When Outsiders Come In: An Identity-Based View of Group Boundary Work and Effectiveness

A dissertation by

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in partial fulfilment of the requirements

for a Doctor of Philosophy degree in Organisational Behaviour at

London Business School

June 2012

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Declaration

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Abstract

Boundary work, or task-related activities with external actors, has been shown to positively influence small group performance. However, these "external activities" may also detract from important internal group processes that help groups function. This research examines the puzzle of how groups can perform external activities without compromising their internal group dynamics. I explore how groups perform boundary work and consider the effectiveness of different methods of boundary work from a group identity perspective. Using both qualitative and quantitative methods in experimental and field-based settings, I compare and contrast boundary work that involves sending group members outside the group boundary to interact with external actors individually (i.e., an outward-bound approach), with an inward-bound approach, which entails inviting outsiders in to provide information, resources, or support to the group as a whole.

Across four studies, I find that an inward-bound approach to boundary work strengthens group identity and subsequent group satisfaction and viability (Studies 1, 2 and 4), an outward-bound approach used in combination with an inward-bound approach can positively influence task performance and group satisfaction and viability (Study 4), and that an initially weak group identity leads group members to choose an inward-bound approach over an outward-bound approach when interacting with outsiders (Studies 1, 3 and 4) .

The main contributions of this work are 1) delineating different ways in which groups interact with outsiders, 2) considering the nature of the relationships between boundary work methods and group identity, and 3) investigating the consequences of performing these methods of boundary work using multiple criteria of group effectiveness. Findings converge to reveal that inward boundary work is an important

phenomenon for organizational groups. Ultimately, this research offers a more nuanced view of the external perspective of small groups by suggesting that the ways in which groups interact with outsiders are both multidimensional and consequential.

Acknowledgements

Studying for a PhD has been more challenging and life-changing than I originally anticipated! Therefore, it is only fitting to acknowledge the people who have surrounded me and made this achievement possible.

My supervisor, Randall Peterson, was just the right mentor for me. He believed in me but did not make the mistake of telling me what to do when challenges arose, even though at times I wished he had. Mostly, he taught me how to be an independent researcher and inspired me in an intellectual tradition of which I am proud to be a part. I'm also indebted to the members of my committee, Margaret Ormiston and Phanish Puranam, who provided guidance, moral support, and financial support for my research.

There is a special place in my heart for Jennifer Carson Marr and Rellie Derfler-Rozin, members of my PhD cohort at London Business School. Only they could understand all of the ups and downs of this process, and without them this would have been much more difficult. Looking back, I had no idea how close we would become and how much of our lives we would share with one another as we studied for our doctorate degrees.

I thank also members of the Organisational Behaviour Subject Area at London Business School who provided resources and opportunities for me as a student in their department, in particular Madan Pillutla, Gillian Ku, Lisa Cohen, Stefan Thau, Ena Inesi, Niro Sivanathan, Dan Cable, Henry Moon, and Celia Moore. I also thank the Organisational Behaviour PhD students for ongoing support and motivation, specifically Martin Schweinsberg, along with Sunyoung Lee, Gang Zhang, and Kawon Kim. In addition, members of Phanish Puranam's research group, Marlo Raveendran, Ramon Jose Lecuona Torras, and Eucman Lee, provided helpful comments and ideas

about my research throughout the last year. Thanks also go to the PhD Programme office, which sponsored my studies at London Business School.

I'd especially like to acknowledge my parents, Robert and Sandra Quebbeman, who raised me to understand that I could accomplish anything I set my mind to, and who provided much-needed family support before, during, and after our move to London. My father, in particular, first inspired me to consider a career in academia.

Finally, I dedicate this dissertation to my husband, Adam, and my daughter, Hannah. Adam made many sacrifices to help me pursue this dream and, most importantly, did not let me give up. Hannah contributed to this achievement by giving up precious time with her mother in her early days.

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Chapter 1: Introduction

Group boundary work, defined as task-related activity group members perform with external actors, has been shown to positively influence small group performance. Ancona (1990) found, for example, that consulting teams that engaged in the most external activity, such as gathering outside information, coordinating tasks with other stakeholders, or persuading management for support, were rated as more effective than consulting teams that primarily focused on developing internal team processes. In addition, both type (e.g., task coordination; Ancona & Caldwell, 1992a) and amount (Katz & Tushman, 1979; Keller, 2001; Scott, 1997; Tushman & Katz, 1980) of external communication has been shown to positively predict group performance in research and development teams across a variety of industries. Therefore, these results suggest that small workgroups should prioritize the management of external relationships in order to effectively complete their tasks.

However, external activities may also detract from important internal group processes that help groups function. For example, groups that have too much external focus could lack the cohesion necessary to make effective use of the resources gained through boundary activity (Ancona, 1990). External activities could also introduce competing perspectives and conflict into the group (Ancona & Caldwell, 1988) and reduce the time members have to work on internal team building activities (Choi, 2002). In short, the external perspective on small groups has convincingly shown that external activities are important for group performance, yet some research in this tradition has also hinted that too much external focus could hinder internal group functioning. Therefore, how can groups perform both internal and external activities to accomplish their goals?

The purpose of this research is to investigate ways in which groups can balance

internal and external activities for optimal group effectiveness. In exploring this research puzzle, I consider boundary work from a group identity perspective. This perspective has been applied to processes underlying individual boundary spanning (e.g., Bartel, 2001); however, it has not been widely utilized in research on boundary work at the small group level, perhaps because researchers associate group identity with internal processes rather than external activities (e.g., Sundstrom & Altman, 1989; Sundstrom, De Meuse, & Futrell, 1990; Yan & Louis, 1999). Indeed, one explanation for the idea that external activities could detract from internal group functioning is that they may prevent group members from establishing a shared group identity (Ancona & Bresman, 2007; Faraj & Yan, 2009). Shared group identity is particularly important to internal group functioning (Chen, Chen, & Shaw, 2004; Postmes, Haslam, & Swaab, 2005), and thus threats to shared group identity could negatively influence group effectiveness. Yet boundary work and shared group identity need not be mutually exclusive. In fact, boundary work could even help group members clarify their group's identity as they interact with people outside the group (Choi, 2002; Hackman, 1990).

The value of a group identity perspective on boundary work may be most apparent when considering *how* groups perform boundary work. Researchers who have separated issues of identity from external activities consider boundary work to be an outward-bound phenomenon, which entails sending group members out to interact with external actors individually (e.g., Ancona, 1990; Ancona & Caldwell, 1992a). However, groups can and often do perform boundary work using an inward-bound approach, by inviting outsiders in to provide information, resources, or support to the group. While inward- and outward-bound approaches to boundary work both allow groups to prioritize external relationships, they should differ in how they affect the formation of shared group identity and, consequently, internal group dynamics. Therefore, comparing and contrasting different methods of boundary work using a

group identity lens may provide new answers to the dilemma of how to emphasize both internal and external activities for optimal group effectiveness.

This research thus explores the ways in which groups perform boundary work as well has how these methods affect group identity, and ultimately, group effectiveness. As such, this research provides a number of important contributions to the small groups literature. First, it highlights the phenomenon of inward-bound boundary work, revealing a frequently-occurring but under researched method of boundary work, and shows how this method of boundary work compares and contrasts with an outward-bound approach to interacting with external actors. It also considers boundary work through an identity-based perspective, which provides rich avenues for inquiry on the effects of boundary work on internal group dynamics as well as task performance. These ideas extend existing research on group boundary work by providing a more nuanced view of the external perspective of small groups.

Next, this work contributes to literature on group identity by examining boundary work as an important antecedent to small group identity construction. While research suggests that intragroup processes often contribute to small group identity (Postmes, Haslam et al., 2005), this work explores the ways in which interactions with outsiders affect members' conceptualization of their group's identity. It also builds on prior research on how boundary spanning affects individuals' perceptions of group identity (Bartel, 2001) by considering how boundary work affects the ways in which group members come to share views about their group's identity.

Finally, the results of this research contribute to literature on group effectiveness by highlighting one way in which groups can perform external activities without neglecting internal dynamics that help groups function. For instance, in contrast to prior recommendations to iterate between internal and external activities to receive the benefits of both (e.g., Ancona & Bresman, 2007; Choi, 2002), this work

suggests that groups can place high priorities on both internal and external processes simultaneously when performing inward boundary work. As such, it provides practical implications for managers of small groups while advancing theory in small group research.

The research in this dissertation is presented as follows. Chapter 1 provides a review of literature and develops theory about the connections between boundary work and group identity and concludes with the research hypotheses. A preliminary field study is discussed in Chapter 2 as an external validity check of the ideas described in the introductory chapter. Chapter 3 contains details of two experimental studies designed to test some of the research hypotheses, and Chapter 4 outlines a longitudinal field study designed to address the limitations of the studies presented in the former two chapters and further test the research hypotheses. The dissertation concludes with the general discussion in Chapter 5, which includes a summary of the research findings, theoretical and practical contributions, as well as future directions.

Literature Review and Theory Development

The domain of this research is that of small groups, which include three or more individuals working interdependently towards a group outcome (Kozlowski & Ilgen, 2006; Levine & Moreland, 1990; Sundstrom et al., 1990). This definition does not include social category groups, or groups to which individuals are ascribed membership based on one or more attributes such as gender or ethnicity. It does, however, include most groups that interact to achieve organizational goals. These groups are deemed effective when they perform their tasks well, their members are satisfied, and they are viable over the long term (Hackman, 1987). Thus group effectiveness entails both task-related success (i.e., performance) as well as people-related success (i.e., satisfaction and viability) (for other task and relationship bifurcations see Behfar, Mannix,

Peterson, & Trochim, 2011; De Dreu & Weingart, 2003; Jehn, 1995; Marks, Mathieu, & Zaccaro, 2001).

Small group research has generally been dominated by an input-process-output (IPO) approach to group effectiveness (McGrath, 1984), which suggests that a linear combination of intragroup factors affect group performance. Specifically, inputs like group composition, design and leadership should influence intragroup processes such as communication and conflict, and these "internal" processes should subsequently influence task outcomes such as accuracy and creativity. An underlying assumption in the input-process-output approach is that groups with effective internal processes should perform well, and they often do (cf. Mesmer-Magnus & DeChurch, 2009; Mullen & Copper, 1994). Indeed, effective internal processes should be particularly important for the long-term viability of groups, in that smooth processes improve members' ability and willingness to work together over time (Hackman, 1987, 1990; Wageman, Hackman, & Lehman, 2005).

However, some research has shown that groups may evaluate their internal processes favorably and yet fail to receive high external ratings of task performance. For example, Katz (1982) found that project teams experienced a decline in performance when members isolated their groups from external evaluation and feedback. He reasoned that group members found assurance in isolating their groups from outside influences because they reinforced one another's views and strategies, but this isolation also prevented them from receiving important external information relevant to their projects. This idea is paralleled in Janis's (1982) theory of groupthink, where groups that are highly cohesive yet isolated from external influence make poor decisions. And finally, Gladstein's (1984) integral study of sales teams in the communications industry revealed that traditional group processes (e.g., open communication, low conflict, etc.) as evaluated by group members did not predict

actual sales performance. An unexpected finding, however, was that team members in this study made a clear distinction between interactions with internal versus external customers. This led to a research agenda later labelled the "external perspective" (Ancona, 1987), in which the external activities of groups take on heightened significance when examining group effectiveness in organizations.

The External Perspective

In a first look at the importance of external activities to group effectiveness, Ancona (1990) used qualitative methods to understand the strategies five consulting teams adopted toward their external environments. She found that these teams chose one of three strategies toward their environments, which varied in their level of external engagement: informing (i.e., focusing on internal team processes and then informing outsiders of the team's intentions), parading (i.e., simultaneously achieving visibility with outsiders and team building), or probing (i.e., interacting with outsiders to a large degree). Consulting teams who chose a probing strategy performed the most external activities, such as diagnosing customer needs, informing clients of plans, testing new plans with outsider input, gaining support or resources, and promoting the team to outsiders. Importantly, outsiders who rated the performance of the consulting teams rated probing teams as the most effective. In contrast, teams that focused on developing internal team processes and then informing outsiders of their plans were rated as least effective. Therefore, Ancona concluded that external activities could be a better predictor of effectiveness than internal group processes, especially for groups with high external demands.

Following this study, Ancona and Caldwell (1992a) used a multi-method approach to identify and classify the types of external activities performed by new product development teams. Qualitative interviews revealed that teams engage in

external activities that serve four purposes: ambassadorial, or protecting the team from and promoting the team to outsiders; task coordination; scouting, or scanning for new information; and guarding, or avoiding information release from the team. In a follow-up quantitative survey study, teams that chose a comprehensive strategy encompassing both ambassadorial and task coordination activities had the highest ratings of performance over time. Thus this research revealed that the type, not just amount, of external activity has important implications for group effectiveness.

Additional empirical studies of the external activities of small groups have continued to show that external activities predict ratings of team performance. For example, external communication predicted team performance in product and process development teams in the manufacturing industry (Scott, 1997) and cross-functional research and development teams across multiple industries (Keller, 2001). Van Der Vegt and Bunderson (2005) showed that external communication is highly correlated with team learning behaviors in multidisciplinary teams, and Edmondson (1999) showed that team learning behaviors that include interactions with external actors predicted team performance for a variety of team types (e.g., functional teams, product teams, project teams, and self-managed teams). Finally, external activities such as persuading outsiders and coordinating tasks with people outside the team positively predicted effectiveness ratings in health promotion teams (Drach-Zahavy, 2011) and project performance in a sample of consulting teams (Marrone, Tesluk, & Carson, 2007). This review demonstrates that the importance of external activity is not limited to specific types of teams or industries; rather, a wide variety of work groups can be more effective by being attuned to their external environments.

The positive link between external activities and team performance may be even stronger when groups face high external demands. Ancona and colleagues (Ancona, 1990; Ancona & Caldwell, 1992a), for instance, have suggested that the extent to which

groups engage in boundary work should be determined by how much they need information, resources, or support. Related to this idea, Haas (2010) showed that gathering external information while maintaining autonomy in multinational organizational teams was more positively linked to effectiveness when the teams were more dependent on resources from the environment (e.g., when task complexity was high and external information was scarce). Further, environmental characteristics such as organizational culture (Drach-Zahavy & Somech, 2010) or temporal fluctuations in demand (Choi, 2002) may also render external activity even more critical to a group's effectiveness in completing tasks.

Though this program of research has revealed the importance of external activities to ratings of performance in small groups, it has also uncovered potential risks of a predominantly external focus. Specifically, external activities may have a negative effect on internal team processes such as cohesion and satisfaction (Ancona, 1990; Ancona & Caldwell, 1992a). The negative relationship between internal and external activities could be due to the fact that they compete for limited team resources (Choi, 2002) or because external communication brings conflicting perspectives into the group, which then disrupts internal cohesion (Ancona & Caldwell, 1988; Gruenfeld, Martorana, & Fan, 2000). Though internal processes may not always result in higher group task performance (e.g., Gladstein, 1984; Katz, 1982), they are critical for long-term viability of the group, another criteria of small group effectiveness (Hackman, 1987, 1990; Wageman et al., 2005). Therefore, group members may experience trade-offs between directing their efforts toward external stakeholders or within the boundaries of the group.

The notion of a balance between activities directed toward the environment versus those performed within a social entity is not entirely new. Alderfer (1976) first developed the idea of overbounded and underbounded systems with respect to

organizations. Overbounded systems have relatively impermeable boundaries, such that an organization becomes closed off from interaction with the outside world. Underbounded systems, in contrast, have boundaries that are excessively permeable. Low levels of interaction among members and high conflict characterize these organizations. Alderfer suggested that both overbounded and underbounded systems are related to low organizational vitality, thus advocating a balance in boundary permeability to maximize system strength.

Ancona (1990) applied Alderfer's theory to the consulting teams she studied to explain why external activities may inhibit internal processes. She suggested that teams with too much external focus could become underbounded and lack the internal cohesion necessary to pull different external perspectives together. More recent studies have confirmed this intuition, showing that groups with a moderate (versus a low or high) degree of social capital network closure are rated as more effective (Oh, Chung, & Labianca, 2004) and that groups that maintain a degree of autonomy while gathering external information enjoy greater strategic and operational effectiveness (Haas, 2010).

To summarize, research in the external perspective of small groups has revealed that external activities are important predictors of team effectiveness. Moreover, scholars in this tradition have convincingly argued that groups researchers can no longer view groups as closed systems. However, this research also suggests that too many external activities may come at the expense of important internal group processes that help teams function over time. Therefore, how can groups balance the need to foster healthy internal and external relationships for optimal group effectiveness?

Extending the External Perspective

To answer the question of how groups can emphasize both internal and external processes, it is important to extend the boundaries of the external perspective itself.

Though it provides a firm theoretical foundation for an open systems view of small groups, empirical research to date conveys only a partial view of how teams perform boundary activities and how boundary activities affect outcomes other than performance (i.e., internal group dynamics) (Marrone, 2010). Specifically, the body of work supporting the external perspective 1) makes an implicit assumption that the methods group use to perform boundary work are outward-facing, and 2) considers the effects of boundary work with an emphasis on task-based information exchange. To extend this perspective, this research addresses these assumptions by defining boundary work in a way that includes different methods groups use to interact with external actors, and by considering the effects of boundary work using a group identity lens to enable further theoretical connections between boundary work and internal group processes. The following section begins with the first extension – that pertaining to boundary work methods.

Boundary Work Methods

Though past research has considered groups to be either internally-focused or externally-focused, another important distinction that pertains to externally-focused groups is the approach they take in enacting external activities, or their methods of boundary work. Research of external activities in groups most often conceptualizes external activities as those that are directed outward. For example, Choi (2002) defines external activities as "task related activities that are directed *toward* the team's environment to manage its relationships with external actors, including other units within the same organization, other organizations, and the general public" (p. 184, emphasis added). Ancona and Caldwell (1992a) focused on external activities as team behaviors that are "directed *outward*, toward other parts of the organization" (p. 634, emphasis added). Faraj and Yan (2009) distinguish between purely internal activities,

which they call boundary reinforcement, and two classifications of external activities termed boundary spanning and boundary buffering. Boundary spanning is outward activity that engages the environment whereas boundary buffering is outward activity that disengages the environment. Notably, however, both of these are outward-facing conceptualizations of boundary activity. Therefore, boundary activity as depicted in prior research originates from the team and is directed outward.

However, boundary activities relating to external stakeholders can also take place within the group boundary. Specifically, groups can invite external actors in to interface with the group as a whole. For example, a group of call center representatives can invite an information technology specialist to a group meeting in order to help them more effectively utilize their call logging system. A pharmaceutical sales team can host a medical liaison to give them more information about a particular disease state. A cross-functional product development team can ask an industry consultant to brief their team about the competitive landscape. All of these examples are of groups working with external actors, but within their boundaries as opposed to outside of them.

Thus in focusing on outward-facing external activities, current literature has largely ignored a potentially important phenomenon in the domain of group boundary work. The distinction between sending group members out and inviting outsiders in has implications for both external relationships and internal group dynamics. For example, these methods differ in how much time group members spend interacting with one another and the ways in which members of the group process external information gained through boundary work. Defining external activities as those that are directed outward may unnecessarily narrow the focus of research on group boundary work and its effects, and therefore it is important to broaden the conceptualization of external activities to include those involving outsiders within the group's boundary.

Boundary Work Definition

As mentioned above, boundary activities in work groups have been loosely conceptualized as task-related activities that are directed toward the external environment (Ancona, 1990; Ancona & Caldwell, 1992a; Choi, 2002). However, since groups can interact with external actors within their boundaries, another working definition is needed. Faraj and Yan (2009) define boundary work as "the activities that a team engages in to establish and maintain boundaries and manage interactions across those boundaries" (p. 604). While the notion of managing interactions across boundaries would not preclude inviting external actors to interact with the group, this definition also includes work that the group does internally without external actors. That is, establishing and maintaining boundaries refers to what Faraj and Yan call "boundary reinforcement", which entails internal team building and the formation of group identity through interaction with other group members. Yet interacting with external actors could also facilitate the formation of shared identity (Hackman, 1990), so it is necessary to clearly distinguish activities that team members perform with external actors from those that they perform with other internal group members without emphasizing the potential outcomes of those interactions (e.g., identity).

Therefore, I define boundary work simply as *task-related activities that group members perform with external actors*. This encompasses work that group members perform with outsiders whether or not that work takes place within or outside of the group boundary. Moreover, it does not preclude the notion that identity can be formed through these interactions with external actors. Internal activities, in contrast, are defined as task-related activities that are performed only with other group members. These activities can include internal communication, conflict resolution, decision-making and many others that involve only members of the group.

Outward- Versus Inward-Bound Approaches to Boundary Work

External activities have traditionally been viewed as outward-facing approaches to engaging with a group's environment. These activities are enacted by one or more group members who communicate with external actors outside of the group's boundary. A group leader, for instance, may go between the group and external stakeholders to coordinate task activity, acquire resources, and search for external information to bring into the group (Druskat & Wheeler, 2003; Richter, West, Van Dick, & Dawson, 2006; Wiesenfeld & Hewlin, 2003).

Alternatively, these activities can be performed by any of the members of the group (Marrone et al., 2007). For example, members of a cross-functional product development team may each interface with external stakeholders aligned with their functional backgrounds (Ancona & Caldwell, 1992b; Drach-Zahavy, 2011). The project manager may liaise with top management to gain resources for the team and promote its cause. The individual with a marketing background on the team may interact with potential customers in a focus group. The representative from engineering may brainstorm with other engineers outside the organization to refine potential product design specifications. Finally, group members come back to the group with the information they have gained to synthesize their findings and carry out their task. However, both of these examples show how group members who specialize in boundary activities on behalf of the group leave the group boundary to engage with external actors. Therefore, I adopt Ancona's (1990) term, "outward-bound", to describe this method of boundary work because it denotes the idea that external activity is carried out outside of the group's boundary.

Yet boundary work can be also undertaken within the group boundary by inviting external actors in to provide information, resources, or support to the group as a whole. This type of interaction can and often does occur among members of

organizational groups, as groups learn by hosting an expert in a particular task or process, coordinate with other groups by inviting members of those groups to attend a group meeting, or build support by revealing their group activities to other organizational members who observe them in action. Notably, inviting external actors in to interact with the group represents situations in which group members perform external activity together rather than separately[1]. That is, boundary activities are not specialized or allocated among individual members of the group. Though these groups still focus externally in that they prioritize information exchange with external actors, I call this method of boundary work "inward-bound" to denote that task-related activity with outsiders is carried out within the group's boundary.

Importantly, these are not situations in which an external actor is invited to become a member of the group. Though it is possible to gather external information or coordinate tasks by granting temporary membership to people who can help with specific aspects of a project (Ancona & Bresman, 2007), it is also not necessary to grant membership to external actors in order to exchange information with them within the group's boundary. The dynamics of groups that invite newcomers to join the group even temporarily are arguably quite different from those that interact with an "outsider" for a short period of time (cf. Levine & Moreland, 1982; Moreland, 1985). The latter is consistent with the definition of boundary work as task-related activity performed with external actors who are clearly understood (both by the external actors themselves and

[1] While it is also possible that an external actor could come in to interact with an individual group member (and that an entire group could go out to interact with an external actor together), the two methods presented here are likely to be more prevalent in practice. Indeed, past research considering the outward-bound approach most often conceptualizes and/or measures this activity as one or more individuals going out separately (e.g., by aggregating group members' individual external communication activities) rather than specifying that the group goes out together (see Ancona, 1987; Faraj & Yan, 2009; Gladstein & Caldwell, 1985; Katz & Tushman, 1979; Marrone et al., 2007; Richter et al., 2006; Tushman & Katz, 1980; Tushman & Scanlan, 1981 for representative examples). Therefore, the present research begins with this standard conceptualization of outward boundary work and contrasts it with the inward-bound approach most likely to occur (that of an external actor coming in to interact with the group as a whole). However, the implications of considering inward- and outward-bound approaches as co-varying with group and individual participation are further discussed in the final chapter.

group members) to be non-members of the group.

See Table 1.1 for a description of both methods of boundary work with corresponding examples of group activity.

Table 1.1. Boundary Work Methods and Relevant Examples.

Boundary Work Method	Participation	Examples
Outward-Bound	Individuals acting separately	One member (e.g., group leader) coordinates work with other departments and/or liaises with management for support; Multiple group members interact with external actors according to their individually-diverse networks and expertise
Inward-Bound	Group as a whole	Expert attends group meeting to provide information; Co-worker(s) from another group brainstorms with group to improve task coordination; Top managers or potential supporters observe group in action

In summary, the definition of boundary work in groups should include interactions with external actors that occur both outside and within the group's boundary. Interactions that involve individual members going outside the group's boundary can be considered "outward-bound" (Ancona, 1990), whereas interactions in which external actors come in to provide information, resources, or support to the group as a whole can be considered "inward-bound". Though groups can and do perform inward boundary work, little is known about this boundary work phenomenon. Like outward boundary work, inward boundary work enables groups to gather external information for the accomplishment of tasks. However, it could have quite different

effects on internal group dynamics. Therefore, it is important to consider the ways in which these methods of boundary work are similar and different, and in so doing I take an identity-based view of boundary work to compare and contrast the two approaches. The next section describes this second extension of the external perspective – that of using an identity-based perspective to uncover new connections between boundary work and internal group dynamics.

An Identity Perspective on Boundary Work

Extant research on the effects of boundary work generally focuses on how task-based information exchange with external actors predicts task performance. Indeed, the need for task-related external information can be an antecedent of boundary activities (Ancona, 1990) and the transfer of task-related information is a critical function of both individuals (Aldrich & Herker, 1977) and groups (Katz & Tushman, 1979; Tushman & Katz, 1980) performing boundary activities. Moreover, this research has clearly shown that acquiring such information from (and communicating information to) external stakeholders helps groups align their outputs to stakeholder expectations, resulting in higher external ratings of task performance (Ancona, 1990; Ancona & Caldwell, 1992a, 1992b; Drach-Zahavy & Somech, 2010; Keller, 2001; Scott, 1997).

However, less systematic research has been done to examine the effects of boundary activities on internal group dynamics (Marrone, 2010) and studies that have investigated these effects hint that external activities and internal processes are in some ways incompatible (e.g., Ancona, 1990; Choi, 2002; Keller, 2001). One particularly important aspect of internal group functioning that at first seems incompatible with external activity is shared group identity. As described in greater detail below, shared group identity is the degree to which members share a conceptualization about that which is central, distinct, and enduring about the group (Albert & Whetten, 1985), and

it acts as a common interpretive framework for group members (Postmes, Haslam et al., 2005). Shared group identity thus facilitates smooth intragroup processes and can engender a spirit of cooperation among group members (Chen et al., 2004).

Scholars in the external perspective tradition often conceptually link the formation of shared group identity to internal team processes as opposed to boundary activities (e.g., Ancona & Bresman, 2007; Faraj & Yan, 2009; Sundstrom & Altman, 1989; Yan & Louis, 1999). However, there remain many unanswered questions about the connections between boundary work and group identity. For example, Hackman (1990) suggests that interactions with outsiders are integral for small group identity formation. He states, "Interactions with outsiders present problems and opportunities whose resolution can help a team clarify its own identity, elaborate its norms, and refine its performance strategies" (p. 475-476). Pratt (2003) also suggests that issues of identity are fundamentally relational such that it is difficult for group members to answer the question, "Who are we?" without knowing who they are not. Since boundary work puts group members in contact with outsiders, the enactment of external activities may thus provide opportunities for members to think about and refine the group's shared identity.

