchies on joint gain, and test a useful intervention to mitigate the harmful effects of hierarchically structured teams at the negotiation table. Contributions to the literatures on team negotiations, interteam collaboration, and hierarchical differences within teams are discussed.

"Secretary Blinken is building a dedicated team, drawing from clear-eyed experts with a diversity of views. Leading that team as our Special Envoy for Iran will be Rob Malley, who brings to the position a track record of success negotiating constraints on Iran's nuclear program."

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− The U.S. State Department, January 2021

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In a complex, changing, and increasingly contested world, teams are often required to negotiate with one another in a variety of settings to solve challenging problems and to collaborate over the division of scarce resources. For example, Secretary of State Antony Blinken tasked Robert Malley, a member of the original U.S. team that reached a deal with Iran on their nuclear program in 2015, to lead a small team of diplomats possessing a diversity of views to negotiate with them again in 2021 (Spetalnick & Mohammed, 2021). The move indicated the Biden administration's desire to reestablish a nuclear agreement with Iran, while also signaling that a team with clearly delineated roles and responsibilities would be responsible for the negotiations. However, despite these well-intentioned measures to facilitate a high-quality outcome, progress toward reaching a deal has taken longer than expected (Mills & Ghantous,

2022), raising the question of how Blinken might have approached this situation differently.

Teams are prevalent at the negotiation table as the knowledge and/or resources required to reach an agreement (let alone a high-quality deal) is not commonly held by two opposing individual negotiators. Moreover, team members can add tactical flexibility to the negotiation and aid each other in identifying additional tradeoffs, concessions, and, ultimately, enable the discovery of mutually beneficial solutions. Although having a team present can aid in their ability to reach high-quality agreements (Hüffmeier et al., 2019; Thompson et al., 1996), interteam settings also create unique challenges (de Vries et al., 2021; Shuffler & Carter, 2018) that can undermine the quality of agreements (Cohen & Thompson, 2011). For instance, greater competition and ineffective communication between teams are commonly identified as key problems that limit interteam collaboration (Polzer, 1996; Trötschel et al., 2010). Given the high stakes associated with interteam negotiations, and the potential consequences that can ensue when teams miss the potential to reach a deal (or obtain a low-quality solution), it is valuable to identify and understand the factors that help teams reach high-quality agreements.

Prior research on interteam collaboration suggests that the internal structure of teams plays an important role in affecting their ability to work with other teams. Specifically, research on multi-team systems shows that the challenges that affect complex interteam interactions can be mitigated by the presence of formal hierarchical team structures – whereby each team has a leader with primary decision-making authority – because such structures are expected to facilitate more coordinated and direct interteam communication (e.g., Davison et al., 2012). In contrast, decentralized (i.e., egalitarian) team structures have multiple people involved in decision-making which can further complicate interteam interactions and make it difficult for teams to complete tasks that require the coordinated engagement of multiple teams (Lanaj et al.,

2013). Although this work points to the possible benefits of hierarchical team structures in interteam settings, hierarchies can also limit the sharing and integration of diverse perspectives within the team and impede their ability to obtain a rich and thorough understanding of the situation that is needed to achieve joint gain in integrative negotiations (i.e., settings where there exists the opportunity to reach an agreement that satisfies both teams' goals to a greater extent than would a "fifty-fifty" compromise).

Despite the touted benefits that hierarchical structures may bring teams in some settings, we argue that in the context of integrative negotiations between teams, hierarchical team structures will harm the quality of negotiated outcomes, and thus undermine effective interteam collaboration. Integrating the literatures on interteam negotiations (see Cohen & Thompson, 2011; De Dreu et al., 2015, for reviews) and intrateam hierarchy (see Greer et al, 2018; Halevy et al., 2011; Magee & Galinsky, 2008, for reviews), we propose that hierarchical structures reduce information elaboration *within* teams, which reinforces "fixed-pie" assumptions that prompt the reliance on competitive value claiming behaviors *between* teams and lower high-quality outcomes such as the joint gain achieved. We study the joint gain achieved between teams because these outcomes reflect greater interteam collaboration in team negotiations and play an important role in reducing the recurrence of intergroup conflict whilst stimulating economic prosperity (Pruitt & Lewis, 1975; Raiffa, 1982). Consistent with the team negotiations literature - and prior empirical research on the topic (e.g., Brodt & Tuchinsky, 2000; Cohen et al., 2014; Peterson & Thompson, 1997; Swaab et al., 2021; Thompson et al., 1996) - we focus our examination upon smaller negotiation teams (i.e., at least two people). Across four studies, each involving interactive team-on-team negotiations, we provide support for the hypothesized effects

of formal intrateam hierarchies on joint gain and test a useful intervention to mitigate the harmful effects of that hierarchically structured teams can have at the negotiation table.

Our research makes several important contributions. First, it contributes to research on teams in negotiation, which has focused predominantly on the benefits of having two teams (as compared to two individuals) at the negotiation table, but largely ignored the factors that help to explain when and why teams leave valuable resources unused. Although extant work acknowledges that the benefits associated with teams in negotiations are likely cultivated through the interactions that occur within each team (Cohen & Thompson, 2011), this research has hitherto failed to systematically examine how the hierarchical organization of each team – a fundamental property of teams with very powerful and direct implications on team member interactions (e.g., Bunderson et al., 2016) – affects their ability to achieve joint gain in integrative negotiations. By proposing a theoretical model that explains how intrateam hierarchies undermine intrateam information elaboration and interteam joint gain, this research offers novel insights about when and why teams realize their potential and contributes to work that adopts a multi-level framework to the study of team negotiations (e.g., Brodt & Thompson, 2001; Halevy, 2008; Van Bunderen et al., 2018). In doing so, the present research helps to qualify and extend potentially incorrect assumptions surrounding the benefits of hierarchical team structures in complex interteam settings by showing that these may not apply in the context of team negotiations with integrative potential.

Second, this research contributes to prior studies examining the impact of appointed leaders and representatives on negotiation dynamics. Although this work has similarly suggested that appointed lead negotiators can create more competitive dynamics (Carnevale et al., 1979; Jackson & King, 1983; Pruitt et al., 1986), the basis for these conclusions are drawn from work

where appointed leaders do not negotiate in the presence of their team members nor interact with them. Accordingly, research on representative negotiations tends to generalize insights from individual processes and interpersonal dynamics to intergroup settings (see De Dreu et al., 2015, for a similar critique), limiting the extent to which it can be used to explain how different team structures impact negotiation outcomes.

Lastly, our research contributes to the literature on formal team hierarchies (Bunderson et al., 2016; Greer et al., 2018; Halevy et al., 2011; Magee & Galinsky, 2008). At present, this literature has documented that interteam competition within the broader social setting can increase the endorsement of hierarchical structures within teams (Van Bunderen et al., 2018) and that formal team hierarchies, on average, harm intrateam performance (see Greer et al., 2018 for a review). Importantly, however, this research has not examined how the dynamics that result from intrateam hierarchical differentiation impact a team's ability to effectively collaborate with other teams. This is an important contribution to the hierarchy literature because individuals do not just need to collaborate with members of their own team but also with members from other teams. In doing so, this research helps to answer a call for research to better understand the various consequences of hierarchical differences in teams (Greer et al., 2018).

THEORY DEVELOPMENT AND HYPOTHESES

Interteam Negotiations

Teams are frequently required to work with other teams in order to reach their goals. However, organizational resources are scarce and teams' goals rarely align in a perfect manner, resulting in interteam conflict. To regulate conflict and achieve their goals, opposing parties can seek to negotiate with one another to develop a solution that both parties will agree upon. In these situations, each party has incentives to cooperate and reach an agreement, but also to compete and ensure the agreement reached serves their own interests (Kelley & Thibaut, 1978;

Lewicki et al., 2021; Schelling, 1960). These negotiations frequently involve multiple issues on which teams' interests and preferences are not completely opposed, offering so-called "integrative potential" (Kersten, 2001) that allows for agreements that satisfy both teams' interests to a greater extent than merely compromising on all issues. Integrative solutions are generally reached through constructive negotiation and problem solving, rather than the reliance on competitive value claiming tactics (Gunia et al., 2011; Weingart et al., 1990).

Teams are widely assumed to be better at unlocking integrative solutions than individuals (Hüffmeier et al., 2019; Morgan & Tindale, 2002; Thompson et al., 2006) because they hold greater information processing capacity and suffer from fewer reasoning errors (Cohen et al., 2014). However, interactions between teams also introduce another set of challenges (Wildschut & Insko, 2007). For example, teams generate more ideas and perspectives which, if not managed properly, can undermine the ability to work effectively with other teams (Lanaj et al., 2013). Moreover, compared to interactions between two individuals, interactions between teams are characterized by a stronger focus on their own interests (Cohen et al., 2009), less trust (Naquin & Kurtzberg, 2018; Polzer 1996), and greater competition to benefit their ingroup at the expense of the outgroup (Polzer, 1996). These effects emerge because team membership offers a shield of anonymity which makes it easier for individual members to hide behind the team and engage in aggressive behaviors that they might otherwise avoid (Druckman et al., 1972; Klimoski & Ash, 1974). Thus, whereas teams outperform individuals in unlocking integrative potential, the challenges associated with interteam settings can impede effective collaboration (Polzer, 1996; Swaab et al., 2021). These insights may help explain why teams are often found to fall short of discovering the full integrative potential in multi-issue negotiations, with undiscovered resources being left on the table (Hüffmeier et al., 2019; Thompson et al., 1996).

The recognition that negotiation teams experience challenges in harnessing their full potential has led scholars to call for a better understanding of the central processes and contingencies that affect interteam collaboration (e.g., Cohen & Thompson, 2011). Existing research suggests that interteam outcomes can be improved if each team organizes themselves hierarchically. For instance, intrateam hierarchies help teams to coordinate their efforts and facilitate the successful completion of tasks that require multiple teams to work together to complete them (Lanaj et al., 2013; Matusik et al., 2021). Further, prior research suggests that intergroup conflict is better regulated when appointed leaders or so-called representatives are involved (Jackson & King, 1983; Mnookin & Susskind, 1999). The underlying idea here is that any interteam conflict may be better handled by a single formal leader representing the group's interests rather than the entire team of constituents (Kelman, 2006; Vidmar, 1971). Indeed, representatives are thought to be vital in helping teams communicate with their counterpart, promoting their team's interests, and effectively exchanging and disseminating information within their own team (Druckman et al., 1972; Mosterd & Rutte, 2000). Likewise, research on power differences in negotiations (Mannix & Neale, 1993; Overbeck & Kim, 2013; Schaerer et al., 2020) shows that more powerful negotiators are motivated to better represent their parties in procuring valuable resources (Kang et al., 2015), implying that teams with a power differentiated structure would negotiate more effectively.

Although prior research suggests that appointing lead negotiators and power differentiated structures may be beneficial, the bulk of research on the effects of appointed leaders and representatives has only examined the individual psychological effects of being a leader, but overlooked the internal team dynamics that such structures create in the context of actual negotiating teams. This is a notable distinction since the ability of negotiating teams to

capitalize upon their enhanced cognitive potential and reach higher joint gain is contingent upon the interactions that occur within the team (Cohen & Thompson, 2011). Accordingly, while this research provides insights about the impact of power on individual and dyadic negotiations (Bacharach & Lawler, 1981; Kim et al., 2005), it fails to provide a full understanding about how power structures within teams influence joint gain in negotiations between teams. Recognizing this limitation in the broader literature on interteam collaboration, an emerging body of research on multiteam systems has examined how within- and between-team processes interact to produce interteam outcomes (Davison et al., 2012). Although this work shows that the presence of multiple hierarchical teams within organizations can benefit intrateam coordination (Lanaj et al., 2013), it has not examined how such structures shape a team's ability to maximize joint gain in situations with integrative potential. This presents an important boundary condition and implies that existing theoretical models should be revised to better account for the impact that hierarchical structures have on both intra- and interteam negotiation processes and importantly, how they affect the potential to create value and discover integrative solutions.

We argue that the presence of formal hierarchical structures may exert harmful effects that have not been captured in past research because intrateam hierarchical structures give rise to specific intrateam processes that undermine joint gain. Drawing upon research suggesting that hierarchies impede the cognitive bandwidth of teams (see Greer et al., 2018; Magee & Galinsky, 2008, for reviews), we propose a multi-level model of intrateam hierarchy and interteam collaboration that explains how hierarchical team structures make it more difficult to elaborate effectively on the available information (Path A, Figure 1) which, in turn, leads the team to rely more on competitive value claiming tactics (Path B, Figure 1) which then undermine the quality of the negotiated agreement as reflected in lower joint gain (Path C, Figure 1).

