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BOUNDARY SPANNERS' IDENTIFICATION, INTERGROUP CONTACT, AND EFFECTIVE INTERGROUP RELATIONS

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We examined the relationship between group boundary spanners' work group identification and effective (i.e., harmonious and productive) intergroup relations in 53 work groups in five health care organizations. The data suggest this relationship was moderated by boundary spanners' levels of organizational identification, thus supporting a dual identity model. Limited support was found for the moderating effect of intergroup contact. Finally, if boundary spanners displayed frequent intergroup contact and identified highly with their organization, group identification was most strongly related to effective intergroup relations.

Whenever human groups form or reform, social categorization plays a pivotal role in defining the relationships within and between these groups. The movement of organizations toward group-based structures therefore represents major organizational and psychological changes. The work group rather than the organization emerges as the primary focus of identification (Riketta & van Dick, 2005), defined as the perception of oneness with, or "belongingness" to, a social group (Ashforth & Mael, 1989). Even though work group identification evolves as an important organizational construct with correlates such as work group satisfaction (Riketta & van Dick, 2005), it has mainly been discussed as a trigger for intergroup rivalry and conflict; group members may attempt to enhance their group's image by fierce subgroup loyalty and intergroup discrimination, in order to reduce uncertainty or enhance their self-esteem (e.g., Ashforth & Mael, 1989; Hogg & Terry, 2000). Organizations thus face the dilemma of how to foster employees' identification with their work groups, without paying the price of unproductive and conflictual relationships between groups.

Existing theory explaining the link between group identification and effective intergroup relations has been largely guided by social psychological theories of intergroup conflict, such as social identity theory (Tajfel, 1978; Tajfel & Turner, 1979) and intergroup contact theory (Allport, 1954). Contemporary accounts incorporate aspects of both theories and suggest that intergroup contact in combination with a *dual identity* (i.e., individuals' identification with both work group and organization) is a means by which to achieve positive intergroup outcomes (e.g., Gaertner et al., 1999; Hewstone & Brown, 1986; Pettigrew, 1998). Yet research has hitherto failed to clearly support the dual identity effect with organizational groups (van Knippenberg, 2003). This failure has been partially attributed to nuisance factors specific to organizational settings, such as unclear in-group and out-group boundaries (cf. Ashforth & Mael, 1989).

Another organization-specific factor relevant for the understanding of intergroup relations is the nature of collaboration between organizational groups. Boundary spanning theory notes that a

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group's boundary spanners—those who engage in significant transactions with out-group members—rather than any individual within a group, facilitate intergroup transactions and manage intergroup conflicts (Adams, 1976; Callister & Wall, 2001). Boundary-spanning activities are frequently enacted by group leaders. For instance, Ancona (1990) concluded that the cognitive models and skills of a group's leader influence the group's external strategies, which in turn influence how group members perceive and approach their environment. Group leaders similarly served as the primary conduits for both the coordination of intergroup activities and the negotiation of intergroup conflicts in the organizations we studied. This study involved health care teams that had to cooperate and exchange resources over group boundaries to respond effectively to patients' needs. Even though boundary activities have been related to group effectiveness previously (e.g., Ancona, 1990; Choi, 2002; Druskat & Wheeler, 2003), research has not, to our knowledge, examined how boundary spanners' characteristics and behaviors relate to the effectiveness with which dyads of groups jointly work together. This paper aims to address this gap.

The purpose of our study is to explain effective intergroup relations in organizations by reference to boundary spanners' self-concept (i.e., group and organizational identification) and behavior (i.e., intergroup contact). We extend existing research in the following ways. First, we develop and test a contingency framework built upon social psychological theories, to explain the relationship between boundary spanners' group identification and effective intergroup relations. Second, we follow the call to extend the power of social psychological theories in predicting alternative intergroup performance outcomes other than commonly used intergroup attitudes (van Knippenberg, 2003), by assessing both intergroup conflict and intergroup productivity. Third, we aim to remedy a number of methodological weaknesses of prior field research, such as the explicit identification and definition of group boundaries. This study contributes to the literature by developing and testing a social psychological framework as a way to understand how boundary spanners may affect and shape relationships between groups.

THEORETICAL BACKGROUND

Effective Intergroup Relations

Social psychological theories have been applied to both harmonious and collaborative intergroup relations in organizations (e.g., Hogg & Terry, 2000), yet most empirical studies have focused on intergroup bias (see Hewstone, Rubin, & Willis [2002] for a discussion of conceptual issues). Intergroup bias predominantly refers to attitudes of in-group members toward a particular out-group. It can develop without any interaction between groups, as numerous experimental studies have demonstrated (e.g., Tajfel, Billig, Bundy, & Flament, 1971). One drawback of this attitudinal focus is that it does not allow conclusions about the effectiveness of organizational intergroup working. Irrespective of negative intergroup attitudes, two groups working on a shared project may still contain outbreaks of conflict and get the job done. From this perspective, effective intergroup bias has limited value for evaluating intergroup working; we therefore propose several alternative criteria of effective intergroup relations. The detrimental dynamics of social categorization, such as fierce subgroup loyalty and intergroup competition (Hogg & Terry, 2000), as well as the interdependence of groups in relation to the allocation of limited organizational resources, suggest a high potential for intergroup conflict (Kramer, 1991; van Knippenberg, 2003). Therefore, the absence of conflict and competition between groups appears to be one important aspect of effective intergroup relations. However, measuring the amount of conflict on its own does not allow conclusions about performance on tasks that require collaboration between groups. Thus, we suggest a second aspect of effective intergroup relations explicitly targeting intergroup performance outcomes. Following van de Ven and Ferry (1980), we suggest that both the extent to which two groups effectively exchange resources, and the extent to which the groups effectively cooperate on tasks that require the concerted efforts of both groups, represent additional components of effective intergroup relations (cf. Brett & Rognes, 1986; Richter, Scully, & West, 2005).

Group Identification and Effective Intergroup Relations

In order to develop the theoretical link between boundary spanners' group identification and effective intergroup relations, we first need to define what is meant by "group." Following social identity theory's cognitive definition of the social group (Turner, 1985; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), intergroup relations theorists have defined an organizational group as a set of individuals who perceive themselves, and whom nonmembers perceive, as constituting an identifiable social aggregate within an organization (Brett & Rognes, 1986). Alderfer (1987) added that organ-

izational groups are characterized by both interdependent relations among group members and interdependent relations with other groups.

The predominant theoretical framework linking group identification and intergroup relations is social identity theory (Tajfel, 1978; Tajfel & Turner, 1979), and its cognitive derivate, self-categorization theory (Turner, 1985; Turner et al., 1987). In social identity theory, identification is a perceptual cognitive construct (as noted above, the perception of oneness with a social group [Ashforth and Mael, 1989]). An individual's self-concept is proposed to contain both a personal identity, embracing idiosyncratic characteristics (e.g., psychological traits) and a social identity, comprising salient group affiliations. Social identities are positively valued and derived from group membership. Self-categorization theory provides insights into the cognitive mechanisms underlying these dynamics. Individuals who identify with a social group adopt its norms and values and act according to the group's prototypes (Turner, 1985; Turner et al., 1987; cf. Hogg & Terry, 2000). Such prototypes are created through self-categorization and reduce uncertainty by directing behavior, values, and attitudes (Hogg & Abrams, 1993). Analogously, group members develop cognitive prototypes of out-groups and direct prototypical behavior toward out-group members (Turner et al., 1987). Individuals actively aim to maintain and enhance their group's image by means of social comparison processes with relevant out-groups (Festinger, 1954), resulting in differentiation between groups. Brewer and Gaertner (2001) summarized motivational factors described as the basis of this process, including the enhancement and maintenance of group members' self-esteem and positive distinctiveness (Tajfel, 1978; Turner, 1975), uncertainty reduction (Hogg & Abrams, 1993), and the needs for belonging and differentiation (Brewer, 1991). By aiming to create positive differentiation from out-groups, group members set the stage for conflicting and distorted relationships with them.

