Identity Leadership and Social Identification Within Sport Teams Over a Season: A Social Network Analysis

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Abstract

Objectives: This study explored the relationships between identity leadership and social identification in sport teams over the course of a season using social network analysis.

Methods: Participants from 23 competitive sport teams (N = 388, M_{age} = 20.7 years) indicated the extent to which each of their teammates displayed various forms of identity leadership (i.e., identity prototypicality, identity advancement, identity entrepreneurship, identity impresarioship) and the extent to which these same teammates were seen to identify with the team (assessed by ingroup ties, cognitive centrality, ingroup affect) early and later in a season. Quadratic assignment procedure correlations and multiple quadratic assignment procedure regressions examined the relationships between the different types of networks for each team across time.

Results: Athletes who perceived team members to show greater identity leadership perceived those same teammates to identify more strongly with the team both early ($rs_{average}$ > .46) and later ($rs_{average}$ > .48) in the season. Averaged across teams, identity entrepreneurship early in the season was most strongly associated with both perceived ingroup ties ($\beta_{average}$ = .24) and ingroup affect ($\beta_{average}$ = .13) later in the season, while identity impresarioship was most strongly associated with cognitive centrality ($\beta_{average}$ = .16). In the reversed direction, perceptions of ingroup ties early in the season were most strongly associated with all identity leadership dimensions later in the season (.28 < $\beta_{average}$ < .38).

Conclusions: Collectively, these findings provide evidence of a mutually reinforcing bidirectional link such that teammates who are seen as actively contributing to promote a sense of 'us' among team members are also more likely to be seen as identifying strongly with the team.

Keywords: Social network analysis, athlete leadership, team identification, identity, identity leadership, quadratic assignment procedure, peer leadership

Identity Leadership and Social Identification Within Sport Teams Over A Season: A Social Network Analysis

The key to team success lies in understanding the social context of a sport team (Eys et al., 2019). One important consideration related to this social context is the shared sense of identity that athletes associate with their membership in sport teams (i.e., social identity; Haslam, Fransen, & Boen, 2020). The increasing interest in social identity can be attributed to the relevance of social identity across spheres of sports-related activity including participation, performance, psychological and physical health, partisanship, and politics (5Ps; Haslam et al., 2020). This research builds upon decades of experimental and field research in psychology, which shows social identity to be a key driver of cognition, emotion, and behaviour in a wide array of settings (for reviews, see Hornsey, 2008; Lee et al., 2015). As an example, accumulating evidence in the fields of social and health psychology has positioned social identity – the sense of oneself as a group member – as a vital underpinning of mental and physical health (Haslam et al., 2018). Indeed, researchers have argued that because social identity furnishes people with a range of important psychological *resources*, it can be the basis for a 'social cure' that helps address a range of present-day societal challenges (e.g., anxiety, depression, loneliness; Cruwys et al., 2016; Haslam et al., 2019). Collectively, then, a growing body of empirical evidence speaks to the ways in which social identity underpins and shapes the expression of the 5Ps in sport (Haslam et al., 2020).

Historically, social identity has a foundation in the Social Identity Approach (Haslam et al., 2017), encompassing two intertwined yet distinct theories – *social identity theory* (Tajfel, & Turner, 1979) and *self-categorisation theory* (Turner et al., 1987). Social identity is formally defined as "that part of an individual's self-concept which derives from his/her knowledge of

his/her membership of a social group (or groups) together with the value and emotional significance attached to that membership" (Tajfel, 1981, p. 255). Drawing on Tajfel's multifaceted definition and previous theoretical and empirical work, Cameron (2004) operationalized social identity as a three-dimensional construct characterized by (a) ingroup ties (i.e., perceptions of similarity, bonding, and belongingness); (b) cognitive centrality (i.e., importance attributed to group membership); and (c) ingroup affect (i.e., positivity associated with feelings of group membership).