Insert Figure 1 about here

The Consequences of Hierarchical Team Structures in Interteam Negotiations

Team Hierarchy and Intrateam Information Elaboration. Compared to egalitarian

teams, hierarchical teams have clear positional differences among their members, typically with

one individual deemed the leader and the others being the followers (for similar

conceptualizations of team hierarchy see Berson & Halevy, 2014; Greer & Van Kleef, 2010;

Hambrick et al., 2015; Van Bunderen et al., 2018). Hierarchical teams tend to employ more

centralized decision-making processes than egalitarian teams whereby a single person (i.e., the

leader) has a greater amount of power and decision-making authority within the team (Gruenfeld

& Tiedens, 2010; Halevy et al., 2008). Hierarchical structures also emphasize peoples'

dependencies and vulnerabilities towards one another (e.g., Eisenhardt & Bourgeois, 1988; Van

Bunderen et al., 2018), which can increase their sensitivity to power differences or potential

incompatibilities between team members (Greer et al., 2017), limit team members' cognitive

bandwidth (Hildreth & Anderson, 2016; Kruglanski et al., 2010), and encourage them to seek

consensus at the expense of potentially valuable insights.

Both the behaviors of the team leader and follower(s) contribute to these dynamics:

whereas leaders often refrain from actively considering the followers' perspectives (Tost et al.,

2012), followers are often reluctant to voluntarily offer their suggestions (Anicich et al., 2015).

Although these dynamics benefit teams when they need to converge on executing existing plans

(Tiedens et al., 2007; Halevy et al., 2012), they undermine a team's ability to perform on tasks

that require greater divergence, adaptation, and information exchange (Anicich et al., 2015;

Bunderson & Reagans, 2011; De Dreu & Van Kleef, 2004; Wellman et al., 2020). Together, this

research shows that the presence of formal intrateam hierarchies can limit the extent to which

teams systematically process, share, and integrate perspectives, which is particularly harmful when high-quality outcomes require the team to obtain a rich and thorough understanding of the situation (Bunderson & Sanner, 2017).

The processing, sharing, and integrating of information in teams is defined as information elaboration (Van Knippenberg et al., 2004). High levels of intrateam information elaboration exist when team members not only share information with others but also engage with the information offered by others (Kooj-de Bode et al., 2008; Van Ginkel et al., 2009) by considering each other's views and reconciling them with their own (Schippers et al., 2014). In contrast, low levels of intrateam information elaboration exist when team members fail to consider each other's views, do not reconcile them, and are more inclined to stick to their customary routines (Gray, 2007; West, 1996). As intrateam information elaboration increases, group members share knowledge, experiences, and insights which can aid their ability to make high-quality decisions (Tindale & Kameda, 2000). Thus, intrateam information elaboration is crucial for tasks that benefit from divergent thinking because it helps the team discover more creative and optimal solutions (De Dreu et al., 2008; Van Ginkel & Van Knippenberg, 2008). For example, Nederveen Pieterse and colleagues (2011) found that explicit instructions to engage in information elaboration led team members to share more information, reflect more deeply on this information, and revise their views which then helped them to develop more creative solutions. Together, we contend that formal intrateam hierarchy will reduce intrateam information elaboration (see Path A, Figure 1). Whereas prior work has focused on the impact of intrateam information elaboration on team-level outcomes, we argue that the decreased levels of information elaboration *within* hierarchical teams can also affect competitive behaviors *between* teams and harm the quality of joint outcomes in negotiations with integrative potential.

Effect of Intrateam Information Elaboration on Interteam Negotiation Outcomes.

Although negotiations often offer integrative potential that allows for high-quality and mutually beneficial agreements, negotiators are notoriously bad at capitalizing upon such potential. One of the key challenges preventing negotiators from discovering such agreements is the so-called "fixed-pie bias", or the belief that one's own and others' outcomes are diametrically opposed (De Dreu et al., 2000; Pinkley et al., 1995; Pruitt & Carnevale, 1993). A strong reliance on fixed-pie perceptions causes negotiators to overlook the benefits associated with trading off different priorities and, as a result, to adopt a more competitive value claiming strategy, characterized by behaviors that are intended to maximize their own outcomes at the expense of their opponent (e.g., threats; references to bottom line; exerting pressure) (Weingart et al., 2007). Within negotiations, value claiming behaviors prompt competitive spirals (O'Connor & Arnold, 2001; Weingart et al., 1999; 2007) and undermine joint gain (Aaldering & De Dreu, 2012; Brett & Thompson, 2016). Consequently, when negotiators do not revise their fixed-pie beliefs, they continue to rely on a value claiming strategy which prevents them from recognizing the integrative potential, resulting in suboptimal agreements that leave valuable resources unused.

Negotiators do not just hold fixed-pie beliefs before they enter the negotiation but also maintain these beliefs throughout the negotiation (Bazerman, 2003). The persistence of these perceptions has been attributed to negotiators' limited information-processing capacity (Neale & Bazerman, 1991). Negotiations with integrative potential are complex and negotiators often simplify such situations by making inferences about the opponent's preferences and priorities and construing a reality "to support the belief that the bargaining opponent has directly opposing preferences" (Pinkley et al., 1995, pg. 102). Negotiators typically demonstrate information processing errors (i.e., "reception errors" [Bazerman & Neale, 1992]) that lead them to either

ignore or distort information that relates to the priorities and preferences of one's opponent, limiting their ability to unlock a deal's integrative potential. For example, De Dreu (2003) found that negotiators were particularly unlikely to revise their unfounded fixed-pie perceptions when they were pressed for time, and that this resulted in lower quality negotiation agreements. Thus, to achieve high-quality agreements, negotiators must engage in more effortful, deliberate, and systematic processing of information, particularly with respect to information about the priorities and preferences of their counterpart (Curhan et al., 2021; Thompson et al., 1996).

We propose that greater intrateam information elaboration should help counter the default fixed-pie thinking of negotiators that leads to value claiming behavior and lowers high-quality joint outcomes because it helps encourage negotiators to process available cues more carefully (see Path B and Path C, Figure 1). Consistent with this view, it has been argued that teams "deepen their understanding of the situation" when they engage in more information elaboration by discussing their options with others on their team, sharing diverse perspectives, and correcting each other's misperceptions (Cohen & Thompson, 2011, pg. 13). As such, greater intrateam information elaboration should enable teams to gain a more comprehensive understanding of the priorities and preferences of the other team. This realization, in turn, should reduce their fixed-pie bias and reliance on value claiming behaviors and, as a result, help them identify potential tradeoffs and collaborative opportunities to create more value (Gunia et al., 2011; Kong et al., 2014; Weingart et al., 1990).

Because hierarchical structures tend to impede intrateam information elaboration and a lack of information elaboration reinforces negotiators' fixed-pie assumptions, we propose that hierarchical teams are more likely to adopt a competitive value claiming strategy than egalitarian teams and achieve lower quality agreements. Without leveraging members' diverse perspectives

and learning from one another within the team, hierarchical teams may continue to suffer from the fixed-pie bias and struggle to realize how value claiming behaviors limit their ability to make more optimal trade-offs. In contrast, teams with egalitarian structures should more readily engage in information elaboration, which reduces the fixed-pie bias and reliance upon competitive value claiming behaviors.

Taken together, we propose that the joint gain of agreements in interteam negotiations with integrative potential will be lower when teams have formal hierarchical structures than when they have egalitarian structures. We further propose that these effects emerge because hierarchical teams will elaborate on the available information less than egalitarian teams, which increases their reliance on a more competitive value claiming strategy.

Accordingly, we hypothesize that:

> *Hypothesis 1*: Negotiations between two teams with formal hierarchical structures will result in lower joint gain as compared to negotiations between two teams with egalitarian structures.

> *Hypothesis 2*: The negative relationship between hierarchical team structures and joint gain will be mediated by intrateam information elaboration.
> *Hypothesis 3*: The negative relationship between hierarchical team structures and joint gain will be serially mediated by intrateam information elaboration and the use of value claiming behaviors.

OVERVIEW OF STUDIES

We tested our predictions in four interactive team-on-team negotiation studies. Study 1 varied the presence or absence of a formal team hierarchy and tested its hypothesized effect on joint gain in a sample of MBA students. Studies 2 and 3 examined our proposed mediation hypotheses by measuring intrateam information elaboration and value claiming behaviors during the negotiations. Study 4 adopted a moderation-of-process approach to test the proposed causal role of intrateam information elaboration in decreasing value claiming behaviors and increasing joint gain. The serial mediation hypothesis, analyses, and coded measures for intrateam

information elaboration and value claiming behavior were pre-registered prior to collecting the video-coded evaluations in Studies 2 and 3. In each of our studies, we have reported measures that were collected to test our hypothesized model, conditions, and data exclusions. Data and materials are available online.[1]

STUDY 1

Study 1 was designed to test the prediction that hierarchical teams achieve lower joint gain than egalitarian teams.

Method

Participants and Design. Three-hundred and eighteen graduate-level Master of Business Administration (MBA) students (64% males) at a U.S. business school participated as part of a class exercise in a course on negotiations. Participants were randomly assigned to work in a team with another student assigned to the same buyer or seller role, and were randomly paired to negotiate against another team with the opposing role (resulting in 156 teams participating in 78 team-on-team negotiations, [referred to hereafter as the *negotiation group*]). Teams of three occurred occasionally, which led to some negotiation groups having more than four people ($M_{groupsize}$ = 4.08). Controlling for group size did not affect the significance of findings. Negotiation groups were randomly assigned to either the *Hierarchy* (N = 40 negotiation groups) or *Egalitarian* (N = 38 negotiation groups) condition. In support of randomization, results of a one-way ANOVA showed no differences between conditions on gender, $F(1,75) = .11$, $p = .74$.

Procedure. Participants negotiated a highly complex multi-issue negotiation exercise with integrative potential, *Cartoon*.[2] The negotiation involved the syndication of a television

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[1] For data and syntax used to test the hypotheses, pre-registration materials, manipulations, and other supplementary online documents see: https://osf.io/m6duv/?view_only=c9e0a5e6f78041889f37365009f2efd8.
[2] Negotiation simulations used in all studies are available from: https://www.negotiationandteamresources.com. Please contact corresponding author for the edited versions of the simulations used in Studies 2-4.

show between a buyer and seller and included four negotiation issues. Price was a purely distributive issue (i.e., where one party's loss was the other's gain). Financing terms and number of runs were integrative issues (i.e., where trade-offs could be made to create more value). There was one optional issue, a second show, whose inclusion in the agreement could serve to benefit both parties. There were no power differences between teams as both buyers and sellers had comparable alternative deals they could fall back upon in the event that they did not reach a more appealing agreement. This negotiation took place several weeks into the course, after students had been exposed to the basics of integrative and distributive bargaining. Thus, the participants in our sample not only had working experience but had also received formal training on the fundamentals of distributive and integrative negotiations before completing this exercise.

Participants received their buyer or seller role materials a week before the exercise. Students individually prepared for the negotiation before coming to class and were encouraged to use a laptop or other electronic device to aid them in conducting calculations which would allow them to determine the profit associated with their agreement. Upon arrival to class, participants were assigned a teammate(s) who had received and prepared for the same negotiation. Participants were given 20 minutes to have a private meeting with their teammate(s) prior to the negotiation beginning. Soon after beginning to meet with their teammate(s), teams were individually given an additional instructional sheet which they were told needed to be read and discussed prior to beginning the negotiation. The instructor answered any questions and ensured students followed instructions stated in the sheet.

Teams in the *hierarchy* condition read that successful negotiators recommend that teams have a single leader with decision-making authority to get a better deal and thus, they were instructed to choose one person to be the leader and one person to be the follower. All team

members were instructed that the leader should be 'in charge' of their team and should have more influence over the team decisions made in the negotiation than the follower(s). Similar manipulations of formal hierarchical structures have been shown to be effective in past research (e.g., Briñol et al., 2007; Greer & Van Kleef, 2010; Overbeck & Park, 2001). In the *egalitarian* condition, teams read that successful negotiators recommend that teams in which members equally share leadership get a better deal. Team members were told that they should *equally* be in charge of their team and hold the same amount of influence over the team's decisions.

In both conditions, participants were instructed to discuss with their teammate(s) about how they would ensure that their behaviors during the negotiation are consistent with these instructions. Both teams in each negotiation group received the same hierarchy or egalitarian instructions. After finishing their preparation for the negotiation, teams met one another and began the negotiation in a private room. Negotiation groups were given 70 minutes to negotiate. After finishing the negotiation, an outcome sheet was completed which provided the terms of the deal. Finally, participants individually completed a brief manipulation check questionnaire. To assess the team hierarchy manipulation, participants were asked: *Within my team, my teammate and I had the same amount of:* 1) *power,* 2) *influence*, and 3) *leadership*, on a seven-point Likert scale from 1 (*very much disagree*) to 7 (*very much agree*) ($\alpha = .92$). Individual ratings were aggregated to the team-level: $ICC(1) = 0.28$; $ICC(2) = 0.45$; $F(145, 152) = 1.80$, $p < .001$.