Although experimental studies have found such positive differentiation even in the absence of interdependence between groups, strong leadership, (within-)group interdependence, and interaction (Tajfel et al., 1971), field studies have failed to show a straightforward, positive correlation between work group identification and intergroup bias (Hinkle & Brown, 1990).

Researchers have invoked both methodological and theoretical factors to explain this discrepancy. For example, many studies are difficult to interpret because they did not assess whether organizations were ideographic or holographic (Albert & Whetten, 1985). The former type of organization exhibits subgroups with differentiated identities, and the latter type exhibits a common identity over subgroup boundaries. According to social identity theory, intergroup differentiation is low or absent in holographic organizations. As other work groups belong to the same dominant reference group (in this case, the organization), individuals in a particular work group do not maintain or enhance their self-esteem via discriminatory comparisons with the other work groups. Further methodological limitations include both unclear in-group and out-group boundaries, and ambiguity about in-group and out-group membership (e.g., Brown, Connor, Mathews, Wade, & Williams, 1986; Oaker & Brown, 1986). Others have disputed theoretically whether and under what conditions social identity theory predicts a straightforward correlation between group identification and intergroup bias (e.g., Turner, 1999) or have discussed differential dynamics for high and low identifiers (Ellemers, Spears, & Doosje, 2002).

In line with other researchers, we suggest that the inconsistent support for social identity theory in field settings reflects a need to measure neglected contingencies (e.g., Ashforth & Mael, 1989; Hogg & Terry, 2000). Thus, we propose that the relationship between boundary spanners' work group identification and effective intergroup relations is contingent upon attitudinal and behavioral moderators, such as organizational identification and intergroup contact.

HYPOTHESES

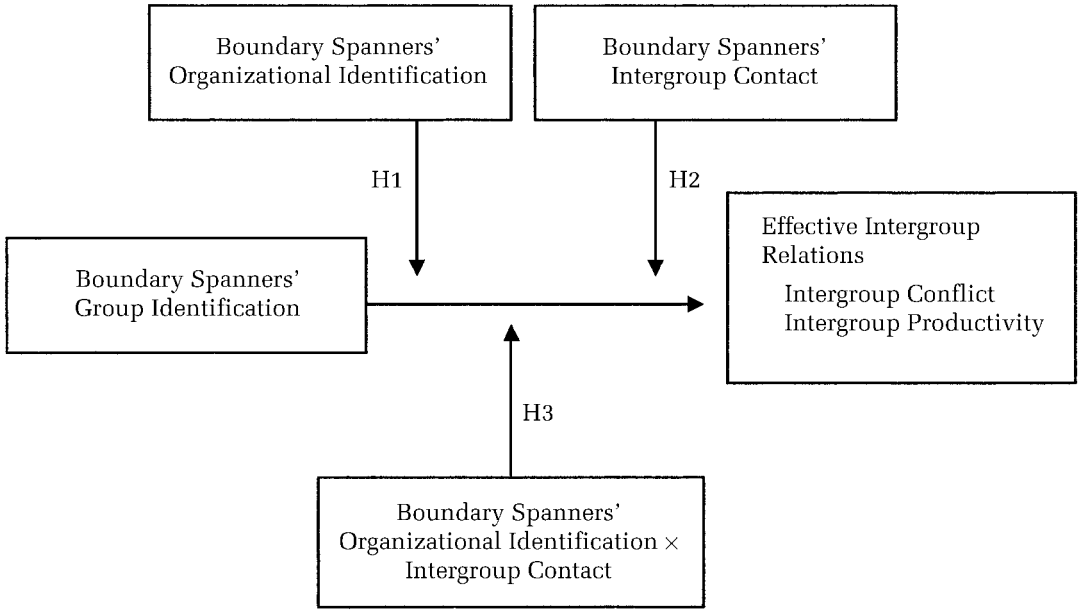
Figure 1 summarizes this study's hypotheses.

Group and Organizational Identification and Effective Intergroup Relations

Paradoxically, identification processes may trigger either hostile or cooperative intergroup relations, subject to the interplay between work group and organizational identification (Ashforth & Mael, 1989; Hogg & Terry, 2000). If boundary spanners identify strongly with their work group but not with their organization as a whole, intergroup differentiation is a likely means by which they can enhance their own group's image. Out-group bonds are weak, fostering hostile attitudes, stereotypes, rivalry, and competition.

Conversely, if individuals identify strongly with their organization but weakly with their work group, theory suggests contradictory effects. According to the common in-group identity model (Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993), recategorization of subgroups into higher-

FIGURE 1
Hypothesized Relationships



order groups transforms group members' perceptions from "us" and "them" to a more inclusive "we." This transformation reduces dysfunctional intergroup relations because it minimizes attention to category differences but directs attention to a superordinate, inclusive group identity. Optimal distinctiveness theory (Brewer, 1991), on the other hand, leads to contrary predictions. Per this theory, individuals seek to balance desires for inclusiveness (satisfied by group membership) and distinctiveness (satisfied by individuality) at the same time. Subgroups allow employees to fulfil these desires better than an organization, in which they may feel "overincluded" and therefore not sufficiently distinct (Hogg & Terry, 2000). Hence, if boundary spanners identify strongly with their organization but not with their more proximal work group, resulting tensions may enhance the need for differentiation. Attempts to achieve differentiation may lead to conflicting and distorted intergroup relations.

Researchers have therefore concluded that the key to establishing cooperative intergroup relations is not increasing the salience of the organizational identity at the expense of subgroup identities, but rather acknowledging and allowing expression of a *dual identity* in the form of both organizational and subgroup identity (Ashforth & Mael, 1989; Gaertner et al., 1999; Hogg & Terry, 2000). Hence, if boundary spanners identify strongly with both work group and organization, relationships with other groups are likely to be more harmonious and productive.

Experimental research has strongly suggested that intersubgroup relations are more harmonious when subgroups are salient *within* the context of a salient superordinate group than when either the subgroup or the superordinate group alone is salient (González & Brown, 2003; Hornsey & Hogg, 1999, 2000). Conversely, field studies have yielded ambiguous results. Dual identity perceptions were found to be negatively related to student intergroup bias in a multiethnic high school, but they were positively related to intergroup bias among bank executives after a merger (Gaertner, Dovidio, & Bachman, 1996). Thus, research has so far failed to properly examine the balance between group and organizational identity with organizational groups (Van Knippenberg, 2003).

Hypothesis 1. Boundary spanners' group identification has a stronger, more negative relationship with effective intergroup relations when organizational identification is low than when it is high.

Group Identification, Intergroup Contact, and Effective Intergroup Relations

Central to research concerned with the "contact hypothesis" (Allport, 1954; Pettigrew, 1998) is the idea that contact between members of different groups reduces intergroup hostilities. Although some researchers have claimed that intergroup contact reduces bias only when certain conditions ex-

ist (e.g., equal status between groups), empirical research has demonstrated that mere contact can reduce bias. A recent meta-analysis across settings revealed positive effects of intergroup contact on intergroup attitudes for 81 percent of 715 samples, without the contact situations being structured according to the purported essential conditions (Pettigrew & Tropp, 2006). The evolving "mere exposure" perspective on intergroup contact suggests that contact reduces prejudice because of the tendency for familiarity to breed liking. Pettigrew and Tropp described the reduction of uncertainty, feelings of threat, and intergroup anxiety as empirically supported mediating mechanisms.