Over the past decade, researchers have successfully applied Cameron's model of social identity to the context of sport (see Bruner et al., 2020, for a comprehensive overview). Here, mounting empirical evidence has also identified a host of team and individual outcomes associated with the different dimensions of social identification, ranging from moral behaviour toward teammates and opponents (e.g., Bruner et al., 2017, 2018) to indicators of positive youth development (e.g., self-worth, commitment; Martin et al., 2018).

Given the empirical evidence that has pointed to the benefits of social identity in relation to athletes' cognition, affect, and behaviour, it is not surprising that researchers have begun to direct their efforts towards understanding how one might cultivate team members' social identification. Here research suggests that one of the key drivers of a shared sense of 'we' and 'us' is *leadership* within the group. More particularly, the *social identity approach to leadership* asserts that leaders are effective in their mission to motivate and mobilise followers towards common goals insofar as followers see those leaders as embodying and promoting a shared sense of "us" and "we" in their behaviours (i.e., inspiring a sense of belonging and emotional attachment to the group; Haslam, Reicher, & Platow, 2020). This *identity leadership* is important because the shared qualities and group-oriented behaviours of a group leader have been shown to

increase the strength with which other members identify with that same group (Slater & Barker, 2019; van Dick et al. 2007).

In the organizational setting, the early, dominant line of research within the social identity approach to leadership focused on the idea that leader effectiveness was a consequence of a leader being seen to embody the qualities of the group (i.e., identity prototypicality; Hogg, 2001; Turner & Haslam, 2001). This work showed that leaders' ability to influence followers depends on their capacity to be seen as prototypical (or representative) of the qualities that leaders and followers share (Hogg, 2001; Steffens et al., 2020). However, more recent work has underlined the importance of other dimensions of identity leadership, including more action-oriented leader behaviours in both organizational and sport settings (Fransen et al., 2020; Miller et al., 2020; Stevens et al., 2021; Steffens et al., 2014). More specifically, an expanded four-dimensional model of identity leadership proposes that effective leadership centres on a leader's capability to represent, advance, create, and establish a sense of social identity that is shared with group members (Haslam et al., 2020b; Steffens et al., 2014a; van Dick et al., 2018). These four identity leadership dimensions are (1) *identity prototypicality* – embodying the distinct qualities that define the group and what it means to be a member of the group (i.e., 'being one of us'), (2) *identity advancement* – championing the shared interests of the group rather than personal interests or those of other groups (i.e., 'doing it for us'), (3) *identity entrepreneurship* – creating and promoting a sense of 'we' and 'us' by defining what 'us' means (and does not mean) for followers (i.e., 'crafting a sense of us'), and (4) *identity impresarioship* – developing and promoting events, activities and structures that create material realities which allow group members to live out their shared identity (i.e., 'making us matter'; Steffens et al., 2014a).

In a review of studies that have explored the impact of these facets of identity leadership, Steffens and Haslam (2017) observed that they are important predictors of the degree to which group members identify with their specific group (e.g., in a sporting context with their team or club). Nevertheless, to date we know little about the ways in which particular *dimensions* of identity leadership relate to *dimensions* of social identification, as well as how these relationships play out over time. This is important because the absence of this formative research means that we lack an understanding of which dimensions of identity leadership and social identification are most strongly related. As a sport coach or mental performance consultant, greater knowledge of the concurrent and prospective associations between specific dimensions would make the process of building identity leadership and social identification at the most appropriate time more efficient. Are there certain dimensions most strongly related at certain points of the season but not others? Do the prospective associations apply in one direction but not the other? The extant literature does not provide any answer to these questions.

At the same time, it is noteworthy that although groups and teams typically have formal leaders (who may be able to bring about identity transfer), there are also informal leaders who contribute to group success. Indeed, in sport contexts, it has been found that leadership is most effective when it is shared among group members and not necessarily centred on one or just a few members (Cotterill & Fransen, 2016; Fransen et al., 2014). As an example, Fransen and colleagues (2014) found that 44% of athletes and coaches did not perceive their captains to be the principal leaders of their team, but rather leadership was primarily displayed by other members of the team who acted in informal leadership roles. Indeed, recent research has shown that the association between identity leadership from informal athlete leaders and team identification is stronger than that from the team captain or the coach (Fransen et al., 2020).