Boundary activities involving interactions with external actors could facilitate the formation of a shared group identity in several ways. First, boundary work could make group membership salient. Ellemers, De Gilder, and Haslam (2004), for example, argue that when individuals interact with people outside their organization their organizational membership becomes salient and provides them with clear behavioral guidelines. In contrast, when individuals interact with other co-workers inside the organization, organizational membership is an identity that is less informative since it is one that they all share. Though this is an example of how organizations become salient to individual employees, it may also explain how work groups become salient to group

members. Not only do individuals identify more strongly with their work groups than their organizations (Riketta & Van Dick, 2005), but also they are likely to see themselves as group representatives in an intergroup setting (Alderfer & Smith, 1982). Therefore, I argue that when members of work groups engage in task-related activities with external actors their group membership will become salient to them.

Second, boundary work should provide group members with comparison others in relation to whom they can construct and refine their group's identity. Consider previous examples of boundary work to illustrate this point. The industry consultant who briefs a cross-functional product development team about the competitive landscape may not only give the team information that helps them create a better product but also information about how their team compares to others in the industry. The pharmaceutical sales team that asks a medical liaison to provide information about a particular disease state may learn that their group is "more fun" or "less formal" than members of the medical liaison team by virtue of interacting with the medical liaison representative. The way in which the information technology specialist trains the call center representatives may be a signal that members of the information technology team are "more organized" or "more systematic" than members of the call center team.

Research on individual boundary spanners suggests that boundary work does result in social comparisons. Bartel (2001), for example, investigated boundary work as a context affecting the social comparisons made by individuals engaging in community outreach work on behalf of their organization. She found that employees who volunteered for the community outreach program engaged in social comparisons with the community members whom they served in the program. Further, these social comparisons altered their perceptions of the organization's identity. Compared to organizational members who did not participate in the community outreach program, employees who did engage in boundary work came to view their organization's identity

as more cooperative, innovative, and socially responsive. Thus activities with outsiders may serve as an "identity cue" (Ashforth, Harrison, & Corley, 2008) that spurs the enactment of a specific group identity.

Finally, boundary work affects the shared experiences of group members. To the extent that members spend a large amount of time interacting with external actors outside of the group's boundary, they have less time to interact with one another (Choi, 2002). Since group members can create their group identity in part via internal discussion and shared experience (Katz, 1982; Postmes, Haslam et al., 2005), boundary work as traditionally viewed (i.e., outward-facing) is not likely to strengthen group identity and may even threaten it. However, this provides further impetus for considering other methods of boundary work (i.e., inward-bound) when taking an identity perspective on boundary work and group effectiveness.

To summarize, considering the theoretical connections between boundary work and group identity extends the external perspective of small groups. Boundary work represents situations in which group members receive information not only about their tasks but also about their group in a larger social context. Viewing boundary work through a task-based information exchange lens may thus unnecessarily narrow the focus of information exchange to content related to group tasks. Moreover, while task-related information gained through boundary work is useful in performing the task, group-related information (e.g., information pertaining to group identity) is also useful in formulating group norms (Feldman, 1984) and processes through which members carry out their tasks. Therefore, examining the effects of boundary work on the formation of group identity expands our knowledge of the relationships between external activities and internal group dynamics. Before further developing these connections, however, the next section describes shared group identity and its formation in greater detail.

Shared Group Identity Definition

Group identity is that which is central, distinctive, and enduring about the group (e.g., Albert & Whetten, 1985; Dutton, Dukerich, & Harquail, 1994). For example, group identity can be based on a common goal (Postmes, Spears, Lee, & Novak, 2005) or on characteristics that make a group distinct from other groups (Brewer, 1991). Thus group identity is a property of a social entity rather than as a process through which individuals come to identify with their groups[2].

More specifically, this research examines relationships between boundary work and *shared* group identity, or how crystallized group identity is among all members of the group (cf. Chatman, 1989). Sharing a group identity means that members have a common perspective of how the group is defined in relation to other groups, and thus a common interpretive framework of the group's history and future directions (Postmes, Haslam et al., 2005). Shared group identity is thus defined as *the extent to which members share a conceptualization of that which is central, distinctive, and enduring about their group*. In order to further clarify the term "group identity", however, it is important to differentiate it from related constructs, such as social identity, group identification, group culture, and shared mental models.

Social Identity. Social identity is "the individual's knowledge that he belongs to certain social groups together with some emotional and value significance to him of this group membership (Tajfel, 1972, p. 272). Both social identity theory and self-categorization theory view social identity as describing individuals in terms of their social category memberships (Turner, 1999). Thus, while individuals have personal identities based on unique traits they also may identify themselves as members of groups (Brewer & Gardner, 1996). For example, in describing myself I may say that I

[2] Though group identity is described here as a property of a group, the formation of the group's identity is socially constructed and thus inherently related to process (see Pratt, 2003). Here, I wish to differentiate group identity as a shared unit property from the tendency of individuals to define themselves in terms of their group memberships (i.e., social category membership).

am detail-oriented (personal identity) but I also may say that I am a woman or a member of a sports club (social identities). However, the level of analysis of social identity as described here is the individual even though it refers to a collective (see Pratt, 2003). In contrast, group identity is a property of the collective and should be conceptualized at the level of the group. For instance, I could describe the group identity of my sports club as competitive, fun, or egalitarian. These descriptions refer to the group as a whole as opposed to myself or other individuated members of the sports club.

Group Identification. It is also important to make a distinction between group identity and group identification, which is the degree to which individuals view attributes of the collective as self-defining (Ashforth et al., 2008; Dutton et al., 1994; Ellemers et al., 2004). Group identification can be cognitive in that individuals perceptually view the group as a core part of their self-concepts and it can be affective in that individuals who identify strongly with their groups are highly committed to them (Ellemers & Rink, 2005; Ellemers, Spears, & Doosje, 1997). Yet, as with social identity, the level of analysis of group identification is the individual. To the extent that individuals identify with the groups to which they belong, their attitudes and behaviors should be affected by these group memberships (Hogg & Reid, 2006; Kelman, 1958; Terry & Hogg, 1996). However, in this research I am interested in the degree to which group members share a conceptualization of their group's identity. That is, to what degree do group members agree that their group has specific attributes? The level of analysis is the group and the focus is the sharedness of this group identity.

Culture. Culture is described most often in terms of larger collectives, such as societies or organizations (Albert & Whetten, 1985). Yet regardless of the size of the collective, culture is typically based on shared values among a group's members (Chatman, 1989; O'Reilly, Chatman, & Caldwell, 1991). In small groups, culture can

be defined as "a system of knowledge, beliefs, behaviors, and customs shared by members of an interacting group" (Fine, 1979, p. 734). Thus, group culture is a broad construct that encompasses both cognitive elements such as fundamental assumptions and behavioral elements such as norms and customs (Levine & Moreland, 1991; Rousseau, 1990). While the formation of identity is often linked to elements of culture, such as shared values (Ashforth & Mael, 1989), identity can also be based on dimensions such as group goals and characteristics (Postmes, Spears et al., 2005).

In addition, though group identity is based on what is enduring about the work group, groups can emphasize different aspects of their identities depending on relevant situational elements or comparison outgroups (Albert & Whetten, 1985; Gioia, 1998; Gioia & Thomas, 1996). For example, members of a top management team may view the group's identity as innovative in comparison to the top management team of an alliance partner but cooperative in comparison to the top management team of a competitor. The team identity could be described as both innovative and cooperative, but emphasis is placed on one characteristic over another depending on the specific comparisons that are made. Group culture, in contrast, is not as inherently relational as group identity (Pratt, 2003).

In spite of these theoretical differences, group identity is often empirically measured as the extent to which members share values (e.g., Earley & Mosakowski, 2000). In short, group identity can be viewed as a narrower construct than group culture though it is likely that cognitions about each will be based on similar content. Since identity is more sensitive to comparisons with others, however, it seems an appropriate construct to investigate in boundary work situations.

Shared Mental Models. Finally, group identity differs from shared cognition constructs such as team mental models. Team mental models are collectively held mental models that help groups make sense of phenomena (Klimoski & Mohammed,

1994). More specifically, mental models are emergent characteristics of the group that help team members organize knowledge. The content of knowledge in shared mental models can refer to knowledge about the team itself or the team's tasks (Cannon-Bowers, Salas, & Converse, 1990, 1993), and could even include knowledge about a group's identity (Pratt, 2003). Therefore, team mental models could be used to describe how group members come to share a definition about the group's identity, but in this research I conceptualize group identity as a product of these shared cognitions that can be articulated as characteristics of the group.

In summary, group identity differs from social identity, group identification, group culture, and shared mental models in various ways though elements of these constructs contribute to our understanding of the antecedents and consequences of a group's identity. Ultimately, group identity answers the question, "Who are we?", and it is a collective cognitive construct that can emerge both through interaction with other group members and through comparisons against outgroup members.

Components of Shared Group Identity Formation

Literature on group identity emphasizes three components that can influence the formation of a shared group identity: 1) shared experience, or the extent to which group members have similar group-related experiences, 2) salience, or the extent to which members are cognizant of their group membership, and 3) relevant comparisons, or social comparisons that provide relevant information about the group's identity.

First, shared experiences, whether through member interaction or by experiencing similar events, can shape the group's identity. For example, through interaction group members may discover that they share certain values or working styles that ultimately come to describe the group as a whole. Postmes et al. (2005) call this inductive identity formation, where intragroup discussion regarding group member

similarities or goals can create a sense of shared identity. A number of authors have investigated the use of talk or stories among members of small groups, showing that these media indeed shape members' conceptions of their group's identity (e.g., Kitchell, Hannan, & Kempton, 2000; Koenig Kellas, 2005).

However, even shared experiences absent member discussion can influence the formation of group identity. Shteynberg (2010) found, for instance, that just knowing that others within one's group are experiencing the same stimuli is enough to render those stimuli more cognitively accessible to group members. For example, participants who believed they were making judgments about words or pictures that similar others were experiencing were faster at remembering these stimuli than participants who believed they were making judgments about stimuli that were not experienced by similar others. Shteynberg argues that the cognitive accessibility of similar stimuli forms the basis for shared knowledge and norms among group members. Thus experiencing similar events could also contribute to a sense of shared group identity among group members.

A related concept, group entitativity, also sheds light on how the shared experiences of group members form the basis of group identity. Group entitativity is the degree to which individuals are bonded together in a coherent unit (Campbell, 1958; Lickel et al., 2000), and is integral to process of identity formation (Cornelissen, Haslam, & Balmer, 2007). Entitativity is higher for groups whose members have a high level of interaction as well as common goals and outcomes (Hamilton & Sherman, 1996; Lickel, Hamilton, & Sherman, 2001; Lickel et al., 2000), all of which can contribute to group identity. Indeed, groups that have high member interaction are often perceived as having a stronger identity than those with low member interaction (Hamilton & Sherman, 1996). In sum, shared experiences via group member interaction

and common experiences can be considered one important dimension of group identity formation.

Second, the salience of the group's boundary can aid in forming a shared group identity. A group can be made salient by a number of different contextual factors, such as intergroup competition or the physical presence of outgroup members (Brewer, 1979; Marques, Yzerbyt, & Rijsman, 1988; Sherif, Harvey, White, Hood, & Sherif, 1961; Tajfel & Turner, 1979). However, salience of group membership leads people to think about the group or themselves as group members instead of as individuals (Hogg, Abrams, Otten, & Hinkle, 2004; Turner & Reynolds, 2001). Moreover, when the group is made salient group members are likely to think of ways in which they are similar to one another as opposed to how they differ from one another (cf. Stapel & Koomen, 2001), helping them reach consensualization about the group's identity (Postmes, Haslam et al., 2005). Therefore, salience activates a mind-set in which group members reflect on the nature of their group and themselves as group members.

Next, and closely related to salience, group identity can be shaped by comparisons to relevant outgroups or outgroup members[3]. For example, Lyon's (1974) study of a small theater group revealed that members of the theater frequently compared their group's identity to those of other theater groups. The comparisons that they made led them to conceptualize their group's identity as "freer" and "more relevant" than other theaters in the area (p. 82). Hunt and Benford (1994) also showed that activists in social movement organizations often dissociated their group from other groups when talking about their group's identity. In fact, differentiating the group's

[3] Self-categorization theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) posits that salience and intergroup comparisons are tightly related. For example, intergroup competition or threats from other groups contribute to group boundary salience and salience heightens the tendency to differentiate the group from other groups. Here I do not wish to unduly separate these constructs; rather, I juxtapose them solely to emphasize specific cognitions resulting from each (i.e., awareness of group membership resulting from salience and awareness of specific attributes that categorize the group in relation to a relevant outgroup resulting from intergroup comparison).

identity from those of other groups is integral to satisfying distinctiveness needs of group members and may be crucial to a group's very survival (Brewer, 1991).

In summary, shared group identity is the extent to which group members share a conceptualization of that which is central, distinctive, and enduring about the group. Shared group identity forms in several ways, namely via shared experiences, salience, and relevant comparisons, and is stronger to the extent that group members commonly experience these dimensions of group identity formation (e.g., group membership is salient to all group members). Since prior research has shown that boundary work could influence group salience and social comparisons, for example (Bartel, 2001; Ellemers et al., 2004), an examination of how the different methods of boundary work affect shared group identity is warranted.

The Effects of Boundary Work Method on Shared Group Identity

To the extent that boundary work affects group member shared experiences, salience of the group boundary, and accessibility of relevant comparisons, it should influence the formation of a group's identity. However, the methods groups use to approach boundary work should influence these dimensions of group identity formation differently, with implications for the degree to which members share a conceptualization of the group's identity. Recall that this research delineates two different methods of boundary work – an outward-bound and an inward-bound approach to engaging with external actors.

An outward-bound approach entails one or more group members interacting with external actors individually outside of the group's boundary. This provides groups that perform extensive outward boundary work with few opportunities to formulate a shared group identity through shared experiences. Moreover, not all group members may experience group salience or relevant external comparisons from outward

boundary work. While group boundaries should be salient to members who perform outward boundary work because they act as ambassadors representing the group's interests (Aldrich & Herker, 1977) and boundary work should also furnish these members with comparison outgroups, those that do not engage in the boundary work may not be privy to this information. Even if those who perform boundary work on behalf of the group share identity-related information to the rest of the group, members who have not had the same experience may not be receptive to the information (cf. Gruenfeld et al., 2000). Further, in the event that all group members perform boundary work and so experience a heightened salience of the group, allocation of different external activities to each member may result in different referent comparisons.

Consider two examples of groups that perform outward boundary work to illustrate these points. In one group, a single member performs boundary work on behalf of the group. This group member should experience increased salience of group membership and relevant comparison outgroups as a result of performing boundary work whereas the other members would not. In addition, this group member may conceptualize the group's identity based on salient comparisons with external outgroups while other group members may rely on internal interaction to inform their views of the group's defining characteristics.

Now consider a group in which all group members perform outward boundary work with different external actors. All group members should experience increased salience of group membership but the comparisons that are accessible to them when considering the group's identity are likely to be highly diverse. In other words, each group member compares the group to different external outgroups that they encounter in performing boundary work, which could result in different conceptualizations of group identity. For example, one member of the group may compare the group's identity to that of the top management team whereas another member of the group may

compare the group's identity to that of external customers. Since these referent outgroups are likely to differ in characteristics, the resulting conceptualizations of the focal group's identity should differ as well.

In these examples, individual group members come to a conceptualization of group identity in different ways. If one member performs boundary work, salience and relevant comparison outgroups inform that member's sense of group identity but not necessarily that of other members. As more members of the group perform outward boundary work, salience and comparisons become more relevant for those members but comparisons are likely to be diverse. In either case, members have different experiences when carrying out these external activities. Therefore, an outward-bound approach to boundary work should create discrepancies in group members' conceptualizations of the group's identity, resulting in a low level of shared group identity (See Table 1.2 for a description of how boundary work method relates to components of shared group identity formation).

Table 1.2. Boundary Work Method and Shared Group Identity Formation.

	Components of Shared Group Identity Formation		
Boundary Work Method	Shared Experience	Group Salience	Relevant External Comparisons
Outward-Bound	Low	Mixed (for group representatives)	Diverse
Inward-Bound	High	High	Similar

In contrast, group members who perform inward boundary work interact with outsiders by inviting external actors to interface with the group as a whole. This method of boundary work allows them to have a high level of interaction amongst themselves

while communicating with external actors, giving them shared experiences with which to construct their identity. In addition, the presence of outsiders within their group boundary should make their group highly salient to all group members at the same time. Marques, Yzerbyt, and Rijsman (1988), for example, showed that the physical presence of even a single outgroup member can make the ingroup salient to group members. As groups perform inward boundary work, the presence of external actors should inspire group members to think of their group as an entity and to reflect on attributes that characterize their group in relation to those external actors.

Moreover, since all group members interact with the same external actors when engaging in inward boundary work, they have the same referents with which to compare their group's identity. Utilizing the same referents for ingroup and outgroup comparisons should help group members come to a shared conception of their group's identity. Haslam et al. (1998), for example, investigated consensus among group members regarding traits of their ingroup (i.e., Australians) while varying the salience of a relevant outgroup (i.e., Americans). They showed that when group members were asked about the traits that characterize their group in relation to a specific outgroup, they came to a greater consensus than when they were simply asked about traits that characterize their ingroup with no outgroup comparison. Thus, the salience of a consistent outgroup helped members come to an agreement about their own group's identity.

In the same way, members of groups performing inward boundary work may be more cognizant of their group as a distinct entity when outsiders are physically present with them and they may come to a high level of agreement about the attributes that characterize their group in relation to those specific outsiders. For example, members of a sales team may seek information from a finance representative regarding the pricing of their products. When the finance representative interacts with the group, members of

the group become more aware that they are a group and make comparisons between attributes that characterize their group in relation to attributes that characterize the finance group. In addition, a greater number of individual group members may describe the identity of the group as "fun" or "customer-oriented" in relation to this particular referent than if they had no salient comparison or if they each had a different comparison outgroup that was salient to them. Thus shared experiences, group salience, and similar referents should enable members of groups that perform inward boundary work to develop a strong shared group identity.

At first glance, this prediction may seem contrary to classic approaches toward intergroup relations, which argue that contact with outgroup members is one way in which intergroup hostility (e.g., ingroup-outgroup differentiation) can be reduced (i.e., the contact hypothesis) (see Brewer & Gaertner, 2008 for an overview). Indeed, research has shown that contact can minimize intergroup differences when distinct groups work interdependently towards a common goal, during which group members effectively recategorize the two groups into one superordinate category (e.g., Gaertner, Mann, Murrell, & Dovidio, 1989; Sherif et al., 1961). For inward boundary work, in contrast, I argue that contact with an outgroup member renders the group salient and highlights the attributes that make the group distinct.

This perspective can be reconciled with classic approaches when considering the qualifying conditions of the contact hypothesis. Allport (1954) suggested several conditions necessary for contact to promote positive intergroup relations (e.g., by minimizing intergroup differences), including that the contact should have the potential for high intimacy and cooperative interdependence. Moreover, for contact to reduce biases and ingroup-outgroup differentiation it must take place over time (Pettigrew, 1998). These conditions could be in place for some examples of ongoing inward boundary work on the part of the same outsider(s). However, many examples of

outsiders coming in to provide information or resources to a small work group (e.g., a consultant presenting market research, an Information Technology specialist troubleshooting a computer issue) on a short-term basis are unlikely to meet these criteria. Therefore, contact with outsiders after this fashion should not necessarily diminish intergroup differences so much that shared group identity for the focal group is eroded rather than strengthened.

In short, members of groups who perform inward boundary work should have a strong shared group identity because they spend a lot of time interacting with fellow group members and because their group is made salient through boundary work with outsiders with whom they all interact. In contrast, group members who perform outward boundary work should have difficulty formulating a shared group identity because they spend relatively less time interacting with one another and have diverse external referents with whom to compare their group. Stated formally,

> *Hypothesis 1: Inward (outward) boundary work will positively (negatively) predict shared group identity.*

To summarize, an identity-based view of boundary work presents clear differences between two methods of boundary work commonly used by organizational groups. Examining the effects of these two methods of boundary work on shared group identity extends current research on boundary work by providing greater insight into how boundary work affects factors related to internal group dynamics. Since internal relationships are integral for long-term group viability (Hackman, 1987, 1990; Wageman et al., 2005), the links between boundary work method and shared group identity should subsequently affect people-related criteria of group effectiveness (i.e., member satisfaction and group viability). Therefore, an identity-based view provides

greater breadth to the study of boundary work and small group effectiveness as well as opportunities for further inquiry into their underlying relationships.

The Effects of Boundary Work Method on Group Effectiveness

Hackman (1987) has suggested that group effectiveness encompasses multiple criteria: external ratings of group performance, group member satisfaction, and long-term viability. Prior research in boundary work has emphasized group effectiveness as the external ratings of the group's output (e.g., Ancona & Caldwell, 1992a; Faraj & Yan, 2009; Katz, 1982; Keller, 2001; Oh et al., 2004). However, less systematic attention has been paid to multiple measures of group effectiveness (Marrone, 2010). It is important to consider these additional factors because the task-related external activities performed by group members may be at odds with people-related factors such as member satisfaction or group viability, though both are key elements of group effectiveness. If researchers only consider performance ratings by external stakeholders, they may fail to discover that teams "burn themselves up" (Hackman, 1987) in so performing these external activities. Therefore, this research examines the effects of boundary work methods on measures of satisfaction and viability as well as group task performance.

Satisfaction and Viability. People-related measures of group effectiveness include the satisfaction of group members, or their affective reactions to the experience of working in the group, and the group's viability, or the idea that the social processes used to carry out the group's work should maintain or enhance group members' ability to work together in the future. While Hackman (1987) separates these two criteria in his original essay on group effectiveness, he has also combined them into a composite measure (Wageman, Nunes, Burruss, & Hackman, 2008) as have other researchers studying work groups (e.g., Barrick, Stewart, Neubert, & Mount, 1998; Marrone et al.,

2007; Sundstrom et al., 1990; Tesluk & Mathieu, 1999). Indeed, member satisfaction and group viability as well as cohesion have also been clustered conceptually. For example, Balkundi and Harrison (2006) describe viability as members' attachment to the team (i.e., both satisfaction and cohesion) and their willingness to work together again. While Hackman views long-term viability as a behavioral, rather than a purely affective, construct[4], this criterion certainly hinges on members' intentions to remain together as well as the social integration that enables them to do so. In short, member satisfaction and long-term group viability in combination represent the effectiveness of a group from the standpoint of its members.

A few studies of boundary work in small groups have related external communication to satisfaction and/or cohesiveness. For example, Ancona (1990) found that satisfaction was lower among members of probing groups, or those that emphasized frequent communication with external stakeholders, than members of groups that communicated with outsiders to a lesser degree. Other studies have theorized and/or found negative relationships between external communication and cohesion (Ancona & Caldwell, 1988, 1992a; Keller, 2001). Again, cohesion tends to positively predict group member satisfaction (Bettenhausen, 1991; De Dreu & Weingart, 2003; Dobbins & Zaccaro, 1986; Harrison, Price, & Bell, 1998) and is often conceptually equated to group member satisfaction and viability (e.g., Balkundi & Harrison, 2006; Greene, 1989; O'Reilly, Caldwell, & Barnett, 1989; Rico, Molleman, Sanches-Manzanares, & Van der Vegt, 2007).

Therefore, prior research seems to suggest that boundary work is a potential threat to group satisfaction and viability. Studies showing a negative relationship between external activities and measures of satisfaction or cohesion, however, investigated groups that performed "outward" boundary work. These groups are often

[4] Personal communication with Richard Hackman (July 30, 2010).

fragmented in the course of carrying out external activities, which could contribute to a weak sense of solidarity (cf. Durkheim, 1933). In contrast, an inward-bound approach to boundary work does not fragment the group but rather allows members to work together in carrying out external activities. Interacting with outsiders as a group may thus engender cohesion and a sense of shared purpose that contributes to group member satisfaction and willingness to work together over time. Therefore, boundary work methods should have opposite effects on these effectiveness outcomes:

Hypothesis 2: Inward (outward) boundary work will positively (negatively) predict group satisfaction and viability.

However, low group satisfaction and viability may not occur as a direct result of external activities but, in part, because of a lack of shared group identity. As theorized above, members of groups that perform outward boundary work may not share an understanding of their group's identity as a result of relatively low shared experience and comparisons with diverse outgroups. Yet inward boundary work enables group members to interact as a group and utilize similar outgroup referents to help them formulate the group's identity. In other words, boundary work methods could result in different satisfaction and viability outcomes via their effects on shared group identity.

How might shared group identity contribute to group member satisfaction and viability? First, the extent to which group members share a group identity may predict their ratings of satisfaction with the group experience. Koenig Kellas and colleagues (2005; 2006), for example, have found that family members who take one another's perspective when discussing their family's identity not only come to shared conclusions but also have a high degree of overall satisfaction with their family. Group members who share a conceptualization of their group's identity may also enjoy working with

one another. For instance, Chen, Chen, and Shaw (2004) investigated the degree to which people desired verification of their collective identities. They found that individuals preferred interacting with ingroup members who shared the same conceptualization of their group's identity rather than with those who viewed the group's identity differently.

In addition, shared conceptions about aspects of the group (e.g., identity) can make group interactions smoother (Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000), which should foster the social integration necessary to work together in the future. For example, shared identity can dictate group norms, or socially-shared standards of behavior that regulate patterns of interaction among group members (Bettenhausen & Murnighan, 1985; Birenbaum & Sagarin, 1976). Clear group norms guide member behavior, such that people know what is accepted and expected in group interactions (McGrath, 1984). Thus clear norms help structure group interactions such that members can easily understand how to work with one another, making long-term relationships more achievable. In sum, shared group identity should facilitate both group member satisfaction and the social processes that enable a group to work together for the long-term.

Therefore, since inward boundary work should positively predict shared group identity, it follows that inward boundary work should positively influence group satisfaction and viability through its effects on shared identity. In contrast, because outward boundary work should negatively predict shared group identity, it should also negatively predict group satisfaction and viability through its effects on shared identity.

Hypothesis 3: The relationship between boundary work method and group satisfaction and viability should be mediated by shared group identity.

External Ratings of Performance. Groups produce outputs that are typically evaluated by external actors. For example, software development teams create products that are evaluated by end users, hiring committees make recommendations that are assessed by other organizational members, and manufacturing teams assemble parts of a product that are then used by another assembly team. Therefore, these external assessments of a group's output dictate whether or not it can be considered effective and what happens to the group as a result (Hackman, 1987).

Numerous studies have shown that information exchange with external actors predicts external ratings of performance (Ancona, 1990; Ancona & Caldwell, 1992a; Keller, 2001; Marrone et al., 2007). Communication with external actors not only helps groups understand customer needs but also helps them achieve visibility with those who evaluate their outputs. Access to external information should help groups tailor their outputs to the needs of those who evaluate them and heightened visibility should enable groups to garner the support they need to carry out their tasks.

Boundary work of either method entails information exchange with external actors. Information exchange with external actors, however, includes both the amount and processing of external communication, which could differ depending on the boundary work method used. To illustrate the similarities and differences between inward and outward boundary work regarding external information exchange, consider the basic example of two groups that need a piece of information from an external actor. One group sends a member of the group out to get the information and bring it back to the group. The other group invites the external actor to come present the information to the group as a whole. In each case, the content of the information and amount of external communication is the same. Therefore, both groups gain the external information they need in order to perform their tasks.