In this paper, we argue that boundary spanners' contact with members of other groups moderates the relationship between group identification and effective intergroup relations. Cognitive dissonance theory (Festinger, 1957) suggests that frequent intergroup contact makes an out-group a less suitable target for intergroup competition and discrimination. In this theory, inconsistent cognitions create an unpleasant tension that individuals aim to reduce by striving for consistency, by means of, for instance, cognitive restructuring or rationalizing. As frequent intergroup contact breeds liking of the out-group, intergroup conflict and competition become less likely. Conversely, infrequent contact may breed stereotyping and negative intergroup attitudes, thereby making the out-group a target for intergroup bias. Furthermore, paucity of contact may result in lack of awareness of other groups' agendas and working styles, yielding misunderstandings and uncertainties, thereby accentuating the negative effects of group identification. Thus, boundary spanners' identification with their work group may result in conflicting and unproductive intergroup relations if intergroup contact is infrequent.

Some support for this position stems from two experimental studies conducted by Brown, Vivian, and Hewstone (1999). Cooperative intergroup contact facilitated the generalization of positive attitudes toward an out-group when subgroup category identities remained salient.

Hypothesis 2. Boundary spanners' group identification has a stronger, more negative relationship with effective intergroup relations when intergroup contact is infrequent than when it is frequent.

Group Identification, Organizational Identification, Intergroup Contact, and Effective Intergroup Relations

We further expect that boundary spanners' group identification should be most strongly related to effective intergroup relations when organizational identification is high and intergroup contact is frequent. In line with Pettigrew's (1998) process model of intergroup contact, repeated contact creates positive intergroup outcomes by initiating a cognitive reevaluation of the intergroup relationship. Extended contact allows members of different groups to think of themselves from a larger group perspective, thereby laying the basis for a dual identity to result in positive intergroup outcomes. Thus, frequent contact between boundary spanners may be necessary for a dual identity to actually result in effective intergroup relations.

Consequently, any other combination of organizational identification and intergroup contact should be suboptimal. First, if boundary spanners identify little with their organization but have frequent out-group contact, the social psychological processes will be mutually offsetting (although group identification should foster intergroup differentiation, frequent contact should disconfirm stereotypes and enhance mutual understanding). Second, if boundary spanners identify little with the organization and intergroup contact is infrequent, teams are working in relative isolation from each other, and there is little integration into the overall organization, resulting in ineffective intergroup relations. Third, if organizational identification is high but contact infrequent, the potential of a dual identity to result in effective intergroup outcomes may not be realized (paucity of contact may generate misunderstandings and uncertainties regarding intergroup coordination, resulting in reduced effectiveness).

Related support for this proposal stems from experimental research. Gaertner and colleagues found that intergroup bias was reduced by encouraging individuals' perceptions of a superordinate or dual identity during intergroup cooperation (Gaertner et al., 1999). Similarly, González and Brown (2003) found that students in dual identity experimental conditions displayed less in-group bias after cooperative interaction than students in two-group, one-group, or separate-individual conditions.

Hypothesis 3. Boundary spanners' group identification has the strongest, most positive relationship with effective intergroup relations if organizational identification is high and intergroup contact frequent.

METHODS

Organizational Context, Procedures, and Sample

Organizational context. Five primary care trusts (PCTs) in the United Kingdom agreed to participate

in a survey study about intergroup relations. PCTs are group-based health care organizations that were founded to provide the first port of call for all nonemergency health care in the British National Health Service (NHS). These services are free of charge for the entire population. Organizational size varied from 574 to 1,966 employees. Organizational structures are comparable across these organizations, because all PCTs follow the same national strategic guidelines, goals, and policies. PCTs embrace a number of different health care providers and service bodies that are formed into colocated groups or teams[1] (e.g., general practices, nursing teams, health visiting teams, physiotherapy teams). These groups offer a broad range of primary care services to local communities, which include general medical services, diagnosis, and elementary treatment; preventative health measures such as immunizations; and running clinics, such as for diabetes, coronary heart disease, and antenatal care. As services are tailored around patients' needs, different work groups are often required to cooperate with each other. This includes covering for staff shortages, providing patient services out of normal working hours, and providing complementary patient treatment from groups with different professional orientations.

Procedures. A liaison person within each organization was consulted to identify the "principal groups" that staff were primarily attached to and spent the most time working in. Management groups were excluded in order to avoid power and status asymmetries between groups at different hierarchical levels. The first author approached these groups and inquired whether they had existed for more than five months, had three or more members, had members working together interdependently, and worked interdependently with at least one other group (Alderfer, 1987; Brett & Rognes, 1986). He invited suitable work groups to participate and explained that both the anonymity of participants and the confidential treatment of the data were guaranteed. Fifty-seven groups (46%) agreed to participate by mailing the names of their group and its members to the researcher. Additionally, groups were asked to agree upon the one other group within the organization (other than management) they worked most closely with, in order to ensure both interaction frequency and high interdependence between lateral groups. Questions on intergroup relations within the questionnaire were then asked with reference to this particular out-group. The out-group's name was inserted into the questions in order to avoid any ambiguity. An introductory letter to all group members accompanying the questionnaire made in-group membership salient and explicit. The letter stated the following: "You may be a member of more than one group; however, for this questionnaire we would like to ask you to refer only to the [in-group's name] group when answering questions that refer to 'your group' or 'the group you are working on.'" To avoid self-serving bias as well as common method variance, we asked groups to consent to our obtaining ratings of intergroup productivity from the groups' line managers (who were not themselves members of the groups). Forty-seven groups agreed, and a total of 40 external ratings at time 1 and time 2 (after five months) were obtained. Drop-out analysis revealed that one of the teams that disagreed had reservations about the researcher approaching their line manager, and six teams did not report to an external line manager and could not identify an alternative suitable person outside the team. Three teams did not explain why they did not consent. We carried out *t*-tests to assess whether teams with and without external ratings differed from each other on their levels of intergroup conflict. There was no difference on goal conflict ($t = 0.15$, $p = .70$) or relationship conflict ($t = 0.97$, $p = .33$), suggesting that drop-out in intergroup productivity was unsystematic.

Sample. Dawson's (2003) selection rate was used to exclude groups with low group-level response rates from further analysis. Selection rate is a formula that assesses the accuracy of incomplete group data in predicting true scores as a function of number of responses per group (n) and group size (N). The cut-off point chosen was a selection rate ($[N - n]/Nn$) of .32. Scores from groups with this value of .32 or below are generally correlated with true scores at .95 or higher. Four groups did not meet this cut-off point and were deleted from further analysis. The resulting sample of 53 groups (274 respondents) included both service and administration groups. All groups were older than five months. Group size ranged from 3 to 31.

Group members' perceptions of the clarity of group boundaries and group interdependence were measured with two-item scales from Wageman, Hackman, and Lehman (2005); ratings ranged from 1 ("very inaccurate") to 5 ("very accurate"). Groups had clear boundaries (for example, "Team membership is quite clear—everybody knows exactly who is and isn't in the team," $\bar{x} = 4.48$, s.d. = 0.46) and worked interdependently (for example, "Generat-

[1] We use the terms "group" and "team" synonymously, because most groups in our organizations were referred to as teams, but the main body of the theoretical literature refers to groups.

ing the outcome or product of this team requires a great deal of communication and coordination among members"; ($\bar{x}$ = 3.95, s.d. = 0.51), indicated that teams worked interdependently. Also, group members perceived their group to be interdependent regarding resource allocation with the out-group chosen, as measured with a four-item scale from Van de Ven and Ferry (1980; $\bar{x}$ = 3.19, s.d. = 0.65). The scale comprised two items measuring unit interdependence: "For *your team* to accomplish its goals and responsibilities, how much do you need the services, resources, or support from this other team?" and "For *this other team* to accomplish its goals and responsibilities, how much does it need the services, resources, or support from your team?" (1, "not at all"; 5, "very much"); and two items measuring unit importance: "How important is *this other team* in attaining the goals of your team?" and "How important is *your team* in attaining the goals of this other team?" (1, "not very important"; 5, "absolutely crucial").