Joint Gain. Each team's individual scores were computed using the same formulas detailed in participants' buyer and seller role packets. Joint gain was calculated by aggregating the profit that both parties earned from the agreement. The maximum amount of joint gain that could be created was $5,080,000. There was one negotiation in the hierarchy condition which

resulted in an impasse. Instead of giving this group a joint gain score of zero, we followed

recommendations by Tripp and Sondak (1992) to remove this group from the analyses.

Results

Manipulation Check. Given that our focus is on a between-condition comparison at the

negotiation group-level, team-level manipulation check scores were aggregated to the

negotiation group-level for ease of interpretation.[3] Supporting the success of our hierarchy

manipulation, negotiators in the hierarchy condition reported being significantly less egalitarian

than those in the egalitarian condition, ($M_{hierarchy}$ = 4.47, $SD_{hierarchy}$ = .89 vs. $M_{egalitarian}$ = 5.86,

$SD_{egalitarian}$ = .82), $F(1, 75)$ = 50.26, $p < .001$, d = 1.62.

Hypothesis Test. Hypothesis 1 predicted that joint gain would be lower when negotiation

teams were hierarchical than when they were egalitarian. Consistent with this prediction,

negotiations in the hierarchy condition achieved significantly lower joint gain ($M_{hierarchy}$ =

4,272,054.71, $SD_{hierarchy}$ = 695,025.74) than did negotiations in the egalitarian condition

($M_{egalitarian}$ = 4,606,335.53, $SD_{egalitarian}$ = 430,731.55), $F(1, 75)$ = 6.40, p = .014, d = .58.

Discussion

The results of Study 1 supported our prediction that negotiations between hierarchical

teams achieve lower joint gain than negotiations between egalitarian teams.

STUDY 2

The aim of Study 2 was to replicate the results from Study 1 in a more controlled

laboratory setting and extend the findings in several ways. First, we video-recorded negotiations

which allowed for intrateam information elaboration and value claiming behaviors to be

[3]In all of our studies, we also examined the effectiveness of our manipulation check at the team-level. We used a
hierarchical linear model to regress our three-item manipulation check variable on a dummy variable that reflected
whether the team was in the hierarchy condition or in the egalitarian condition. The significance of the manipulation
check results replicate at the team-level in the current study and all subsequent studies.

evaluated by coders, allowing us to test our proposed mediation hypotheses. Second, given the common occurrence of both group-selected and assigned leaders in organizational work teams, combined with the recognition that having group-selected (as opposed to assigned leaders) can differently affect competitive behaviors (Julian et al., 1969; Naquin & Kurtzberg, 2018), Study 2 sought to test our proposed effects in negotiation teams where the leaders are assigned instead of selected by the team (as done in Study 1). Third, we included a control condition in Study 2 where negotiating teams were not given instructions regarding the recommended intrateam structure to establish whether formal hierarchical structures decrease joint gain or that egalitarian structures increase joint gain. Fourth, to better situate our research in the literature comparing team-on-team versus solo negotiations, Study 2 included a condition with two individuals negotiating with each other. This condition helped us to establish whether hierarchical teams, despite achieving lower joint gain than egalitarian teams, still outperform two individuals negotiating. Finally, Study 2 used a different negotiation task and a sample of undergraduate business students to help examine the robustness of our effects.

Method

Participants and Design. Nine-hundred and ninety undergraduate business students (M_{age} = 20.99 years; 54% males) from a U.S. university participated in exchange for extra credit. Sample size was determined by recruiting as many participants as possible, with a minimum requirement of 25 negotiations (i.e., 50 teams) per condition. Nine negotiation groups did not follow instructions (i.e., they either exchanged role sheets with the other team and/or one of the teams did not discuss role information with their teammate during the pre-negotiation preparation stage [more details are provided in the procedure below]) and were removed. This resulted in a final sample of 949 individual participants, comprising 390 teams and 195 negotiation groups. Teams of three occurred occasionally which led to some negotiation groups

having more than four people ($M_{groupsize}$ = 4.15). Controlling for group size did not affect the significance of findings. The negotiation groups were randomly assigned to one of three team structure conditions: *Hierarchy* (N = 63, both teams had a single formal leader), *Egalitarian* (N = 66, teams did not have a single formal leader), and *Control* (N = 66, no instructions about structure). We also included a *solo* condition where two individuals were randomly assigned to negotiate with each other (N = 70, solo versus solo). Combining the negotiation group conditions and the solo condition resulted in a total sample of 265 negotiations. In support of randomization, results of a one-way ANOVA showed no differences between conditions on gender, $F(3, 260)$ = .56, p = .64, nor on age, $F(3, 260)$ = 1.46, p = .23.

   Procedure. Participants arrived at the laboratory and were seated in a large meeting room where they completed their consent form. Prior to being assigned to their team, experimenters randomly handed each participant one of two roles for the negotiation (i.e., an ice cream shop owner or bakery owner). At the top of each role packet was a unique ID that was used to randomly assign participants to their teams and to their negotiation group. Unbeknownst to them at the beginning of the study, all participants in a negotiation group had the same unique ID located at the top of their page. Participants were given 5 minutes to read through their role materials and familiarize themselves with the issues included in the negotiation. After reading through their role materials individually, participants with corresponding unique IDs *and* who were assigned to the same role were matched as teammates, moved to a private location, and were given 15 minutes to prepare for the negotiation together as a team. Participants in the solo condition prepared for their negotiation in a private location.

   Teammates were given identical information with regards to the upcoming negotiation but had another set of instructions attached to their role materials that included our team structure

(i.e., hierarchy versus egalitarian) manipulation. The instructions remained the same as those used in Study 1, with one exception. Instead of self-selecting their leader in the hierarchy condition, one team member was told that they were assigned to be the leader and the other team member(s) that they were assigned to be the follower(s). Assignment to the leader and follower positions were random. During the preparation stage, an experimenter checked on each team to ensure that they followed the team instructions that were provided to them. Neither teams in the *control* condition, nor participants in the *solo* condition, were given instructions which referred to having a leader or follower role in the negotiation. Participants in these conditions were given the same amount of time to prepare as in the hierarchy and egalitarian conditions.

After the preparation stage, participants with matching unique IDs and opposing role materials (i.e., Ice-cream shop owner or Bakery owner) were brought to a private break-out room to conduct their negotiation. The negotiation was adapted from *The Sweet Shop* negotiation, with each negotiating party representing the owners of either an Ice Cream shop or a Bakery. The two parties were considering a shared business space and were asked to negotiate four primary issues related to staffing, temperature, design, and maintenance. Each of the four primary issues in the negotiation was valued differently depending on the role such that some issues were more important to the Bakery and some issues were more important to the Ice Cream shop. They could also negotiate one optional distributive issue of delivery. Participants were given up to 20 minutes to reach a deal. Once a deal was made, each group filled out a post-negotiation outcome sheet outlining the deal that had been made. Negotiations were video recorded.

Before leaving the laboratory, participants in the interteam negotiation conditions exited their break-out rooms and returned to the laboratory's main meeting room to individually complete a post-negotiation questionnaire which contained a manipulation check. The same

three-items from Study 1 were used to assess if our hierarchy manipulation was successful (α = .93). The intra-class correlations (ICC) across team members were: ICC(1) = .24; ICC(2) = .40; $F(380, 411) = 1.67, p < .001$.

Dependent Variables

Intrateam Information Elaboration. To assess information elaboration, the video recorded negotiations were coded by four research assistants who were blind to the hypotheses and experimental condition. Based on the video recordings, intrateam information elaboration was assessed with 5-items reflecting behaviors identified in Van Ginkel and Van Knippenberg (2008) that indicate information elaboration within teams. Coders were instructed to evaluate the degree of information elaboration within each team.[4] Specifically, the judges were trained to identify and indicate the degree to which each team displayed the following during the negotiation: *Team members...1) often looked to each other to check if they were on the right track; 2) appeared open to modifying their strategy as new information came to light; 3) regularly discussed their approach to the negotiation before speaking; 4) took their teammate's perspectives and thoughts into consideration; and 5) appeared interested in their teammate's ideas*. Items were assessed on a five-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*) (α = .71). Each negotiation video was evaluated by at least one judge, with at least two judges overlapping on 52.9% of the videos (101 out of 191 videos). In the videos that were evaluated by two judges, items were first aggregated within each coder and then aggregated across coders. There was high interrater reliability on team-level information elaboration justifying aggregation, ICC(1) = .50; ICC(2) = .67; $F(201, 202) = 3.01, p < .001$.

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[4] As detailed in our pre-registered data and analyses, we also coded intrateam conflict and ran exploratory analyses examining its role in our model. Adding intrateam conflict as a control variable in our analyses does not alter support for the hypotheses; analyses are presented in the Supplementary Online Materials file.

Interteam Value Claiming Behavior. To assess value claiming behavior, the video recorded negotiations were watched and coded by six research assistants who were different from the ones that coded information elaboration. These research assistants were different from those used to code information elaboration to avoid common source bias. Value claiming behavior was assessed with 3-items consistent with a value claiming negotiation strategy from prior research (Bowles & Flynn, 2010; Pruitt, 1981; Weingart et al., 1999; 2007). The judges were trained to identify and indicate the extent to which each party displayed the following during the negotiation: *To what extent did the Baker [Ice Cream] team… 1) try to influence the Ice cream [Baker] team to accept their ideas; 2) try to dominate the conversation; and 3) insist that their position be accepted?* Items were assessed on a five-point Likert scale from 1 (*not at all*) to 5 (*very much*) (α = .88). Each negotiation video was evaluated by at least one judge, with at least two judges overlapping on 41.89% of the videos (80 out of 191 videos). In the videos that were evaluated by two judges, items were first aggregated within each coder and then aggregated across coders. There was high interrater reliability on team-level value claiming behaviors justifying aggregation, ICC(1) = .61; ICC(2) = .76; $F(159, 160) = 4.11$, $p < .001$.

Joint Gain. Joint gain was calculated by summing the points that each team earned. The maximum joint gain possible was 21,000 points. There was one negotiation in the solo condition which resulted in impasse. As done in Study 1, this negotiation was removed from the analyses.

Analytical Approach

To test our hypotheses that team-level dynamics (i.e., information elaboration, value claiming behavior, and conflict) impact interteam outcomes (i.e., joint gain), we followed the recommendation (Chan, 1998; Johnson et al., 2011) to aggregate our team-level measures to the negotiation group-level prior to running analyses in this study (and all subsequent studies) to

match the level of analysis of our dependent variable of join gain.[5] To empirically support the appropriateness of aggregating team-level data to the negotiation group-level, we calculated intraclass correlation coefficients (ICCs; Shrout & Fleiss, 1979). Results supported aggregation to the negotiation group-level for information elaboration, $ICC(1) = .45$; $ICC(2) = .62$; $F(190, 191) = 2.61$, $p < .001$; and for value claiming behavior, $ICC(1) = .48$; $ICC(2) = .65$; $F(190, 191) = 2.87$, $p < .001$.

Given that the independent variable is multicategorical, mediation analyses to test Hypotheses 2 and 3 were conducted using contrast codes (Hayes & Preacher, 2014) where the hierarchy condition was compared against the egalitarian condition. We tested our predicted mediation and serial mediation with PROCESS (Model 4 and Model 6; Hayes, 2017) using 5000 bootstraps and 95% confidence intervals, where significance of the indirect effect is noted by the confidence intervals not including zero.

Results

Manipulation Check. Supporting the effectiveness of our manipulation, results of a one-way ANOVA indicated significant differences between the hierarchy, egalitarian, and control conditions on self-reported egalitarianism, $F(2, 192) = 25.75$, $p < .001$. A planned contrast showed that negotiations in the hierarchy condition reported being significantly less egalitarian ($M_{hierarchy} = 4.47$, $SD_{hierarchy} = 1.00$) than those in the egalitarian condition ($M_{egalitarian} = 5.46$, $SD_{egalitarian} = .88$), $t(192) = 6.33$, $p < .001$, $d = 1.05$. Negotiations in the hierarchy condition also reported being significantly less egalitarian than negotiations in the control condition ($M_{control} =$

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[5] We also examined our effects on the measured team-level dynamics at the lower level of analysis (i.e., the team-level) using a hierarchical linear model; results replicate in direction and significance at the team-level in the current study and all subsequent studies. These analyses are presented in the Supplemental Online Materials.