However, groups that bring the external actor in to acquire the information

differ from those who perform outward boundary work with regard to external information processing. Group members who perform outward boundary work receive external information individually and then must transfer this information to the other members of their team. This method of information transfer is not without challenges. Specifically, small groups that attempt to synthesize the unique information held by each of their members often suffer from both coordination and motivation losses (Steiner, 1972). For instance, research in the collective information-sharing paradigm shows that group members typically fail to share unique information they hold and instead discuss commonly shared information within the group (Stasser & Titus, 1985). Stasser (1992) suggests that commonly-held information has a greater mathematical probability of being remembered and shared than unique information, implying that it may be difficult to coordinate the pooling of unique information to reach optimal solutions. Further, research on geographically dispersed teams shows that physical separation of individual team members can make the coordination of their unique knowledge even more complex and challenging (Cramton, 2001; Gibson & Gibbs, 2006). However, individuals may also be motivated to share or hold back specific pieces of information to further their own interests (Wittenbaum, Hollingshead, & Botero, 2004).

Moreover, when one individual in the group does share unique external information, other members may fail to see the value of this information. Gruenfeld et al. (2000), for example, studied the informational influence of group members who left their groups temporarily to visit another work group. When they returned to their groups with unique knowledge to share, the other members of their original group viewed them as argumentative and perceived their contributions to the group task as less valuable than their own. Though this study looked at temporary membership change rather than boundary work of members of intact groups, their conclusions about

information exchange are relevant to groups whose members gain unique information through individual external interactions and then bring this knowledge back to the group.

In contrast to the patterns of information processing in groups that perform outward boundary work, group members who perform inward boundary work receive external information together versus separately. That is, all members of the group gain information from external actors at the same time and in the same way. In turn, this should enhance common understanding among members of the group. For example, Swaab, Postmes, Neijens, Kiers, and Dumay (2002) studied shared cognition among members of a multi-party negotiation. When group members were presented with information about the negotiation together as a group, their perceptions of reality converged to a greater extent than when group members were given the same task information separately. Further, groups that were presented with task information together were more likely to reach consensus and to be satisfied with the negotiation process than groups whose members received task information separately.

Now consider the more complex example of two groups that need to perform multiple external activities with a variety of actors. Cross-functional product development teams are examples of groups that might be formed for this purpose. Each member of such a team has different external networks and can interact with those colleagues to gain information for the team's task. One cross-functional team elects to do outward boundary work and so each member goes outside of the group boundary for external information. If the other cross-functional team elects to perform inward boundary work, then each external contact will need to interface with the group as a whole within the group's boundary. To get the same amount of external information as the group that performs outward boundary work, the group that performs inward boundary work will need significantly more time to execute these external activities.

Therefore, groups that perform outward boundary work may be more efficient at achieving a large amount of external communication and visibility with external actors in practice.

Because both of these methods of boundary work present advantages and disadvantages related to the amount and processing of external information, it is difficult to make an a priori prediction about whether inward or outward boundary work will result in higher ratings of external performance. Moreover, the fact that boundary work method should differ in influencing shared group identity does not lead to clear predictions on this criterion of group effectiveness. A distinct identity could help groups garner resources and support within organizations (Ashforth & Mael, 1989), however, this suggests that the 'content' rather than the 'sharedness' of the identity matters for task performance. Unlike member satisfaction, for example, where individuals could be satisfied with their groups even when they are characterized by a "negative" identity as long as members share a conceptualization of that identity (cf. Swann, de la Ronde, & Hixon, 1994), the positive or negative valence of a group's identity is likely to be more proximally rated to task performance ratings. In short, group members who share the belief that their group is characterized by "procrastination" or "laziness" may not receive high external ratings of performance[5]. Thus the predicted effects of boundary work method on shared group identity do not clearly explicate the relationships between boundary work method and task performance.

In summary, there are advantages and disadvantages to exchanging information with external actors using inward- and outward-bound methods of boundary work. However, either method is likely to improve external ratings of performance relative to

[5] This argument is similar to that espoused by Ellemers and Rink (2005), who suggest that group identification could be beneficial or detrimental depending on the content of specific group norms.

no boundary work, as they both allow group members to align with their external environments. Therefore, compared to the alternative of isolating the group from its environment (cf. Janis, 1982; Katz, 1982), both inward and outward boundary work should improve external ratings of performance. Stated formally,

Hypothesis 4: Outward boundary work will positively predict external ratings of performance.

Hypothesis 5: Inward boundary work will positively predict external ratings of performance.

An identity-based view of the relationship between boundary work and group effectiveness provides new predictions for people-related outcomes such as group member satisfaction and long-term viability. Shared group identity should positively influence these critical internal group dynamics, but shared group identity should also be differentially affected by inward- versus outward-bound methods. Additionally, the opposite effects that are predicted for different boundary work methods on group satisfaction and viability should not correspond to opposite effects on external ratings of task performance as either method improves a group's alignment with their environment (albeit via different mechanisms). These theoretical arguments thus suggest that an inward-bound approach to boundary work may be one way in which groups can enhance both internal and external relationships for optimal effectiveness. The following three chapters empirically test these ideas.

Overview of Studies

To examine the relationships between boundary work method, shared group identity, and group effectiveness, I conducted a series of studies using both qualitative and quantitative methods in experimental and field-based settings. In Study 1, a preliminary field study, I observed, interviewed, and surveyed members of hospital senior leadership teams to test my theoretical assumptions and refine the theoretical model. This study confirmed that organizational groups use not only outward-bound but also inward-bound methods to perform boundary work and that the predicted relationships between study variables were plausible. It also provided new ideas leading to additional hypotheses that were tested in subsequent studies.

Studies 2 and 3 were experiments that employed scenario methodology and a between-subjects research design to test several of the stated hypotheses. Specifically, the first scenario study tested the relationships between boundary work method, the dimensions of group identity formation, and satisfaction and viability. The second scenario study tested a relationship that arose from the preliminary field study, namely that shared group identity could affect the chosen method of boundary work. Taken together, the experimental studies showed that there is a reciprocal relationship between boundary work and group identity.

Study 4 was a longitudinal field study of MBA student groups, whose members worked interdependently on group projects over the course of an academic year. Group members responded to surveys conducted over two waves and were externally assessed on a group entrepreneurial project. This study was conducted to replicate the findings of the experimental studies among interacting groups, and to extend the findings by investigating the effects of boundary work method on multiple measures of group effectiveness. It also allowed an examination of the interactive effects of inward and outward boundary work.

Together, these four studies provide convergent evidence that inward boundary work is an important group phenomenon that results in different group outcomes than outward boundary work. In particular, inward boundary work facilitates shared group identity, which subsequently positively predicts group satisfaction and viability. Results also show that the combination of inward and outward boundary work can positively influence group task performance and group satisfaction and viability. These studies thus provide insight into one way in which groups can perform external activities without compromising internal dynamics.

Chapter 2: Preliminary Field Study

Introduction

To better understand how groups perform boundary work and how boundary work in context might relate to group identity and measures of effectiveness, I conducted an in-depth study of nine senior leadership teams of a large hospital system located in the U.S. Midwest. The senior leadership teams are organized by medical specialty areas (e.g., Oncology, Cardiovascular, Women's Health, etc.) and are comprised of administrative vice presidents as well as physician leaders associated with those areas (e.g., Chief of Surgery, Chief of Medicine, etc.). The teams were put in place to integrate physician and administrator perspectives on health system issues and to improve overall patient care by generating ideas, making decisions, and sharing information both within and between leadership teams. The hospital CEO and Executive Council members were interested in the project to learn 1) which interpersonal factors contribute to group effectiveness in the senior leadership teams, and 2) how groups integrate strategic solutions across multiple areas.

This sample provided a unique opportunity to examine the methods groups use to communicate across groups and with external stakeholders not only by allowing me to observe, interview, and survey the group members but also by serving as a rare look into how these activities unfold at senior levels of an organization. The primary objective of this study was to verify and refine my theoretical ideas about group boundary work, identity, and effectiveness. Indeed, it provided greater depth to my understanding of these phenomena and additional hypotheses to develop and test. The remainder of this chapter describes the methods I used to study the groups, the overall findings, and the extensions that I have applied to my theory as a result.

Methods

To study the hospital senior leadership teams, I used a combination of ethnographic and case study techniques as well as surveys. Since I was able to observe the senior leadership teams in action and interview group members, I wrote and coded field notes consistent with ethnographic approaches to qualitative data (Emerson, Fretz, & Shaw, 1995; Strauss & Corbin, 1998). In addition, I wrote one-page case summaries for each senior leadership team and updated them throughout the process of data collection to compare and contrast teams in preparation to create the quantitative survey (cf. Eisenhardt, 1989; Yin, 1984). Thus data collection for the senior leadership teams proceeded in three phases: group observations, interviews of group members, and surveys of group members as well as Executive Council members responsible for evaluating leadership team effectiveness.

In the first phase, I observed normally-scheduled group meetings for six of the nine groups over the course of two weeks. Meetings ranged from one hour to two- and one-half hours in length. Because I was unable to tape-record the meetings, I took detailed notes during the meetings and typed my field notes from each meeting on the day that I observed the groups to preserve the events that occurred as accurately as possible (Emerson et al., 1995). On some occasions, I was able to informally interview individual group members after these meetings, after which I took notes and typed them to capture the additional information I received. I also collected written documents for or about the senior leadership teams (e.g., meeting agendas, charge statements, rosters, etc.) to supplement my field notes. Finally, I began writing the one-page case summaries of each group, which I updated after each phase of data collection (see Appendix 2.1 for the senior leadership team case summaries).

The second phase of the study involved group member interviews. Eight group members, representing seven senior leadership teams, participated in the interview

phase of the study. From my conversations with the study sponsor and my observations, I established an eight-question interview protocol to facilitate semi-structured interviews across participants (see Appendix 2.2 for the interview protocol). That is, common questions were asked across participants but these were worked into a general discussion about the senior leadership teams (Dexter, 1970). Interviews were conducted by telephone over a period of two weeks and lasted approximately 30 minutes. Again, since I was not allowed to tape-record the interviews, I took detailed notes during the interview and took care to type my notes the same day or the following day to capture the conversations as accurately as possible. Upon completion of the interviews, I returned to the one-page summaries of each group to update and revise them with the information received during the interviews.

The final phase of the data collection involved administering surveys to senior leadership team members and members of the Executive Council, the body that oversees the work of the senior leadership teams. Survey items for group members were selected based on the major themes that arose from the group observations and topics that group members discussed in the interviews, and included items related to boundary work methods, identity, and member satisfaction (reported in detail below). Executive Council members assessed the performance of each group based on a five-item composite measure of task-related effectiveness. Both surveys were conducted online and took approximately 10 minutes to complete. All survey items were assessed on 7-point Likert scales, with scale anchors of 1 = Strongly Disagree/Not at All to 7 = Strongly Agree/Very Much. A majority of senior leadership group members responded to the group member survey (75%), with at least three group members responding per senior leadership team. In addition, 40% of Executive Council members (N = 6) responded to their survey evaluating the performance of the groups. See Table 2.1 for a description of the methods applied to each senior leadership team.

Table 2.1. Descriptives of Senior Leadership Teams and Study Methods Applied.

Group[6]	Group Size	Meeting Observation	Interviews	Surveys
Mercury	4	Yes	3	4
Saturn	10	Yes	1	8
Uranus	7	No	0	4
Earth	6	Yes	1	6
Jupiter	5	Yes	1	5
Neptune	8	No	1	5
Venus	7	Yes	0	3
Mars	7	Yes	2	7
Pluto	5	No	1	3

After all the data from the observations, interviews, and surveys were collected, I identified the top- and bottom-rated teams from the Executive Council ratings[7] and looked for common themes among teams within those categories using evidence from the qualitative and quantitative data (Jick, 1979). I also performed correlations between group member survey responses and Executive Council ratings of performance to identify which group processes contributed to overall senior leadership team effectiveness. Finally, I considered the relationships, if any, between boundary work and identity in these groups and revised my theoretical model accordingly.

[6] To protect the identity of the senior leadership teams, their disease state names have been changed to those of planets (including Pluto, which was considered a planet until 2006).

[7] I was unable to observe or interview members from one of the top-rated groups, but the ratings of the Executive Council largely coincided with my own assessments for the other groups I was able to observe. Thus, I deferred to the Executive Council ratings when categorizing the groups' overall effectiveness.

Survey Measures

Boundary Work. To assess both inward- and outward-bound external activities, I drew upon previous work by Edmondson (1999) and Wong (2004) to create items that would distinguish between these two methods of boundary work. Inward boundary work was measured with two items: "We invite people from outside our group to present information or have discussions with us" (Edmondson, 1999) and "If we need information from experts, other senior leadership teams, or people in other parts of the organization, they come to our meetings to share what they know" ($\alpha = .88$). Outward boundary work was also measured with two items: "Group members go out individually to seek ideas/expertise from people external to our group" (Wong, 2004) and "To gather information for our group, group members go out to interact with people in their own professional networks"($\alpha = .69$).

To confirm that these items could be aggregated to the group level, I calculated interrater agreement (James, Demaree, & Wolf, 1984; LeBreton & Senter, 2008) and intraclass correlations (Bliese, 2000; Shrout & Fleiss, 1979). For inward boundary work, the median $r_{wg(j)} = .89$, ICC(1) = .47, $F(8,32) = 3.27$, $p < .01$, and ICC(2) = .69. For outward boundary work, the median $r_{wg(j)} = .84$, ICC(1) = .51, $F(8,32) = 3.68$, $p < .01$, and ICC(2) = .73. Finally, a principal axis factor analysis with varimax rotation revealed that these items loaded onto two separate factors[8].

Shared Group Identity. Shared group identity was captured using a seven-item scale from Postmes, Spears, Lee and Novak (2005). Example items include, "This group has a clear identity" and "This group has one voice" ($\alpha = .95$, median $r_{wg(j)} = .93$, ICC(1) = .44, $F(8,31) = 2.89$, $p < .05$, ICC(2) = .65).

[8] This principal factor analysis includes items not reported in this research (e.g., items for conflict, justice, goals, autonomy, etc. that were assessed for the hospital teams). Note also that while the boundary work items loaded onto separate factors and did not load with the identity and satisfaction items, the latter items loaded onto the same factor, precluding any empirical distinction of identity and satisfaction using the survey data.

Satisfaction. Group member satisfaction was measured using two items from Peterson (1997): "To what extent are you glad you are a part of this group?" and "How satisfied are you working with this group?" ($\alpha = .82$, median $r_{wg(j)} = .67$, ICC(1) = .40, $F(8,31) = 2.66$, $p < .05$, ICC(2) = .62).

Performance. Executive Council members rated the performance of each group based on five items that formed a composite measure: "This senior leadership team significantly improves the day-to-day operations of its unit", "This senior leadership team produces high-quality presentations and recommendations for the Executive Council", "This senior leadership team clearly communicates its ideas to the Operations Council", "This senior leadership team generates innovative ideas that are useful to other leadership teams", "Overall, this senior leadership team is highly effective". The composite measure was reliable (average $\alpha = .69$) and there was high interrater reliability among Executive Council members assessing the senior leadership teams (median $r_{wg(j)} = .91$).

Results

Since this study primarily serves as an external validity check of the ideas presented in Chapter 1, the results of my observations, interviews, and surveys are presented according to their relevance to questions about whether organizational groups do, in fact, perform boundary work in different ways and how boundary work might relate to identity and effectiveness in context. For each of these questions, both qualitative and quantitative findings are presented.

First, do the senior leadership teams engage in different methods of boundary work? From my observations, I did find evidence that the senior leadership teams engaged in both outward and inward boundary work to communicate with external stakeholders. For outward boundary work, I observed individual group members

reporting information they received from external contacts to the rest of the group. For example, a member of the Venus group liaised with representatives of comparative clinics in other healthcare systems and then gave her impressions of how these clinics implemented a health center similar to the one proposed in her group's meeting. Another example was that of a member of the Earth group who gave a presentation to the rest of the group to describe three site visits he made to potential equipment vendors. These instantiations of boundary work are consistent with past literature on boundary spanning, which implies that individual group members go out to acquire information and bring it back to the group (e.g., Ancona & Caldwell, 1992a; Tushman & Scanlan, 1981)

However, four of the six groups that I observed also invited outsiders to their group meetings. For example, Saturn invited a representative from quality services to provide information about patient satisfaction ratings to the group. Mercury invited members of the organization that supplies data to the groups to join their meeting via audio-conference so they could ask questions about reports they were analyzing. Earth invited a member of nursing administration to their meeting to discuss a workaround solution for a narcotics medication ordering problem, and this group also hosted members of the marketing department who gave a presentation about an upcoming hospital advertising campaign.

Interviews with group members confirmed that inward boundary work activity occurs frequently in the senior leadership teams. For example, a member of the Saturn group said, "Yeah, we do. [Name] will come in and talk. [Name] will call in to give info on managed care plans. In the [Mars] group, we've had [Name] come in and talk about what's going on." A member of the Mercury group said, "once we get something designed, then we'll bring someone in to say, 'we're having trouble with this piece, what would you do different?'". Finally, quantitative results support the idea that the

senior leadership teams engage in both outward and inward boundary work. Average ratings of outward-bound activity were 5.6 out of 7, and average ratings of inward-bound activity were 5.8 out of 7. Table 2.2 summarizes the use of outward- and inward-bound strategies used by the senior leadership teams to interact with external stakeholders, with supporting quantitative and qualitative evidence.

Table 2.2. Use of Outward- and Inward-Bound Strategies for Interacting with External Stakeholders (with Supporting Evidence).

Group	Outward-Bound	Evidence	Inward-Bound	Evidence
Mercury	High	**Survey:** 6.4/7 **Observations:** Not observed **Interviews:** "…go out to physicians who are doing well, [identify the] top three, [and ask] what would you do differently?"	High	**Survey:** 6.3/7 **Observations:** Invited members of another organization to join meeting via audio-conference **Interviews:** "Once we get something designed, then we'll bring someone in to say, 'we're having trouble with this piece, what would you do different?'"
Earth	High	**Survey:** 6.3/7 **Observations:** Member reported on vendor site visits **Interviews:** "[I went to see] what is out there…to narrow down the search so I don't spend the [physicians'] time."	High	**Survey:** 6.7/7 **Observations:** Invited nursing administration and marketing representatives to meeting **Interviews:** "[Name] and [Name] brought back an issue…it's operational, we need your guidance, here's some recommendations."

Group	Outward-Bound	Evidence	Inward-Bound	Evidence
Jupiter	High	**Survey**: 6.1/7 **Observations:** Not observed **Interviews:** "If work comes out of [another group's] meeting you've got to have an [representative] there. They just need the representative to manage that work and figure out the best outcome."	High	**Survey:** 6.9/7 **Observations:** Not observed **Interviews:** "We'll do that in all of [the groups]."
Uranus	High	**Survey:** 6.0/7 **Observations:** None conducted **Interviews:** None conducted	High	**Survey:** 6.6/7 **Observations:** None conducted **Interviews:** None conducted
Venus	High	**Survey:** 6.2/7 **Observations:** Member reported on comparison clinics **Interviews:** None conducted	Average	**Survey:** 5.7/7 **Observation:** Physician partner attended meeting for support of proposed center **Interviews:** None conducted

Group	Outward-Bound	Evidence	Inward-Bound	Evidence
Mars	High	**Survey**: 6.0/7 **Observations:** Member reported on conversations with potential hospital affiliates **Interviews:** "[We] spend a lot of time strategically looking out in the marketplace, developing new programs, centers."	Low	**Survey:** 5.1/7 **Observations:** Members suggested that when an inclusive meeting with external stakeholders went away things stalled and they were isolated **Interviews:** "[This is] one of my charges this year, one thing coming out as a theme. What can we do to help these cross-sections of groups interact?"
Saturn	Low	**Survey:** 4.9/7 **Observations:** Not observed **Interviews:** Not mentioned	High	**Survey:** 6.5/7 **Observations:** Quality representative gave report on patient satisfaction data **Interviews:** "Yeah, we do. [Name] will come in and talk. [Name] will call in to give info on managed care plans. In the [Mars] group, we've had [Name] come in and talk about what's going on."
Pluto	Low	**Survey:** 4.5/7 **Observations:** None conducted **Interviews:** Not mentioned	Low	**Survey:** 4.3/7 **Observations:** None conducted **Interviews:** Not mentioned

Group	Outward-Bound	Evidence	Inward-Bound	Evidence
Neptune	Low	**Survey:** 4.4/7 **Observations:** None conducted **Interviews:** "[With internal issues it is] easier for [group members] to come to table. When it comes to cross-relational issues it is harder for them to step forward."	Low	**Survey:** 3.9/7 **Observations:** None conducted **Interviews:** "[Meetings were] going hours trying to discuss, navigate through [compensation changes]… it was rare to have conversation about other issues."

Notably, the groups did not tend to use these methods in a mutually exclusive way. For example, Table 2.2 indicates that four of the groups seemed to use both strategies quite extensively and only two of the groups used one to a noticeably greater extent than another (Mars and Saturn). Table 2.3 displays the zero-order correlations among the survey variables and shows that the correlation between inward and outward boundary work methods was indeed positive and significantly different from zero. In short, these groups clearly engage in different methods of interacting with external stakeholders to gain information but they also tend to use outward- and inward-bound strategies in conjunction or not at all. (Other correlations from this table will be highlighted later in the results section.)

Table 2.3. Correlations Among Study Variables[a].

Variable	Mean	SD	1	2	3	4	5
1. Group size	6.67	1.73					
2. Inward boundary work	5.76	1.11	-.01				
3. Outward boundary work	5.64	0.80	-.40	.71			
4. Shared group identity	4.95	0.97	-.33	.82	.73		
5. Satisfaction	5.53	1.06	-.26	.88	.78	.90	
6. Performance	4.22	0.13	.28	.71	.15	.43	.39

[a] *N = 9. Correlations ≥ .71 are significant at p < .05.*

Next, how does boundary work relate to identity for the senior leadership teams? Qualitative evidence from the study suggests that boundary work need not diminish a group's sense of shared identity, and that there can be synergies between an inward bound approach to boundary work and group identity. When the marketing

representatives were invited to Earth's group meeting, for example, they not only presented the new advertising campaign for the hospital but also asked the group to name three areas the marketing department should focus on when advertising their disease state area in particular. This led to a discussion amongst members of the Earth group about who they were and what made them unique. For instance, one physician highlighted the fact that there is a "multi-specialty nature" to their group that is not necessarily present in other groups. The conversation continued even after the marketing representatives left the meeting, as the physicians and administrators debriefed this section of the meeting and further developed the three things they wanted others to know about them. This event is consistent with literature that suggests interactions with outsiders provide opportunities for groups to clarify their identities (Hackman, 1990; Lyon, 1974).

Another finding from the study is that group members view inward boundary work as an opportunity to solidify the group, particularly when the group does not already have a strong shared group identity. For example, the Mars group scored relatively low on the survey measure of shared group identity, which was also consistent with my observations of their meeting (e.g., a low sense of shared purpose for accomplishing tasks). However, group members seemed to think that an inward-bound approach to boundary work could help to strengthen their group's identity. For example, a segment of my field notes from their meeting points to a clear desire to perform inward boundary work: (Field Notes) "He said they need a meeting quarterly or three times a year that 'adds all pertinent people…that type of meeting needs to be with [Name], [Name], you, you, and you…all ears have to hear the same thing'. He said that kind of meeting worked before, and when that went away, things really stalled. He reiterated that it would 'involve everyone in this group'. [Name] responds by saying, 'we've been isolated'". These notes imply that the group feels isolated and

ineffective, but that this physician thinks that bringing external stakeholders to meet with the group could help them not only connect with outsiders but also include everyone on the senior leadership team. When I asked the administrative leader of the group why their group invites outsiders in to group meetings rather than sending individuals out to get information, he responded, "I'll tell you why I think we do it. It's very important for us to act cohesively. We need to obtain information in a cohesive manner. Us hearing info from the same people at the same time is really important. It creates a bit of solidarity for us." These statements together suggest two things: 1) group members intuitively see the value of inward-bound external activity for strengthening group identity, and 2) identity could be an antecedent to as well as a consequence of the methods groups choose when considering boundary work.

Quantitative evidence from the survey also informs the relationship between boundary work method and identity. In Table 2.3, the zero-order correlations between both methods of boundary work method and shared group identity were significant and positive. However, to isolate the effect of each method of boundary work on group identity I performed partial correlations to control for the effect of the other method of boundary work. Controlling for outward boundary work[9], inward boundary work was positively correlated with shared group identity (pr = .72, p = .07). However, when controlling for inward boundary work, outward boundary work was not significantly correlated with shared group identity (pr = .07, n.s.). This result suggests that the statistically significant zero-order correlation between outward boundary work and shared group identity reported in Table 2.3 is an illusory correlation (Messick & van de Geer, 1981). That is, the zero-order correlation between outward boundary work and shared group identity is largely explained by outward boundary work's relationship

[9] All statistical analysis also controlled for group size, which varied from 4 to 10 members. The teams were relatively homogenous (i.e., they were mostly comprised of men of similar race and age), and initial controls for gender diversity were insignificant and did not change the pattern of results presented here. To preserve statistical power in this small sample, group size was retained as the control variable.

with the critical third variable, inward boundary work. These results are consistent with the idea that boundary work need not diminish group identity, particularly if it is done by inviting external actors to present information to the group as a whole.

Table 2.4 repeats the categorization of frequency of boundary work method from Table 2.2 but adds information about group identity for each senior leadership team to visually depict the potential synergies between inward boundary work and group identity. Note that group identity is generally higher when groups are also rated highly on inward-bound activity, but that there is less consistency between outward-bound activity and group identity. The quantitative and qualitative data thus converges to lend credence to the notion that inward boundary work and identity could be intertwined in organizational groups.

Table 2.4. Relationships between Boundary Work and Group Identity in the Senior Leadership Teams (with Supporting Evidence for Group Identity Ratings).

Group	Outward-Bound	Inward-Bound	Identity	Evidence (Identity)
Jupiter	High	High	High	**Survey:** 6.5/7 **Observations:** Members seemed to share a sense of informality and openness (e.g., they called each other by their first names, the seating arrangements were spacious and relaxed, they often used the word "we" when discussing issues faced by any one member) **Interviews:** "[Jupiter] is more evolved than the other [groups]…it has the ability to be nimble in decisions and move things forward"
Mercury	High	High	High	**Survey:** 5.8/7 **Observation:** When the meeting began, one member welcomed me to "the fun group" **Interview:** "Yes…we have…it feels like we are a more functional group. We seem to get some things done [such as] getting programs started and people hired and community education done and outreach clinics set up…feels like that has been a result of the relationship we have."

Group	Outward-Bound	Inward-Bound	Identity	Evidence (Identity)
Earth	High	High	High	**Survey:** 5.8/7 **Observations:** Discussed and came to a consensus about things that were unique about their group for marketing presentation **Interviews:** Not mentioned
Saturn	Low	High	High	**Survey:** 5.0/7 **Observation:** Group's charge statement was written at top of meeting agenda for everyone to see **Interviews:** "We've really got people on the team that work well together, communicate well together."
Mars	High	Low	Low	**Survey:** 4.9/7 **Observations:** Meeting was characterized by conflict, venting, frustration and low sense of shared goals among members **Interviews:** Administrator said he feels like "the head of a bowling pin at these meetings"; Group member: "You saw them [*sic*] make sausage…that's the way the group operates"

Group	Outward-Bound	Inward-Bound	Identity	Evidence (Identity)
Uranus	High	High	Low	**Survey:** 4.5/7 **Observations:** None conducted **Interviews:** None conducted
Venus	High	Average	Low	**Survey:** 4.5/7 **Observations:** Interaction dominated by one physician (e.g., 80% of coded field notes were physician statements) rather than the entire group working together; After the meeting, the leader commented that she did not understand the purpose of the meeting. **Interviews:** None conducted
Pluto	Low	Low	Low	**Survey:** 4.0/7 **Observations:** None conducted **Interviews:** "[One member] can get a little more fixated on his [area] rather than thinking of all of the [team's constituents]…I have to refocus [Name] a little bit and subtly remind him for all physicians we work with."