Questionnaire Measures

Intergroup conflict. We measured both goal and relationship conflict between groups. The first measure assessed perceptions of conflicting goals with four items adapted from Alper, Tjosvold, and Law (1998); an example item is, "The goals of both teams are not reconcilable with each other." Answers were given on five-point scales ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Cronbach's alpha was .81. As this measure does not explicitly assess affective aspects germane to intergroup conflict, we also measured relationship conflict between groups with a six-item measure, adapted from Jehn's (1995) intragroup conflict scale (Janssen, van de Vliert, & Veenstra, 1999), using the same five-point scale as goal conflict. Relationship conflict mainly includes affective components, such as dislike and feelings of annoyance and irritation (Jehn, 1995). Items referred to group members' relationships with out-group members. A sample item is, "The tension between members of our and the other group was sometimes painful." Cronbach's alpha was .90.

Aggregation of data at the group level requires both a theoretical basis and empirical justification (Kozlowski & Klein, 2000). Even though intergroup conflict may be the result of interaction between group representatives, these individuals represent their groups' interests, and not their own, on interface issues that exist at the group rather than the individual level (Brett & Rognes, 1986). Therefore, both intergroup conflict scales were aggregated by groups. To empirically justify aggregation, we calculated interrater agreement ($r_{wg[j]}$; James, Demaree, & Wolf, 1984) and interrater reliability (ICC[1] and ICC[2]; cf. Bliese, 2000). Indexes for both conflict scales suggested aggregation was justified (for relationship conflict, $r_{wg[j]}$; = .94; ICC[1] = .50; ICC[2] = .80; for goal conflict, $r_{wg[j]}$; = .82; ICC[1] = .20; ICC[2] = .53).

Intergroup contact and group and organizational identification. Research suggests significant cooperation between groups is not carried out by every group member, but by boundary spanners acting on behalf of their group (Ancona, 1990; Brett & Rognes, 1986). In this research, the group leaders represented the core links between work groups for both the negotiation of conflict incidents and the coordination and distribution of work between teams. We therefore sought responses from the groups' leaders in relation to questions on intergroup contact and group and organizational identification. Twelve groups did not have group leaders, so we chose the individual from each of these groups with the most work-related out-group contact as the key boundary spanner. The amount of such contact was determined from responses to a question adapted from van de Ven and Ferry (1980): "How frequently do you interact on work-related matters with members of [out-group's name]?" (1, "not at all"; 7, "daily"). We conducted *t*-tests on all study variables to examine whether formal leaders differed from the boundary spanners chosen from leaderless groups and found no significant differences.

We measured intergroup contact with the aforementioned measure adapted from van de Ven and Ferry (1980). Group and organizational identification were measured using Doosje and colleagues' four-item scale (Doosje, Ellemers, & Spears, 1995), a measure suitable to assess both group and organizational identification (and identification salience) in organizational settings (Haslam, 2004). A sample item is, "I see myself as a member of [group X/organization X]" (1, "strongly disagree"; 5, "strongly agree"). Cronbach's alpha was .90 for both the group and organizational identification scale. As both identification constructs and intergroup-contact were individual-level, responses were not aggregated.

Control variables. We controlled for group size, group membership change, and clarity of group boundaries, as these variables can affect the dynamics of social identity theory/self-categorization theory (Ashforth & Mael, 1989; Brewer, 1991; Brown et al., 1986; Haslam, 2004). Group size was assessed by the number of names returned on the consent form. A single item, asking group members, "How many people have left your team during

the past 5 months?," divided by group size, measured proportional group membership change. The measure of clarity of group boundaries (Wageman et al., 2005) was introduced in the sample description. Checks for aggregation yielded acceptable values for this scale ($r_{wg[j]}$ = .85; ICC[1] = .07; ICC[2] = .27). Group tenure was controlled for as both group and intergroup processes develop over time (Alderfer, 1987). A questionnaire item asked team members how long their team had been set up (response choices were "less than 6 months," "less than 1 year," "between 1 and 2 years," and "2 years or more"). We controlled for task interdependence because it has been linked to performance (Wageman, 1995) by using the Wageman et al. (2005) measure introduced in the previous section. Checks for aggregation yielded good values for this scale ($r_{wg[j]}$ = .75; ICC[1] = .11; ICC[2] = .36). Finally, we controlled for variations in organization affiliation (N – 1, dummy-coded).

External Rating: Productivity of Intergroup Dyad

The external line manager of each intergroup dyad rated the productivity of the respective dyad on a six-item scale (see Richter et al. [2005] for details on measure validity), ranging from 1 ("to no extent") to 5 ("to a great extent"). Four items assessed system responsiveness, the extent to which both groups cooperated well in order to respond to mandates or problems within their organization (e.g., "To what extent did both teams work effectively together in order to respond to problems or flaws that emerged from working within the PCT [e.g., staff or time shortage, etc.]?"); and two items measured how well each group in a dyad exchanged and made use of each other's resources (e.g., "To what extent did both teams effectively help each other out if resources [e.g., time to invest, people or staff, support etc.] were needed?"). Cronbach's alpha was .96 at time 1, and .88 at time 2.

RESULTS

Overview

Table 1 shows scale characteristics and intercorrelations of variables. Very high correlations among conflict subscales are common (Simons & Peterson, 2000) but raise concerns as to whether the subscales are independent. We found the correlation between relationship and goal conflict (r = .64, $p <$ .001) to be somewhat inflated owing to common source variance. We removed common source variance by computing split-sample correlations of both scales by randomly splitting individuals of each group in alternating order into subgroups a and b (Amason, 1996). We then took relationship conflict from subgroup a and goal conflict from subgroup b and aggregated the scales by subgroup. The correlation of goal and relationship conflict was then considerably reduced (r = .26, $p <$ .10), suggesting that the two conflict scales were related but distinct constructs.

Some studies attribute their failure to support social psychological theories in organizations to the accidental measurement of organizational identification when the intent was to measure subgroup identification (e.g., Oaker & Brown, 1986). We used confirmatory factor analysis of both identification scales to determine whether participants in our study appeared to discriminate between identification with their work group and with their organization. A two-factor model with group and organizational identification as separate but correlated factors (χ^2 = 33.36, df = 19; TLI = .93; CFI = .95) fitted the data significantly better than did a one-factor model with group and organizational identification collapsed (χ^2 = 226.69; df = 18; TLI = .77; CFI = .85; $\Delta\chi^2[\Delta df]$ = 193.33[1]; $p <$ .001).

Each organization was found to be ideographic, with group identification being significantly stronger than organizational identification (for all groups, $\bar{x}_{\text{group identification}}$ = 4.16; $\bar{x}_{\text{organizational identification}}$ = 3.60; t = 8.15; $p <$ .001).

Hypothesis Testing

We tested Hypotheses 1 to 3 by regressing each of the three dependent variables on blocks of predictor variables. Table 2 presents the results of these regression analyses. We entered the control variables into the first block of the regression. Regressions using productivity at time 2 also included productivity at time 1 in an additional block, to allow causal inferences. The next block contained the predictor variables (model 1, Table 2), which we centered to reduce multicollinearity (cf. Aiken & West, 1991). Variance inflation factor (VIF) scores varied from 1.12 to 4.38 over the regressions, suggesting multicollinearity did not distort regression results. The third block contained the interaction term of both predictor variables (models 2a and 2b, Table 2), and only the two predictors that composed the interaction term were entered in the prior step. We examined three-way interactions to test Hypothesis 3 (model 3, Table 2) by adding a fourth step with the interaction term computed from all three predictor variables, after all three 2-way interactions had been included in a previous block (Aiken & West, 1991).