5.43, $SD_{control}$ = .76), $t(192)$ = 6.14, $p < .001$, $d = 1.08$. There was no difference between the egalitarian and control conditions on self-reported egalitarianism, $t(192) = .19$, $p = .85$, $d = .04$.

  Hypothesis tests. Hypothesis 1 predicted that joint gain would be lower when teams have a hierarchical team structure as compared to when teams have an egalitarian team structure. Results of a one-way ANOVA indicated significant differences between the four conditions on joint gain, $F(3, 260) = 14.28$, $p < .001$. Planned contrasts showed that the hierarchy condition obtained significantly lower joint gain ($M_{hierarchy}$ =16,674.60, $SD_{hierarchy}$ = 1,184.27) than the egalitarian condition ($M_{egalitarian}$ = 17,280.30, $SD_{egalitarian}$ = 1,653.97), $t(260) = 2.42$, $p = .016$, $d =$ .42. The hierarchy condition was also found to create lower joint gain than the control condition ($M_{control}$ = 17,393.94, $SD_{control}$ = 1,683.10), $t(260) = 2.88$, $p = .004$, $d = .50$. There was no difference between joint gain in the egalitarian and control conditions $t(260) = 0.46$, $p = .646$, $d =$ .07. Overall, these results support Hypothesis 1, predicting that the presence of formal hierarchy decreases joint gain.

  We also examined how the joint gain achieved in the negotiation group conditions (i.e., team-on-team negotiations) differed from the solo condition. Supporting prior research which shows teams tend to create more value than do solos (Hüffmeier et al., 2019; Thompson et al. 1996), the joint gain in the solo condition (M_{solo} = 15,974.64; SD_{solo} = 1,051.21) was significantly lower than each of the negotiation group conditions (versus hierarchy: $t[260] = 2.83$, $p = .005$, d = .63; versus egalitarian: $t[260] = 5.34$, $p < .001$, $d = .94$; versus control: $t[260] = 5.81$, $p < .001$, $d = 1.01$). As such, having teams negotiate, regardless of team structure, led to an increase in joint gain over that obtained by solos negotiating; however, this benefit of having teams negotiate was found to be 46% smaller when teams had formal hierarchy, compared to the benefit obtained by egalitarian teams.

We next tested our mediation hypotheses. Due to technological issues we did not have video recordings from four negotiations, resulting in missing data for the proposed mechanisms (i.e., information elaboration and value claiming behavior). As such, these four negotiation groups were removed from remaining analyses.[6] Hypothesis 2 predicted that lower levels of information elaboration would mediate the negative effect of team hierarchy on joint gain. Prior to testing for mediation, we first tested for between-condition differences on information elaboration. A one-way ANOVA indicated significant differences between conditions on information-elaboration, $F(2, 188) = 8.60$, $p < .001$. A planned contrast showed that the hierarchy condition engaged in less information elaboration ($M_{hierarchy} = 2.98$, $SD_{hierarchy} = .51$) than the egalitarian condition ($M_{egalitarian} = 3.33$, $SD_{egalitarian} = .49$), $t(188) = 4.14$, $p < .001$, $d = .70$. Exploratory analyses showed that the hierarchy condition engaged in less information elaboration than the control condition ($M_{control} = 3.18$, $SD_{control} = .45$), $t(188) = 2.39$, $p = .018$, $d = .42$. There was no difference between the egalitarian and control conditions, $t(188) = 1.80$, $p = .073$, $d = .32$.

Supporting Hypothesis 2, information elaboration mediated the effect of team hierarchy on joint gain as indicated by the presence of a significant indirect effect (Effect = -385.55, 95% CI = [-635.03, -178.86]). Each of the paths underlying this indirect effect were significant and in the predicted direction: hierarchy had a negative effect on information elaboration, ($\beta = -.36$, $SE = .09$, $p < .001$), and information elaboration had a positive effect on joint gain ($\beta = 1,081.94$, $SE = 218.45$, $p < .001$). With information elaboration included in the model, the direct effect of hierarchy on joint gain was not significant ($\beta_{direct} = -168.62$, $SE = 269.36$, $p = .532$) (see Figure 2). These findings support our prediction that teams with hierarchical structures achieve lower

[6] Re-running the analyses on joint gain excluding these four groups did not change the statistical significance of the reported contrasts for joint gain or support for Hypothesis 1.

joint gain because team hierarchy decreases information elaboration as compared to egalitarian team structures.[7]

Insert Figure 2 about here

Hypothesis 3 predicted that information elaboration and value claiming behavior would serially mediate the negative effect of team hierarchy on joint gain. As we did for information elaboration, we first tested for between-condition differences on value claiming behavior prior to testing for serial mediation. A one-way ANOVA indicated significant differences between the negotiation group conditions on value claiming, $F(2, 188) = 3.51$, $p = .032$. Planned contrast analyses showed that negotiations in the hierarchy condition were characterized by more value claiming behavior ($M_{hierarchy} = 3.23$, $SD_{hierarchy} = 0.76$) than were negotiations in the egalitarian condition ($M_{egalitarian} = 2.91$, $SD_{egalitarian} = .71$), $t(188) = 2.63$, $p = .009$, $d = .44$. Exploratory analyses showed that there was no difference between value claiming behavior in the hierarchy and control conditions ($M_{control} = 3.10$, $SD_{control} = .56$), $t(188) = 1.11$, $p = .271$, $d = .20$, nor in the egalitarian and control conditions, $t(188) = 1.57$, $p = .119$, $d = .29$.

Supporting our hypothesized relationships, results showed that information elaboration was negatively related to claiming behavior ($\beta = -.39$, $SE = .10$, $p < .001$) and value claiming behavior was negatively related to joint gain ($\beta = -413.96$, $SE = 159.05$, $p = .010$). Information elaboration and value claiming behavior mediated the effect of team hierarchy on joint gain as the serial indirect effect was significant (Effect = -57.06, 95% CI = [-133.70, -8.21]). With both information elaboration and value claiming behavior included in the model, the direct effect of

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[7] We ran additional exploratory mediation analyses where the hierarchy condition was compared against the control condition. Results supported the presence of an indirect effect through information elaboration (Effect = -221.88, 95% CI = [-433.37, -38.63]) and a serial indirect effect through information elaboration and value claiming behavior (Effect = -32.84, 95% CI = [-88.94, -2.28]).

hierarchy on joint gain was not significant ($\beta_{direct} = -93.76$, $SE = 266.85$, $p = .726$) (see Figure 3). Taken together, these results support Hypothesis 3.

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Means and standard deviations on joint gain, information elaboration, and value claiming behavior across conditions are summarized in Table 1.

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Discussion

Using a different negotiation task and sample, the results from Study 2 replicated and extended the results of Study 1 in several ways. First, Study 2 provided support for our hypothesized mediation and serial mediation model utilizing third-party coders to assess information elaboration and value claiming behavior. Second, Study 2 tested our proposed effects in negotiation teams where the leaders are assigned, and thus ruled out the possibility that the effects documented in Study 1 are unique to situations in which leaders are selected by the team. Third, the inclusion of the control condition in Study 2 allowed us to establish the directionality of effects, showing that formal hierarchical structures decreased joint gain. Fourth, while the hierarchy condition achieved lower joint gain than egalitarian and control conditions, they still achieved higher joint gain than negotiating solos. These additional results show that negotiating teams, regardless of their hierarchical structure, create more value than negotiating solos, but also that formal hierarchies significantly limit the beneficial effect of teams. Taken together, the results of Study 2 replicate the results of Study 1 (H1), while also providing support for our hypothesized mediation (H2) and serial mediation (H3) models.

STUDY 3

We had three objectives in conducting Study 3. First, we sought to replicate the mediation findings in a setting where groups selected their own leader (as was done in Study 1), as it is possible that having one's leader be randomly selected may have inadvertently contributed to reduced information elaboration. Second, whereas efforts were taken in Study 2 to avoid common source bias in our mediators (i.e., information elaboration and value claiming behaviors were coded by separate coders), they were both obtained from third-party coders watching a video recording of the negotiation and therefore common method bias is a limitation. We addressed this limitation in Study 3 by measuring information elaboration from coders who watched the video recorded negotiations (as done in Study 2), while having different coders assess value claiming behaviors through the transcriptions of the negotiations. Finally, we included a condition where a hierarchical team negotiated against an egalitarian team. Prior research shows that negotiators' competitive behaviors are especially likely to be reciprocated (O'Connor & Arnold, 2001; Weingart et al., 2007), which suggests that the presence of one hierarchical team may be sufficient to promote increased value claiming behavior from the other team. In practice, these situations may not be uncommon as teams with a clear hierarchy often have to negotiate against another team that is comprised of 'equals' or lacks formal hierarchy.[8]

Method

Participants and Design. Three-hundred and seventy-two undergraduate business students (M_{age} = 21.22 years; 59% males) from a U.S. university participated in exchange for extra credit. Sample size was determined by recruiting as many participants as possible, with a minimum requirement of 25 negotiations (i.e., 50 teams) per condition. One negotiation group

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[8] As in Study 2, we also coded intrateam conflict from the videos and examined its possible role as an alternative mediating mechanism. As noted in the Supplementary Online Materials file, no statistical support was found for intrateam conflict as an alternative mediator, nor did controlling for intrateam conflict affect support for the hypothesized mediation effects.

was removed from the sample as participants did not follow instructions (i.e., the teams exchanged role/points sheets with one another). This resulted in a final sample of 368 individual participants comprising 164 teams and 82 total negotiation groups. Teams of three occurred occasionally which led to some negotiation groups having more than four people ($M_{groupsize}$ = 4.49). Controlling for group size did not affect the significance of findings. Participants were randomly assigned to one of three conditions: *Hierarchy* (N = 27; both teams are hierarchical), *Egalitarian* (N = 26; both teams are egalitarian), and *Blended* (N = 29; one team is hierarchical and one team is egalitarian). In support of randomization, results of a one-way ANOVA showed no differences between conditions on gender (F[2, 79] = 2.54, p = .09) or on age (F[2, 79] = 1.59, p = .21).

  Procedure. The procedure remained the same as Study 2, except that our manipulation of formal team hierarchy followed our approach used in Study 1, where participants were instructed to choose one person to be the leader and one person to be the follower. For the *blended* condition, the participants assigned to the hierarchal team were given the same manipulation instructions as those given to teams in the *hierarchy* condition, and participants who were assigned to be the egalitarian team were given the same manipulation instructions as those assigned to teams in the *egalitarian* condition.

  After participants prepared for the negotiation and read through and discussed the manipulation instructions with their teammate, they entered a break-out room to negotiate with the opposing party. The negotiation exercise was the same as in Study 2. Participants were given up to 20 minutes to reach an agreement.

  After reporting their agreement, participants individually responded to the same three manipulation check items used in prior studies to assess team hierarchy (α = .94). Individual

ratings were aggregated to the team-level: ICC(1) = .33; ICC(2) = .51; $F(161, 202) = 2.05, p < .001$.

Dependent Variables

 Intrateam Information Elaboration. Four research assistants blind to the hypotheses and experimental condition coded the video recordings for intrateam information elaboration. Information elaboration was assessed for each negotiating team with the same 5-items used in Study 2 ($\alpha = .72$). Each negotiation video was evaluated by at least one judge, with at least two judges overlapping on 50.0% of the videos (41 out of 82 videos). In the videos that were evaluated by two judges, items were first aggregated within each coder and then aggregated across coders. There was high interrater reliability on team-level information elaboration justifying aggregation, ICC(1) = .43; ICC(2) = .60; $F(81, 82) = 2.51, p < .001$.

 Interteam Value Claiming Behavior. To measure value claiming behavior, negotiations were transcribed and coded following a system developed by Weingart and colleagues (2004) which provides direction into how to measure the occurrence of common negotiation strategies from transcripts of negotiations. Two separate coders, who were distinct from those used to assess information elaboration and were familiar with the negotiation scenario but blind to the study condition, coded each statement from the written transcript. Value claiming included the following types of statements: a.) References to bottom line, b.) Makes single-issue offer, c.) Substantiation of position, d.) Mutuality as influence, e.) Threats, and f.) Refers to power.

 Each coder was trained by first completing a series of pilot codes to ensure that they understood the coding scheme. Following prior research indicating sufficient degree of unit overlap (Potter & Levine-Donnerstein, 1999), coders overlapped on 1726 (out of a total of 8260) statements (20.9% degree of overlap). Coders showed little disagreement about the number of statements (e.g., Guetzkow's U = .012 [Guetzkow, 1950]). Importantly, the coders' interpretative

reliability on whether or not the statement was evaluated as being a value claiming behavior was high, with a Cohen's Kappa equaling .814, $p <.001$ (Landis & Koch, 1977). Consistent with past research (e.g., Weingart et al., 2007), we calculated the proportion of value claiming behavior for each team by dividing the raw number of value claiming behaviors displayed in the team by the team's total number of statements in the negotiation.