Taken together, it thus appears that an effective team leadership structure may be one where multiple members of a team engage in identity leadership to reinforce social identity for all members of a team. Moreover, from a practical perspective, a positive relationship between identity leadership and social identification points to potential ways to build and promote social identification.

It is also important to note that previous research that has explored leaders' own social identification provides evidence of a reciprocal relationship between this and identity leadership. Specifically, social identification has been argued to also facilitate perceptions of leaders' prototypicality, identity advancement, and group-oriented behaviour (Haslam, Reicher, & Platow, 2020). Empirical evidence for these ideas can be found in organizational psychology, where employees who identify strongly with their team and their organization are more likely to be viewed by others as a source of leadership (Chrobot-Mason et al., 2016). Translated to the sport context, this suggests that when a teammate is seen to identify more strongly with the team, their behaviors are more likely be seen as indicative of identity leadership that advances and mobilizes the group towards its common goals. The bidirectional association between these constructs is the core hypothesis that the present research explores, while seeking also to understand the specific dimensions of identity leadership and social identification that are most strongly related.

In line with this hypothesis, theoretical and empirical evidence links identity leadership and social identification within a number of group settings. However, our knowledge of this association in sport is limited to the extent that we lack the empirical and practical understanding of how specific dimensions of identity leadership and social identification are related. As outlined, the constructs of identity leadership and social identification are multidimensional,

which means that elements of each construct may show a stronger or weaker relation compared with others. Not knowing these details impedes not only advancements in theory, but also important practical applications in sport. Furthermore, the extant literature is bound by the primary use of self-report questionnaire data, which may limit our understanding of these relationships. As evidenced by the social identity approach to leadership and social identity theory, our sense of self (Tajfel, 1981) and our shared sense of 'us' and 'we' (Haslam, Reicher, & Platow, 2020) is rooted in social group processes. As such, these constructs may be better understood using a method which allows us to study identity processes within the social system in which they take place (i.e., an intact sport team). A methodological advance that lends itself to such a design is social network analysis (SNA).

SNA is a novel form of analysis that provides an in-depth perspective on a team as a whole by exploring relationships between all possible dyads within a team from the perspective of each member (Borgatti et al., 2018). This methodology advances on previous research which has relied largely on individual-level self-reports to study group processes – a method which is limited because (a) these consider only the perceptions of the individual athlete (i.e., the perceiver) and not the entire team, (b) inherent biases may emerge when reporting one's own behaviours, and (c) it is unclear whether athletes rely on their personal experiences or think about typical team experiences. In contrast, the value of SNA is that participants rate each of their individual teammates on constructs of interest (e.g., identity leadership, social identification) to access both individual-level data (i.e., my perceptions of others and others' perceptions of me) as well as team-level data (i.e., all perceptions in the team combined). As evidence of the utility of this approach, a recent study found that athletes' self-perceived identity leadership was an important predictor of their leadership quality as perceived by teammates (Fransen et al., 2020b).

The Present Study

The goal of the present study is to explore and disentangle the relationship between identity leadership and social identification using SNA. Links between team members' perceived identity leadership and their perceived team members' social identification were investigated in two ways. First, the concurrent associations between the two constructs were tested early and later in a team's regular season (i.e., at two separate measurement periods). Specifically, the team networks for each of the four dimensions of identity leadership were correlated with networks for each of the three dimensions of social identification at each time point. Here, it was hypothesized that the obtained network for identity leadership would be positively associated with the network for social identification at both time points (H1).