Group	Outward-Bound	Inward-Bound	Identity	Evidence (Identity)
Neptune	Low	Low	Low	**Survey:** 3.4/7 **Observations:** None conducted **Interviews:** "The physicians are focused on their areas and their issues. [It has been a] difficult group to pull together and have meaningful discussion, especially as intended"

Finally, how does boundary work method relate to effectiveness in the senior leadership teams? To answer this question, I primarily drew on the survey data which provides measures of satisfaction as reported by the group members themselves and performance as rated by the members of the Executive Council. While I could form judgments of the effectiveness of most of the groups based on my observations and interviews, it seems more meaningful to use the group members' own judgments of their satisfaction with their groups as well as the performance ratings of those who evaluate the groups within their organizational context. Therefore, I performed partial correlations and hierarchical linear regressions at the group level to uncover the relationships between boundary work and these task- and people-related measures of group effectiveness.

To isolate the relationships between each method of boundary work and effectiveness, I performed partial correlations controlling for each boundary work method individually. Controlling for outward boundary work, inward boundary work was positively correlated with satisfaction ($pr = .78$, $p < .05$). However, when controlling for inward boundary work, outward boundary work was not significantly correlated with satisfaction ($pr = .22$, n.s.). Similarly, the partial correlation between inward boundary work and performance as rated by the Executive Council was .84 ($pr < .05$) and the partial correlation between outward boundary work and performance was -.63, though not significant.

Since it became clear through the observations and interviews that groups can and do engage in both inward and outward boundary work, and that groups might be more effective when engaging in both (e.g., Mercury), I also centered the variables and calculated an interaction term to see if the combination of external activities would influence effectiveness in a multiplicative way. I performed the group-level analysis using hierarchical linear regression, with group size entered as a control variable,

inward and outward boundary work entered as independent variables followed by the interaction term (See Table 2.5). Results revealed that inward boundary work was positively associated with member satisfaction (β = .77, p < .05) and group performance (β = 1.21, p < .05) whereas outward boundary work had no significant relationship with member satisfaction (β = .16, n.s.) or group performance (β = -.70, n.s.). Further, the interaction terms for both models were not significant (satisfaction: β = .08, n.s.; performance: β = .04, n.s.).

Table 2.5 Results of Regression Analysis for Group Effectiveness.

Variables	Member Satisfaction	Group Performance
Controls:		
Group size	-.26	.28
R^2	.07	.08
F	.49	.57
Main effects:		
Inward boundary work	.77*	1.21*
Outward boundary work	.16	-.70
ΔR^2	.78	.67
R^2	.84	.75
F	8.86*	4.88†
Interaction:		
Inward X Outward	.08	.04
ΔR^2	.00	.00
R^2	.84	.75
F	5.40†	2.94

*†p < .10; *p < .05*

These regression results again highlight the high positive correlation between inward and outward boundary work in this study. For satisfaction, both methods of boundary work had significant positive zero-order correlations with this variable (see Table 2.3); however, the regression results show that only inward boundary work positively predicts satisfaction when both are entered into the model. Like the relationship between outward boundary work and shared group identity described earlier, this result suggests that the significantly positive zero-order correlation between outward boundary work and satisfaction is illusory in that it depends on outward boundary work's significant positive correlation with inward boundary work (cf. Messick & van de Geer, 1981).

For performance, note that the magnitude of the coefficient for inward boundary work is greater than the zero-order correlation between inward boundary work and performance, and there is a reversal in sign for the coefficient of outward boundary work when both methods of boundary work are entered into the regression model (see Table 2.3 for the zero-order correlations). This suggests a suppression effect, which means that the relationship between these two independent variables is suppressing their real relationships with the dependent variable (Cohen, Cohen, West, & Aiken, 2003). In this particular case, given that the univariate correlation between outward boundary work and performance is near zero ($r = .15$, n.s.), outward boundary work is 1) adding irrelevant variance in the model, which reduces its own relationship with performance, and 2) acting as a suppressor of the variance in inward boundary work that is irrelevant to performance, which increases the magnitude of the coefficient for inward boundary work predicting performance (Cohen et al., 2003, p. 78).

To further illustrate this suppression effect, when each variable is entered separately into the regression model, inward boundary work continues to positively predict group performance though the coefficient is of smaller magnitude ($\beta = .71$, $p <$

.05) and outward boundary work has a positive coefficient (β = .31) though it is still not significantly different from zero. Therefore, the coefficients in Table 2.5 should be interpreted cautiously and, more importantly, the positive relationship between inward and outward boundary work should be considered carefully when describing their effects on measures of group effectiveness.

Table 2.6 provides the categorizations of boundary work and identity as in Table 2.4, but adds member ratings of satisfaction and Executive Council ratings of performance to provide an overall picture of how these factors relate to one another in each senior leadership team.

Table 2.6 Boundary Work, Identity, and Effectiveness of the Nine Senior Leadership Teams.

Group	Inward-Bound	Outward-Bound	Identity	Satisfaction	Performance
Mercury	High	High	High	High	Top third
Saturn	High	Low	High	High	Top third
Uranus	High	High	Low	Low	Top third
Earth	High	High	High	High	Middle third
Jupiter	High	High	High	High	Middle third
Neptune	Low	Low	Low	Low	Middle third
Venus	Average	High	Low	High	Bottom third
Mars	Low	High	Low	Low	Bottom third
Pluto	Low	Low	Low	Low	Bottom third

Discussion

This preliminary field study of hospital senior leadership teams provided an in-depth look into how organizational groups perform boundary work and whether the methods they use relate to group identity and measures of group effectiveness. The main findings of the study not only verified my initial ideas about the methods groups use to perform boundary work and how these might relate to identity, but also enabled me to refine my theoretical model to capture additional relationships suggested by the research.

First, this study provided corroboration that organizational groups can and do perform inward boundary work by inviting external actors to interact with the group as a whole during group meetings. Literature on group boundary work fails to differentiate this method of boundary work from that of outward-bound external activities, or sending group members out individually for information, resources, and support (e.g., Ancona, 1990; Ancona & Caldwell, 1992a). Thus academic research has seemingly ignored a phenomenon that occurs in organizational work groups and appears to influence their effectiveness, so adding to our knowledge about this phenomenon is important to the ongoing study of small groups.

Second, the findings pointed to potential synergies between boundary work, particularly inward boundary work, and group identity. Group members in this study seemed to recognize the value of interacting with external stakeholders as a group, and groups that performed boundary work using an inward-bound strategy enjoyed a strong shared group identity. The partial correlations between these factors implies that boundary work need not diminish shared group identity, but that the method groups use to perform boundary work may be a key element in fostering identity while interacting with external stakeholders. Therefore, further study of the hypothesized relationships between boundary work method and group identity is warranted.

Finally, the study revealed that inward boundary work positively predicted group member satisfaction and task-related performance in the senior leadership teams. I have argued that inward boundary work should influence member satisfaction in part by facilitating shared group identity. Since the satisfaction and identity items loaded on the same factor in this study, I was not able to examine possible mediation effects consistent with this argument. Again, however, the purpose of this study was to preliminarily test my own assumptions about the relationships in the theoretical model. The arguments regarding inward boundary work, group identity, and member satisfaction seem plausible in light of these findings.

The findings are also consistent with the argument that inward boundary work should not negatively influence performance and is likely to positively influence performance relative to the absence of boundary work. Here, I find that groups are rated as more effective when they invite external actors to their group meetings and this is perhaps because they not only get information from external stakeholders to improve their task performance but also reveal the workings of their group to others in the organization. Essentially, inward boundary work may enable external stakeholders to become more familiar with the group and its activities and enable tighter coordination between groups (cf. cooptation as a means of gaining support: Thompson, 1967), although it is also possible that there is an unmeasured variable that positively predicts both inward-bound external activities and task performance. This explanation cannot be ruled out in this study; however, the pattern of data warrants further research of these relationships.

In addition, it is intriguing that outward boundary work did not have a strong positive relationship with task performance. While past literature shows that this is often the case (e.g., Ancona & Caldwell, 1992a; Edmondson, 1999; Keller, 2001; Scott, 1997), in this study the correlation between these variables was positive but not

significantly different from zero. This study did reveal, however, that there was a high positive correlation between inward and outward boundary work. Therefore, the consideration of how both methods used together can affect task performance may provide more insight into these relationships. This issue is further discussed in the next section.

This research contributes to our knowledge of how groups perform boundary work in organizational settings. It is not, however, without limitations. While a strength of the research lies in the use of multiple methods to verify my assumptions about boundary work, identity, and effectiveness, it was not possible to use any one method extensively. For example, observing every group in the sample multiple times would have provided more consistency to the findings. In addition, the survey results are cross-sectional in nature and prevent any firm conclusions about causal relationships. Finally, while there is no reason to believe that these groups are vastly different from other types of organizational groups, the small sample size and top-level nature of the groups could limit the generalizability of the findings. Despite these limitations, this sample was a good setting in which to gather both qualitative and quantitative data among groups that are often difficult to study. In fact, the opportunity to relate group-level processes like boundary work to externally-rated measures of performance for top teams is rare indeed.

Refinement of the Theoretical Model

In addition to the findings reported above, the research enabled me to make two modifications to my theoretical model. First, while in Hypothesis 1 I predicted that boundary work influences shared group identity, I discovered that shared group identity could also act as an antecedent to boundary work method. For example, one senior leadership team with low shared group identity seemed motivated to perform inward

boundary work as a way to improve their extra-team relationships and include everyone in these activities. This makes sense if one views outward boundary work as a potential threat to a group's shared identity (Ancona & Bresman, 2007; Faraj & Yan, 2009; Sundstrom et al., 1990), whereby individuals going out to gain information on their own disrupts the group's solidarity (cf. Durkheim, 1933). Literature shows that identity can dictate the *types* of work groups perform (Lyon, 1974). Therefore, it seems plausible that identity could also dictate *how* groups perform tasks and, more specifically, task-related activities with external actors.

From the above findings it seems likely that groups with a weak identity would be more likely to adopt an inward-bound versus an outward-bound approach when engaging with external stakeholders. However, a strong shared identity may enable group members to go out individually with a clear group message or need when gathering external information. Having already established a strong identity, group members may feel confident representing the group's interests when they are sent out individually. Indeed, Ancona and Caldwell (1988) have previously suggested that group cohesiveness could act as an antecedent to outward-facing boundary work. In short, the theoretical model should include a feedback loop between boundary work and group identity such that identity influences the choice of boundary work method when the group needs information, resources, or support from external actors. Stated formally,

> *Hypothesis 6: Groups with weak (strong) shared group identity will choose an inward-bound (outward-bound) approach to boundary work when gathering information from external actors.*

A second modification to the theoretical model is the consideration of inward and outward boundary work methods as complements rather than mutually exclusive strategies. A key step in explaining the phenomenon of inward boundary work is showing how it is similar to and different from outward boundary work. In so doing, it will be necessary to manipulate the extent to which these strategies are used separately to show their different effects (as in the experimental studies in Chapter 3). However, this research showed that the senior leadership teams often used both inward and outward boundary work methods when interacting with external actors. The interaction of boundary work methods in this study failed to predict group effectiveness (see Table 2.4). However, outward boundary work in this study did not have relationships with satisfaction and task performance as predicted and found in past research (e.g., Ancona, 1990; Keller, 2001). Moreover, the high statistical correlation between inward and outward boundary work, while supportive of the notion that these are complementary methods in practice, has made the regression results more difficult to interpret in this study. Given the preliminary nature of the study and the small sample size, it may be more conservative to allow past literature to guide theory on how a combination of boundary work methods might influence group effectiveness.

For member satisfaction and group viability, I hypothesized that, consistent with the theory and findings of prior studies, outward boundary work would negatively predict these people-related measures of effectiveness whereas inward boundary work would positively predict them (Hypothesis 2). If this hypothesis is supported, then how might the combination of inward and outward boundary work affect satisfaction and viability? One possibility is that an inward-bound approach could attenuate the negative effects of outward boundary work on satisfaction and viability. For example, alternating between bringing external actors in and sending group representatives out for information may provide enough shared group experiences to counteract any

negative effects of being individually separated to gather information (cf. Alderfer, 1976; Oh et al., 2004). Therefore, supplementing outward boundary work with inward boundary work should improve otherwise low satisfaction and viability. Stated formally,

> *Hypothesis 7: As groups perform more outward boundary work, adding inward boundary work will improve group satisfaction and viability.*

For task performance, recall that there are advantages and disadvantages to performing both inward and outward boundary work. An outward-bound approach provides the potential for strong alignment with the environment as more group members interact with external stakeholders, but there also exists the possibility of process losses and information sharing problems as members come back together with the external information they've gained (Gruenfeld et al., 2000; Stasser & Titus, 1985; Steiner, 1972). An inward-bound approach may ensure that group members have a shared understanding of external information (Mesmer-Magnus & DeChurch, 2009; Swaab et al., 2002) but is less efficient in gathering external information. Might groups gain the best of both approaches when gathering external information? If groups can improve efficiency by going out for some external information but also share an understanding of other external information, the combination might provide enough overlapping knowledge (Cronin & Weingart, 2007; Dougherty, 1992) to facilitate coordination and improve task performance. In short, since both inward and outward boundary work should positively predict external ratings of performance relative to no boundary work (see Hypotheses 4 and 5), the combination of the two should result in even higher ratings of performance.

Hypothesis 8: As groups perform more outward boundary work, adding inward boundary work will improve group task performance.

Conclusion

The senior leadership team study provided a rare look into how top teams perform boundary work and how it can relate to their group identity and effectiveness. Qualitative and quantitative findings converged to suggest that 1) organizational groups can and do perform inward as well as outward boundary work, and 2) an inward-bound approach to boundary work may have positive relationships with group identity, member satisfaction, and group performance. This study also refined my theoretical model to include identity as an antecedent to boundary work method and to consider the joint effects of inward and outward boundary work on group effectiveness. These relationships will be formally tested in the studies detailed in Chapters 3 and 4.

Chapter 3: Experimental Studies

Overview of Experimental Studies

Several of the research hypotheses are best tested using experimental designs. These designs permit control over the many other contextual variables that could affect boundary work and group identity, thus isolating the factors of interest to see if there exist causal relationships between them (cf. Kerlinger & Lee, 2000). They are also relatively unique in the study of boundary work in groups, which often adopts qualitative or network study designs (Joshi, Pandey, & Han, 2009). This chapter outlines the use of two such studies to test the effects of boundary work method on shared group identity, and member satisfaction and group viability (Scenario Study 1) as well as the effects of shared group identity on choice of boundary work method (Scenario Study 2).

I used scenarios in these experimental designs as a first step in manipulating boundary work and group identity. Scenarios allowed me to manipulate these factors in such a way that there was a high level of control over the context surrounding the groups depicted as well as their activities. For example, describing the external activities of groups in a scenario enabled me to specify the types and patterns of external communication while only varying the approach taken to these external activities (i.e., inward- versus outward-bound) in order to keep all other contextual variables constant. Prior to developing a scenario depicting an organizational group engaging in boundary work, however, I conducted a pilot study to gather specific ideas about group boundary work situations to provide realism to the study stimuli.

Phase 1: Pilot Study

Introduction

The objective of the pilot study was to learn about individuals' real-world boundary work experiences in team contexts in order to construct a plausible and realistic scenario with which to test the study hypotheses. The pilot study involved asking participants to describe instances of inward or outward boundary work that occurred while they were a member of a team performing a task. One of these examples was chosen as a basis for the scenarios used in Phases 2 and 3 of the experimental studies. The pilot study also served as an additional check that inward boundary work is a phenomenon that commonly occurs in the context of group work.

Method

Procedure

Forty-eight participants (50% female; mean age = 33.2 years, s.d. = 11.3; 89.6% had some university education) were recruited using Amazon's Mechanical Turk website to participate in an online study about 'Team Experiences'. Participants were asked to think about an experience they had working on a team of between three and 15 people in which they had to complete a task. Half of the participants were then asked to write a paragraph about any instance in which they sent someone out to get information for the team and half of the participants were asked to write a paragraph about any instance in which their team brought someone from outside the team in to give the team information. Specifically, they were asked to describe what happened and what they thought about their team during this event. The participants then answered some general questions about their experiences and filled out demographic measures. Following the online study, participants read a debriefing statement and were paid $1.00.

Results

Participants gave rich descriptions of instances in which their teams sent members out and brought outsiders in for information. The average word count for the paragraphs was 85 (s.d. = 40.6), and this did not differ between participants writing about instances of inward versus outward boundary work, $F(1,46) = .55$, n.s. The content of the paragraphs between conditions was also similar. For example, participants writing about sending group members out for information described a telecommunications customer service team solving a problem on behalf of a customer, a broadcasting team troubleshooting an IT problem, a software development team working on an upgrade for a business partner, and a market research team gathering data from supermarkets. The participants writing about inviting outsiders in for information wrote about a marketing team working on a new advertisement, a long range planning team seeking new ideas, a call center management team working on improving productivity, and a manufacturing team providing customer assistance.

Participants who wrote about instances of inward boundary work also commented on the frequency of this type of external activity. For example, one participant wrote, “This happens all the time…These occasions are usually welcomed as we increase skills and knowledge utilized to get that task completed.” Another participant echoed this sentiment by prefacing his paragraph with, “This happens all the time at work”. The fact that participants were able to come up with instances of inward boundary work and commented on its frequent occurrence is further evidence that this method of boundary work happens in organizational groups and that researchers should investigate it in its own right.

After examining each paragraph, I decided to base the stimulus scenario for Phases 2 and 3 on an experience one participant had during a project launch meeting for a new snack food. The team needed information about consumer preferences and

current products and services within the snack food market, and invited a consultant to the project launch meeting to give his opinion about these issues. This experience represented an incident of information exchange with an external actor that could plausibly have happened in an inward-bound or an outward-bound fashion. That is, this group could have also sent a group member out to get this information rather than invited the consultant to the launch meeting. Therefore, I developed a group scenario based on these experiences to test my hypotheses in Scenario Studies 1 and 2.

Finally, after I wrote the scenario for the experimental studies I pre-tested it with four individuals who did not know the purpose of the study. I met with the four individuals separately either in person or on the phone and had them read through the scenario and talk through any questions or comments they had aloud. For the in-person meetings I tape-recorded their reactions to the scenario as they were reading it. This enabled me to refine the scenario by clarifying points that were confusing before conducting the studies. These interviews led to several small changes in the scenario, predominantly increasing the level of detail in the description of the team. For example, as a result of these interviews I added information about the size of the team and team member roles to provide a richer context for the scenario. The final scenarios served as the stimulus materials for Scenario Studies 1 and 2 and can be found in Appendix 3.1 and 3.2.

Phase 2: Scenario Study 1

Introduction

Scenario Study 1 was conducted to test Hypotheses 1, 2, and 3. Recall that Hypothesis 1 predicted that inward (outward) boundary work will positively (negatively) predict shared group identity, Hypothesis 2 predicted that inward

(outward) boundary work will positively (negatively) predict satisfaction and viability, and finally that Hypothesis 3 predicted that the relationship between boundary work method and satisfaction/viability would be mediated by shared group identity. Thus Scenario Study 1 employed a between-subjects design to test these ideas among participants who read a scenario about a team performing one of these methods of boundary work and provided responses about how they would feel being a part of this team.

Method

Procedure

One hundred one participants (67.3% female; mean age = 26.1 years, s.d. = 7.9; mean work experience = 6.3 years, s.d. = 7.0; 92.2% had some university education) were recruited to a large British university's behavioural research lab in order to participate in an online study on "Work Team Experiences". Participants read a short scenario about a product development team and then answered questions about how they would feel being a part of this team. They were randomly assigned to one of three conditions for the study. In the first condition (outward boundary work), the product development team sent members out to get information from people outside the team (e.g., market research information from a consultant). In the second condition (inward boundary work), the team brought outsiders in to get project information. Finally, there was a control condition in which participants read about a team that brainstormed about project information (thus no information about external actors was given) (See Appendix 3.1 for the stimulus materials). Following the scenario, participants responded to the dependent measures and manipulation check and provided demographics. They were debriefed and then paid £10.00 for their participation.

Measures

Shared Group Identity. Shared group identity was captured using several items to assess the shared experience, salience, and comparison dimensions of group identity formation[10]. All study items were assessed on 7-point Likert scales with anchors of Strongly Disagree/Strongly Agree or Not at All/To a Great Extent. Shared experience was assessed using four items based on the construct of entitativity, or how unified the group is considering elements such as member interaction, proximity, and common fate (Campbell, 1958; Hamilton & Sherman, 1996). These items were written for this study based on some pictorial items from Sassenberg and Postmes (2002). Example items include, "I feel connected to my team" and "My team seems fragmented (reverse coded)". The four items loaded on the same factor (see Table 3.1), so they were combined to form an index of group entitativity ($\alpha = .85$). Salience of group membership was measured using three items adapted from the "bounded" subscale in Wageman, Hackman, and Lehman (2005) (e.g., "I would be aware of who is, and who is not, part of the team"; $\alpha = .78$) and group comparisons was measured using three items adapted in part from Brown et al. (1992) (e.g., "To what extent would you compare your team to other teams?"; $\alpha = .79$).

Satisfaction and Viability. Satisfaction was assessed with two items from Peterson (1997): "I would be glad to be part of this team" and "I would be satisfied working with this team". Viability was assessed with one item from Lewis (2004): "If I had the choice of working on this team again, I would do it". These three items factored together, and were combined for an overall measure of satisfaction/viability ($\alpha = .96$).

See Table 3.1 for all study items and their factor loadings.

[10] The scenario study design precluded investigating shared group identity as a property of the group (since participants were not actually interacting with other group members). However, this study provided the opportunity to assess participants' implicit theories of the dimensions of group identity formation instead.

Table 3.1. Exploratory Factor Analysis of Scenario Study 1 Items using Principal Axis Factoring with Varimax Rotation.

Scale Item	Group Entitativity	Salience	Comparison	Satisfaction/ Viability
I would feel isolated from my team members. (Reverse scored.)	***.781***	.151	-.033	.310
I would feel connected to my team members.	***.767***	-.022	.008	.215
I would feel like I was a part of the team.	***.743***	.047	.003	.325
My team would seem fragmented. (Reverse scored.)	***.638***	.255	-.085	.116
It would be easy to differentiate the members of the team from those who are not members of the team.	.010	***.777***	.033	-.003
I would be aware of who is, and who is not, part of the team.	.044	***.751***	.012	.141
It would be clear who would be included as a member of the team.	.343	***.660***	.003	.001
To what extent would you think about what your team was like relative to other teams?	-.031	.032	***.950***	-.038
To what extent would you compare your team to other teams?	.000	.004	***.749***	.118
To what extent would you be concerned about how your team might compare to other teams?	-.039	.010	***.610***	-.143
I would be satisfied working with this team.	.260	.042	-.035	***.907***
I would be glad to be part of this team.	.288	.045	-.071	***.889***
If I had the chance of working on this team again, I would do it.	.347	.110	.003	***.862***

Results

Manipulation Check

To check whether the boundary work manipulation was successful, participants were asked whether they 1) sent representatives out to get information, 2) brought outside people in to get information, or 3) discussed information amongst themselves for their project. The vast majority of participants in each condition correctly identified their group's method of handling outside information, as evidenced by a chi-square analysis, $X^2(4) = 96.5$, $p < .01$. Therefore, the manipulation appeared to be successful.

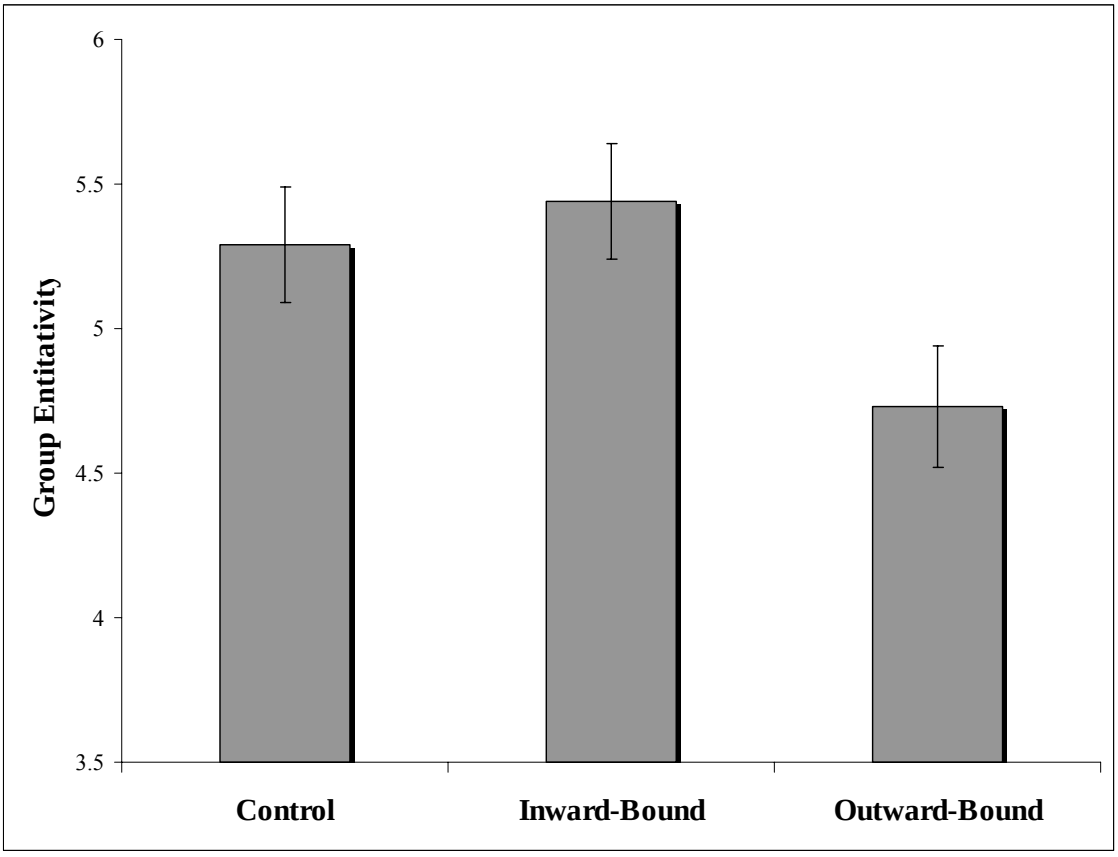
Hypothesis Testing

To test the hypotheses, I used univariate analysis of variance with condition as the independent variable and the shared group identity measures and satisfaction/viability as dependent measures.