Joint Gain. Our measure of joint gain was the same as Study 2. There were no impasses.

Analytical Approach

As done in Study 2, team-level measures were aggregated to the negotiation group-level prior to running analyses. Results supported aggregation of the team-level measures to the negotiation group-level: information elaboration, ICC(1) = .40; ICC(2) = .57; $F(81, 82) = 2.34$, $p < .001$; value claiming behavior, ICC(1) = .36; ICC(2) = .53; $F(81, 82) = 1.98$, $p = .001$. Mediation analyses to test Hypotheses 2 and 3 were conducted using contrast codes (Hayes & Preacher, 2014) where the hierarchy condition was compared against the egalitarian condition. We tested our predicted mediation models with PROCESS (Models 4 and 6; Hayes, 2017) using 5000 bootstraps and 95% confidence intervals, where significance of the indirect effect is noted by the confidence intervals not including zero.

Results

Manipulation Check. Supporting the effectiveness of our hierarchy manipulation, a one-way ANOVA indicated significant differences between the three conditions on self-reported egalitarianism, $F(2, 79) = 16.40$, $p < .001$. Follow-up planned contrasts showed that the hierarchy condition reported being significantly less egalitarian ($M_{hierarchy} = 4.19$, $SD_{hierarchy} = .98$) than the egalitarian condition ($M_{egalitarian} = 5.62$, $SD_{egalitarian} = .86$), $t(79) = 5.71$, $p < .001$, $d = 1.55$. The blended condition fell in the middle of our primary conditions and reported being significantly less egalitarian than the egalitarian condition ($M_{blended} = 4.80$, $SD_{blended} = .89$), $t(79)$

= 3.30, p = .001, d = .93, and significantly more egalitarian than the hierarchy condition, $t(79)$ = 2.53, p = .013, d = .66.

Hypothesis Tests. Hypothesis 1 predicted that joint gain would be lower when each team has a hierarchical structure as compared to when each team has an egalitarian structure. Results of a one-way ANOVA produced significant differences for joint gain, $F(2,79)$ = 3.44, p = .037. Supporting Hypothesis 1, a planned contrast analysis showed that the hierarchy condition achieved lower joint gain ($M_{hierarchy}$ = 16,574.07, $SD_{hierarchy}$ = 1,992.55) than the egalitarian condition ($M_{egalitarian}$ = 17,826.92, $SD_{egalitarian}$ = 1,647.38), $t(79)$ = 2.36, p = .021, d = .69. Planned contrasts with the blended condition showed that the blended condition achieved lower joint gain than the egalitarian condition ($M_{blended}$ = 16,672.41, $SD_{blended}$ = 2,114.05), $t(79)$ = 2.21, p = .030, d = .61, but did not differ from the hierarchy condition, $t(79)$ = .19, p = .850, d = .05, suggesting that the presence of just one hierarchical team was sufficient to limit joint gain.

Hypothesis 2 predicted that decreased information elaboration would mediate the negative effect of formal team hierarchy on joint gain. Prior to testing this mediation hypothesis, we examined information elaboration between conditions. A one-way ANOVA indicated significant differences between conditions, $F(2, 79)$ = 5.15, p = .008. A planned contrast analysis showed that the hierarchy condition engaged in less information elaboration ($M_{hierarchy}$ = 2.89, $SD_{hierarchy}$ = .55) than the egalitarian condition ($M_{egalitarian}$ = 3.30, $SD_{egalitarian}$ = .50), $t(79)$ = 3.08, p = .003, d = .78. Exploratory analyses showed that the egalitarian condition engaged in more information elaboration than the blended condition ($M_{blended}$ = 2.98, $SD_{blended}$ = .41), $t(79)$ = 2.38, p = .020, d = .70, but there was no difference between the hierarchy and blended conditions, $t(79)$ = .76, p = .449, d = .19.

Supporting Hypothesis 2, information elaboration mediated the effect of team hierarchy on joint gain: Effect = -369.56, 95% CI = [-940.20, -38.56]. Each of the paths underlying this indirect effect were significant and in the predicted direction: hierarchy had a negative effect on information elaboration, (β = -.41, SE = .13, p = .003), and information elaboration had a positive effect on joint gain (β = 895.05, SE = 437.23, p = .044). With information elaboration included in the model, the direct effect of hierarchy on joint gain was not significant (β_{direct} = -883.29, SE = 551.98, p = .114) (see Figure 4). These findings support our prediction that teams with hierarchical structures achieve lower joint gain because of decreased information elaboration.

Insert Figure 4 about here

Hypothesis 3 predicted that information elaboration and value claiming behaviors would serially mediate the negative effect of team hierarchy on joint gain. Prior to testing for serial mediation, we tested for between-condition differences on value claiming behavior. A one-way ANOVA indicated significant differences between conditions, $F(2, 79)$ = 3.40, p = .038. A planned contrast showed that negotiations in the hierarchy condition were characterized by more value claiming behaviors ($M_{hierarchy}$ = .25, $SD_{hierarchy}$ = .09) than were negotiations in the egalitarian condition ($M_{egalitarian}$ = .20, $SD_{egalitarian}$ = .08), $t(79)$ = 2.24, p = .028, d = .61. Exploratory analyses showed that the blended condition engaged in more value claiming behaviors than the egalitarian condition ($M_{blended}$ = .25, $SD_{blended}$ = .08), $t(79)$ = 2.30, p = .024, d = .63, but did not differ from the hierarchy condition, $t(79)$ = .02, p = .988, d = .01.

Supporting our hypothesized relationships, results were consistent with the proposed serial mediation model confirming a significant indirect effect (Effect = -272.00, 95% CI = [-610.04, -53.49]). As expected, results showed that information elaboration had a negative effect

on value claiming behaviors ($\beta = -.06$, $SE = .02$, $p = .003$), and value claiming behaviors had a negative effect on joint gain ($\beta = -11{,}696.69$, $SE = 2{,}397.32$, $p < .001$). With both information elaboration and value claiming behavior included in the model, the effect of team hierarchy on joint gain was not significant ($\beta_{direct} = -556.16$, $SE = 490.15$, $p = .260$) (see Figure 5).

Insert Figure 5 about here

Means and standard deviations on joint gain, information elaboration, and value claiming behavior across conditions are summarized in Table 2.

Insert Table 2 about here

Discussion

Study 3 extends the findings from our prior studies in several ways. First, Study 3 replicates Hypotheses 2 and 3 using a hierarchy manipulation where groups selected their own leader (versus having one randomly assigned in Study 2). Second, the results from Study 3 help to reduce concerns surrounding common method bias for our two mediators (i.e., information elaboration and value claiming behavior) given that these two measures were not both based upon coders watching the videos, as was done in Study 2. Finally, the results of the blended condition showed that the effects of team hierarchy on lower joint gain can extend to settings where only one team is hierarchical and are consistent with prior findings on solo negotiators, showing that individual negotiators also adjust their strategy to match more competitive parties.

STUDY 4

Whereas the results from Studies 2 and 3 are consistent with our proposed mediation and serial mediation, the relationship between information elaboration, value claiming behaviors, and joint gain is correlational in both studies, and as such limits the ability to make causal inferences.

To help address this limitation, Study 4 adopted a moderation-of-process approach (Spencer et al., 2005) to test the proposed causal effect of information elaboration on value claiming behaviors and joint gain by manipulating information elaboration. Through manipulating this mechanism and testing its moderating effect on the relationships between team hierarchy and our outcomes, Study 4 offers a more stringent test of our theoretical model and allows us to provide a stronger claim of causality (Imai et al., 2013). Specifically, we manipulated information elaboration by either providing additional instructions to encourage greater information elaboration within teams or not. Without instructions to engage in information elaboration, hierarchical teams should engage in more value claiming behavior and achieve lower joint gain than egalitarian teams, as found in our prior studies. However, consistent with our prediction that information elaboration underlies the effect of team hierarchy on value claiming behavior and joint gain, hierarchical teams should engage in similar levels of value claiming behavior and joint gain as egalitarian teams when they are provided information elaboration instructions. In addition to providing stronger claims of causality, the manipulation of information elaboration could provide new practical insights into interventions that mitigate the harmful effects of hierarchical structures in interteam negotiations.

Method

       Participants and Design. Six-hundred and forty-four undergraduate business students (M_{age} = 20.84 years; 54.0 % males) from a U.S. university participated in an online negotiation exercise in exchange for extra credit. Sample size was determined by recruiting as many participants as possible, with a minimum requirement of 25 negotiations (i.e., 50 teams) per condition. Participants were randomly assigned to work on a team with one other student, and teams of three were occasionally formed due to session attendance. Four negotiation groups were removed for not following instructions and one negotiation group was removed due to an issue

with poor internet connection. This resulted in a final sample of 623 individual participants comprising 282 teams and 141 total negotiation groups. Teams of three occurred occasionally which led to some negotiation groups having more than four people ($M_{groupsize}$ = 4.42). Controlling for group size did not affect the significance of findings. Negotiation groups were randomly assigned to one of four conditions in a 2 (Team structure: Hierarchy vs. Egalitarian) × 2 (Information Elaboration Instructions: Yes [$N_{Hierarchy}$ = 36; $N_{Egalitarian}$ = 36] vs. No [$N_{Hierarchy}$ = 35; $N_{Egalitarian}$ = 34]) between-teams design. In support of randomization, results of a one-way ANOVA showed a marginal, but non-significant, difference between conditions on gender, $F(3, 137)$ = 2.37, p = .07, and a non-significant difference between conditions on age, $F(3, 137)$ = 1.60, p = .19.

 Procedure. Despite being run entirely online due to the Covid-19 pandemic, the study procedure was still similar to Studies 2 and 3, although there were several differences which we detail below. After receiving initial instructions about the study, participants were randomly assigned to online break-out rooms on Zoom where they met their teammate(s). As done in Studies 1 and 3, teams in the hierarchy condition selected their leader. Unlike prior studies, the hierarchy manipulation was done *prior* to participants receiving their negotiation role materials. This procedural change was incorporated to ensure that the team's knowledge of hierarchical differentiation was present throughout the entire negotiation, including the preparation. Second, because teams must select a leader in the hierarchy condition, it is possible that more time is required to complete the hierarchy manipulation instructions as compared to the egalitarian instructions. Having teams complete the manipulation instructions before receiving their role materials ensured that teams spent the same amount of time preparing for the negotiation.

Teams were visited by a research assistant who verbally confirmed with the participants that they had followed the hierarchy or egalitarian instructions before providing information about the information elaboration manipulation. In the *information elaboration instructions* condition, participants were provided with additional written instructions by the experimenter to communicate regularly with their own teammate(s) throughout the negotiation. Specifically, and following the conceptual definition of information elaboration detailed in prior work (Van Knippenberg et al., 2004), they were told that while communicating with their teammate(s), they should share and elaborate on their perspectives and thoughts on the negotiation, the issues, and their negotiation strategy as much as possible. They were instructed to thoroughly discuss how they think they are doing and to check in with each other to ensure that they understood each other's ideas, observations, and suggestions about how they might respond to the other party.

Participants in the *no information elaboration instructions* condition were not provided with these additional instructions but were given extra time to get to know one another to match the time team members spent getting to know one another in the information elaboration instructions conditions. Teams in both conditions were also told by the experimenter they could privately communicate with their own teammate(s) during the negotiation by using the chat function in Zoom. Finally, participants in all conditions were provided with their role materials and given 15 minutes to prepare with their teammate(s). After the preparation stage, both negotiating parties were brought together in a single break-out room to start their negotiation which was recorded via Zoom.

The negotiation exercise was adapted from *The Player* negotiation, with each party being assigned to represent either a team of Producers or Directors. In this negotiation simulation, the two parties sought to make a Hollywood film and were asked to negotiate on 5 issues related to

the director's salary, a male lead, a female lead, the film's location(s), and the extent of editorial control. Four issues had integrative potential where value could be created by trading off issues between parties, and one issue (directors' salary) was a purely distributive issue. Negotiation groups were given up to 20 minutes to reach a deal. Once a deal was made, participants were sent an electronic form where they were asked to indicate the deal that had been made.