TABLE 1
Descriptive Statistics and Correlations[a]

Variables[b]	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Organization 1	0.28	0.45																
2. Organization 2	0.02	0.14	−.09															
3. Organization 3	0.17	0.38	−.28	−.06														
4. Organization 4	0.42	0.50	−.53	−.12	−.38													
5. Organization 5	0.11	0.32	−.22	−.05	−.16	−.30												
6. Group membership change	0.17	0.18	−.00	.02	.00	.04	−.07											
7. Group age	3.61	0.59	−.38	.09	.13	.24	−.03	.03										
8. Group size	8.47	5.85	−.36	−.01	−.22	.63	−.19	−.20	.11									
9. Group interdependence	4.15	0.57	−.09	.01	.05	.16	−.18	.23	.08	.12								
10. Clarity of group boundaries	4.48	0.46	.04	−.02	.20	−.23	.09	.01	.05	−.26	.00							
11. Boundary spanners' group identification	4.48	0.67	.10	−.05	.02	−.16	.10	−.12	−.11	−.22	−.17	.49						
12. Boundary spanners' organizational identification	3.78	0.73	.15	−.15	.10	−.28	.17	−.04	−.21	−.04	.09	.15	.24					
13. Boundary spanners' intergroup contact	5.60	1.19	.17	−.30	−.15	.12	−.13	−.09	−.01	.12	.18	.19	.17	.02				
14. Goal conflict	2.33	0.50	−.59	.05	.20	.32	.09	−.12	.14	.36	.03	−.17	−.26	−.25	.02			
15. Relationship conflict	2.02	0.65	−.37	−.05	.00	.33	.03	.13	−.04	.26	.29	−.23	−.33	−.18	.01	.64		
16. Intergroup productivity, time 1	3.14	0.94	.18	−.26	.36	−.25	−.20	−.12	−.17	−.07	−.06	.17	.03	.03	.03	−.13	−.15	
17. Intergroup productivity, time 2	3.35	0.65	.24	−.34	.35	−.16	−.38	−.10	.00	−.05	.24	.19	.05	.12	.30	−.33	−.27	.64

[a] $n = 39$ for intergroup productivity, time 1 and time 2; $n = 53$ for all other variables. All correlations above $|.32|$ with intergroup productivity, and all remaining correlations above $|.27|$ are significant at the .05 level.

[b] The variables for "Organization" were dummy variables.

TABLE 2
Results of Multiple Regression Analysis for Boundary Spanners' Group Identification, Organizational Identification, and Intergroup Contact[a]

Variables	Relationship Conflict				Goal Conflict				Intergroup Productivity, Time 2			
	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3	Model 1	Model 2a	Model 2b	Model 3
Block 1: Controls												
Organization 2	0.42*	0.42*	0.39*	0.53***	0.70***	0.70***	0.66***	0.79***	−0.01	−0.08	−0.00	−0.09
Organization 3	0.34*	0.32*	0.30	0.29*	0.48***	0.47***	0.41**	0.43***	−0.42**	−0.47**	−0.33**	−0.39***
Organization 4	0.71**	0.71**	0.68**	1.05***	0.84***	0.83***	0.80***	1.12***	−0.22	−0.49*	−0.18	−0.51***
Organization 5	0.10	0.08	0.11	0.17	0.22	0.21	0.23	0.28**	−0.27	−0.34*	−0.26*	−0.33***
Group membership change	0.12	0.14	0.10	0.06	−0.12	−0.10	−0.14	−0.17*	−0.06	−0.09	−0.02	−0.04
Group age	−0.32*	−0.39*	−0.28	−0.56***	−0.23	−0.28*	−0.18	−0.43***	0.17	0.28*	0.17	0.37***
Group size	−0.07	−0.07	−0.07	−0.45**	0.01	0.01	0.00	−0.32**	−0.03	0.19	−0.05	0.20**
Task interdependence	−0.13	−0.14	−0.09	−0.37**	−0.15	−0.15	−0.09	−0.36***	−0.05	0.11	−0.09	0.11*
Clarity of group boundaries	−0.06	0.09	−0.04	0.28*	−0.06	0.06	0.01	0.25*	0.09	−0.01	−0.07	−0.28***
Intergroup productivity, time 1									0.44**	0.35*	0.48***	0.34***
Block 2: Main effects												
Group identification	−0.22	−0.35	−0.32	−0.71***	−0.10	−0.20	−0.27	−0.52***	−0.16	0.06	0.02	0.26***
Organizational identification	−0.19	−0.14		−0.01	−0.32*	−0.28*		−0.17	0.20	0.16	0.30**	0.09*
Intergroup contact	0.21		0.21	0.60***	0.19		0.17	0.49***	0.25			0.09
Block 3: Two-way interactions												
Group identification × organizational identification		−0.34*		−0.46***		−0.27*		−0.38***		0.35*		0.45***
Group identification × intergroup contact[b]			−0.05	−0.08			−0.17	−0.12			0.44***	0.54***
Organizational identification × intergroup contact				−0.11				−0.23**				−0.05
Block 4: Three-way interaction												
Group identification × organizational identification × intergroup contact				−0.53***				−0.36***				0.21***
ΔR^{2c}	.11	.08	.00	.18	.13	.05	.03	.09	.08	.08	.18	.03
F for ΔR^{2c}	2.23	5.36*	0.12	20.79***	3.83*	4.72*	2.07	17.37***	1.93	7.17*	24.06***	21.95***
R^2	.38	.43	.36	.70	.58	.60	.53	.83	.67	.71	.82	.98
F	2.00	2.41*	1.80	5.12***	4.39***	4.80***	3.63**	10.53***	3.90**	4.65***	8.59***	49.79***

[a] Standardized regression coefficients are shown; $n = 53$ for regressions onto conflict scales; $n = 39$ for regressions onto intergroup productivity.

[b] Coefficients for the two-way interaction of organizational identification and intergroup contact are not shown in model 2, as they were not hypothesized.

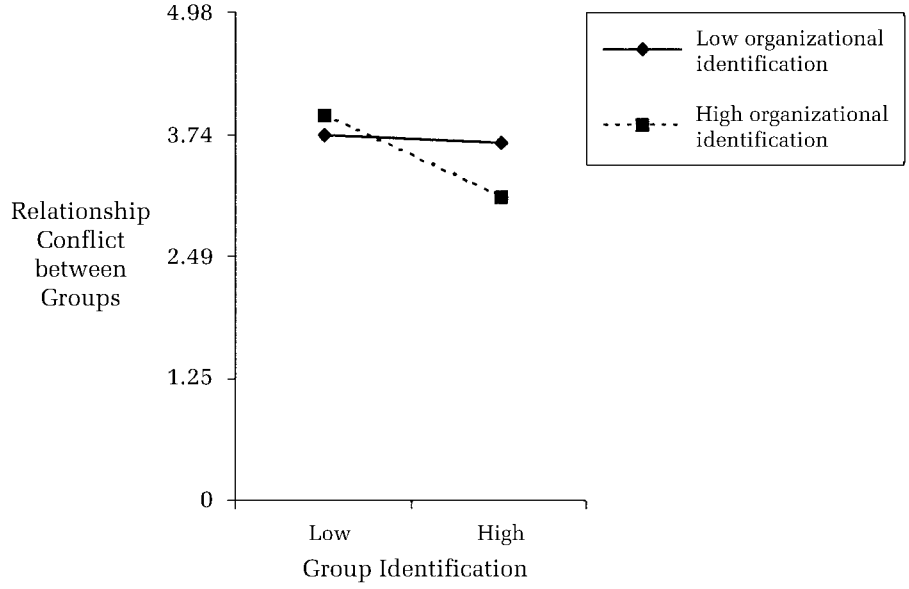
[c] Changes in R^2 are from the penultimate block within the same model.