Second, two additional sets of regression analyses were carried out. In the first, later season social identification was regressed upon early season identity leadership. In light of the theorizing discussed above, we hypothesized that team members who were rated as displaying high levels of identity leadership (across one or more of the four dimensions) early in the season would be seen as identifying more strongly with the team later in the season (i.e., so that there would be a significant positive association between early season identity leadership and later season social identity; H2). To examine the reciprocal relationships, a second analysis regressed later season identity leadership upon early season social identification. Here it was hypothesized that team members who were seen to identify more strongly with the team early in the season would be perceived as engaging in higher levels of identity leadership later in the season (H3).

Methods

Participants and Design

A total of 23 competitive sport teams consisting of 388 athletes (51.8% females) participated in this study (basketball = 6, volleyball = 6, soccer = 6, cross-country running = 1, rowing = 1, lacrosse = 1, ice hockey = 1, Nordic skiing = 1). Teams were recruited both from [*country blind for peer review*] (k = 11) and [*country blind for peer review*] (k = 12), competed at a highly competitive level (e.g., [*blind for peer review*]), and represented male (k = 10), female (k = 10), and mixed-sex teams (k = 3). Athletes were on average 20.7 years old (SD = 3.5; 84.3% of sample aged 23 or under), had 11.9 years of experience competing in their sport (SD = 6.1 years), and had been competing on their current team for 3.1 years (SD = 2.6 years).

The study used a prospective design where participants completed the study measures (a) both early and late in their respective regular season competition (k = 18; average time between questionnaire completion = 19 weeks; range = 4 to 22[1]) or (b) only late in their season (k = 5). As a result, the data of 18 teams were eligible for early and later season analyses, and 5 teams only for later season analyses. The questionnaires were administered in person with a research assistant present so that if necessary, participants could ask any questions to seek clarification. Team roster sizes ranged from 11 to 25 members (M_{size} = 17.0 members, SD = 4.9), with the smallest teams having the size of a typical basketball or volleyball team and the largest teams being ice hockey, lacrosse, and soccer teams. Each team is described in detail in Table 1 with

[1] Note that one team had only four weeks between early and late season measures due to a short overall season (i.e., Nordic skiing). The remaining teams all ranged from 16 to 22 weeks between measures.

respect to athlete sex, sport type, roster size, and the number of participants from which data could be gathered at the different measurement points.

Procedure

As part of a larger research project focused on the use of SNA methodology to obtain deeper insight into the relationship between identity leadership and group dynamics in competitive sport teams, 25 sport teams were contacted to participate in the research. Two teams chose not to participate, resulting in a response rate of 92% (23 of 25 teams). The project was approved by an institutional review board of the first and last authors, and ethical standards of the American Psychological Association were followed in the conduct of the study. All participants provided informed consent, and anonymity was guaranteed to all participants. The head coach of each team was emailed to seek permission for their athletes' participation in the study. If the coach and athletes agreed, a team roster was requested for the purpose of prepopulating the study questionnaires. Participants completed the questionnaires individually and were encouraged to ask questions if any of the rating criteria were unclear. In terms of study incentives, athletes in [*country blind for peer review*] did not receive an incentive for participating in the study and athletes in [*country_blind for peer review*] received a team meal and could also participate in a draw for a $25 Sport Store gift card (one draw per team). The head coach of all participating teams received an incentive in the form of an anonymized, aggregate identity leadership structure for their team after the study was completed. In terms of the larger research project, the hypotheses tested here were unique in both operationalization of constructs and study methodology (see also [*blind for peer review*]).

Measures

Identity leadership. Participants rated the extent to which they perceived their teammates to engage in the four dimensions of identity leadership using the Identity Leadership Inventory-Short Form (Steffens et al., 2014). Prior to rating each teammate (using a prepopulated roster list), participants read a definition of each identity leadership dimension, and were asked to indicate for each team member the extent to which they acted in accordance with the described leadership qualities. The definition for each of the four identity leadership dimensions can be found in Table 2. Responses were captured on an 11-point Likert-type scale (where 0 = *not at all*; 10 = *very much*). The use of this specific scale is consistent with previous social network analysis research, which aimed to increase variability in responding (Fransen et al., 2020b).