Hypothesis 1 predicted that inward boundary work would positively, and outward boundary work would negatively, predict shared group identity. The control condition thus acts as an important comparison in testing the effects of each method of boundary work on shared group identity. In this study, shared group identity is captured by the three dimensions that contribute to identity formation: shared experience as measured by group entitativity, salience of the group's boundary, and inter-group comparisons. For entitativity, results showed that there was a significant difference between experimental conditions, $F(2, 98) = 3.30$, $p < .05$, $\eta^2 = .06$. Pairwise comparisons revealed that participants in the inward-bound condition rated their group's entitativity significantly higher ($M = 5.44$) than did participants in the outward-bound condition ($M = 4.73$, $p < .05$). Participants in the control condition also rated their group's entitativity significantly higher ($M = 5.29$) than did participants in the outward-bound condition ($M = 4.73$, $p = .06$), and there were no significant differences

between the inward-bound condition and the control condition on ratings of entitativity (see Figure 3.1). For the salience dimension of shared group identity, there were no significant differences between conditions, $F(2, 98) = .39$, n.s. Finally, for the group comparison dimension of shared group identity, there were also no significant differences between conditions, $F(2, 97) = .17$, n.s. These results provide partial support for Hypothesis 1, in that outward boundary work negatively influences group entitativity, one dimension of shared group identity.

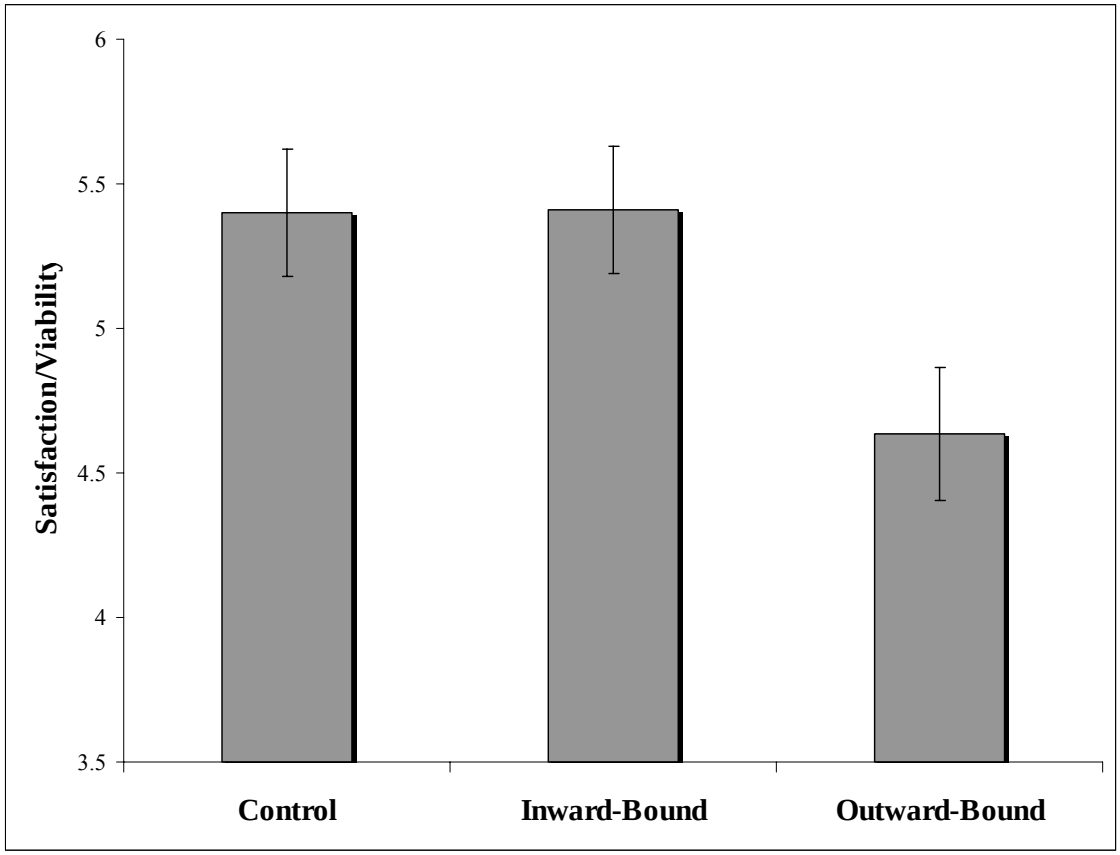
Figure 3.1. The Effects of Boundary Work Method on Group Entitativity.



Hypothesis 2 predicted that inward boundary work would positively, and outward boundary work would negatively, predict satisfaction and viability. There were significant differences between conditions on satisfaction/viability, $F(2, 97) = 3.81$, $p <$

.05, η^2 = .07. Pairwise comparisons revealed that people in groups that performed inward boundary work (*M* = 5.41) and people in the control condition (*M* = 5.40) rated their satisfaction/viability higher than did people in groups that performed outward boundary work (*M* = 4.63, *p* < .05). Moreover, the former two groups did not significantly differ (see Figure 3.2). These results provide partial support for Hypothesis 2, in that outward boundary work negatively influences satisfaction and viability.

Figure 3.2. The Effects of Boundary Work Method on Satisfaction/Viability.



To test for mediation in the relationship between boundary work and satisfaction/viability, I used the Preacher and Hayes (2008) bootstrapping method to determine whether these effects could be explained by the differences in shared group

identity (i.e., group entitativity) between the two experimental conditions (N = 65). This method tests the indirect effects of mediators on dependent variables by repeatedly sampling from the dataset to empirically approximate the sampling distribution and generate confidence intervals for the indirect effect. Preacher and Hayes (2004) recommend the bootstrapping procedure over the causal steps procedure (Baron & Kenny, 1986) in small samples to maximize power and minimizes the chances of making a Type I error (Preacher & Hayes, 2004).

Results from the bootstrap analysis indicated that the effect of boundary work (inward-bound versus outward-bound) on satisfaction/viability (effect = .78, $p < .05$) became nonsignificant when group entitativity was entered into the model (effect = .38, n.s.). Furthermore, the analysis revealed that the indirect effect of group entitativity as a mediator was significant (point estimate = .40, $p < .05$; BCa 95% confidence interval = .0818, .8157; Bootstrap resamples = 5000), supporting Hypothesis 3.

Discussion

The purpose of this study was to investigate the influence of boundary work on shared group identity and people-related measures of group effectiveness (i.e., satisfaction and viability). The results show that boundary work does affect perceptions of shared group identity, primarily through assessments of group entitativity. People considering groups that sent individual representatives out to interact with outside actors did not feel that the group would have strong entitativity, and predicted that they would be less satisfied and that the group would be less viable as a result. However, boundary work *per se* need not mean a loss in shared group identity. People considering groups that performed boundary work by bringing outsiders in to share information felt that these groups were more entitative, and that they would experience

more satisfaction/viability being a part of the group than those considering groups that performed outward boundary work. Moreover, this level of satisfaction and group viability was on par with that of people considering groups that were internally-focused (performing no boundary work at all), which are often suggested to be groups with high cohesion and identity (Ancona & Bresman, 2007; Faraj & Yan, 2009; Sundstrom et al., 1990). Therefore, this study provides initial evidence that boundary work need not diminish perceptions of shared group identity and member satisfaction/group viability, and can maintain shared group identity when group members share the experience of boundary work interactions.

In spite of these findings, this study necessarily has some limitations. First, the scenario study context made it difficult to assess group identity as a shared property of the group. As such, shared group identity was instead assessed by examining the routes to group identity formation. While shared group experience, measured by group entitativity in this study, represents a way that groups can formulate a shared identity, it does not fully capture the theory that group members construct their identity as they interact with outsiders. Additionally, the group entitativity items used to assess the shared experience dimension of group identity formation were somewhat indirectly related to shared experience (i.e., by referring to group fragmentation, etc.) rather than directly related (e.g., "To what extent did your group interact with outsiders together"?), in part so that this dependent measure would not be akin to a manipulation check. For both of these reasons, further study is needed to examine group identity as a shared property of the group, and this limitation is addressed in the longitudinal field study in Chapter 4.

Second, it is interesting that only group entitativity, and not salience and inter-group comparisons, was affected by boundary work method in this study. It is possible that salience and inter-group comparisons are implicit processes that are difficult to

capture when participants imagine themselves in a situation versus experiencing the situation firsthand. An experimental study of interacting groups could provide insight into whether these cognitive processes occur as individuals experience boundary work with outsiders. Finally, I was unable to research the effect of boundary work method on task-related measures of group effectiveness in this scenario study, though these are captured in the longitudinal field study described in Chapter 4.

Conclusion

Scenario Study 1 is a first step at investigating the effects of boundary work on shared group identity and group member satisfaction and group viability. This study contributes to our knowledge about boundary work and identity by showing that boundary work need not diminish shared group identity. Importantly, though outward boundary work can threaten shared group identity and ratings of member satisfaction and viability, inward boundary work can foster a shared group identity and ratings of satisfaction and viability on par with those of members of internally-focused groups.

Phase 3: Scenario Study 2 (Reverse Design)

Introduction

Scenario Study 2 was designed to test the idea that shared group identity can influence the choice of boundary work method when groups need outside information. This hypothesis arose from the preliminary field study in Chapter 2, and suggests that people in groups with weak (strong) identity will be more likely to choose an inward-bound (outward-bound) approach to boundary work (Hypothesis 6). Therefore, Scenario Study 2 is the reverse design of Scenario Study 1 in that it manipulates the

identity of the group described and measures the choice of boundary work method.

Method

Procedure

Fifty-four participants (66.7% female; mean age = 33.1 years, s.d. = 11.33; mean work experience = 14.4 years, s.d. = 10.34; 85.2% had some university education) were recruited using Amazon's Mechanical Turk web site to participate in a short survey on "Teamwork". They read a scenario about a hypothetical product development team (as in the previous study), only in this version they were told that the team had either a strong identity or a weak identity and then were asked to indicate how they thought the team should get information from outside sources (see Appendix 3.2). Participants were then asked which boundary work method they thought the team should pursue and why. They then completed the manipulation check question and demographic measures. Finally, participants read a short debrief note about the study and were paid $0.50 for their participation.

Dependent Measure

Boundary Work Method. Participants were asked "In order to get this information, would you either: 1) send team members out individually to get the information from people outside the team (while the rest of the team works on other aspects of the project), or 2) invite people outside the team to share the information at your team meetings when everyone is present". The parenthetical comment in the first option was included to more explicitly point out the efficiency gains that outward-bound groups could obtain by sending individuals out versus bringing outsiders in. Finally, participants were also given an open-ended question to explain why they made their particular choice.

Results

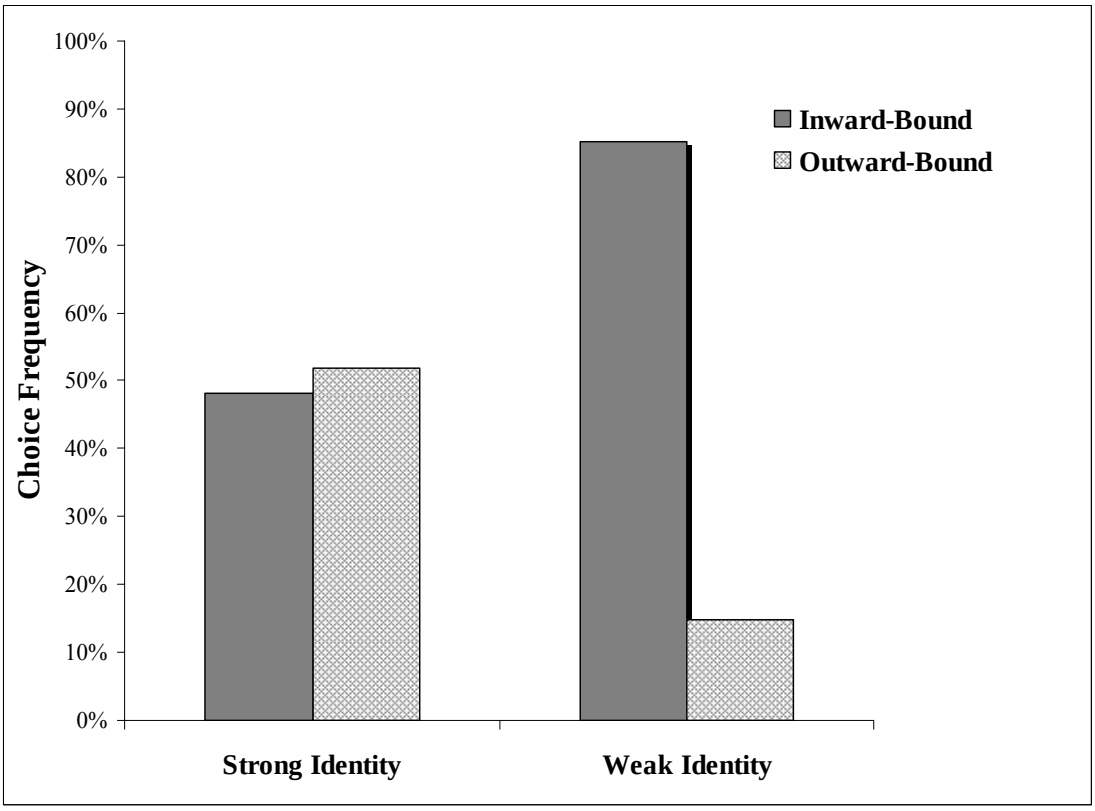
Manipulation Check

To check whether the group identity manipulation was successful, participants were asked whether their group had a strong or weak identity. The majority of participants in each condition correctly identified the strength of their group's identity, as evidenced by Chi-square analysis, $X^2(1)= 40.1$, $p < .01$. Therefore, the manipulation appeared to be successful.

Hypothesis Testing

To assess the influence of group identity on boundary work method, I performed a Chi-square test. Results showed that the majority of participants in the weak identity condition chose to bring outsiders in for external information versus just half of the participants in the strong identity condition ($X^2 = 8.33$, $p < .01$). The odds of choosing inward boundary work given that participants were in the weak identity condition were 1.77 and the odds of choosing inward boundary work given that participants were in the strong identity condition were 0.29. Thus the odds ratio for choosing inward boundary work was 6.19, which indicates that participants in the weak identity condition were 6.19 times more likely to choose inward boundary work than were participants in the strong identity condition (see Figure 3.3). These results provide partial support for Hypothesis 6, in that participants considering groups with weak identity chose an inward-bound versus an outward-bound method of interacting with external actors.

Figure 3.3. The Effects of Shared Group Identity on Choice of Boundary Work Method.



An examination of the open-ended responses about why participants chose inward boundary work when their team had weak identity lends further support to the idea that participants viewed interactions with outsiders as one way to strengthen their team's identity. For example, one participant said, "I believe inviting people to a team meeting would help to solidify the team through the shared experience". Another participant wrote, "I think having everyone present would help form more of a group identity and a group bond". Beyond time together, however, participants hinted that hearing the outsider's information at the same time would be beneficial for shared group identity. For example, one participant said, "Having everyone receive the information at once will put everyone on an even ground with one another and help them to feel more connected and more unified as a team" and another justified the

choice of inward boundary work with, “Because that way everyone gets to hear the information and give their input. It gives a level playing field and also encourages open talking between team members. They would be more apt to want to work on the ideas together as opposed to everyone bringing in their own ideas. It keeps it more ‘team’ like”. Therefore, participants do make a connection between methods of boundary work and shared group identity.

Discussion

The purpose of this study was to investigate the influence of group identity on boundary work method. In the previous study, boundary work method was shown to affect perceptions of shared group identity, and subsequently, member satisfaction and group viability. However, this study showed that shared group identity affects the method of boundary work people choose for their groups when they need outside information. Though participants considering groups with strong group identity were as likely to prefer sending members out individually for external information versus bringing outsiders in, participants considering groups with a weak identity were significantly more likely to prefer bringing an external actor in to provide information, perhaps in hopes of strengthening group identity through the shared experience.

Like Scenario Study 1, this study has some limitations. In both scenario studies, the level of analysis is the individual and not the group. Specifically, participants have given their impressions of how they might feel being a part of the groups they read about when answering the dependent measures. In essence, therefore, these experimental studies are capturing individuals’ mental models of teamwork that may or may not include realistic experiences of group boundary work. While care was taken to present a scenario based on events that the pilot study participants had experienced, participants in the scenario studies may not have had past experiences from which to

draw when making judgments about the group in the scenario. Moreover, it is possible that individuals' perceptions may not translate to situations in which they interact with other group members to perform a task. Therefore, it is important to investigate these hypotheses in interacting groups to bolster the external validity of these findings.

Finally, Scenario Study 2 implied that inward and outward boundary work were mutually exclusive for the group depicted in the scenario, which is not typically the case in organizational groups. In fact, the senior leadership teams in the preliminary field study often performed both inward and outward boundary work. Thus it is important to study the interactive effects of these boundary work methods on multiple measures of group effectiveness.

Conclusion

Scenario Study 2 provided a test of the idea that shared group identity is an antecedent to boundary work method. It contributes to our knowledge of boundary work by showing that people in groups with a weak shared identity are far more likely to invite external actors in for information compared to people in groups with a strong shared identity. From the interviews of the hospital senior leadership team members in Chapter 2 and from the open-ended responses in Scenario Study 2, it is quite possible that people perceive that bringing external actors in for information exchange is one way to enhance the solidarity of the group. These results thus point to group identity as an antecedent not only of the types of work groups do (Cornelissen et al., 2007; Lyon, 1974) but also how they do it.

Summary of Experimental Studies

Scenario Studies 1 and 2 provided initial evidence that 1) boundary work method influences shared group identity, specifically that outward boundary work threatens group entitativity whereas inward boundary work does not, and 2) group identity influences the choice of boundary work method, specifically that people in groups with weak shared identity strongly prefer inward boundary work compared to people in groups with strong shared identity. Taken together, these findings suggest that there is a reciprocal relationship between boundary work and identity, such that they reinforce and influence one another. This research thus provides an important contribution to literature on boundary work in groups by showing that, rather than being mutually exclusive, boundary work and the formation of group identity are intertwined. In particular, while outward boundary work threatens group identity, inward boundary work allows groups to enjoy a level of shared group identity that is similar to internally-focused groups. Further, group identity can influence the choice of boundary work in organizational groups.

These studies also provided evidence that boundary work method affects the satisfaction of group members and their feelings of group viability. Participants considering groups that performed inward boundary work predicted that they would be more satisfied and that they would be more willing to continue working in the group than participants considering groups that performed outward boundary work. Importantly, this relationship was mediated by group entitativity, a dimension related to group identity formation. Again, these findings show that boundary work need not result in diminished member satisfaction and group viability. Rather, the chosen method of boundary work is an important factor to consider when relating boundary work to people-related measures of group effectiveness. In short, the experimental studies in this chapter provide support for relationships predicted in Hypotheses 1, 2, 3,

and 6.

While these experimental studies enabled me to isolate the effects of one method of boundary work over another on shared group identity and satisfaction/viability, an important next step is to investigate these and the remaining hypotheses in interacting groups. Scenario studies allow for control over additional factors that might affect boundary work method and group identity and effectiveness, but they also have limitations. For example, individuals' perceptions of how they might feel being a part of a hypothetical group may not translate to how they would actually feel in that situation and scenario studies also limit the assessment of multiple measures of group effectiveness (i.e., external ratings of task performance). Therefore, the next chapter outlines a longitudinal field study conducted with MBA student groups to both replicate and extend these findings.

Chapter 4: Longitudinal Field Study

Introduction

To replicate and extend the findings from the experimental studies in Chapter 3, I conducted a longitudinal survey study with MBA student groups. This study fulfils a number of objectives in investigating the research hypotheses. First, it researches the hypothesized relationships among interacting groups and at the group level of analysis. Boundary work methods and group identity are inherently group-level phenomena (Joshi et al., 2009; Pratt, 2003), and thus it is important to replicate the findings from the scenario studies at this level. Second, this study assesses group identity as a shared unit property of the group (as in the preliminary field study) and not via the dimensions that contribute to identity formation. Since these group members worked in their groups for several months they were able to make reliable assessments of their group's shared identity, unlike individuals reading a hypothetical scenario.

Next, this study examines the effects of boundary work method on multiple measures of effectiveness, including group member satisfaction and group viability as well as external ratings of task performance, which allows for a test of Hypotheses 4 and 5. Finally, the survey design enables me to examine the interactive effects of inward and outward boundary work on measures of group effectiveness. The preliminary field study showed that organizational groups can and do perform both methods of boundary work to acquire information, and therefore, it is possible that a combination of methods would allow groups to experience both high task performance and high satisfaction/viability. Therefore, this study also tests Hypothesis 7 and 8.

Method

Participants and Procedure

To understand the relationships between boundary work, group identity, and effectiveness among interacting groups, I conducted a longitudinal study of MBA student groups at a graduate business school in the United Kingdom. The sample consisted of 65 teams of five to seven members each. Team members were of an average age of 28.2 years (s.d. = 2.7); 72.2 percent were male; 62.4 percent were Caucasian, 30.3 percent were Asian, 5.8 percent were Hispanic, 1.3 percent were Black, and 0.3 percent were of other ethnicities. On average, team members had 5.4 years of work experience (s.d. = 2.4), mostly in the management consulting and financial services industries.

This particular sample was advantageous for examining relationships between study variables for several reasons: 1) teams were formed at the same time using assigned membership, thus eliminating the need to consider team tenure or familiarity as factors affecting group identity or boundary work behavior, 2) teams worked on the same tasks (i.e., group reports and presentations) throughout the study period, effectively standardizing the environmental opportunities and constraints on boundary work behaviors, and 3) it was possible to survey team members at different points in time during the course of the study to examine directional effects of identity and boundary work, as well as to minimize the potential effects of common method bias in the results.

Data were gathered at two time periods for each group. At Time 1, during the first week of group work, team members responded to surveys measuring shared group

identity, group member satisfaction, and group viability among other group processes[11]. At Time 2, after nine months of intensive group work, team members again rated their group's shared identity, group member satisfaction and group viability as well as their group's boundary work behaviors. Two months later, they were provided with grades for an entrepreneurial course project, which served as the task performance dependant measure.

Measures

Boundary Work Behavior. To assess both inward- and outward-bound boundary work behaviors, I used the items from the preliminary field study based on Edmondson (1999) and Wong (2004) but added two additional items to each scale (including a reverse-coded item) for greater reliability and tighter application to the context of MBA groups. Inward-bound boundary work was measured with four items: "We invite people from outside our team to present information or have discussions with us" (Edmondson, 1999), "If we need information from professors, other students, or people in other parts of the school, they come to our team meetings to share what they know", "If we need ideas or knowledge from people external to our team, we invite them to share their expertise with us", and "People from outside our team rarely come in to provide us with information" (reverse scored) ($\alpha = .82$).

Outward-bound boundary work was also measured with four items: "Team members go out to seek ideas/expertise from people external to our team" (Wong, 2004), "If our team needs information from professors, other students, or people in other parts of the school, team members go out to interact with them", "To gather information for our team, team members go out to interact with people in their own

[11] Shared group identity was assessed on a different day of the week than satisfaction and viability. The latter two variables factored together both at Time 1 and Time 2. Time 2 exploratory factor analysis is shown in Table 4.1.

professional networks", and "Team members rarely go out to get information from people outside our team" (reverse scored) (α = .79).

An exploratory factor analysis using principal axis factoring with varimax rotation revealed that the inward- and outward-bound boundary work items loaded onto separate factors, and did not factor with other study variables such as shared group identity (see Table 4.1). To confirm that it was appropriate to aggregate individual responses on these items to form group-level variables, I calculated within group agreement scores (James et al., 1984; LeBreton & Senter, 2008) and intraclass correlation coefficients (Bliese, 2000; Shrout & Fleiss, 1979) (inward-bound boundary work: median $r_{wg(j)}$ = .78, ICC(1) = .08, F(57,169) = 1.34, p = .08, ICC(2) = .25; outward-bound boundary work: median $r_{wg(j)}$ = .79, ICC(1) = .10, F(57,169) = 1.42, p < .05, ICC(2) = .29. All study items were assessed on 7-point Likert scales with anchors of Strongly Disagree/Strongly Agree or Not at All/To a Great Extent.

Shared Group Identity. Shared group identity was captured using the seven-item scale[12] from Postmes et al. (2005) that was used in the preliminary field study (Time 1: α = .91, median $r_{wg(j)}$ = .94, ICC(1) = .30, F(64,324) = 3.61, p < .01, ICC(2) = .72; Time 2: α = .94, median $r_{wg(j)}$ = .91, ICC(1) = .33, F(57,169) = 2.93, p < .01, ICC(2) = .66). Beyond using the mean values of this scale, I also adopted a dispersion model (Chan, 1998) when predicting choice of boundary work at Time 2 using shared group identity at Time 1. While high mean values reflect a strong shared group identity, the standard deviation of group member scores on these items is another way to capture weak identity in that it assesses disagreement about the group's shared identity (LeBreton & Senter, 2008). Both mean and standard deviation were thus used to represent strong and weak shared group identity when testing Hypothesis 6.

[12] One item on the shared group identity scale ("This is a strong group.") had a stronger cross-loading with the satisfaction and viability factor. However, the pattern of results is the same with this item excluded from the shared group identity scale. Thus the entire scale as published in Postmes et al. (2005) is retained for the analyses.

Satisfaction and Viability. Satisfaction was measured with four items from Peterson (1997) and three items from Lewis (2004). As in Scenario Study 1, the satisfaction and viability items factored together so they were combined to form a composite measure of satisfaction and viability (Time 1: $\alpha = .93$, median $r_{wg(j)} = .96$, ICC(1) = .31, $F(64, 318) = 3.62$, $p < .01$, ICC(2) = .72; Time 2: $\alpha = .96$, median $r_{wg(j)} = .94$, ICC(1) = .45, $F(59,176) = 4.16$, $p < .01$, ICC(2) = .76).

See Table 4.1 for all Time 2 study items and their factor loadings.

Table 4.1. Exploratory Factor Analysis of Time 2 Study Items using Principal Axis Factoring with Varimax Rotation.

Scale Item	Satisfaction/ Viability	Group Identity	Inward-Bound	Outward-Bound
How satisfied are you working with this team?	***.898***	.224	.138	.205
To what extent are you glad you are a part of this team?	***.870***	.233	.091	.194
If I had the choice of working on this team again, I would do it.	***.845***	.319	.124	.173
How satisfied are your fellow team members with being a member of this team?	***.819***	.234	.127	.168
If we were assigned to another project, I am confident that this team would work well together.	***.759***	.361	.161	.197
This team would perform well together in the future.	***.751***	.293	.095	.259
How much do you like other members of your team?	***.650***	.358	.013	.194
This group has its own personality.	.360	***.840***	.043	.115
This group has character.	.360	***.768***	.059	.113
This group has a clear identity.	.504	***.664***	.154	.175
This group has a view of its own.	.570	***.647***	.146	.089
It is clear what this group stands for.	.530	***.570***	.252	.054
This is a strong group.	.675	***.516***	.168	.139
This group has one voice.	.438	***.481***	.233	.058

Scale Item	Satisfaction/ Viability	Group Identity	Inward-Bound	Outward-Bound
If we need information from professors, other students, or people in other parts of the school, they come to our team meetings to share what they know.	.092	.120	***.840***	.134
If we need ideas or knowledge from people external to our team, we invite them to share their expertise with us.	.151	.169	***.815***	.221
We invite people from outside our team to present information or have discussions with us.	.151	.184	***.766***	.045
People from outside our team rarely come in to provide us with information. (Reverse scored.)	.037	-.039	***.436***	.050
Team members go out to seek ideas/expertise from people external to our team.	.147	.114	.209	***.816***
To gather information for our team, team members go out to interact with people in their own professional networks.	.150	.154	.183	***.810***
If our team needs information from professors, other students, or people in other parts of the school, team members go out to interact with them.	.179	.213	.048	***.629***
Team members rarely go out to get information from people outside our team. (Reverse scored.)	.138	-.066	.034	***.434***

Task Performance. All groups were enrolled in a course about discovering entrepreneurial opportunities in the fifth month they worked together. In this course, groups were required to create a new product or service to meet customer needs and present this innovation at a trade show. At the trade show, groups presented their products and services to a network of the university's business mentors, or alumni with connections to promote entrepreneurial start-ups. Groups received grades for this trade show project, which represented 30% of the course grade. Thus group members were motivated to succeed on the task, and completed the task interdependently. Average scores on the group project were 67.6 (s.d. = 6.21).