* $p < .05$

** $p < .01$

*** $p < .001$

FIGURE 2
Organizational Identification as a Moderator of the Relationship between Group Identification and Relationship Conflict



Hypothesis 1. Hypothesis 1 proposes a moderating effect of organizational identification whereby the relationship between boundary spanners' group identification and effective intergroup relations is less negative for high levels of organizational identification than for low levels. Results displayed in Table 2 (model 2a) reveal that all interactions are in the predicted direction, as indicated by the negative beta coefficients for the first two dependent variables but positive beta coefficient for productivity. Also, the interaction term composed of group and organizational identification explained significant variance in all three dependent variables. To facilitate interpretation of the interactions, we plotted relationships, indicating high and low levels of group and organizational identification by values one standard deviation above and below the mean (Aiken & West, 1991). Figures 2 to

FIGURE 3
Organizational Identification as a Moderator of the Relationship between Group Identification and Goal Conflict

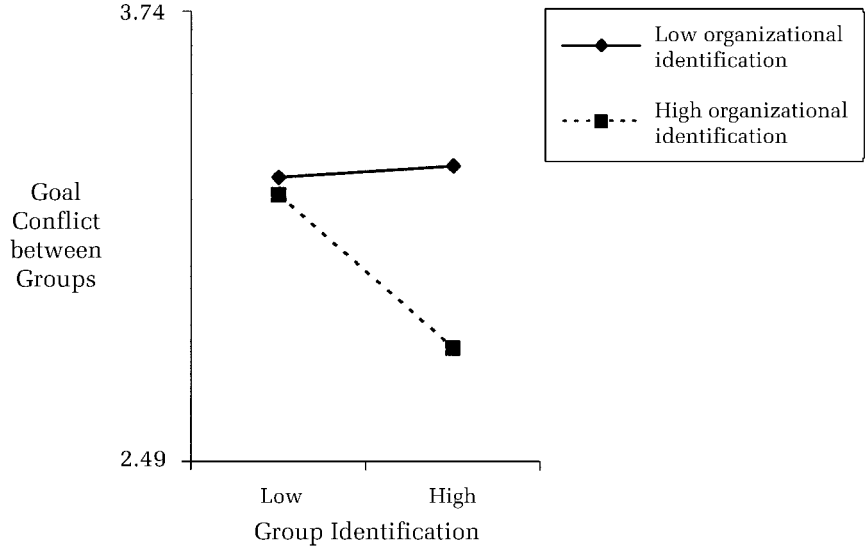
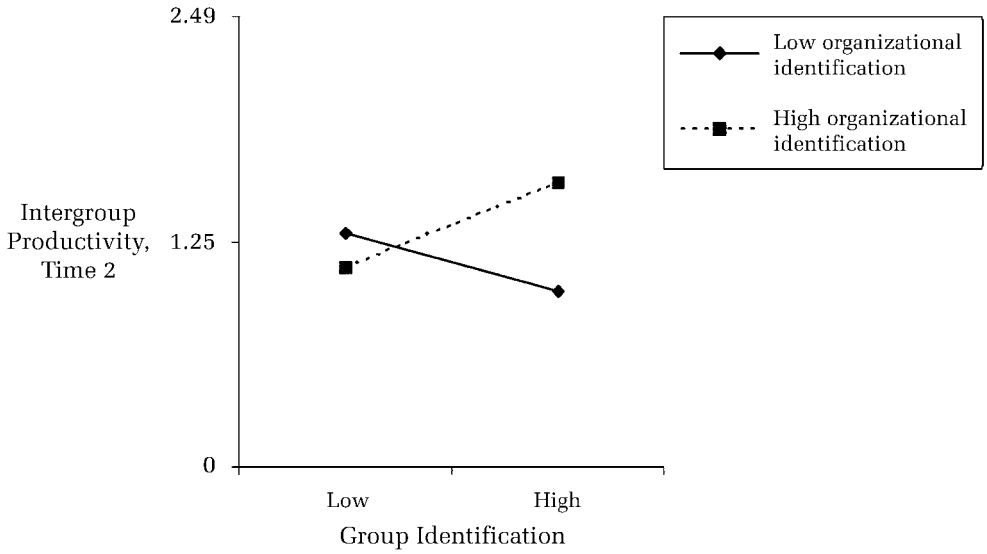


FIGURE 4
Organizational Identification as a Moderator of the Relationship between Group Identification and Intergroup Productivity, Time 2



4 illustrate the significant moderator effects on intergroup conflict (from Table 2, model 2a, for relationship conflict, $\beta_{interaction} = -.34$, $p < .05$; for goal conflict, $\beta_{interaction} = -.27$, $p < .05$) and intergroup productivity at time 2 ($\beta_{interaction} = .35$, $p < .05$). Whereas group identification is negatively correlated with both conflict scales at high levels of organizational identification, the relationship is positive or less negative at low levels of organizational identification (Figure 2 and 3). Analogously, Figure 4 shows that the relationship between group identification and productivity at time 2 is positive for conditions of high organizational identification, but negative for conditions of low organizational identification. Thus, Hypothesis 1 was supported.

Hypothesis 2. Hypothesis 2 proposes that the relationship between boundary spanners' group identification and effective intergroup relations is contingent upon levels of intergroup contact, in

FIGURE 5
Intergroup Contact as a Moderator of the Relationship between Group Identification and Intergroup Productivity, Time 2