Social identification. Participants indicated the extent to which they perceived their teammates to identify with the team on the three dimensions of social identity (ingroup ties, cognitive centrality, ingroup affect; see Cameron, 2004) using a prepopulated roster list of their team. Prior to rating each teammate, participants read a definition of the three social identity dimensions, and were asked to indicate for each team member the extent to which that athlete identified with the team on each of these dimensions. The definition for each of the three social identity dimensions can also be found in Table 2. Responses for each team member were captured on a 11-point Likert-type scale (where 0 = *not at all*, 10 = *very much*).

Data Analysis

The completion of each teammate nomination procedure resulted in seven finite $n \times n$ matrices (four identity leadership networks and three social identification networks, with n being the total number of athletes on a team roster) across either one or two measurement periods (i.e., 14 networks in total for 18 of 23 teams). Each matrix was directed, meaning that each score was a unique perception of one athlete rating another (i.e., so that the score that athlete *a* ascribed to

athlete *b* does not need to be the same as the score from athlete *b* to athlete *a*). All analyses were conducted using UCINET software (Borgatti et al., 2002).

Quadratic assignment procedure (QAP) hypothesis tests were performed to examine the relationships between the different types of networks (i.e., identity leadership and social identity dimensions at early and later season) within each team (Krackhardt, 1988). Due to the autocorrelated structure of network data (Wasserman & Faust, 1994), biases are present insofar as the assumption of independence of responses is violated (i.e., dyadic links between two athletes). As a result, we conducted QAP tests, which are restricted permutation tests, making them more robust against these violations (Dekker et al., 2007). QAP correlations first were computed between the four different identity leadership networks and the three different social identity networks for each team separately – once for early season (k = 18) and once for later season networks (k = 23). The goal of this analysis was to examine whether the ties in the identity leadership networks were related to the ties in the social identity networks. QAP correlations are similar to the more typical correlation measure, Pearson's r (Borgatti et al., 2018). For example, a high correlation would indicate that, for a given team, members who are seen as strong identity leaders were also seen as identifying strongly with the team.

The two sets of multiple QAP regressions were then computed to test prospective relationships between the study constructs. The three social identity dimension networks at later season were regressed upon the four identity leadership dimension networks at early season for each team separately. Like the QAP correlations, these regressions correspond with multiple linear regressions (Borgatti et al., 2018) and produce an R^2 (i.e., variance accounted for in the dependent variable) and standardized beta coefficients for each independent variable (i.e., the standardized unit increase in the dependent variable associated with a one standard deviation

increase in that independent variable). The coefficient of determination (i.e., R^2) and standardized regression weights from the multiple QAP regressions are reported for each team, and an average regression coefficient was computed for each identity leadership dimension within the three regressions.

In the case of this first multiple QAP regression, an example interpretation of a positive significant association at the team level would indicate that team members who were seen as showing identity leadership early in the season were also perceived as identifying more strongly with the team later in the season. To test the reciprocal relationship, we conducted a second set of multiple QAP regressions in which ratings of the four identity leadership dimension networks later in season were regressed on the three social identification dimension networks that were assessed early in the season. Again, an example interpretation of a positive significant association here would indicate that team members who were seen to identify more strongly with the team early in the season were also perceived to show strong identity leadership later in the season. The 18 teams with early and later season data were eligible for this analysis.