Control Variables. For all analyses, I controlled for group size (though most of the groups comprised six people, some groups had five or seven members). In addition, when predicting shared group identity at Time 2, I controlled for both the mean and standard deviation of shared group identity measured at Time 1, and when predicting satisfaction and viability at Time 2, I controlled for satisfaction and viability assessed at Time 1. Finally, when predicting task performance, I initially controlled for average GMAT score and years of work experience. Neither of these controls significantly predicted task performance, so to conserve statistical power and reduce the potential for biased estimates they were excluded from the analysis presented below (Becker, 2005).

Data Analysis

To test the hypotheses I used ordinary least squares regression with variables measured or calculated at the group level. Specifically, to test the idea that boundary work affects group identity, I regressed shared group identity at Time 2 on boundary work behavior, while controlling for shared group identity at Time 1. To test the idea that group identity affects boundary work, I regressed boundary work behavior at Time

2 on the mean and standard deviation of shared group identity at Time 1. Finally, to examine the effects of boundary work on group effectiveness, I regressed satisfaction/viability at Time 2 on boundary work while controlling for satisfaction/viability at Time 1 and I regressed task performance on boundary work at Time 2. When entering boundary work into the models as a predictor variable, I used centered inward and outward boundary work scales as well as their interaction term.

Results

Table 4.2 presents means, standard deviations, and correlations among study variables. Note that, like the hospital senior leadership teams in the preliminary field study, the MBA student groups tended to use both methods of boundary work as evidenced by the significant positive correlation between inward and outward boundary work ($r = .47$, $p < .05$).

Table 4.2. Means, Standard Deviations, and Correlations among Study Variables[a].

Variable	Mean	s.d.	1	2	3	4	5	6	7	8
1. Group size	6.14	0.43								
2. Group identity (Time 1)	5.11	0.67	.07							
3. Group identity SD (Time 1)	1.08	0.31	-.19	-.54						
4. Satisfaction/ viability (Time 1)	5.70	0.70	.21	.63	-.45					
5. Inward boundary work (Time 2)	3.15	0.87	.21	.21	-.13	.38				
6. Outward boundary work (Time 2)	4.50	0.89	.00	.35	-.35	.27	.47			
7. Group identity (Time 2)	4.42	1.03	.38	.52	-.50	.63	.40	.32		
8. Satisfaction/ viability (Time 2)	5.09	1.19	.30	.48	-.52	.57	.37	.47	.86	
9. Task performance (Time 2)	67.60	6.21	.11	.14	-.03	.15	.09	-.05	.10	.05

[a]*Sample size ranged from 58 to 65 (groups) because of missing data. Correlations ≥ .27 are significant at $p < .05$.*

Hypothesis Testing

Hypothesis 1 predicted that inward boundary work would positively predict shared group identity, whereas outward boundary work would negatively predict shared group identity. After controlling for group size and the mean and standard deviation of shared group identity assessed at Time 1, inward boundary work positively predicted shared group identity at Time 2 ($\beta = .24$, $p < .05$) but outward boundary work was not significantly related to shared group identity at Time 2 ($\beta = .01$, n.s.)[13]. This provides partial support for Hypothesis 1 (See Table 4.3) [14].

Table 4.3 Results of Regression Analysis Predicting Shared Group Identity at Time 2.

Variables	Group Identity (Time 2)
Controls:	
Group size	.31*
Group identity (Time 1)	.36*
Group identity SD (Time 1)	-.25*
R^2	.43
F	13.37**
Main effects:	
Inward boundary work	.24*
Outward boundary work	.01
ΔR^2	.06
R^2	.48
F	9.73**

*$p < .05$; **$p < .01$*

[13] Despite the significant zero-order correlation between outward boundary work and shared group identity in Table 4.2 ($r = .32$, $p < .05$), the nonsignificant regression coefficient is explained by the positive correlation between inward and outward boundary work ($r = .47$, $p < .05$). As in the preliminary field study, when controlling for inward boundary work the partial correlation between outward boundary work and shared group identity ($pr = .17$) is not significant. This suggests that the zero-order correlation between outward boundary work and shared group identity is illusory, or dependent on inward boundary work as the crucial third variable (Messick & van de Geer, 1981).

[14] I did not hypothesize an interactive effect for inward and outward boundary work predicting shared group identity. I did, however, test this possibility and did not find a significant relationship ($\beta = .07$, n.s.).

As in Scenario Study 1, I tested the hypothesis that the shared group identity resulting from inward boundary work translates into higher satisfaction and viability for group members (Hypothesis 3) using the Preacher and Hayes (2008) bootstrapping method to test indirect effects. Group size and the composite of satisfaction and viability at Time 1 were entered as control variables, inward boundary work was entered as the independent variable, and shared group identity was entered as the mediator variable to predict the composite score for satisfaction and viability at Time 2. Results from the bootstrap analysis indicated that the effect of inward boundary work on satisfaction/viability (effect = .22, p = .17)[15] was lessened when shared group identity was entered into the model (effect = .04, p = .70). Furthermore, the analysis revealed that the indirect effect of shared identity as a mediator was significant (point estimate = .18, BCa 95% confidence interval = .0031, .3783; Bootstrap resamples = 5000), replicating the findings from Scenario Study 1 and further supporting Hypothesis 3.

In Scenario Study 2, I found that group identity predicted choice of boundary work method such that people assigned to groups with weak identity preferred to engage in inward-bound boundary work rather than outward-bound boundary work. To replicate this result in interacting groups, I calculated a ratio of inward- to outward-bound boundary work, and used the mean and standard deviation of shared group identity at Time 1 to predict the prevalence of inward-bound boundary work compared to outward-bound boundary work at Time 2. The mean values of shared group identity at Time 1 failed to predict boundary work at Time 2 (β = .04, n.s.). The standard deviation of shared group identity at Time 1, however, positively predicted the inward-

[15] Note that the direct effect of inward boundary work on satisfaction/viability did not reach significance. However, several authors have noted that it is not necessary to show a direct effect of x on y to show a that a mediator variable has a significant indirect effect between x and y (Kenny, Kashy, & Bolger, 1998; MacKinnon, Krull, & Lockwood, 2000; Shrout & Bolger, 2002). This result implies that the effects of inward boundary work on satisfaction/viability in this sample can be entirely explained by its effects on the mediator variable, shared group identity.

to-outward-bound boundary work ratio (β = .27, p = .08), suggesting that those with disagreement about the group's shared identity at Time 1 chose an inward over an outward approach to boundary work during group tasks over the course of the year (see Table 4.4). This result replicates the findings from Scenario Study 2 and provides further support for Hypothesis 6.

Table 4.4. Results of Regression Analysis Predicting Inward Relative to Outward Boundary Work at Time 2.

Variables	Inward/Outward Boundary Work (Time 2)
Controls:	
Group size	.24†
R^2	.06
F	3.34†
Main effect:	
Group identity (Time 1)	.04
Group identity SD (Time 1)	.27†
ΔR^2	.06
R^2	.12
F	2.42†

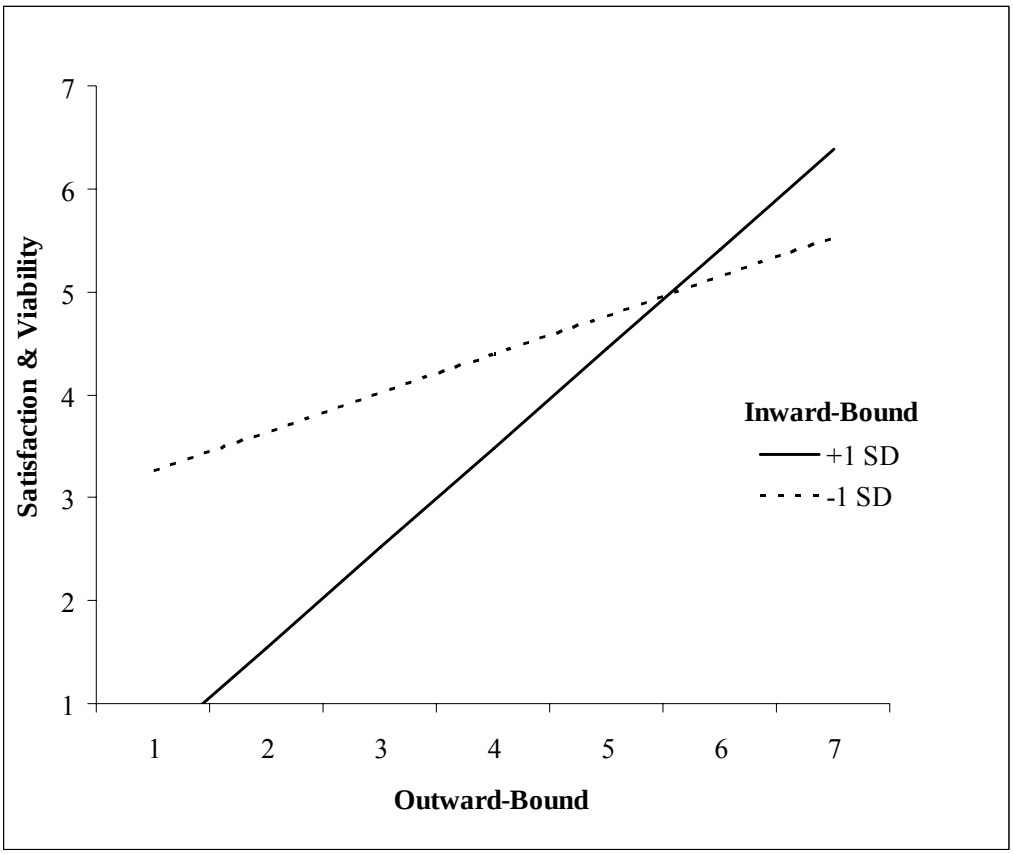
†p < .10

Several hypotheses predicted relationships between inward and outward boundary work, and their interactive effects, on measures of group effectiveness. Starting with group satisfaction and viability, results showed that, controlling for group size (β = .18, n.s.) and satisfaction and viability at Time 1 (β = .52, p < .01), there was a positive main effect of outward boundary work on satisfaction and viability assessed at Time 2 (β = .36, p < .05). This result is contrary to Hypothesis 2 and the findings from

Scenario Study 1, in which individuals predicted they would be less satisfied being in group that performed extensive outward boundary work. Further, there was not a significant main effect for inward boundary work on satisfaction and viability (β = .00, n.s.) (though mediation analyses reported above showed a positive effect of inward boundary work on satisfaction/viability via shared group identity, as predicted in Hypothesis 3).

However, these findings are qualified by a significant interactive effect of the combination of inward and outward boundary work on satisfaction and viability (β = .24, $p < .05$). Figure 4.1 plots this interaction using outward boundary work as the independent variable and inward boundary work as the moderator variable assessed at +1 and -1 standard deviations from the mean (s.d. = .87) (Aiken & West, 1991). Consistent with Hypothesis 7, the graph shows that as groups perform more outward boundary work, adding high levels of inward boundary work improves group satisfaction and viability to a greater extent (b = .97: t = 3.39, $p < .05$) than does adding low levels of inward boundary work (b = .38: t = 2.37, $p < .05$).

Figure 4.1. The Interactive Effects of Outward and Inward Boundary Work on Group Satisfaction and Viability.

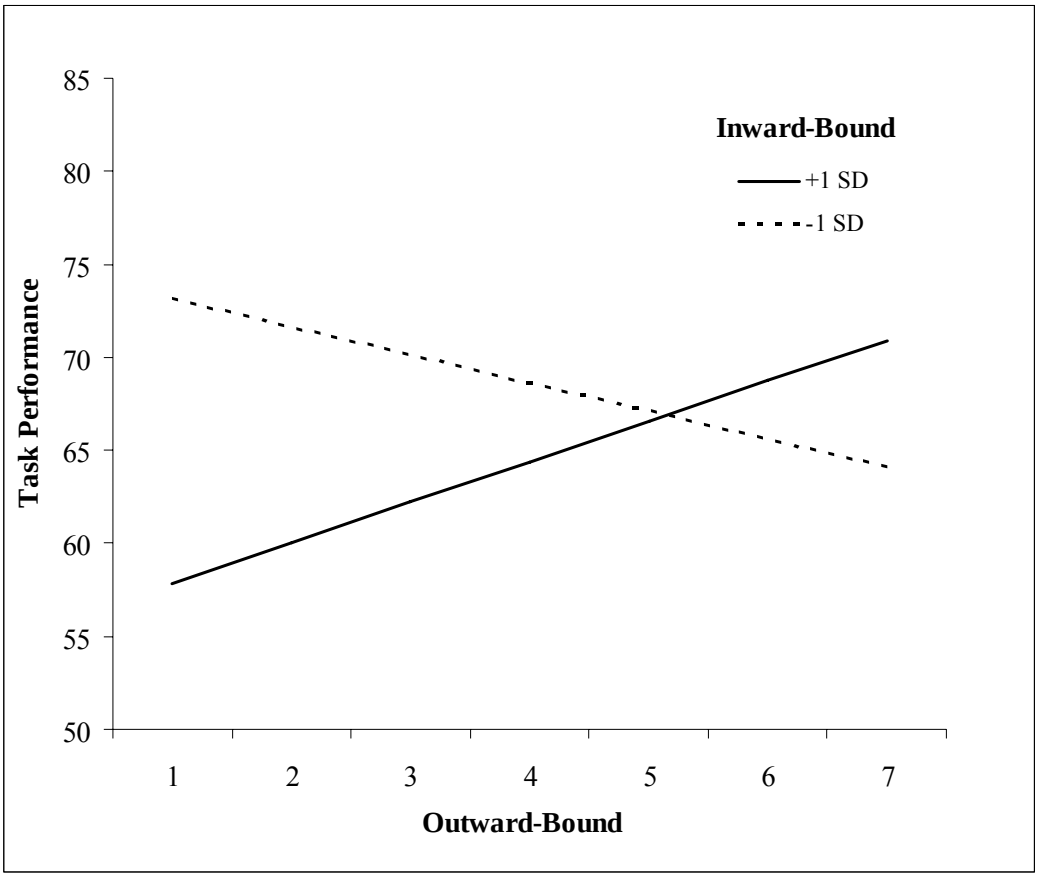


For task performance, Hypothesis 4 and 5 predicted that inward and outward boundary work would positively predict external ratings of group task performance. Controlling for group size (β = .06, n.s.), neither inward boundary work (β = .14, n.s.) nor outward boundary work (β = -.12, n.s.) had significant main effects on task performance in this study, failing to support Hypotheses 4 and 5. This result may be explained by a suppression effect, where the positive effect of inward boundary work is not strong enough to counteract a negative effect of outward boundary work on performance. Indeed, there is evidence of suppression in that the correlation of outward boundary work and performance (r = -.05) is smaller than the product of the correlation

between inward boundary work and performance (r = .09) and the correlation between inward and outward boundary work (r = .47) (Cohen et al., 2003).

However, these results are also qualified by a marginally significant interaction between inward and outward boundary work on task performance (β = .30, p = .06). Figure 4.2 plots this interaction and shows that as groups perform more outward boundary work, adding high levels of inward boundary work results in a trend toward a positive relationship between outward boundary work and task performance (b = 2.18: t = 1.16, p = .25) whereas adding low levels of inward boundary work results in a trend toward a negative relationship between outward boundary work and performance (b = -1.51: t = -1.38, p = .17). This pattern of results is not inconsistent with the idea that inward and outward boundary work together could result in higher task performance, providing some support for Hypothesis 8 (See Figure 4.2).

Figure 4.2. The Interactive Effects of Outward and Inward Boundary Work on Group Task Performance.



Discussion

The purpose of this study was to investigate the relationships between boundary work, shared group identity, and multiple measures of effectiveness among interacting groups. There are three ways in which the results of this study replicated the findings from the experimental studies. First, inward boundary work positively predicted shared group identity among these MBA student groups. Second, shared group identity mediated the relationship between boundary work method and group satisfaction and viability, such that an inward-bound approach increased shared identity, which then increased group satisfaction and viability. Finally, groups with initially weakly shared

views of group identity were more likely to perform inward relative to outward boundary work as they worked together over time. These results replicate those in Scenario Studies 1 and 2 while using a group-level measure of shared identity, and provide additional support for Hypotheses 1, 3, and 6. Moreover, these findings again point to a reciprocal relationship between boundary work and identity.

Beyond these relationships, however, this study provided insight into how boundary work methods influenced multiple measures of group effectiveness. Like the senior leadership teams in the preliminary field study, the MBA groups tended to use both inward and outward boundary work methods in combination as evidenced by the positive correlation between these two factors. Further, the combination of inward and outward boundary work appeared to more positively predict group satisfaction/viability and task performance than outward boundary work alone. Unlike Scenario Study 1, however, this study showed that outward boundary work had a positive (versus negative) effect on group satisfaction and viability. Also unexpected was the lack of a positive direct effect of inward boundary work on satisfaction and viability. In spite of the indirect effect of inward boundary work on satisfaction and viability through shared group identity, the interaction graph in Figure 4.1 seems to indicate that groups that perform inward boundary work but not outward boundary work are the least satisfied, which is contrary to the theory presented around Hypothesis 2.

One explanation for these unexpected direct relationships is that MBA student groups are focused on developing external networks as part of their MBA experience, such that the more they enact these activities by going outside of their study groups the more they feel they are achieving their goals. For instance, building relationships and gaining support outside the group may have increased group members' feelings of collective efficacy or group potency in achieving task objectives, thus increasing their satisfaction with the group (see a similar argument in Marrone et al., 2007). In contrast,

bringing outsiders in may have implicitly contributed to their shared group identity but at the same time may have felt like a less active way of pursuing group goals. Given the mixed findings across studies regarding direct relationships between boundary work method and group satisfaction and viability, therefore, more research is needed to understand when boundary work method (inward or outward) has direct effects on these people-related measures of effectiveness and why.

In addition, adding inward boundary work to outward boundary work may positively influence external ratings of task performance. While in this study neither method of boundary work had a significant direct effect on task performance (unlike the preliminary field study, which showed a positive relationship between inward boundary work and external ratings of performance), the interactive effects pointed toward a positive relationship between outward boundary work and task performance when groups add high levels of inward boundary work. Using both methods may allow groups to achieve high levels of alignment with the environment through outward boundary work and a shared understanding of external information through inward boundary work. An interesting next step from this research would be to examine when each should be used or how groups iterate between these methods in their task work.

This longitudinal field study provided a way to test a number of the study hypotheses among interacting groups assessed at different time periods. In spite of this, however, the study has a few limitations. First, the level of inward boundary work enacted by the groups was relatively low (M = 3.15, s.d. = .87) compared to that of outward boundary work (M = 4.50, s.d. = .89). This setting may have thus been more conducive to outward boundary work than inward boundary work. For example, it is possible that it was less feasible for these student groups to invite outsiders in than to go out individually to gain information for their projects, particularly if the outsiders were of higher power or status (e.g., professors). Therefore, the effects of inward

boundary work in this study may have been limited to those in which groups had interactions with relatively equal outsiders (e.g., coworkers, other students, etc.). The idea that power dynamics affect the use of inward versus outward boundary work methods is further discussed in the final chapter.

Next, the intraclass correlation coefficients (ICCs) for boundary work in this study were somewhat low. ICC(1) measures reliability and non-independence among group member ratings of a construct, and typically falls in the range of .05 to .20 (Bliese, 2000). In this study, for example, the ICC(1) for inward boundary work was .08, which indicates that eight percent of the variability in an individual's rating of inward boundary work was related to group membership. ICC(2) values provide estimates of the reliability of the group means, and should be high in order to detect emergent phenomena between groups (Bliese, 2000). These were relatively low in this study (between .25 and .30), and therefore it is likely that there were small differences between groups regarding individuals' perceptions of group boundary work activity. In short, the lack of strong between-group differences for boundary work may explain why the effects in this study are relatively small compared to those in the previous studies.

In addition, it is possible that the relationships between boundary work methods and shared group identity could be explained in part by the operationalizations of the different boundary work activities. For example, the items describing inward boundary work contain several collective pronouns such as "we" and "us" whereas the items describing outward boundary work contain references to individual "team members" interacting with people in their professional networks. While these differences were inadvertently created in constructing the items, it is possible that they could have primed or prompted the predicted relationships with shared group identity and/or satisfaction. For example, Brewer and Gardner (1996) find that collective levels of self-

definition (e.g., priming the word “we” instead of “they”) facilitate judgments of similarity when people evaluate attitude statements. Similar processes may have operated for individuals reading and responding to these items, and thus future research should measure boundary work methods in different ways to substantiate the results from the field studies.

Finally, though the entrepreneurial project provided a context in which boundary work should have been helpful to the student groups, in hindsight it is possible that groups could have done well without performing boundary work at all (thus representing a situation in which information, resources, and support are nice to have but not necessary for the task). Indeed, Figure 4.2 indicates that the highest performing teams engaged in low levels of outward and inward boundary work. However, the fact that groups that engaged in high levels of both outward and inward boundary work also performed well suggests that the results presented in this study may be even stronger when groups are dependent on the environment for these resources.

Conclusion

The longitudinal field study replicated and extended results found in the preliminary field study and the experimental studies presented in Chapters 2 and 3. Specifically, it provided further evidence that boundary work and shared group identity are intertwined, such that inward boundary work positively predicts shared group identity and group identity predicts choice of boundary work method in interacting groups. The findings also showed that groups tended to use both outward and inward methods of boundary work, and that together these methods may have complementary influences on group effectiveness as assessed using people-related (i.e., satisfaction and viability) and task-related (i.e., project performance) measures.

Chapter 5: General Discussion

Summary of Research Findings

This research sought to explore how groups perform boundary work, or task-related activities with external actors, and how different methods of boundary work affect group identity and effectiveness. Through a series of multi-method studies, this research compared and contrasted the effects of an outward-bound approach to external activities, or sending individual group members out to interact with outsiders for information, resources, or support (Ancona, 1990), and an inward-bound approach to external activities, or inviting outsiders in to provide these resources to the group as a whole.

There were several important findings that converged across studies. First, groups can and do perform inward boundary work in organizational settings. The preliminary field study, in particular, revealed the occurrence of this phenomenon, and participants in the experimental pilot study also commented on its frequency. Since research in the external perspective of small groups has often conceptualized boundary work as being outward-facing, the identification of an inward-bound approach to boundary work advances our knowledge of how groups perform boundary work (Marrone, 2010).

Next, methods of boundary work differ in how they affect internal group dynamics. While an outward-bound approach can be a threat to shared group identity (Scenario Study 1), an inward-bound approach can positively influence shared group identity (Preliminary and Longitudinal Field Studies). Further, this shared group identity positively predicts group members' feelings of satisfaction and willingness to work together over time (Scenario Study 1 and Longitudinal Field Study). Since past research has theorized or found a negative relationship between external activities and

people-related measures of effectiveness (e.g., Ancona & Caldwell, 1988, 1992a; Keller, 2001), this finding provides evidence that external activities per se need not diminish shared group identity or member satisfaction. Rather, the method of boundary work matters with respect to these outcomes.

Beyond the effects of boundary work method on group identity, the results show that group identity influences group members' decisions to engage in different methods of boundary work. In particular, groups with weak shared identity opt to bring outsiders in for information, resources, or support, rather than send individual members out for these external interactions (Scenario Study 2, Preliminary and Longitudinal Field Studies). People may thus have implicit theories about how outward boundary work could threaten groups with a weak shared identity, and act to solidify their groups by providing shared experiences through boundary work.

Finally, the evidence suggests that inward boundary work should not weaken, and may even strengthen group task performance (Preliminary and Longitudinal Field Studies). Inviting outsiders in to provide information or to coordinate tasks may enable groups to both align with the external environment and achieve shared understanding of external information among group members. This result demonstrates that advocating an inward-bound approach to boundary work in order to positively influence people-related measures of effectiveness (i.e., satisfaction and viability) need not result in detriments to task-related measures of effectiveness.

There were also some findings that were unexpected or inconsistent across studies. First, the field studies revealed that groups tended to use both inward and outward-bound approaches to boundary work rather than one or the other (Preliminary and Longitudinal Field Studies). Thus while predicting differences between these methods a priori, through the course of the research it became apparent that they are in many ways complementary in practice. For example, though these approaches differ

with respect to shared group identity, they may augment one another when it comes to exchanging information with outsiders and accomplishing group tasks. Indeed, groups that engaged in high levels of both methods of boundary work enjoyed high task performance and member satisfaction in the longitudinal field study.

Next, inward and outward boundary work did not have consistent direct effects on measures of group effectiveness. For example, inward boundary work was positively associated with satisfaction in the senior leadership teams (Preliminary Field Study) but was not directly related to satisfaction in the MBA student groups (Longitudinal Field Study). Similarly, outward boundary work negatively influenced perceptions of satisfaction among participants considering groups that engaged in this activity (Scenario Study 1) but positively influenced satisfaction among the MBA study groups (Longitudinal Field Study). The discrepant relationship between outward boundary work and satisfaction may possibly be explained by considering the temporal dynamics of boundary work. For example, Ancona and colleagues (Ancona, 1990; Ancona & Bresman, 2007) have argued that outward boundary work reduces satisfaction in the short term but improves satisfaction in the long term through its positive effects on group performance.

Finally, the findings regarding outward boundary work and task performance were both unexpected and inconsistent with past research. Specifically, outward boundary work failed to positively predict task performance among the senior leadership teams or the MBA study groups. The relationship between outward boundary work and task performance could have been dependent on contextual factors not measured in these studies, such as resource scarcity or task uncertainty (Faraj & Yan, 2009). However, the most promising relationship between outward boundary work and task performance in these studies came in the form of an interaction with inward boundary work. As stated previously, groups that performed both high levels of

outward boundary work and inward boundary work had high task performance, perhaps through the unique information benefits that each method provides to help groups align with their environment.

Taken together, the studies presented in this dissertation inform the research question of how groups can balance the need to perform internal and external activities for optimal group effectiveness in several ways. First and foremost, they suggest that inward boundary work indeed fosters shared group identity and does not negatively influence measures of group effectiveness. From that standpoint, inward boundary work represents one way that groups can balance these competing demands. However, the data also reveal a more nuanced story of the relationships between inward and outward boundary work and multiple measures of group effectiveness. Far from negatively influencing satisfaction while positively influencing task performance, outward boundary work did not have clear-cut relationships with group effectiveness on its own. Moreover, while an inward-bound approach can fulfil particular group needs (e.g., fostering shared identity), the use of both strategies should be considered when predicting measures of group effectiveness like member satisfaction and task performance. Overall, this research suggests that groups engage with external stakeholders in multiple ways, and that a consideration of the inward-bound approach as well as the outward-bound approach adds to our knowledge of the relationships between group boundary work, identity, and effectiveness.