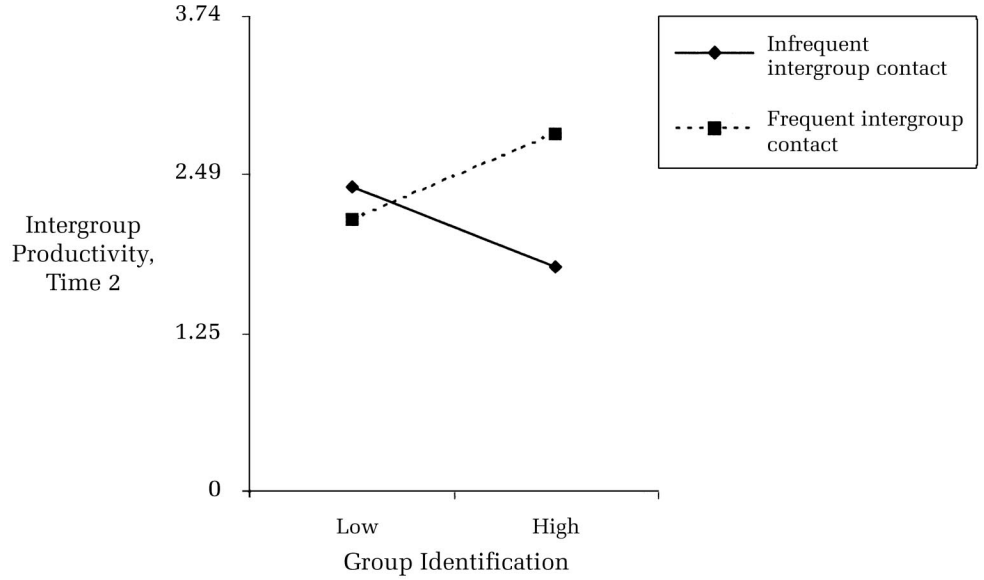
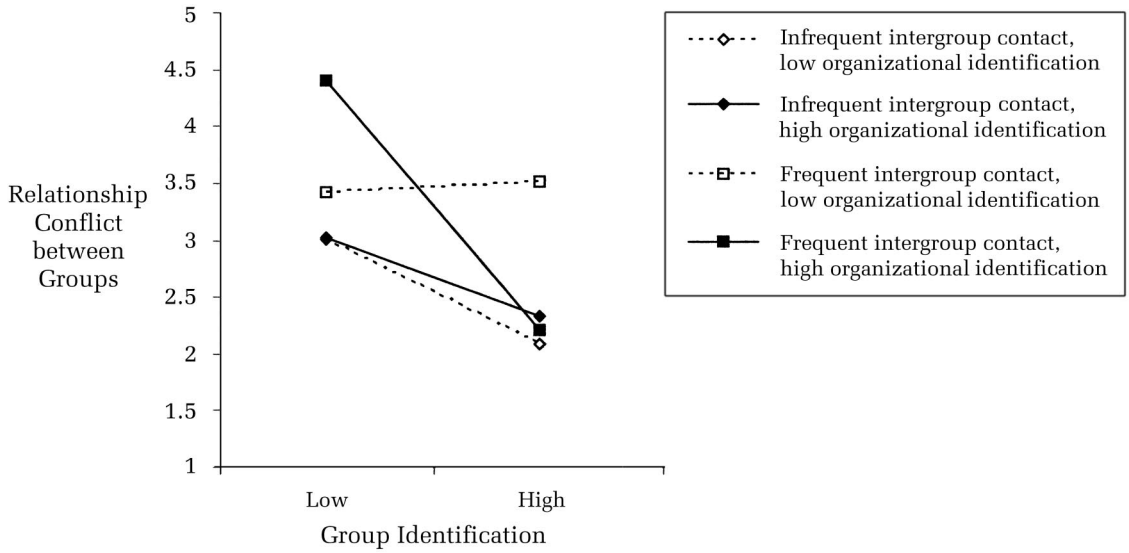
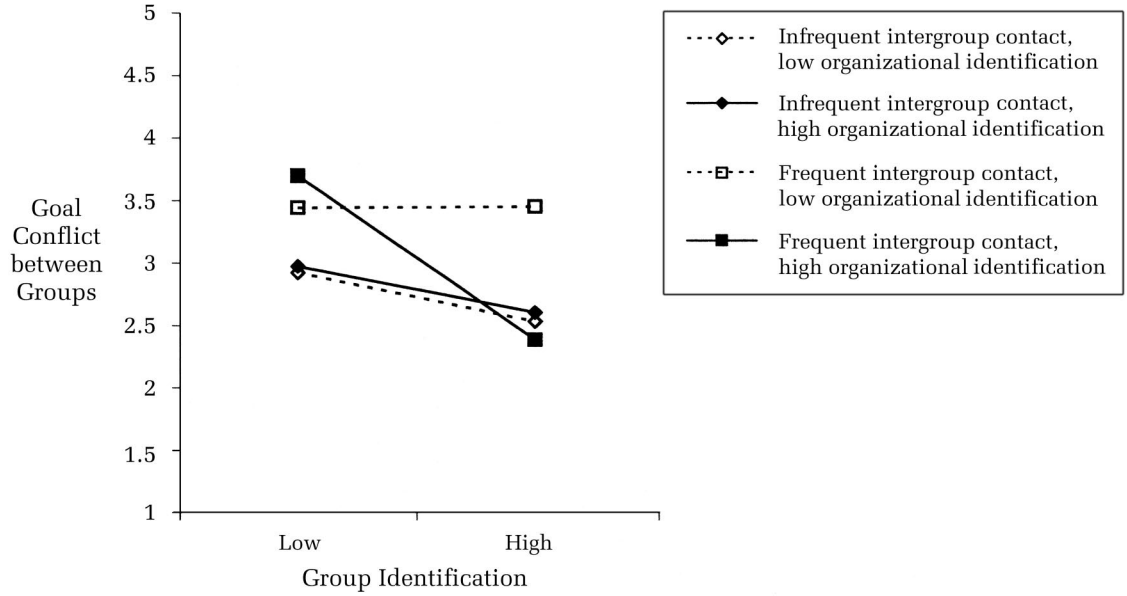


FIGURE 6
Intergroup Contact and Organizational Identification as Moderators of the Relationship between Group Identification and Relationship Conflict



such a way that the relationship is less negative when contact is frequent than when it is infrequent. Results displayed in Table 2 (model 2b) reveal that all interactions are in the predicted direction, as indicated by the negative beta coefficients under the dependent variables for relationship and goal conflict and the positive coefficient under productivity. Also, the interaction term composed of group identification and intergroup contact explained significant variance in one of the three dependent variables. Figure 5 illustrates the significant moderating effect on intergroup productivity ($\beta_{\text{interaction}} = .44$, $p < .001$; Table 2, model 2b). Whereas group identification is positively correlated with intergroup productivity under high levels of intergroup contact, the relationship is negative under low levels (Figure 5). However, regressions for both intergroup conflict scales re-

FIGURE 7
Intergroup Contact and Organizational Identification as Moderators of the Relationship between Group Identification and Goal Conflict



vealed no significant interaction effect. Thus, we found partial support for Hypothesis 2.

Hypothesis 3. Hypothesis 3 proposes that boundary spanners' group identification will have the strongest positive relationship with effective intergroup relations if organizational identification is high and intergroup contact frequent. Results displayed in model 3, Table 2, reveal that all interactions are in the predicted direction, as indicated by the negative coefficients for the first two dependent variables and positive coefficient for productivity. In support of our hypothesis, the three-way interaction term in the fourth step of the regression analysis explains additional significant variance in all three outcome variables. Figures 6 to 8 illustrate the significant moderator effects on relationship conflict shown in Table 2, model 3 ($\beta_{\text{three-way interaction}} = -.53$, $p < .001$), goal conflict ($\beta_{\text{three-way interaction}} = -.36$, $p < .001$), and intergroup productivity at time 2 ($\beta_{\text{three-way interaction}} = .21$, $p < .001$). Figures 6 and 7 illustrate that although the relationship between group identification and both intergroup conflict scales is strongly negative if levels of both intergroup contact and organizational identification are high, the relationship is less negative or positive in any other condition. Similarly, only if levels of both intergroup contact and organizational identification are high is the relationship between group identification and intergroup productivity at time 2 strongly positive (Figure 8).

Hypothesis 3 postulates a priori differences in pairs of slopes, suggesting that slopes at high levels of organizational identification and frequent intergroup contact are different from any other combination of organizational identification and contact. To test this hypothesis accurately, we examined whether slopes at high levels of organizational identification and intergroup contact differed significantly from any other pair of slopes, using the slope difference test (Dawson & Richter, 2006). Table 3 shows that slopes at high levels of organizational identification and intergroup contact differ significantly from any other pair of slopes for all three outcome variables. Thus, Hypothesis 3 was supported.

DISCUSSION

Our findings extend previous research in several ways. First, we developed and tested a social psychological framework in order to explain the relationship between boundary spanners' group identification and effective intergroup relations. Second, we extended the predictive power of social psychological theories by using intergroup performance outcomes other than intergroup attitudes (cf. van Knippenberg, 2003). Finally, we remedied a number of weaknesses of prior field research, such as the identification and use of ideographic organizations.