To assess if the hierarchy manipulation was successful in creating differences in team hierarchy, participants responded to 3-items that closely matched those used in Studies 1-3 after they completed the negotiation. Specifically, participants were asked: *Within my team, my teammate and I…*1) *were equally in charge of making decisions,* 2) *equally led our team in deciding what to do in this negotiation*, and 3) *had the same amount of power over team decisions*, on a seven-point Likert scale from 1 (*very much disagree*) to 7 (*very much agree*) ($\alpha =$ .91). The intra-class correlation (ICC) statistics indicate reliability across team members, justifying aggregation of these items to the team-level: ICC(1) = .29; ICC(2) = .48; $F(280, 340)$ = 1.91, $p < .001$. To ensure that participants followed the instructions detailed in our information elaboration instructions manipulation, five research assistants were trained to assess each negotiating team on the degree of intrateam information elaboration. Due to technological issues, we did not have video recordings of two negotiations. Overall, 54.7 % (76 out of 139 videos) of the videos were independently coded by at least two judges. In the videos evaluated by two judges, items were first aggregated within each coder and then aggregated across coders. The two judges had a high level of interrater agreement on team-level information elaboration: ICC(1) = .65; ICC(2) = .79; $F(151, 152) = 4.69$, $p < .001$.

Dependent Variables

Joint Gain. Joint gain was calculated by summing the points that each team earned across the 5 issues. The maximum joint gain possible is 14,400 points. There were no impasses.

Interteam Value Claiming Behavior. Using the same 3-items in Study 2 ($\alpha = .81$), value claiming behavior was assessed by six research assistants who were trained to code the video recorded negotiations. Overall, 50.1 % (70 out of 139 videos) of the videos were independently coded by at least two judges; items were first aggregated within each coder and then aggregated across coders. There was high interrater reliability on team-level value claiming behaviors justifying aggregation, ICC(1) = .55; ICC(2) = .71; $F(139, 140) = 3.42$, $p < .001$.

Analytical Approach

As in Studies 2 and 3, the team-level measure of value claiming behavior was aggregated to the negotiation group-level prior to running analyses; results supported aggregation to the negotiation group-level: ICC(1) = .60; ICC(2) = .75; $F(138, 139) = 3.98$, $p < .001$.

Results

Manipulation Checks. Supporting the effectiveness of our hierarchy manipulation, results of a two-way ANOVA showed that negotiations in the hierarchy conditions reported being significantly less egalitarian ($M_{hierarchy} = 4.97$, $SD_{hierarchy} = .80$) than negotiations in the egalitarian conditions ($M_{egalitarian} = 5.88$, $SD_{egalitarian} = .70$), $F(1, 137) = 51.63$, $p < .001$, $d = 1.20$. The information elaboration instructions manipulation did not have a significant impact on self-reported egalitarianism ($F[1, 137] = .44$, $p = .510$), nor did it interact with our hierarchy manipulation to effect self-reported egalitarianism at the traditional .05 threshold of significance, $F(1, 137) = 2.86$, $p = .093$.

Supporting the effectiveness of our information elaboration instructions manipulation, results of a two-way ANOVA showed that negotiations in the information elaboration instructions conditions engaged in more information elaboration ($M_{infoelab} = 3.34$, $SD_{infoelab} = .63$) than negotiations in the no information elaboration instructions conditions ($M_{noinfoelab} = 2.99$, $SD_{noinfoelab} = .74$), $F(1, 135) = 9.03$, $p = .003$, $d = .51$. The hierarchy manipulation did not have a

significant effect on information elaboration at the traditional .05 threshold of significance (F[1, 135] = 2.98, p = .086), nor did it interact with our information elaboration instructions manipulation to effect information elaboration, F(1, 135) = 2.43, p = .121.

Hypothesis tests. We first tested our theorized effects on joint gain. Results of a two-way ANOVA showed a significant main effect for team hierarchy on joint gain (F[1, 137] = 4.48, p = .036) and a non-significant main effect for information elaboration on joint gain (F[1, 137] = .83, p = .364). Importantly, results showed a significant interaction on joint gain, F(1, 137) = 10.98, p = .001. A planned contrast indicated that when the information elaboration instructions were not provided, the hierarchy condition achieved significantly lower joint gain than the egalitarian condition ($M_{hierarchy}$ = 11,422.86, $SD_{hierarchy}$ = 1,368.04 vs. $M_{egalitarian}$ = 12,682.35, $SD_{egalitarian}$ = 1,258.30), $t(137)$ = 3.80, p < .001, d = .96. This significant contrast replicates the findings from Studies 1-3, where teams in those studies did not have additional instructions to promote intrateam information elaboration. However, when teams were instructed to engage in information elaboration, the hierarchy and egalitarian conditions no longer differed in terms of their joint gain ($M_{hierarchy}$ = 12,402.78, $SD_{hierarchy}$ = 1,553.75 vs. $M_{egalitarian}$ = 12,125.00, $SD_{egalitarian}$ = 1,301.84), $t(137)$ = .86, p = .394, d = .19. We also compared the outcomes from the two hierarchy conditions: negotiations in the information elaboration instructions condition achieved higher joint gain than negotiations in the no information elaboration instructions condition, $t(137)$ = 3.00, p = .003, d = .67. Taken together, these results followed a moderation-of-process approach to document the proposed causal role of information elaboration in our model and provide further support for Hypothesis 2.

We next examined value claiming behavior. As noted earlier, we did not have video recordings of two negotiations, resulting in missing data for value claiming behavior. As such,

two negotiation groups were removed from remaining analyses.[9] Results of a two-way ANOVA showed non-significant main effects for both team hierarchy and information elaboration on value claiming behavior ($p = .106$ and $p = .723$, respectively). Importantly, results showed a significant interaction, $F(1, 135) = 7.21$, $p = .008$. Planned contrast tests indicated that when no instructions were provided to engage in information elaboration, value claiming behavior was greater in the hierarchy than egalitarian condition ($M_{hierarchy} = 3.23$, $SD_{hierarchy} = .54$ vs. $M_{egalitarian} = 2.81$, $SD_{egalitarian} = .47$), $t(135) = 3.02$, $p = .003$, $d = .83$. This replicates the findings from Studies 2 and 3, where teams did not have additional instructions to promote intrateam information elaboration. However, in the information elaboration instructions conditions, the hierarchy and egalitarian conditions no longer differed on value claiming behavior ($M_{hierarchy} = 2.94$, $SD_{hierarchy} = .61$ vs. $M_{egalitarian} = 3.04$, $SD_{egalitarian} = .66$), $t(135) = .76$, $p = .451$, $d = .17$. We also compared the negotiations in the hierarchy conditions: negotiations in the information elaboration instructions condition displayed less value claiming behavior than negotiations in the no information elaboration instructions condition, $t(135) = 2.16$, $p = .033$, $d = .53$.

We next conducted a moderated-mediation analysis (Model 7 in PROCESS) using 5,000 bootstraps and 95% confidence intervals, whereby team hierarchy condition was included as the independent variable [X], information elaboration condition as the moderator [W], value claiming as the mediator [M], and joint gain as the dependent variable [Y]. Results showed that the team hierarchy and information elaboration manipulations interacted to predict value claiming behavior ($\beta = -.52$, $SE = .20$, $p = .008$), and showed that value claiming behavior was negatively related to joint gain ($\beta = -636.18$, $SE = 201.42$, $p = .002$). We next examined the indirect effect of team hierarchy on joint gain through value claiming behavior at each level of

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[9] Re-running the analyses on joint gain excluding these two groups did not change the statistical significance of the reported contrasts for joint gain or support for Hypothesis 1.

the moderator (i.e., Information Elaboration Instructions: Yes vs. No), and whether the indirect effects differ from one another. For negotiation groups whose teams did not receive instructions to engage in information elaboration, there was a significant indirect effect of team hierarchy on joint gain through value claiming behavior (Effect = -267.20, CI = [-620.88, -39.09]). However, for negotiation groups whose teams were instructed to engage in information elaboration, there was no significant indirect effect of team hierarchy on joint gain through value claiming behavior (Effect = 65.48, CI = [-80.16, 392.60]). The difference between the indirect effects was significant (Index of Moderated Mediation = 332.67, CI = [23.21, 929.64]), supporting the presence of moderated mediation (Hayes, 2015). Whereas team hierarchy significantly decreased joint gain because it resulted in more value claiming behaviors, this effect of team hierarchy on value claiming behavior became non-significant when information elaboration instructions were provided. Together, through taking a moderation-of-process approach, these results provide further causal support for our predicted serial mediation effect (H3).

Means and standard deviations on joint gain and value claiming behavior across conditions are summarized in Table 3. Moderated mediation results are summarized in Table 4.

Insert Tables 3 and 4 about here

Discussion

Through applying a moderation-of-process approach (Spencer et al., 2005), Study 4 replicates and extends the results of our prior studies. Study 4 showed that in the absence of instructions to engage in information elaboration, hierarchical teams achieved lower joint gain than egalitarian teams and that this effect is mediated by higher levels of value claiming behavior. However, the effect of team hierarchy on joint gain and value claiming behaviors was eliminated when teams were instructed to engage in information elaboration. Through

experimentally manipulating information elaboration and examining its moderating effect on the relationship between team hierarchy and both value claiming behavior and joint gain, the results of Study 4 provide increased support for the causal role of information elaboration underlying the negative effect of team hierarchy on joint gain.

GENERAL DISCUSSION

Whether it is the U.S. Congress seeking to pass legislation, a high stakes union negotiation, two companies trying to reach a deal, or departments deciding how to allocate resources, important societal or organizational problems are often left to be resolved by teams at the negotiation table. Although teams are poised to discover high-quality solutions given their enhanced problem-solving capabilities, they also frequently struggle to collaborate effectively in interteam negotiations. Ineffective coordination and communication between teams are commonly identified as problems within the interteam context that may be limiting cross-team collaboration. Whereas extant theory and research highlights the potential benefits associated with hierarchical team structures in complex interteam settings (i.e., they can enable more coordinated interactions between teams [e.g., Davison et al., 2012] or help teams to promote their interests when communicating with their counterpart [e.g., Kang et al., 2015]), the present research shows that hierarchical team structures also undermine joint gain in integrative negotiations between teams. Our findings indicate that formal hierarchical differentiation within negotiating teams does indeed exert influence on the processes and outcomes of interteam negotiations, but not in a manner which helps teams integrate their interests with one another. Instead, we document that relative to egalitarian teams or teams without any given structure, the presence of a formal hierarchical structure harms joint gain because it limits intrateam information elaboration. A lack of intrateam information elaboration increases the reliance on value claiming behaviors which prevent teams from obtaining the insights needed to create more

value. Consistent with our theorizing, we find that teams with formal hierarchical structures can achieve higher joint gain (and similar levels of joint gain as egalitarian teams) when they are explicitly instructed to engage in intrateam information elaboration.

The current set of studies offer several strengths. Across multiple negotiation tasks and samples (MBA and undergraduates), either face-to-face or online via Zoom, robust support was documented for our proposed negative relationship between team hierarchy and joint gain. As compared to egalitarian team structures, team hierarchy (both when leaders were assigned or self-selected) lowered joint gain because it reduced intrateam information elaboration which then led to more value claiming behaviors. Results replicated across studies when information elaboration and value claiming behaviors were assessed from coders who watched the video recorded negotiations (Studies 2-4) or value claiming behaviors were coded from a transcription of the negotiation (Study 3). Study 4 provided further support for our causal arguments by manipulating team hierarchy and information elaboration in a moderation-of-process study design. In doing so, these findings also provide insights into a practical intervention that may alleviate the negative effects of team hierarchy in negotiations.

Theoretical Contributions

Our research offers new and important theoretical insights. First, we make several contributions to existing theory and research on team negotiations which has focused predominantly on the advantages of teams over solos at the negotiating table while treating teams as monolithic entities with little differentiation between their members (see Cohen & Thompson, 2011). By proposing a theoretical model that explains how intrateam hierarchies undermine intrateam information elaboration and interteam joint gain, the present research offers novel insights about when and why teams are likely to realize their enhanced potential in interteam negotiations and why teams, although achieving higher joint gain than solos, still leave valuable

resources unused. Indeed, our findings show that although hierarchical teams still outperform solos (Study 2), they also fail to capitalize on their potential to achieve higher joint gain relative to egalitarian teams. At a broader level, this research complements and extends a recently growing body of research on team negotiations which has documented that interteam negotiation outcomes are a function of both within- and between-team dynamics. For instance, research has shown that pre-negotiation discussions that occur both within *and* between teams (as compared to pre-negotiation discussions occurring *only* within *or* between teams) can lead to higher quality agreements (Swaab et al., 2021). By examining how different intrateam structures shape within-team dynamics that then shape interteam interactions, we directly answer the call for more work that studies team negotiations through a multi-level theoretical framework (Cohen & Thompson, 2011) and provide novel insights into how team members' interactions with one another affect their behavior toward the opposing party.