Theoretical Contributions

Consistent with the findings presented above, this research makes a number of theoretical contributions to small group research. First, this research highlights an often used, but little studied, method of boundary work, further clarifying the ways in which groups can emphasize internal and external activities for optimal group effectiveness.

Researchers have often considered internal and external activities to be mutually exclusive (Choi, 2002; Faraj & Yan, 2009), which has led to recommendations to vary the times at which internal or external activities are performed or to iterate back and forth between internal and external activities (Ancona & Bresman, 2007; Peterson, Harvey, & Anand, 2010). Yet there is a continuing need to understand the mechanisms through which teams fulfil external demands without compromising internal dynamics (Marrone, 2010). I propose and find that work groups can focus externally without neglecting the shared identity of the group by performing inward boundary work, or inviting external actors in to interact with group members. Examining the effects of this method of boundary work extends the external perspective by broadening the definition of external activities to include outsiders coming in to the group boundary, which opens up new areas of inquiry within this research tradition.

Next, examining the influence of boundary work on shared group identity highlights a consequence of boundary work that has received little attention from scholars who take an external perspective of groups. Most empirical research in this tradition investigates the ways in which boundary work improves information exchange between groups and their external stakeholders. I argue that boundary work also implicitly influences shared group identity through its effects on group member shared experience, group boundary salience, and the accessibility of comparison outgroups. While some of these mechanisms have been shown to affect organizational identity in the minds of individual boundary spanners (Bartel, 2001), little research has been done on boundary spanning and identity at the level of the small group. Viewing boundary work through an identity lens helps to explain why members of groups that engage in outward boundary work could at times experience tenuous internal group dynamics. It also further differentiates the experiences of groups that take an inward-bound versus an outward-bound approach to interactions with external actors.

This research also contributes to work on the antecedents and consequences of shared group identity among members of small groups. While there is extensive research on how individuals define themselves by their group memberships (e.g., Brewer, 1991; Ellemers et al., 2004; Hogg & Terry, 2000; Tajfel & Turner, 1979), there is relatively less research on group identity as a property of small work groups as well as how members of those groups come to agree upon this identity. I propose and find that the method groups use to interact with outsiders has profound effects on the degree to which members feel they have a shared group identity, which ultimately affects both their satisfaction and willingness to work in the group over the long-term. Moreover, the consequences of this shared group identity extend beyond increased commitment to the group to how members choose to communicate with people outside the group in the service of group goals.

These findings also contribute to the growing body of literature investigating social identity processes in small groups. Social identity theory is generally associated with research on the effects of minimal group paradigms or relations between large groups that differ along social category dimensions (e.g., race, gender, etc.). However, some scholars have used social identity processes to explain how interaction among members of small groups can create a sense of shared identity (e.g., Hogg et al., 2004; Postmes, Haslam et al., 2005; Postmes, Spears et al., 2005). The present research corroborates the idea that group member interaction is an important component of identity formation, in that groups that experienced lower levels of interaction in the course of boundary work (i.e., those taking an outward-bound approach to external activities) were less likely to share a strong group identity than those experiencing higher levels of interaction (i.e., those taking an inward-bound approach). However, it also extends research in this area by applying inductive identity formation processes (i.e., shared identity created via group member interaction) to situations involving

people outside the group. Specifically, outsiders who come in to share information with group members in the course of boundary work can prompt intragroup communication regarding shared identity. This happened in at least one of the senior leadership team meetings in the preliminary field study, during which a marketing presentation by two outsiders spurned a discussion of what made the team unique.

Finally, the theoretical contributions of this work are strengthened by the variety of research methods used to investigate the relationships between boundary work, group identity, and group effectiveness. Several findings converged across studies that included qualitative and quantitative methods in both field and experimental settings. Therefore this research provides compelling evidence that inward boundary work is not only a common phenomenon for organizational groups, but also a consequential method of interacting with external stakeholders.

Practical Implications

Beyond contributing to academic literature on small group effectiveness, this research highlights key practical implications for managers of organizational work groups. For instance, it suggests that managers should be aware that the ways in which they and their group members interact with external stakeholders can affect members' assessments of shared group identity and satisfaction with the group. Specifically, sending members out individually to get information from external stakeholders could potentially threaten the group's shared identity by fragmenting the members of the team. Though a number of factors certainly affect the feasibility of choosing an inward- versus an outward-bound approach to interacting with outsiders, when both are possible managers may find an inward-bound approach beneficial for the solidarity of the group. For example, bringing outsiders in to provide members with information, resources, or support enables group members to share the experiences of that external interaction. In

so doing, they spend additional time together and develop a greater shared understanding of the outsider's perspective.

The decision to engage with external actors by sending members out individually or by inviting external actors to team meetings may also depend on the current level of shared group identity in the team. This research shows that people have implicit theories about how boundary work will affect the group's identity, and that a weak shared group identity corresponds to a preference to bring outsiders in when external information is needed. A group with weakly shared identity may be particularly threatened by an outward-bound approach, and members of groups such as these should benefit from inviting outsiders in to provide information or support. In contrast, groups with strong shared identity may be better positioned to use an outward-bound approach. While it could threaten group identity with extensive use over the long term (Ancona & Caldwell, 1992a; Sundstrom & Altman, 1989), an outward-bound approach may be more effectively managed by groups with a strong shared identity.

In summary, managers should consider their group's shared identity when making choices about interacting with people outside the group, and be aware that the chosen method of boundary work can subsequently affect the group's identity and member satisfaction. Consideration of group members' needs for shared experiences and solidarity when interacting with external actors can clarify these choices.

Limitations and Boundary Conditions

In spite of the theoretical contributions and practical implications of this work, this research includes several limitations and boundary conditions that warrant further discussion. Specifically, there exists a potential confound between the direction of the boundary work and the participation of the group's members, which means that this research is unable to pinpoint the mechanism behind the study results. Also, the study

data are not able to fully elucidate the temporal dynamics of the relationships between boundary work, satisfaction, and performance. Finally, the conclusions presented here may only be relevant for groups in which both inward an outward boundary work are possible (e.g., considering power dynamics in relation to outsiders) and for groups with clear boundaries and full-time membership.

First, there exists a possible confound between the direction of the boundary work (i.e., inward versus outward) and the participation of the group's members (i.e., individual or group-based participation). Outward boundary work is often conceptualized and measured as one or more group members going outside of the group's boundary to interact with external actors individually. However, it is possible that group members could go outside of the group's boundary as a group to interact with outsiders together. For example, an entire group could go out to perform site visits with potential vendors, or subgroups could go out to observe quality control procedures used in other groups. Further, it is also possible that an inward-bound approach could involve outsiders coming in to work with one particular individual in a group and not the group as a whole. For example, a consultant could come in to work solely with an individual systems analyst on an Information Technology team while the remaining IT team members have little to no contact with the consultant.

These possibilities highlight ways in which the direction of boundary work (outward versus inward) is separable from the participation of the group's members (individually versus together), whereas this research conceptualized them jointly. Therefore, this work cannot explain whether the study results are attributable to the difference between group members going out versus an outsider coming in or due to the difference between group members performing boundary work separately versus together. If participation rather than direction is of primary importance, for example, groups engaging in outward boundary work as a group or in subgroups could also

experience strong shared group identity and satisfaction through these shared experiences. Indeed, going out as a group could heighten the sense that members are 'ambassadors' representing the group to outsiders and so strengthen their feelings of shared group identity. Therefore, future research is needed to articulate these dynamics and highlight which mechanism is primarily responsible for the effects of boundary work method on shared group identity presented here.

In addition, the data presented here cannot definitively explain the temporal relationships between boundary work, satisfaction, and performance. While the experimental studies and the longitudinal field study can shed light on some temporal dimensions related to this research (e.g., how initially weak shared identity leads to the preference of inward-bound over outward-bound approaches to boundary work), the inconsistent direct effects of boundary work on satisfaction and performance may indicate that temporal dynamics are at play among these factors. For example, recall that there was a negative effect of outward boundary work on individuals' perceptions of satisfaction in the experimental studies, but there was a positive effect of outward boundary work on satisfaction/viability in the MBA study groups (after members had worked together for nine months). It is possible that outward boundary work may initially lower satisfaction but later restore it as groups reap the performance benefits of tight coordination with external stakeholders (Ancona, 1990; Ancona & Bresman, 2007). Unfortunately, the MBA study does not include data regarding boundary work activities at Time 1 or performance at an interim time period, which would help rule out or substantiate this explanation for the results. The relationships between boundary work, satisfaction, and performance may thus be temporal, and future research should assess all of these factors at different time periods to test this idea.

Next, it is important to point out that this research primarily applies to groups for which both methods of boundary work are viable options. Specifically, the power of

the group relative to the outsiders with whom they interact may dictate whether or not groups have the opportunity to engage in inward versus outward boundary work. Power can be defined as influence over others' resources or outcomes (e.g., Emerson, 1962; French & Raven, 1959; Keltner, Gruenfeld, & Anderson, 2003), and is generally associated with people and groups of higher status in organizations (Magee & Galinsky, 2008). For example, the senior leadership teams clearly had the power to invite outsiders to their meetings to present or discussion information. In contrast, the student groups in the longitudinal field study may not have had enough power to engage in inward boundary work with certain individuals. While students from other groups or peers with the same level of power (i.e., similar status and/or control over resources) may have come in to exchange information with those groups, people with higher power (e.g., professors) may not have had the time or inclination to meet these groups on their terms. The idea that inward-bound activity is associated with high-power groups also suggests another potential mechanism for the results presented here. Bringing outsiders in may reinforce group members' feelings of collective high status or power over others, which could enhance their sense of shared group identity (cf. Ellemers, Kortekaas, & Ouwerkerk, 1999).

Finally, the current studies focused on groups with relatively clear boundaries and full-time group members. Yet scholars have increasingly noted that groups such as these are not necessarily the norm in modern organizations. For example, Mortensen and Hinds (2002) show that group members often fail to agree about the membership of the group, even when they are traditional in the sense of being collocated versus geographically distributed, and that this disagreement can negatively influence members' awareness of the expertise within the team and the team's performance. In addition, teams can have both 'core' and 'peripheral' members (Humphrey, Morgeson, & Mannor, 2009), such that some members have a more substantive role whereas

others come and go depending on project needs (Ancona & Bresman, 2007).

Therefore, the findings of the current study will need further examination in teams with fuzzy boundaries and shifting membership. For example, teams with fuzzy boundaries may have a weak sense of shared identity (cf. Lickel et al., 2000) and may especially benefit from inward boundary work when interactions with outsiders are necessary. Indeed, shared group identity can help non-traditional groups (e.g., distributed teams) manage intragroup conflict (Mortensen & Hinds, 2001), and thus shared group identity may also be especially important in managing external activities for these types of groups. Moreover, groups with shifting membership may be able to engage in outward boundary work with little denigration of the group's shared identity if peripheral members act as boundary spanners on behalf of the group. These members are less likely to be seen as 'prototypical' or 'established' members of the group (Hogg & Terry, 2000; Moreland, 1985) and thus differences in shared experiences between these members and other group members may not be as detrimental to perceptions of shared group identity as when core group members experience different events in the course of outward boundary work. In short, future work should consider the nuances that shifting boundaries and temporary membership bring to the theory presented here for a more complete picture of the relationships between boundary work and shared group identity.

Future Directions

Beyond the areas for future research revealed from these limitations and boundary conditions, this research also raises a number of unanswered questions to be addressed in future research. Namely, the comparison of inward- and outward-bound approaches to external activities invites speculation about what antecedents predict the choice of one method over another, what factors might moderate the relationships

between boundary work methods and group effectiveness, and which mechanisms are most likely to explain the relationships between boundary work method and shared group identity.

Antecedents. First, though this research showed that shared group identity is one antecedent to choice of boundary work method, what other factors might cause group members to choose an inward- versus an outward-bound approach? Factors related to the team itself, such as intragroup trust or whether or not the group has a designated leader, as well as those related to the team's task, such as the stage of the project or timing of deadlines could affect this choice.

For team-related factors, trust, or more specifically lack of trust, may cause members to choose an inward-bound method over an outward-bound method. Trust involves an element of risk-taking in a relationship, where one party is willing to be vulnerable to the actions of another party (Mayer, Davis, & Schoorman, 1995). Since outward boundary work entails dependence on individual group members to act on behalf of the group, trust may be an important condition of sending group members out for information. Indeed, a member of one of the hospital senior leadership teams had this to say about trust in outward boundary work: "The moment that I give biased data, because I want them to go one way or another…that changes the whole decision making. The trust is thrown out the window. They're relying on me to collect the information they need so they can make the best decision for all patients served". Until a group has this level of trust, however, members may see value in bringing outsiders in to provide information as an alternative to outward boundary work.

In addition, the designation of a group leader could make outward boundary work more appealing than inward boundary work. Leaders are often seen as liaisons between their groups and the rest of the organization (Druskat & Wheeler, 2003), and

thus outward boundary work may be seen as part of the leadership role. Groups in which leadership is shared among peers, however, may find that allocating boundary activities to one individual could be status differentiating or threatening to the shared identity of the group. Indeed, individuals who span boundaries on behalf of their groups receive more status and power than other group members (Aldrich & Herker, 1977), and thus members of peer groups may prefer to share the experience of boundary work using an inward-bound method. Therefore, the structure of the group could dictate the methods of boundary work that group members choose when interacting with outsiders.

Aside from team-related factors, task-related factors could also influence the choice of boundary work method. For example, project stage could dictate the use of inward versus outward boundary work. Like the scenario based on the experience of a snack food product development team, an inward-bound approach might be particularly useful to get broad ideas about the scope of a project or landscape of the market during early stages of the task. Inviting an expert to provide new knowledge in initial project meetings could enable group members to brainstorm with other group members as well as with the outsider (cf. Osborn, 1963). On the other hand, inward boundary work might be more appropriate when a group encounters problems or issues in the middle of a project. A hospital senior leadership team member discussed this type of situation when describing why their group would invite an outsider in versus sending individuals out: "Once we get [something designed], then [we'll] bring [someone] in to say, '[we're] having trouble with this piece, what would you do different?'". Other research has suggested that certain project stages coincide with group members' willingness to interact with external stakeholders or their openness to new ideas from those stakeholders (Ancona & Chong, 1996; Gersick, 1988; Marks et al., 2001). However, future research could examine the influence of project stage on *how* group members interact with outsiders to get new information.

Finally, deadlines and time pressure could dictate the choice of boundary work method. If groups require a large amount of external information to achieve team goals and are operating under tight deadlines, outward boundary work will be a more efficient way of performing the task. Since inward boundary work involves everyone in the group, this method is necessarily slower than outward boundary work. Though inward boundary work may help members more effectively coordinate external information, groups may simply not have the time to gather all the external information they need using this approach.

Describing these potential antecedents to choice of boundary work method highlights an important caveat to the research presented here on inward boundary work. That is, while an inward-bound approach may be one way to balance internal and external activities in groups, it should not be viewed as a panacea for effective group work. An inward-bound approach can be a viable option when groups need outside information; however, that is not to say that more inward boundary work is always better. Even with this approach it may be possible to engage in too much boundary work at times when the group should avoid working with outsiders, such as when the group needs to manage intragroup conflict (cf. Behfar, Peterson, Mannix, & Trochim, 2008) or improve efficiency in task execution (Sawyer, Guinan, & Cooprider, 2010). Further, an outward-bound approach could more positively predict task performance than an inward-bound approach in certain situations, as in the example of groups requiring large amounts of external information in short timeframes or when groups are relatively homogeneous and so could benefit from gaining a greater number of external perspectives through outward boundary work. Thus inward boundary work represents one way to balance internal and external activities, but its relationship to group effectiveness outcomes may also be contingent on a number of factors.

Moderators. In this research, inward boundary work had positive relationships with multiple measures of group effectiveness, including group satisfaction and viability as well as task performance. However, these relationships could be strengthened or attenuated depending on other contextual factors, such as the importance of the external information, the type of team, boundary work activity or task, or the degree of choice in external information exchange. In addition, the content as well as the sharedness of a group's identity could be relevant to these group effectiveness outcomes. Finally, a consideration of the pitfalls of inward boundary work could also extend this research.

First, the importance of the external information could render inward boundary work even more crucial for group effectiveness. If a shared understanding of the information is critical to the group's task, for example, inviting external actors in to group meetings could help members share and process that information more effectively than sending individuals out to get the information and transfer it back to the group. Further, the inward-bound experience would not only help members share an understanding of the external information but also provide them with satisfaction regarding the process (Swaab et al., 2002). In contrast, sending one individual out to gather important information may exacerbate power differences and distrust among members (Gruenfeld et al., 2000). If the external information required by groups is of less importance to the task (or is a piece of information that takes minimal time and judgment to acquire), however, inviting outsiders in could prove to be detrimental to performance or member satisfaction, as it could be viewed as a poor use of group member time and expertise.

Second, using an inward-bound approach to interacting with external stakeholders could be especially important for cross-functional project teams, which are composed of heterogeneous individuals in part for their access to diverse networks

(Milliken & Martins, 1996). These teams generally have high communication with people outside the team (Ancona & Caldwell, 1992b; Drach-Zahavy, 2011), presumably as individual members network with outsiders associated with their functional areas. However, group members who are highly diverse often have trouble reaching common understandings and tend to communicate with one another less than do homogeneous group members (Williams & O'Reilly Ill, 1998). Divergent points of view in combination with a potentially low level of intragroup interaction associated with outward boundary work may heighten the challenges these group members face in utilizing task-related information and converging on a shared group identity. Given that an inward-bound approach can promote a shared group identity and potentially the shared understanding of task information, this method may be particularly useful to cross-functional project teams when it is possible to apply it in this context.

Next, the nature of the task may influence how boundary work method affects shared group identity. Specifically, if the task itself is highly linked to individual boundary spanning behaviors on behalf of the group, then outward boundary work may strengthen rather than threaten shared group identity. For example, members of groups at IDEO, a global design firm, are encouraged to go out individually to meet people from disparate groups in order to cross-pollinate ideas between groups (Kelley, 2005). Outward boundary work is thus central to their task and identity as an IDEO design group, and the more the group performs outward boundary work the more members are engaging in activities that make them 'who they are' as an IDEO group. In other words, if going out to connect to others in the organization is of prime importance to the meaning of the group, then outward boundary work could be positively rather than negatively linked to shared group identity formation.

In addition, the choice of whether of not an external actor comes to the group meeting could be an important predictor of group satisfaction and viability. If members

have little control over whether outsiders come to group meetings, and inward boundary work of this sort happens frequently, members could actually be less satisfied as a result of inward boundary work. Sundstrom and Altman (1989), for example, argue that work group viability depends not only on environmental support but also territorial control. Thus overly permeable boundaries, as might exist if members have little choice to engage in inward boundary work, could threaten the entitativity or shared identity of the group (Campbell, 1958), leading to worse outcomes for group members.

Moreover, different types of boundary activities may moderate the relationship between boundary work method and group effectiveness. Ancona and Caldwell (1992a) found that certain boundary work activities, such as representing the group's interests and coordinating tasks with other groups, mattered more than other activities for group effectiveness. The research presented here considered boundary activities generally, but it is possible that different boundary work methods are more appropriate for different types of boundary activity. For instance, inward boundary work may be most effective when scouting for information and coordinating tasks whereas outward boundary work may be most effective when performing ambassadorial activities. A member of one hospital senior leadership team described how an outward-bound method can be particularly useful when it is used to gather support from others in the organization, for example. He said, "We know what buttons to push outside of the operating group to get things done. I know whose office to walk into. I don't just come with my hand out for everything. We've vetted it out in our group and now we need you to sign the check. That has been pretty effective." Thus future research could investigate the moderating role of boundary work type on the relationship between boundary work method and measures of group effectiveness.

Next, in viewing boundary work through an identity lens I have considered the degree to which members share a conceptualization of the group's identity to explain

why boundary work methods have different effects on group satisfaction and viability. However, it is possible that the particular content of the identity could moderate the relationship between boundary work method and group task performance. While a relationship between the sharedness of an identity and task performance is less clear, having a distinct identity can help the group garner necessary resources and support from top management (Ashforth & Mael, 1989). However, as stated previously, the particular categorizations of the group's identity are likely to be relevant here. In related work, Postmes, Spears, and Cihangir (2001) studied the influence of specific group norms on task performance (i.e., group decisions). Groups with a specific norm of consensus performed worse than groups with a specific norm of critical thought, which suggests that the properties of an identity shared by a group could affect the processes related to the group's task. Thus future research on boundary work method and identity could examine the categorizations of group identity as well as the extent to which members feel this identity is shared.

Finally, a consideration of the risks an inward-bound approach could pose for group effectiveness is warranted. For example, outsiders who come in to the group may have even greater influence over group decisions than outsiders consulted using an outward-bound approach in that more group members come to a shared understanding of the outsider's point of view (versus having the outsider's information filtered through a member of the group). As such, outsiders who give biased information may be able to sway the group into making suboptimal decisions. In addition, given that people are prone to seek out information that confirms pre-existing beliefs (Nickerson, 1998), groups may invite outsiders in who are sympathetic to their views or causes rather than outsiders who have different opinions. A hospital vice president alluded to this possibility when discussing why his group invites outsiders in. He said, "we're the ones that are driving it, we command, sort of, we're all on same page so we're a driving

force…people recognize that...[They think], 'I've got VPs here, docs that are chiefs of staff, this is serious stuff. This is something I have to pay attention to and I have to do'". This quotation also hints that outsiders may feel pressure to provide information that they feel will be accepted by the group, perhaps especially when the group is at a senior level of the organizational hierarchy.

In short, considering the moderators of the relationships between boundary work method and group effectiveness outcomes could further explain when an inward- versus an outward-bound approach is likely to be effective and when it would carry risks for organizational groups. Another next step, however, is to isolate the underlying mechanisms that explain the effects of boundary work method on shared group identity discovered in the present research.

Mechanisms. In this research, inward and outward boundary work methods were shown to have opposite effects on shared group identity, though the mechanisms through which this happens require further empirical support. The findings from Scenario Study 1 suggest that the dimension of group identity formation most clearly related to boundary work was shared experience, operationalized as group entitativity. An important next step in this research is to determine whether interaction time itself or sharing the experience of interacting with the external actor is more explanatory of this result. Sharing the experience of interacting with the external actor is a plausible explanation for facilitating shared group identity, given past research findings that social comparisons influence identity judgments (Bartel, 2001) and that shared meaning develops from hearing external information together as a group (cf. Swaab et al., 2002).

However, results from Scenario Study 1 failed to show that mechanisms related to the external actors (i.e., salience of the group boundary or social comparisons) were significantly different between boundary work methods. It may be that these routes to

group identity formation are less important than those that are more inductive (Postmes, Haslam et al., 2005), or that the implicit nature of these mechanisms is more difficult to measure (particularly in a scenario study). A possible implication of this result is that groups performing outward boundary work could mitigate any threats to shared identity by spending more time together in other ways. Yet time is a limited resource (Choi, 2002), so even if interaction time is the primary driver of the relationship between boundary work method and shared group identity, enabling simultaneous intra- and extra-group interaction through inward boundary work would be beneficial to groups. Future research should thus examine the various dimensions of group identity formation (shared experience as time together versus time together with an external actor, salience of the group's boundary, and social comparisons with other groups) using group-level experiments and in indirect ways to further test the theoretical mechanisms presented here.

Conclusion

The purpose of this research was to examine the ways in which groups perform boundary work as well has how these methods affect group identity and group effectiveness. Four multi-method studies reveal several important findings that contribute to literature on small group effectiveness. First, groups can and often do approach interactions with outsiders in an inward-bound fashion, by inviting outsiders to provide information, resources, or support to the group as a whole. Next, in contrast to an outward-bound method, inward boundary work strengthens shared group identity, which positively predicts group satisfaction and viability. Moreover, boundary work method is reciprocally related to group identity, such that members of groups with weakly shared identity elect to bring outsiders in versus sending group members out individually. Finally, the combination of inward and outward-bound methods may have

positive effects on multiple measures of group effectiveness, including group satisfaction and viability as well as task performance.

While prior research implies a mutual exclusivity between internal and external group activities, this research suggests that there may be complementarities between these relationships when external actors are "inward-bound" such that group members share the experience of boundary work. These conclusions extend and open up new areas of inquiry related to the external perspective on small groups, and provide practical implications for work groups in organizations.

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Appendix 2.1: Hospital Senior Leadership Team Case Summaries

Pluto Senior Leadership Team – Case

I did not have the opportunity to observe the Pluto senior leadership team. I did, however, interview a group member to get more information about what they do and how they work together. From this interview, it seems the Pluto group is best characterized as being task-focused on operational issues, and having challenges with physician involvement and group conflict.

First, the group is focused on operational issues. A group member described their objectives: "To really look at how we can facilitate care across the continuum of services - inpatient, outpatient". The interviewee said it is a "big service area for both groups. We get patients from an extended service area, it's complicated in that. We work with core disciplines of medicine and radiation oncology but also surgeons' groups…. how we can provide different services that meet their patients' needs given that they are different. The [diagnosis] patient, [diagnosis] patient, [diagnosis] patient all have different needs. Yes, they all have [diagnosis], but how the [diagnosis] works with them is different in terms of complications, more or less anxiety". The interviewee discusses the operational/strategic nature of their tasks: "We have been more focused on operational in [the] last year….key problem areas…physician recruitment and attention issues - those have been more of core things. Not so much the strategic piece." This is corroborated by the survey data, which shows that the group prioritized day-to-day operations as their number one concern and spends about 65% of meeting time on operational issues.

In addition, this group seems to have difficulty involving physicians and/or getting them to think broadly about issues. Pluto holds a monthly meeting but only a couple of physicians attend. A group member told me that when this issue happened for

[Mercury] they disbanded the meetings, but for Pluto "we have to do it - it is my committee for accreditation." The survey data showed that group members had a lower sense of group identity (group mean = 4.0) than the average senior leadership team (cohort mean = 4.95). The group also engages less with external stakeholders than do other groups (external communication: group mean = 4.38; cohort mean = 5.7).

The interviewee also thought the physicians who were involved were focused on their own individual issues. "Dr. [Name] is not that type of person. [He] can get a little more fixated on his group rather than thinking of all of the community physicians…[I] have to refocus [him] a little bit and subtly remind him for all physicians we work with." The survey data also indicated that this group experienced more relationship conflict than the average senior leadership team (group mean = 2.88; cohort mean = 2.64).

In sum, the group would seem to be focused on operational issues and struggling with physician involvement. (However, it is possible that the group has a structured process given that the leader is the same person who leads the [Mercury] group. I did observe the [Mercury] group and in an interview the leader said, "[The two groups are] similar in terms of how I run the meeting. I'm the one that does this. I set the agenda and if there are topics I know of I set them down.")

Neptune Senior Leadership Team – Case

I did not have the opportunity to observe the meeting of the Neptune senior leadership team. However, from the interviews I was able to learn about what they do and how they integrate with other groups. This group seems characterized by three issues: operational task focus, a physician-driven agenda, and lack of physician motivation.

First, the group is focused on operational issues. In an interview, one group

member described the operational task focus of the group: “Some of both, but the majority ends up being operational”. He gives the example that they are “working right now on an urgent care system which can be a feeder for [hospital area] and how those work together”. They are “working through the performance, [trying to] determine strategically should these stay under the clinic side [or] move those to the hospital side.” Similarly, the leader of a different group described working with the Neptune group to address operational issues regarding patient flow. “Yes. As an example, when we are having difficulty with getting patients from [hospital area] to [hospital area], we would then interact with the [Neptune] senior leadership team.” He says they [the Neptune group] often initiate this interaction “'cause they’re feeling it”. The survey data showed that this group spends more time on operational issues than any other group (74% of meeting time).