Results revealed strong support for the dual identity hypothesis. Boundary spanners' group identification was positively related to effective intergroup relations at high but not low levels of

FIGURE 8
Intergroup Contact and Organizational Identification as Moderators of the Relationship between Group Identification and Intergroup Productivity, Time 2

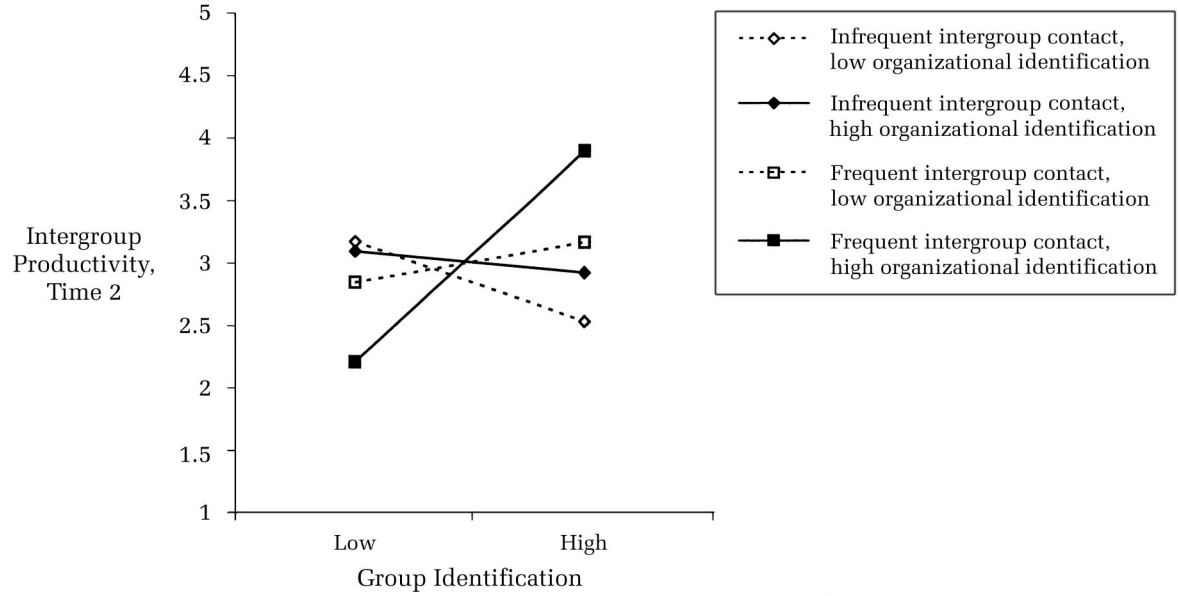


TABLE 3
Group Identification and Effective Intergroup Relations for Combinations of High and Low Organizational Identification and Intergroup Contact

Slope Differences	Relationship Conflict		Goal Conflict		Intergroup Productivity, Time 2	
	t	*df*	*t*	*df*	*t*	*df*
ΔOrganizational identification$_{high}$, intergroup contact$_{high}$/ organizational identification$_{high}$, intergroup contact$_{low}$	−3.52**	35	−3.99***	35	11.13***	21
ΔOrganizational identification$_{high}$, intergroup contact$_{high}$/ organizational identification$_{low}$, intergroup contact$_{high}$	−5.73***	35	−5.65***	35	8.05***	21
ΔOrganizational identification$_{high}$, intergroup contact$_{high}$/ organizational identification$_{low}$, intergroup contact$_{low}$	−2.89**	35	−3.37**	35	13.35***	21

** $p < .01$
*** $p < .001$

organizational identification. Conversely, partial support was found for the moderating effect of intergroup contact. Boundary spanners' group identification was positively related to intergroup productivity, if out-group contact was frequent rather than infrequent. Further, the dual identity effect was most pronounced if boundary spanners had frequent rather than infrequent out-group contact. If levels of both intergroup contact and organizational identification were high, this relationship was the strongest and most positive.

Theoretical Implications

We demonstrated that a social psychological framework is very powerful for predicting both intergroup conflict and the productivity of concerted collaboration between groups. To our knowledge, this is the first study to unambiguously support the dual identity model for intergroup relations between organizational groups. Boundary spanners' organizational identification appears to function as a buffer to the detrimental effects of group identification on intergroup working by shifting the focus to a common superordinate group without blurring group boundaries. Boundary spanners' intergroup contact, on the other hand, was relevant for intergroup productivity as the outcome measure, yet was not relevant for either of the conflict variables. Contact might have facilitated intergroup coordination, thereby affecting intergroup performance outcome rather than intergroup conflict. Furthermore, the dual identity effect appears most pronounced if boundary spanners have frequent, rather than infrequent, out-group contact. Contemporary versions of intergroup contact theory (Gaertner et al., 1999; Hewstone & Brown, 1986; Pettigrew, 1998) have suggested combining categorization or identification with forms of intergroup contact, though in somewhat different ways. Gaertner and colleagues (1996, 1999) proposed that dual identity perceptions mediate between intergroup cooperation and intergroup bias; Pettigrew (1998) proposed that a reduction of intergroup bias is achieved by a sequential process of decategorization, salient categorization, and recategorization, as attained through cooperative intergroup contact; and Hewstone and Brown (1986) viewed the salience of in- and out-group categories as a precondition allowing positive experiences with out-group members to generalize to an out-group as a whole. Finally, results from this study indicate that organizational identification and intergroup contact function as contingencies of the relationship between boundary spanners' group identification and effective intergroup relations. Despite agreement about the importance of contact and superordinate identification, a jumble of views prevails regarding the mechanisms by which these factors operate. Future research could include comparative tests of those theories conducted in order to integrate findings into one overall model.

If we remove the social psychological lens on intergroup relations that guided this study, our findings also have implications for, and can well be integrated into, boundary spanning theory (Adams, 1976). Organizational identification is a potential attribute of a boundary spanner, and other attributes may also influence intergroup outcomes, such as personality and gender (cf. Callister & Wall, 2001). Similarly, intergroup contact would be subsumed by boundary spanning theory under person-outsider interaction, of which other aspects, such as negotiation style, would provide further insights. The theory has been used to examine how boundary spanners' activities affect group effec-

tiveness (Choi, 2002; Druskat & Wheeler, 2003). Yet, to our understanding, this framework does not make predictions about how boundary spanners affect and shape relationships between groups. Social psychological theories may provide such an extension by pointing to the role of boundary spanners' self-concept and behavior. Future research is needed to complete this puzzle by identifying and examining additional factors predicting effective intergroup relations, preferably by integrating theoretical frameworks from different disciplines.

Managerial Implications

Dysfunctional relationships among groups have been discussed as a pitfall for team-based organizations (e.g., Kramer, 1991). Our results suggest that managers may combat ineffective intergroup relations by enhancing employees' identification with their organization, while acknowledging groups for their individual performance (cf. Ashforth & Mael, 1989; Hogg & Terry, 2000). Measures for enhancing organizational identification may include communication of organizational successes, values, and goals. Additionally, managers may consider boundary spanners' identification along with intergroup contact as a starting point for intergroup interventions. Rotation of individual boundary spanners and promotion into boundary positions of employees who feel strong ties with both their work group and their organization may help to overcome ineffective intergroup relations. Such interventions might be more efficient than others targeting all group members. Finally, practitioners who want to optimize team-based organizations should ensure that intergroup working is on a group's agenda, in order to combat "silo working" and foster employees' dual identification (cf. Pettigrew, 1998). Intergroup social gatherings, frequent intergroup meetings, and the use of cross-functional teams are examples of ways to promote intergroup contact across group boundaries.

Limitations and Directions for Future Research

First and foremost, we used a single-item measure of intergroup contact, which raises concerns about uncertain reliability. Testing the predictions derived from the "mere exposure" perspective on intergroup contact theory may not require a contact measure that embraces multiple facets of contact, and researchers have frequently used single-item measures to test predictions derived from intergroup contact theory (see Pettigrew & Tropp, 2006). Nevertheless, future research using multi-item measures is clearly desirable to extend findings. Second, relationships with goal and relationship conflict were tested cross-sectionally and do not therefore allow any inference of causality. It is possible that, for instance, perceptions of conflicting goals between groups may have caused stronger group identification (cf. Ashforth & Mael, 1989), rather than (as we argued) vice versa. Longitudinal studies and experimental designs may clarify the direction of effects. Taking the relationship between group identification and conflict as an example, one can find both previous research in which identification is seen as a result of conflict, and previous research in which identification is viewed as a condition that creates conflict (Kramer, 1991). In fact, both intergroup relations theory (Alderfer, 1987) and social identity theory (Tajfel, 1978) support a reciprocal effect. Finally, the current research was carried out with five similar public health care organizations embedded within the British NHS, making study replications in the private sector desirable. Future research might examine how other attitudinal and behavioral aspects of group boundary spanners are related to effective intergroup relations.

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