Second, we qualify and extend existing theories which have focused upon detailing the benefits associated with hierarchical team structures in interteam settings. Our research suggests that the positive perspectives of formal hierarchical structures may not apply in the context of integrative negotiations between teams. Past studies which allude to its benefits have examined tasks where multiple teams collaborated to defeat a common enemy but did not include integrative potential (Davison et al., 2012). Accordingly, theoretical insights gleaned from extant research in such contexts may not necessarily hold in more complex, integrative negotiations between teams, where there exists the potential to discover mutually beneficial solutions. Our findings extend this research by showing that formal hierarchical structures can undermine a team's ability to engage in effortful, deliberate, and systematic processing of information and therefore harm interteam collaboration in integrative negotiations. Moreover, the results from the

blended condition in Study 3 show that these negative effects can occur when only one team is hierarchically structured. Together, the present research suggests that work studying multiteam systems, or complex interteam settings more broadly, may benefit from also examining tasks where an integration of interests are important to successfully complete them (see Ziegert et al., 2022 on the benefits boundary-spanning in multi-team systems).

Third, our research also extends the research on appointed leaders or representatives (Carnevale et al., 1979; Jackson & King, 1983; Pruitt et al., 1986). Whereas research on representatives often assumes that individual processes and interpersonal dynamics will extend to interteam settings, we build new theory about how the presence of hierarchical team structures affects both intra- and interteam dynamics that limit value creation. Understanding how a team's formal hierarchical structure can undermine intrateam information elaboration and harm joint gain is important because negotiating parties often involve multiple members holding different positions and roles.

Finally, our research makes important contributions to the literature studying hierarchical dynamics in teams (Bunderson et al., 2016; Greer et al., 2018; Halevy et al., 2011; Magee & Galinsky, 2008). By examining how formal intrateam hierarchies shape interteam processes and outcomes, we offer new insights to scholars who are interested in identifying the functional and dysfunctional consequences of social hierarchies as well as the multi-level consequences of team hierarchies (e.g., Van Bunderen et al., 2018). Whereas extant theory and research examines hierarchy's impact on intrateam dynamics, our work takes an important step toward understanding its consequences for situations where teams also need to work with other teams. The effect of intrateam hierarchy on interteam behavior is an important contribution to this

literature because hierarchies are ubiquitous in organizational life and the ability of a team to balance competing and cooperating with other teams is an important performance dimension.

Limitations and Questions for Future Research

Our studies also have limitations that provide opportunities for future research. First, our studies examined the impact of formal hierarchical structures on teams of MBA students and undergraduates, thus raising concerns about generalizability. Whereas negotiations in each of our studies were simulations designed to reflect business negotiations, and MBA classroom research is a popular and powerful method to address concerns about realism (Loyd et al., 2005; Mintzberg, 2005), we recognize that they may differ from the more-complex-to-resolve end of the spectrum team negotiations that hierarchical teams might become involved in (e.g., international negotiations involving nuclear disarmament). Future research could therefore try to leverage real world samples or examine more difficult to resolve negotiations characterized by pre-existing hostilities between teams.

Second, although the student samples afforded us the opportunity to study our predictions in controlled settings and the MBA students had work experience and several weeks of formal negotiation training, it is possible that the effects of hierarchical differentiation are further contingent on the level of professional experience of the leader of the negotiation team, such that hierarchical teams may not have performed worse than egalitarian teams if the leader also had more expertise negotiating (Woolley et al., 2008). Hierarchical teams have been found to outperform egalitarian teams on desert survival tasks and fraud investigation tasks when leaders have high levels of expertise (Tarakci et al., 2016). Low levels of leader expertise may decrease the perceived legitimacy of the hierarchy which may increase its mutability (Aime et al., 2014), a

critical driver of competitive behaviors (Hays & Bendersky, 2015).[10] With prior research

showing that integrative negotiation training aids in the achievement of high-quality negotiation

outcomes such as joint gain (Movius, 2008; Zerres et al., 2013), such training may be

particularly relevant for team leaders. Accordingly, given the influence of leaders on team

dynamics, examining the strategies and impact of leaders with greater negotiation experience

will be important to further understand how they shape the negotiation process and outcomes. In

addition to expertise, future research may also benefit from considering different leadership

styles (Cha et al., 2015) and other leader characteristics such as moral identity (DeCelles et al.,

2012), virtuous leaders (Halevy et al., 2012), or leader prosocial motives (Weingart et al., 2007)

that may serve to decrease competitive value claiming behaviors and instead, enable a

particularly cooperative strategy to take effect.

Third, although we found that hierarchical teams undermined high-quality outcomes in

negotiations with integrative potential, there may be other settings where the presence of team

hierarchies may be more beneficial. For instance, while the team size in our studies is consistent

with the broader literature on negotiation teams which tends to focus on small team sizes (e.g.,

Brodt & Tuchinsky, 2000; Cohen et al., 2014; Peterson & Thompson, 1997; Swaab et al., 2021;

Thompson et al., 1996), having an egalitarian structure may not be feasible in larger negotiation

teams. In fact, *not* having a designated leader in large teams may present significant coordination

problems. In such cases, we propose that it would be more fruitful to consider the process by

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[10] To better understand how leaders were chosen in our studies, and the perceived legitimacy of team leaders, we recruited 65 additional undergraduate students (who were placed into 31 teams; $M_{size} = 2.10$) to participate in an online negotiation study. All participants completed the same hierarchy manipulation used in Studies 1, 3, and 4, and then were asked about how they selected their leader, the perceived legitimacy of their roles in the exercise, and the perceived legitimacy of the role selection process. Results showed that "negotiation experience" was the most frequently selected choice when indicating "the most important factor that was considered when selecting the team leader." In addition, participants reported that they perceived the legitimacy of the selection process and their roles in the negotiation exercise to be high. Data and results are summarized in SOM.

which teams elaborate on the available information in the most optimal manner and how this is impacted by the introduction of clearly assigned roles (e.g., lead speaker, analyst, observer, etc.; Brett et al., 2009), rather than debate whether a hierarchy is needed. In addition, research may also examine different hierarchical shapes in larger teams (e.g., Yu et al., 2019). Specifically, future research may benefit from further examining how the specific shape of the formal hierarchy can be managed more actively. Indeed, the formal hierarchical structure that we studied in our research is not only the most common hierarchical shape but also often associated with reduced information elaboration (unlike others, such as acyclical hierarchies, see Bunderson et al., 2016). In doing so, future research could also examine whether additional mechanisms such as intrateam conflict may be more prominent in larger teams or teams that vary in terms of their hierarchical shape.

Fourth, it would be interesting for future research to consider whether and how our findings might apply to hierarchical structures that are based on informal status differences rather than formal positional ranks. Status hierarchies are conceptually distinguishable from formal hierarchical power structures (Magee & Galinsky, 2008) and can have distinct effects on intrateam behaviors and processes (Blader & Chen, 2012). For instance, although status hierarchies may engender more competitive behaviors within teams as group members perceive more opportunity for upward mobility (Hays & Bendersky, 2015), the desire for status makes individuals particularly attentive to the perspectives of others within the team (Blader et al., 2016). In contrast to formal hierarchical structures, status hierarchies may encourage all team members to share and consider others' unique ideas or suggestions and thus prompt greater intrateam information elaboration which should reduce the team's reliance on fixed-pie assumptions and competitive value claiming behaviors. And although we relied on decades of

research documenting the prevalence and persistence of the fixed-pie bias in negotiations, future research could also examine this bias more directly, and how it varies as a function of alternative hierarchical structures.

Finally, our focus on multi-issue negotiations with integrative potential leave it unclear how hierarchical team structures influence negotiation outcomes that lack such potential (e.g., single issue price negotiations). Our findings that formal hierarchies promote competitive value claiming behavior suggests that in purely distributive settings, hierarchical teams may have an advantage when facing a non-hierarchically structured team. Another setting where team hierarchy may be useful is in instances where there is a need to quickly reach an agreement to avoid a costly impasse. Although such rushed deals may not serve to optimize joint gain, team hierarchy may help ensure a deal is reached when taking the time to incorporate and reconcile multiple inputs from teammates would potentially jeopardize a deal being reached due to time constraints (e.g., if two teams only had a couple of minutes to negotiate a deal). Overall, future research is needed to examine how teams with hierarchical structures perform across a range of tasks with different coordination needs (Bunderson & Sanner, 2017).

Practical Implications

The current research has practical implications for organizations that rely on teams to collaborate over the division and allocation of scarce resources (e.g., two departments discussing budget, space, and personnel needs). With practitioners hearing from popular negotiation training organizations that they need to assign team leaders (Karrass, 2019; Shonk, 2019), along with guidelines for how leaders can manage their team at the table (Brett et al., 2009), one may assume that they would be remiss to not appoint a leader in the negotiation. To test the pervasiveness of the believed utility of leaders in interteam negotiations, we surveyed 110 executives attending a webinar on cooperation and competition in the workplace. The survey

respondents had varying years of work experience (with the majority of respondents [76.36%] having 13 or more years of work experience), with 21 distinct industries and 15 countries represented in the sample. We asked them whether they thought it "would result in higher quality collaborative outcomes for negotiating teams to: a.) have a single team leader with decision making authority or b.) share decision making authority equally within the team". Seventy-four percent (versus chance: $z = 5.03$, $p < .001$) said that having a team leader in the negotiation would be more beneficial than not having one. Such expectations may play a role in appointing a leader in high stakes diplomatic negotiations, like the U.S. state department's decision to appoint a leader in their negotiations with Iran we discussed in the beginning of this manuscript. Although these findings are in line with practitioners who espouse the notion that formal team hierarchies will be helpful in interteam negotiations, we issue caution about oversimplifying this advice, and in particular in the context of smaller teams. Contrary to this assumption, our findings show that simply assigning team members to leader and follower roles, or allowing for self-selection into these roles, can inhibit information elaboration, promote more competitive behaviors between teams, and result in leaving valuable resources unused in negotiations with integrative potential. In such cases, our findings suggest that it may be a valuable added step for teams with leaders to ensure they take the time to engage in information elaboration, as doing so can aid their performance (as shown in Study 4).

By examining the impact of formal hierarchy on team negotiation processes and joint gain, this research seeks to provide fundamental insights that can be leveraged by practitioners to organize their teams more optimally for interteam negotiations. When organizations send a relatively small team to negotiate, rather than using a formal hierarchical structure, our results suggest that adopting an egalitarian structure can help: egalitarian structures increase their

information elaboration, reduce their competitive behaviors toward the other party, and increase the likelihood of higher joint gain, which can ultimately serve to benefit both teams. Of course, whether these outcomes materialize further depends on the other team's willingness to cooperate. We found that the negative effects of team hierarchy on joint gain extended to settings where only one team at the table was hierarchical in Study 3. The degree to which the other party is hierarchically differentiated is often beyond one's control. In any case, our finding that egalitarian teams do not perform worse than a competitive hierarchical counterpart (i.e., their individual team profits are not lower than the other team's individual profits) offers some reassurance for the decision to send a more egalitarian team to the negotiation table. Furthermore, to the extent that the egalitarian team is aware of the effects of team hierarchy, they may be able to help steer the negotiation toward a more cooperative discussion by avoiding reciprocating competitive behaviors and working towards engaging in behaviors which can facilitate integrative outcomes. Although future research should examine situations where hierarchical teams may outperform egalitarian teams in more detail, the current findings suggest that unless team members elaborate more deeply on the available information, the presence of team leaders can limit the quality of negotiation outcomes such as joint gain.

Conclusion

Given the pervasiveness of hierarchy in teams, the reliance on teams to collaborate over the division and allocation of scarce resources, and the existing assumption that negotiation teams should have formal leaders, scholars and practitioners need to understand the impact of hierarchical team structures on negotiations between teams. Combining insights from the literatures on team negotiations and the impact of hierarchy on intra- and interteam dynamics, we proposed a multi-level model of intrateam hierarchy and interteam collaboration that explains how and why formal hierarchical team structures affect the quality of agreements in integrative

negotiations between teams. Our results showed that relative to egalitarian team structures, the

presence of a formal hierarchy can undermine intrateam information elaboration, resulting in

greater value claiming behavior and lower joint gain.

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Table 1. Summary of Means and Standard Deviations for Dependent Variables in Study 2

Condition	Joint Gain		Intrateam Information Elaboration		Value Claiming Behavior	
	M	**SD**	**M**	**SD**	**M**	**SD**
Hierarchy	16,674.60$_a$	1,184.27	2.98$_a$	0.51	3.23$_a$	0.76
Egalitarian	17,280.30$_b$	1,653.97	3.33$_b$	0.49	2.91$_b$	0.71
Control	17,393.94$_b$	1,683.10	3.18$_b$	0.45	3.10$_{a,b}$	0.56
Solo	15,974.64$_c$	1,051.21				

Note: Different subscripts within columns mean values differ from each other at the $p < .05$ level.