Next, the group is characterized by a physician-driven agenda. Though the administrators often create the agendas for the meetings, the issues are primarily driven by physician concerns. A group member said, “As far as objectives, that’s been part of the challenge with that group. The physicians are focused on their areas and their issues. [It has been a] difficult group to pull together and have meaningful discussion, especially as intended”. He said the “conversation ends up being around quality of life for the physicians. It’s less strategic and more, ‘What are we doing to help us today?’”. The survey data corroborated that this group has a relatively low group identity (group mean = 3.4) compared to other senior leadership teams (cohort mean = 4.95) and showed that physician engagement emerged as this group’s number one priority among several other tasks (e.g., strategic planning, business development, etc.). In addition, this group scored higher than average on relationship conflict (group mean = 3.6; cohort mean = 2.64), which could be a reflection of each physician thinking about his or her own issues as stated above.

Finally, a group member described a general lack of motivation among physicians to participate in the senior leadership team due to the nature of their specialty. "The make up of the physicians is very different. For [disease-state specialists], their world… [it's an] eat what you kill kind of world. If they're not working hard, they're not making money. When they sit down, [they think about] how they can improve operations. [Hospital area] docs do shift work. When the clock goes off I'm going home. If these patients don't come back tomorrow that's ok, that makes my shift better. It's more difficult to get [hospital area] docs to come to the table to make process improvements." An administrator said that he has tried to get physicians more involved in operations through selected agenda items. He said "the leadership team was a catalyst for significant change in compensation for [hospital area] physicians" and that this "was driven from myself because I wanted to deepen their engagement in operations". This lack of involvement is also evidenced in low survey scores of external communication, or interactions with external stakeholders (group mean = 4.15; cohort mean = 5.7), and coordination with other senior leadership teams (group mean = 3.73; cohort mean = 4.54). However, it is also evidenced in low scores across the board of group dynamics variables.

Mars Senior Leadership Team - Case

From observations, interviews, and survey data, the Mars Senior leadership team seems to be characterized by frustration and inaction, physician-dominated interaction, and group conflict.

First, the Mars senior leadership team meeting revealed a great deal of venting but also inaction. Specifically, they spent a lot of time venting frustration but not thinking about ways to deal with the challenges they faced. When someone mentioned an idea to move things forward, this idea either went unacknowledged or was not taken

much further than its original statement (e.g., one doctor suggested they get all parties involved together but others did not necessarily take this idea further or come up with a plan to do so). There also didn't seem to be a lot of clarifying questions from both sides. For example, when a physician expressed frustration from a particular experience, an administrator responded by suggesting they get the CEO to the meeting rather than asking the physician what he meant by statements like "the system is broken" and how he thinks they, as a group, could fix it. However, in an interview the administrator also seemed frustrated and vented similar concerns. For example, he said, "A really progressive organization could find a way to empower these groups and collectively manage them without trying to force them through the old paradigm of functional hierarchical leadership structure." Another group member said there is a "high level of frustration among those who attend that there is no meat". The survey data supported this observation in that this group scored lowest on the measure of autonomy and below the mid-point of the scale (group mean = 3.86), whereas the cohort of senior leadership teams scored above the mid-point of the scale (cohort mean = 4.91).

Ultimately, the meeting did not result in actions to address these or other issues and the meeting process was inefficient at times. Twice during the hour, an administrator passed out documents for all parties to edit. It seemed that they had not been previewed prior to the meeting, and perhaps could have been passed around ahead of time to streamline this process. Further, this group scored lower on goal clarity (group mean = 4.21) than the overall cohort (cohort mean = 4.46). Taken with the survey findings for autonomy, this implies that members are less clear about their goals and feel less able to control the work that they do than members of other operating groups.

Next, there seems to be unequal participation and/or physician-dominated

interaction in this senior leadership team. For example, one physician dominated the discussion during the meeting, with other physicians and an administrator also occasionally contributing to the venting session. At least two members hardly said anything during this meeting, and much of the meeting was dyadic interaction between one administrator and one physician. This administrator seemed to be almost taking dictation from the physicians on several issues, such as how to improve one of the group's documents, for example. After analyzing the content of observational codes, it became apparent that the interaction was dominated by physicians 50% of the time. This lack of balanced participation is also indicated by the group mean score on items assessing procedural justice (e.g., how much 'say' each person has in the group's activities). This group had a procedural justice score of 4.46 versus the average score across senior leadership teams, which was 5.09.

Finally, results suggest that the group may experience frequent conflict episodes. During the meeting, for example, the team seemed to be characterized by a strong administrator/physician divide. Members sat around the table in groups of three facing one another (three physicians on one side, three administrators on another side). However, from the interviews it became apparent that there is a perceived clinical side/hospital side divide. One group member suggested that the reason people come to the meeting is because it "gives them a good opportunity to vent. At least we have a venue to air issues with [the] hospital VP." After the meeting, an administrator told me that he feels "like the head of a bowling pin at these meetings". Not surprisingly, the group scored higher than average on items assessing relationship conflict in the survey (group mean = 2.88; cohort mean = 2.64).

Uranus Senior Leadership Team - Case

I did not have the opportunity to observe the Uranus senior leadership team, nor

did I interview anyone listed as a member of the group. However, several people from other groups mentioned interactions with the Uranus group and so I can piece together some information from those interview statements. In addition, the survey data gives an indication of how they view the group and how they are viewed by the Executive Council. The Uranus group was rated as an effective team by members of the Executive Council. Three elements may contribute to such effectiveness: communication with external stakeholders, balanced participation among members, and low group conflict.

First, the Uranus group seems to have a high degree of interactions with people outside the group. The survey shows that they score higher on external communication (group mean = 6.31) than the average senior leadership team (cohort mean = 5.7); further, this communication is largely due to inviting outsiders to team meetings (inward-bound information search = 6.63 versus 5.76 for the cohort). This is corroborated from the interviews, in that several people mentioned working with the Uranus group to get tasks accomplished. However, members of other groups did feel that the Uranus senior group is reluctant to work with other groups but will do so when the task clearly affects their area. This is difficult to verify without also having interviewed a member of the Uranus group or observed them, but it could mean that the Uranus group's external communication is reactive versus proactive.

The Uranus group's reluctance to work with other groups was mentioned by members of the Mars group, the Pluto group, the Mercury group, and the Neptune group. A member of the Mars group said, "Without a seat at the table I can't do jack. So many of the programs I'm creating are so critical to be championed by primary care physicians. We're looking to them to oversee and run these programs…want them to feel they are their programs. They cancelled three meetings and finally I said, 'this is ridiculous, I just can't get through to this group'. I launched the programs and they came out of the wood work." He continued that he gave the ultimatum that they would

be “Either working with me or working against me.” The [Uranus] group said, “Ok, ok we’ll talk to you. They gave me seven minutes at a meeting. Somebody’s got to intercede and say this is not the way to do things. I should not have to fight my way into them.”

A member of the Neptune group discussed a similar issue, “One instance where we reached across to another group had to do with flow. We had a policy in place that required us to hold patients in the [hospital area] who had admitting orders until a [medical specialist] came to the [hospital area] to see those patients. Keeping patients in the [hospital area] longer backs up the process. Eventually we were successful working with the [medial specialists] through the [Uranus] group.” However, this person said the Uranus group did this “quite reluctantly” so he would “stop short of saying it was successful... [it] really required some leveraging to get the right thing done, so to speak. We met with their group, presented the issues at hand, got them to concede to establish a policy no longer holding the patients”. The interviewee continued, “when we went to Executive Committee, the [Uranus] group had a representative there in support of that change”.

The members of the Mercury and Pluto groups alluded to challenges but also suggested they were somewhat successful in working with the Uranus group. A member of the Mercury group said, “[the] MAP study challenged [the Uranus] group” and that was how they saw the need for the Telestroke idea integration. A member of the Pluto group described discussing patient screening with the Uranus group. This person said, “There has been a couple of times we met with the medical operating group to talk about what patients…from a primary care physician perspective, what does it mean to work up a [diagnosis] patient? Looking at that, giving information and resources. Patients were presenting in [disease state area] and they weren’t worked up…not appropriate referrals.” The interviewee said it was “Led by our group as we

want to sit down and talk about this issue we're seeing and what can we best do. Dr. [Name] was the key presenter. [It was a] good discussion in general about [diagnosis] patients…in general, what should the referral mechanism be." The interviewee continued, "Opened up the eyes of the [medical specialty] leaders. We do need that. Went into a whole thing….other outcome [was] partnering to look at screening. What are we doing with screening programs? Our goal is to get out into rural communities. We needed the [Uranus] group to tell us where they thought we should do this…. [we would be] working in tandem with that practice to promote it. Provide basic screening and follow up, [patients] get into the system to get followed up. That didn't work as well. The concept is still there. In terms of getting a definitive yes go to these communities – we are continuing that work on our own."

In spite of this, the Uranus group also seems to enjoy a sense of balanced participation among group members and a low level of group conflict. For example, the group's score on procedural justice, or how much 'say' group members have in the group's activities, was 5.88 versus 5.09 for the cohort. Relationship conflict was also low, with the group scoring 1.06 versus 2.64 for the cohort.

Mercury Senior Leadership Team - Case

From observations, interviews, and the survey responses, the Mercury senior leadership team is best characterized as having a strong identity, focusing on tasks, and enjoying balanced participation but with inspiration from the physician leader.

This group was one of the most attuned to their identity and entitativity as a group. When I first walked in I was told that "this is the fun group" and another person was explicitly reminded about group norms "you know in this group you have to take it a little bit". This group scored highly on the survey items assessing group identity, with a group mean of 5.8 versus the average senior leadership team at 5.0. In addition, the

high degree of task conflict I observed in the meeting did not seem to turn into relationship conflict even when one group member called another a pessimist, perhaps showing the high level of comfort the group members have interacting together. Indeed, this group scored higher than average on task conflict (group mean = 6.1, cohort mean = 5.6) but lower than average on relationship conflict (group mean = 1.9, cohort mean = 2.6). Ultimately, members seem proud of their group. In an interview, one member suggested that this group has always "operated as intended" whereas other "groups [had to have a] structure built in to get that done".

The Mercury senior leadership team is primarily task-focused and motivated to discuss task-related issues. For example, they spent much of their meeting going through detailed DRG (diagnostic related groups) reports to identify ways in which they could reduce costs and streamline routines. Most of the interaction was task-related discussion, task-related Q&A, or task conflict. In an interview, a group member also highlighted this task-focus as being very effective for them. "We seem to get some things done [such as] getting programs started and people hired and community education done and outreach clinics set up…feels like that has been a result of the relationship we have – [Name], [Name], myself and [Name]. We know what buttons to push outside of the operating group to get things done." The survey data corroborates this communication with external stakeholders in that this group scored higher than average on interactions with outsiders (group mean = 6.3, cohort mean = 5.7). They also seem to feel a strong sense of goal clarity (group mean = 5, cohort mean = 4.5), particularly for strategic planning. They spend the majority of their meetings discussing strategic planning (over 60%), and one member agreed that their focus is strategic: "I see it as strategic. Most of the operational stuff we leave to the non-MDs…[that] seems to be more efficient for us." The interviewee added, "strategy and vision sum up the operating group".

The meeting process was semi-structured in that the leader was very explicit about the meeting purpose and the steps the group should walk through during the meeting but there was also some disorganization among group members. For example, several group members were coming and going for missing documents, telephone pages, side meetings, etc. These interruptions made the process less structured than it could have been. However, group members were constantly talking through steps they needed to go through in the meeting to accomplish the task, effectively keeping people on track with the meeting content.

The Mercury group has an interesting combination of balanced participation and reliance on the physician leader of the group. Paradoxically, all of the members participate and yet the physician often inspires and leads their efforts. For example, the group had relatively balanced participation during the meeting (27% leader, 35% physician, 38% members) and has the lowest ratio of physicians to administrators of any senior leadership team (25% of group membership). Group members also indicated on the survey that they have a strong sense of procedural justice, or that they have a 'say' in their group's activities (group mean = 5.3, cohort mean = 5.1). However, at the same time there seemed to be a high reliance on the physician representative for direction. For example, during the meeting the leader explicitly stated that she wanted to wait for the physician to return to the meeting to explain a particular DRG code and group members effectively waited to do anything until then. (Incidentally, the answer he gave was incorrect in the leader's opinion, which ultimately led to some task conflict.) In an interview, one member said, "[Name] is our champion, [especially with] community outreach – this makes us effective". The leader also confirmed this when comparing the group to that of another senior leadership team, "The big difference is that [Name]…just his passion, he is the visionary."

Earth Senior Leadership Team - Case

The Earth senior leadership team was highly task-focused, though inefficient in process at times. The majority of the interaction revolved around task discussion, task-related questions, or proposed actions. For example, the group tackled issues like choosing vendors to provide equipment in the new hospital and how to deal with problems around mid-level care providers issuing orders for pain medications.

Much of this task discussion was actually with outsiders who visited the group to contribute information or coordinate tasks. For example, two nurse administrators joined the meeting to provide information about the pain medication issue and they, together with one of the physicians, proposed a solution for the issue. In addition, members from marketing came to give a presentation about their current and future campaigns as well as to solicit feedback about how they can tailor their efforts to help the Earth leadership team. After this interaction, the members of the senior leadership team discussed the presentation from the marketing representatives using words like "they" and "we" when making sense of the interaction. In an interview with one member, it became clear that outsiders are more likely to come to this group's meetings because of the time they are held: "…it is easier to come to a 5pm meeting than a 6am meeting." The survey data also support this notion, in that this group has higher than average communication with people outside the group (group mean = 6.4; cohort mean = 5.4), both by inviting outsiders in and by sending group representatives out for information.

Their progress on these task-related issues did not come without a cost - the meeting ran an hour and a half over the time scheduled. This, coupled with a late start and prolonged conversation without decisions, made the group's process somewhat inefficient. The leader did not take strong control over process, only directing the interaction 16% of the time, and often another member of the group would jump in to

summarize points or ask for a decision on an issue. When comparing this group's process to that of another senior leadership team, one member said, "[Earth] digresses much into other tangents…it's more stagnant" and "people kept adding things…there was no defined end...[the physicians had] no place to go but home afterward".

Finally, the group was characterized by openness and professionalism. The physicians, in particular, did not hesitate to voice concerns over task-related issues like how to implement a new template in the current IT system or how to deal with fragmentation among their group of physicians. The leader was also frank in expressing cynicism and/or concerns about issues. One member expressed this professionalism by describing how important it is to bring accurate information to the meetings, "The moment that I give biased data, because I want them to go one way or another, that changes the whole decision making. The trust is thrown out the window. They're relying on me to collect the information they need so they can make the best decision for all patients served". Again, these observations were corroborated by the survey responses, which showed that this group enjoys a strong group identity (group mean = 5.5; cohort mean = 4.9) and satisfaction (group mean = 6.9; cohort mean = 5.5).

Saturn Senior Leadership Team – Case

Data from observations, interviews, and the survey suggest that the Saturn senior leadership team is best characterized by a structured group process, balanced participation, and intra- and inter-group openness.

The Saturn senior leadership team necessarily meets virtually, since it brings together members from several different geographic regions. Despite this potential barrier to effective group process, however, this group did several things to make the meeting go smoothly and to use the time efficiently. First, the group leader took control of the agenda content and process to make the meeting progress rapidly. He moved the

agenda along even while inviting questions and comments from various people attending the meeting, which gave him a strong control over the group's meeting process. By doing this, the group was able to get through 11 meeting items in one hour. They also used "down" time effectively. When waiting for people to join the meeting, the leader had members review the previous meetings' minutes. This enabled them to start on time and not use part of the meeting to have people read over a document.

Through these and other mechanisms, the group was effective at encouraging wide participation. While the leader did drive much of the interaction (31%) in structuring the group's process, members contributed over 60% of the time. The level of physician participation was also much lower in this group than other groups (about 5% of the interaction). This may have been because there were many more operations representatives than physicians compared to other groups (physicians comprised just 30% of the group membership). When physicians did participate, it was almost as though they were consultants giving their opinion on parts of the agenda rather than driving the agenda or giving opinions on all parts of the agenda. When asked whether physicians play a strong role in the group, one group member said the participation is "balanced".

The Saturn group was also extremely open and courteous both with one another and with outsiders. For example, during the meeting people identified themselves and named others to whom they addressed questions or comments. This may have been an artefact of virtual communication, but it gave me the impression of respect among group members and professionalism in conducting the meeting. Second, members of the group expressed their feelings during the meeting, often using positive language when communicating their updates (e.g., "yahoo" "congratulations" "success") but also revealing their concerns (e.g., "nervousness" about disclosing the budget). In an interview, one group member said, "We've really got people on the team that work well

together, communicate well together". Another way in which this group conveyed a sense of esprit de corps was by having their charge statement printed on their written materials (i.e., agenda). The survey data also shows this group enjoys a strong sense of identity (group mean = 5.0 out of 7.0).

Finally, this group is also open in that they invite external stakeholders to their meetings. The survey data show that this group does this relatively more often than other senior leadership teams (group mean = 6.5, cohort mean = 5.8). An interviewee was able to name over three specific examples of the group inviting outsiders in to share information or to work with them on tasks, highlighting the frequency with which this external communication occurs.

Jupiter Senior Leadership Team – Case

From observations, interviews, and the survey data, the Jupiter senior leadership team is best characterized by a strong task-focus on operational issues, informality, and balanced participation among members.

First, the meeting I observed was task-focused. The interaction was primarily task-related discussion including problem diagnosis, task-related questions, and proposed actions. The leader directed the task discussion, moving the group through different issues (e.g., room utilization, pre-operation process flows). The physicians contributed by diagnosing the problems (e.g., balance between [procedures] scheduled on Fridays and Sundays) and proposing actions to resolve the problems. Thus there was role clarity in how each type of representative contributed. This may be due to the goal clarity and autonomy the group experiences, both higher than that of other senior leadership teams (goal clarity: group mean = 5.9, cohort mean = 4.5; autonomy: group mean = 6.0, cohort mean = 4.9). One member attributed some of the groups' success to its frequent meeting schedule, "For the fact that they meet consistently weekly, surgical

is more evolved than other [senior leadership teams]." The interviewee also said the Jupiter group has the "ability to be nimble in decisions and move things forward."

The task-focused nature of this group seems to come from a preference for operational rather than strategic planning. For example, much of the hour was taken up debating the reasons why [procedures] were heavily scheduled on Friday afternoons and why they were not on Sunday mornings. I wondered if they could have moved on quicker in order to talk about other goals related to their operating group. For example, the market share report was given a cursory glance at the end, and though the data seemed less informative to them than for other leadership teams (e.g., it captured general procedures and not specialized procedures), it could have been the basis of a more strategic discussion. This focus on operational issues was confirmed by one of my interviews, in which the group member said that the senior surgical operating group focuses on "operations within the [Jupiter] departments….we also look at strategic planning but we do that once a year and complete a strategic plan." The survey data corroborates this by showing that this group focuses on day-to-day operations about 60% of the time.

The group is also characterized by openness and informality. For example, the feel of the meeting I observed was open and laid-back. The leader kept the atmosphere casual yet professional. For example, he was courteous in reminding members of previous decisions and asking for input on certain items (e.g., afternoon starts). He also directed the task-discussion and led the interaction about 40% of the time. The physicians also seemed to respect the administrative representatives. While they offered suggestions from the clinical side, they did not seem to be exercising power or influence over the administrators to get things done. For example, one physician asked if they could see about running a third room on Sundays rather than demanding to know this information or passing this problem off to the administrative representatives

alone. The survey data supported this idea, in that the group had the strongest group identity of any of the senior leadership teams (group mean = 6.5, cohort mean = 5.0) and members were relatively more satisfied than those of other groups (group mean = 6.9, cohort mean = 5.5).

Further, this group enjoyed balanced participation among members. For example, even though there were equal numbers of operations representatives and physicians and they sat on opposite sides of the table, there was not a strong subgroup divide. For instance, though the administrators sat on the same side of the table, there were several empty chairs in-between the two of them, which conveyed a sense of individualism rather than factionalism (similar example on physician side). During the meeting, there was a relatively equal contribution from these individuals (about 50% operational, 50% physician). They also scored higher than average on procedural justice items on the survey, measuring the extent to which group members have a 'say' in their group's activities (group mean = 5.8, cohort mean = 5.1).

Venus Senior Leadership Team - Case

Observations, an informal interview, and survey data reveal that the Venus senior leadership team is characterized by unstructured group process, physician-dominated interaction, and group conflict.

The Venus senior leadership team processes made it difficult for them to accomplish tasks at their meeting. For example, the meeting started thirty minutes late and ran over time, there was no agenda, and there were no formal beginnings, transitions, and summaries regarding items discussed in the meeting. An informal interview with an administrator afterward revealed that many of the group members had not seen the materials outlining the health center project (the main topic of the meeting) beforehand so they did not have background knowledge of the topic, and there

were also not enough handouts to go around at the meeting.

One of the main disconnects in this meeting was the lack of shared understanding about the purpose of the meeting. When asked about the agenda, the administrator said there was one item on it and it was "[Patient group] planning". Survey data also revealed that this group has less goal clarity (group mean = 3.17) than average (cohort mean = 4.46). Aside from having no detailed agenda, the discussion of the health center project was viewed differently by members of the group. For example, a physician alluded to cooperation between specialist physicians and Primary Care Physicians at the start of a project presentation, but her tone throughout was generally persuasive, as if she was pitching the idea and waiting for approval from the primary care physician representative. This physician seemed on the defensive and responded to the proposal evaluatively, when later it seemed that the other physician had intended it to be a session in which they would jointly create ideas.

Leadership seems contested in this group, with the formal leader not taking charge of the meeting (only contributing to 4% of the interaction) and an outspoken physician dominating the conversation. The meeting was predominantly an interaction between a small group of physicians (who controlled the discussion 80% of the time, based on content code analysis), and almost no effort was made to solicit comments from group members who were not presenting their ideas. Surprisingly, the survey results show that members think there is procedural fairness, or that they each have a 'say' in the group's activities (group mean = 5.33; cohort mean = 5.09), though there is also lower than average agreement among members about this result.

This was one of the few groups that experienced conflict in their meeting, primarily task-based but at times becoming more personal (like when one physician questioned another's approach to patient care). The survey data corroborates this in that the group scored higher on relationship conflict (group mean = 2.92) than the average

(cohort mean = 2.64)

(Finally, there was some notable interaction with outsiders during the meeting, though on reflection the purpose seemed persuasive rather than information search. For example, one physician, who is another physician's partner, was there to offer additional support of the proposed center, and a representative at the hospital was there to report on interactions with representatives of different clinics that were potential models of the proposed center. This representative's comments were generally related to the ways in which these clinics were similar or different from their organization and her tone was often persuasive. The partner physician also offered opinions that supported the project (e.g., "the more things you can do under one roof that's better"). Finally, though the primary care physician is an official member of the group, the feel of the meeting was that he was an outsider who had been brought in so that the group could pitch their ideas to him.)

Appendix 2.2: Hospital Senior Leadership Team Interview Protocol

1. What are your group's major objectives? Do you see these objectives as more strategic or operational in nature?
2. In what ways do you believe your group is successful in meeting your objectives for your operating unit?
3. What challenges does your group face in making decisions for your operating unit?
4. Tell me about a time you were successful at integrating ideas with other senior operating groups.
5. Tell me about a time you faced challenges in integrating ideas with other senior operating groups.
6. What other specific actions do you take to integrate with other senior operating groups?
7. In what ways is your group different from other senior operating groups? (e.g., in terms of your structure, roles, or strength of identity?) How?
8. What resources would your group need to be even more effective at overseeing your operating unit?

Appendix 3.1: Stimuli for Scenario Study 1

Condition 1: Outward Boundary Work:

"You are a member of a four-person product development team at Cardinal Foods, a consumer goods organization. Each person has work experience in a different function of the organization (e.g., marketing, finance, operations, and engineering) but there is no formal team leader. The team's current challenge is to create a new snack food and develop a business strategy for that new snack food. The team will receive a group bonus at the end of the year based on the success of the product launch.

Since the team has never created a snack food before, your team decided to get some information about how consumers perceive various products and services within the snack food market from a market research consultant at Datasage Group. Your team sent one member out to meet with the consultant individually, get the information, and then come back to tell the rest of the team what the consultant said.

As the project progressed, your team continued to use this strategy to get information. That is, your team sent members out individually to get information from people (e.g., consumers, business partners, and people in other parts of your organization), and then relay the information to the rest of the team."

Condition 2: Inward Boundary Work

"You are a member of a four-person product development team at Cardinal Foods, a consumer goods organization. Each person has work experience in a different function of the organization (e.g., marketing, finance, operations, and engineering) but there is no formal team leader. The team's current challenge is to create a new snack food and develop a business strategy for that new snack food. The team will receive a group bonus at the end of the year based on the success of the product launch.

Since the team has never created a snack food before, your team decided to get some information about how consumers perceive various products and services within the snack food market from a market research consultant at Datasage Group. Your team invited the consultant to one of your team meetings to share this information with the entire group.

As the project progressed, your team continued to use this strategy to get information. That is, your team invited people (e.g., consumers, business partners, and people in other parts of your organization) to team meetings to share information with everyone on the team."

Condition 3: Control Group

"You are a member of a four-person product development team at Cardinal Foods, a consumer goods organization. Each person has work experience in a different function of the organization (e.g., marketing, finance, operations, and engineering) but there is no formal team leader. The team's current challenge is to create a new snack food and develop a business strategy for that new snack food. The team will receive a group bonus at the end of the year based on the success of the product launch.

Since the team has never created a snack food before, your team decided to brainstorm some information about how consumers perceive various products and services within the snack food market from a market research consultant at Datasage Group. You conducted this brainstorming session at one of your team meetings.
As the project progressed, your team continued to use this strategy to get information. That is, you had discussions amongst yourselves about information that could help you create the product."

Appendix 3.2: Stimuli for Scenario Study 2

Condition 1: Strong Group Identity

"You are a member of a four-person product development team at Cardinal Foods, a consumer goods organization. Each person has work experience in a different function of the organization (e.g., marketing, finance, operations, and engineering) but there is no formal team leader.

From working with the team in the past, you have realized that the team has a strong identity. For example, it is clear what the team stands for and members of the team have one voice. In addition, team members feel connected to one another.[16]

The team's current challenge is to create a new snack food and develop a business strategy for that new snack food. The team will receive a group bonus at the end of the year based on the success of the product launch. Since the team has never created a snack food before, your team decided it would be important to get some information from consumers, business partners, and people in other parts of the organization to help you make informed decisions throughout the project."

Condition 2: Weak Group Identity

"You are a member of a four-person product development team at Cardinal Foods, a consumer goods organization. Each person has work experience in a different function of the organization (e.g., marketing, finance, operations, and engineering) but there is no formal team leader.

From working with the team in the past, you have realized that the team has a weak identity. For example, it is unclear what the team stands for and members of the team do not have one voice. In addition, team members do not feel connected to one

[16] The identity manipulations are based on items measuring shared group identity from Postmes, Spears, Lee, & Novak (2005).

another.

The team's current challenge is to create a new snack food and develop a business strategy for that new snack food. The team will receive a group bonus at the end of the year based on the success of the product launch. Since the team has never created a snack food before, your team decided it would be important to get some information from consumers, business partners, and people in other parts of the organization to help you make informed decisions throughout the project."