Table 2. Summary of Means and Standard Deviations of Dependent Variables in Study 3

Condition	Joint Gain		Intrateam Information Elaboration		Value Claiming Behavior	
	M	**SD**	**M**	**SD**	**M**	**SD**
Hierarchy	16,574.07$_a$	1,992.55	2.89$_a$	0.55	0.25$_a$	0.09
Egalitarian	17,826.92$_b$	1,647.38	3.30$_b$	0.50	0.20$_b$	0.08
Blended	16,672.41$_a$	2,114.05	2.98$_a$	0.41	0.25$_a$	0.08

Note: Different subscripts within columns mean values differ from each other at the $p < .05$ level.

Table 3. Summary of Means and Standard Deviations of Dependent Variables in Study 4

Condition	Joint Gain		Value Claiming Behavior	
	M	**SD**	**M**	**SD**
No Information Elaboration Instructions				
Hierarchy	11,422.86$_a$	1,368.04	3.23$_a$	0.54
Egalitarian	12,682.35$_b$	1,258.30	2.81$_b$	0.47
Information Elaboration Instructions				
Hierarchy	12,402.78$_b$	1,553.75	2.94$_b$	0.61
Egalitarian	12,125.00$_b$	1,301.84	3.04$_{a,b}$	0.66

Note: Different subscripts within columns mean values differ from each other at the $p < .05$ level.

Table 4. Conditional Indirect Effects of Formal Team Hierarchy on Joint Gain in Study 4

	Estimates	SE	95% CIs [LL, UL]
Via Value Claiming Behavior			
No Information Elaboration Instructions	-267.20	150.73	[-620.88, -39.09]
Information Elaboration Instructions	65.48	124.31	[-80.16, 392.60]
Index of Moderated Mediation	332.67	237.91	[23.21, 929.64]

Notes: Indirect effects were tested for significance using 5,000 bootstrapping resamples; Formal Team Hierarchy = 1, Egalitarian = 0; Information Elaboration Instructions = 1, No Information Elaboration Instructions = 0.

Figure 1. Proposed Multi-level Model of Intrateam Hierarchy and Interteam Collaboration in Integrative Negotiations
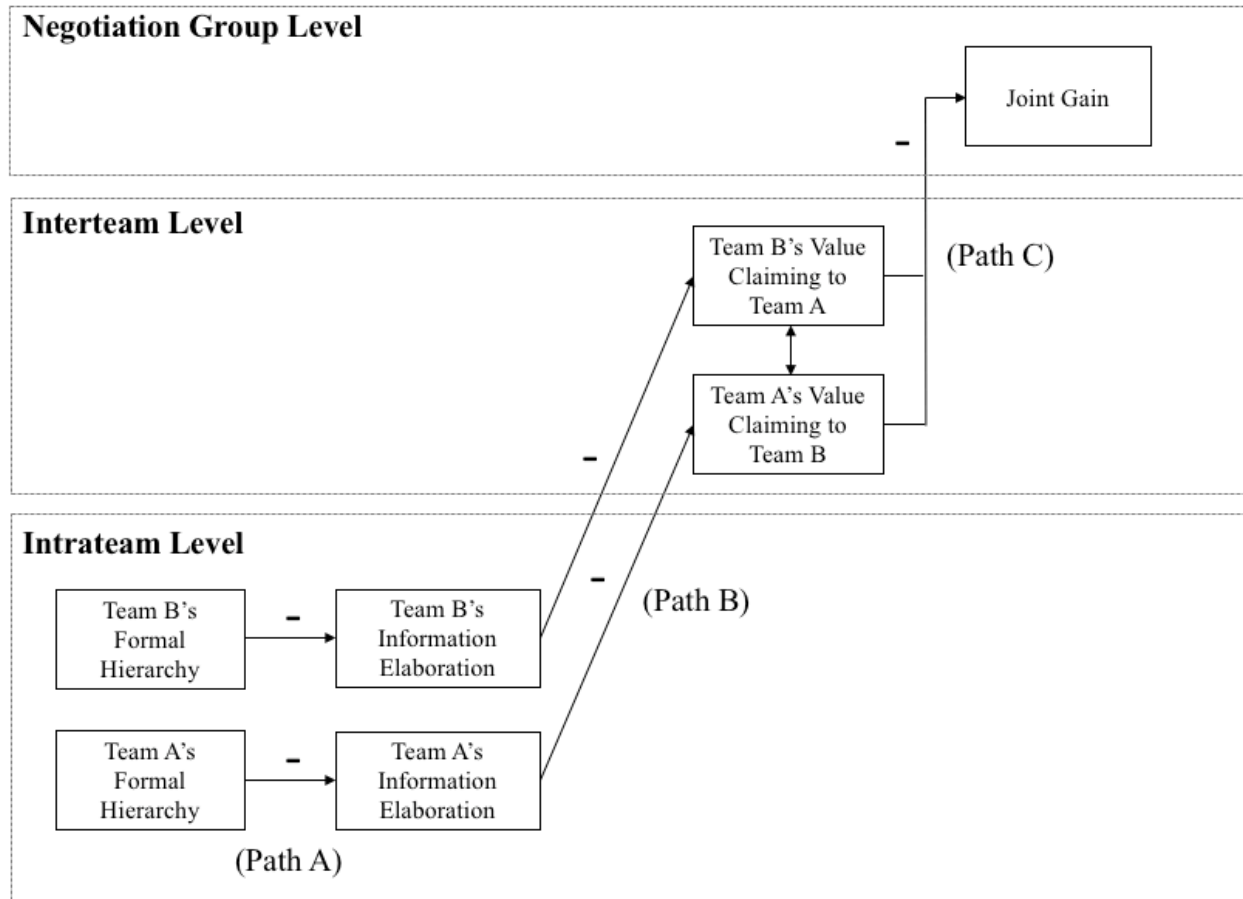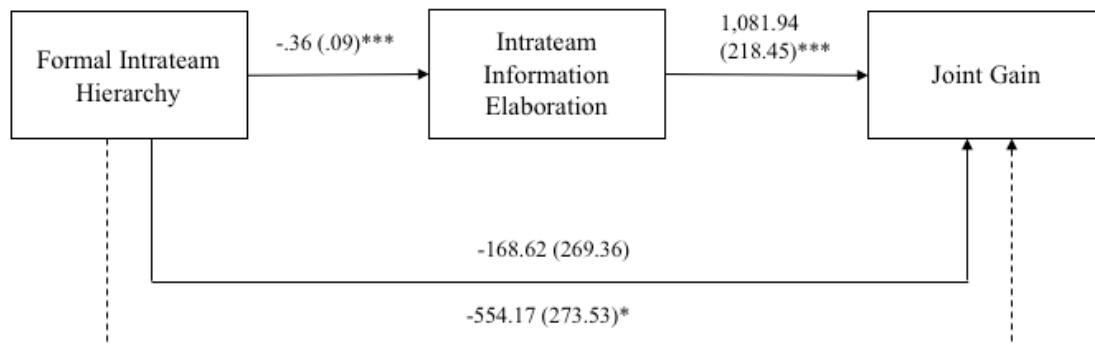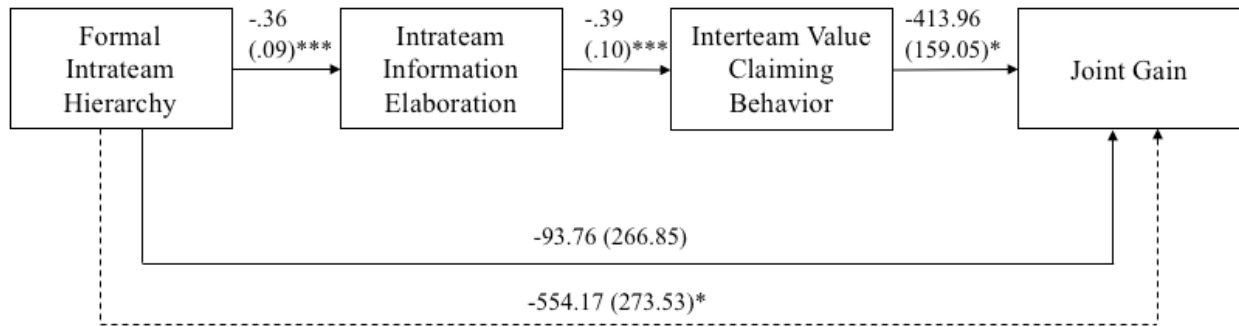
Negotiation Group Level

Joint Gain

−

Interteam Level

Team B's Value Claiming to Team A

Team A's Value Claiming to Team B

(Path C)

−

Intrateam Level

Team B's Formal Hierarchy — − → Team B's Information Elaboration

Team A's Formal Hierarchy — − → Team A's Information Elaboration

(Path B)

−

(Path A)

Figure 2. Mediation Results in Study 2

Formal Intrateam Hierarchy — -.36 (.09)*** → Intrateam Information Elaboration — 1,081.94 (218.45)*** → Joint Gain

-168.62 (269.36)

-554.17 (273.53)*

Note. Formal Team Hierarchy = 1, Egalitarian Team = 0. R^2 = .15.

Figure 3. Serial Mediation Results in Study 2

| Formal Intrateam Hierarchy | -.36 (.09)*** → | Intrateam Information Elaboration | -.39 (.10)*** → | Interteam Value Claiming Behavior | -413.96 (159.05)* → | Joint Gain |

-93.76 (266.85)

-554.17 (273.53)*

Note. Formal Team Hierarchy = 1, Egalitarian Team = 0. R^2 = .18.

Figure 4. Mediation Results in Study 3

| Formal Intrateam Hierarchy | -.41 (.13)** → | Intrateam Information Elaboration | 895.05 (437.23)* → | Joint Gain |

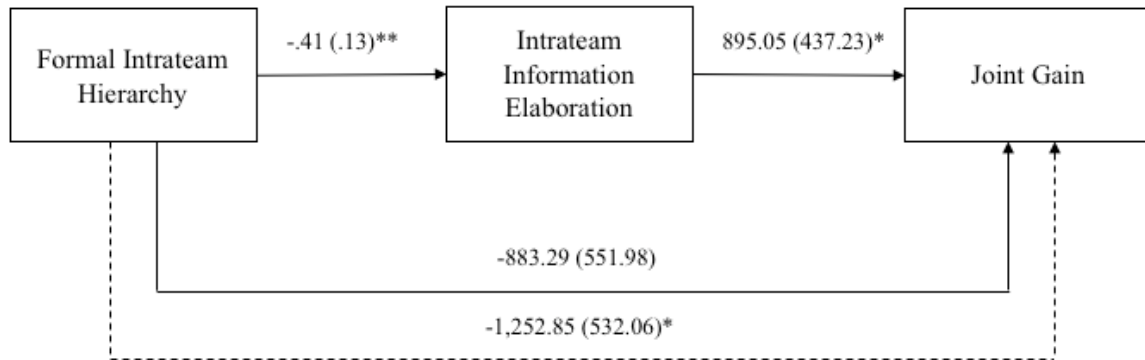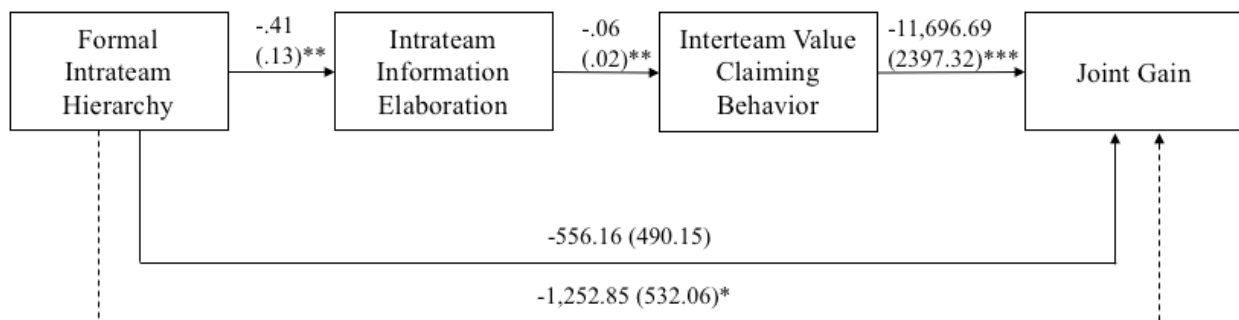-883.29 (551.98)

-1,252.85 (532.06)*

Note. Formal Team Hierarchy = 1, Egalitarian Team = 0. R^2 = .13.

Figure 5. Serial Mediation Results in Study 3

| Formal Intrateam Hierarchy | -.41 (.13)** → | Intrateam Information Elaboration | -.06 (.02)** → | Interteam Value Claiming Behavior | -11,696.69 (2397.32)*** → | Joint Gain |

-556.16 (490.15)

-1,252.85 (532.06)*

Note. Formal Team Hierarchy = 1, Egalitarian Team = 0. R^2 = .33.

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