Results

Concurrent Relationships Between Identity Leadership Networks and Social Identification Networks

To test H1, QAP correlations between measures were examined for each team in the early (k = 18) and later season (k = 23). An examination of the correlations in Tables 3, 4, and 5 indicates that for most teams in the study, there were positive and statistically significant correlations between dimensions of identity leadership and dimensions of social identification with a few non-significant exceptions. This suggests that even though there was variability across the teams, the identity leadership and social identification networks aligned, and tended to

be positively associated with each other. We then examined the averaged correlations across all teams at early and later season measures. In line with H1, moderately strong positive correlations were found both early and later in the season for each dimension of identity leadership and ingroup ties ($.58 \leq r_{average} \leq .68$; see Table 3), cognitive centrality ($.48 \leq r_{average} \leq .56$; see Table 4), and ingroup affect ($.46 \leq r_{average} \leq .55$; see Table 5). To illustrate the between-team variability, these correlations ranged from $r = -.02$ (Team 14, later season identity prototypicality and cognitive centrality) to $r = .86$ (Team 7, early and later season identity impresarioship and ingroup ties, Team 10 later season impresarioship and ingroup ties).

Prospective Relationships Between Early Season Identity Leadership and Later Season Social Identification Networks

To test H2, multiple QAP regressions were examined for teams with network data both early and later in the season ($k = 18$). In line with H2, there was a significant positive prospective association between identity leadership and social identification networks. The strongest prospective relationships between early season identity leadership and later season social identity networks appeared for the ingroup ties component of social identification (see Table 6). More specifically, athletes who were seen as engaging in greater identity leadership early in the season also were perceived to have a stronger sense of bonding and belongingness with other team members later in the season. An examination of the four identity leadership network predictors revealed that on average identity entrepreneurship was most strongly associated with ingroup ties ($\beta_{average} = .24$), while the coefficients ($\beta_{average}$) for the remaining identity leadership dimensions were distinctly weaker, ranging from .02 to .14. The variance in the network of ingroup ties accounted for by the identity leadership network predictors was significant for all teams (R^2s = .08 - .61, ps < .05).

When cognitive centrality networks were the dependent variable (Table 6), the identity leadership networks accounted for a significant amount of the variance (R^2s = .05 - .41, ps < .05) in all but one of the teams (R^2 = .03, p = .09). An inspection of the coefficients revealed that for later season cognitive centrality, the strongest association was with early season identity impresarioship ($\beta_{average}$ = .16). In comparison, the coefficients ($\beta_{average}$) of other identity leadership dimensions were all weaker (ranging from .07 to .12).

Similarly, identity leadership networks accounted for a significant amount of the variance for ingroup affect (R^2s = .06 - .49, ps < .05) in all but three of the teams (R^2s = .06 - .09, ps ≥ .06; Table 6). As with ingroup ties, the strongest prospective association for later season ingroup affect was early season identity entrepreneurship ($\beta_{average}$ = .13). This association was slightly stronger than other dimensions of identity leadership for which the coefficients ($\beta_{average}$) ranged from .07 to .11. These findings provide support for H2.

We should note that beta coefficients substantially ranged between teams, which illustrates the between-team variability in the association between early season identity leadership and later season social identity. While most coefficients were positive (some even as high as β = .79 between identity entrepreneurship and ingroup ties in Team 10), in some cases, these coefficients were also negative in direction (as low as β = -.38 between identity advancement and ingroup ties in Team 12, and between identity impresarioship and ingroup affect in Team 6).

Prospective Relationships Between Early Season Social Identification and Later Season Identity Leadership Networks

Using multiple QAP regression to test H3, we found a significant positive prospective association between social identification and identity leadership networks. As with H2, the

strongest prospective relationships between early season social identification and later season identity leadership networks appeared between ingroup ties and each of the four later season identity leadership dimensions. In fact, the pattern across the dimensions of identity leadership was very similar.

For identity prototypicality (Table 7), the social identification networks accounted for a significant portion of the variance (R^2s = .11 - .58, ps < .05) in all but one of the teams (R^2 = .13, p = .08). An inspection of the coefficients indicated a stronger positive association for ingroup ties ($\beta_{average}$ = .32) than either cognitive centrality ($\beta_{average}$ = .11) or ingroup affect ($\beta_{average}$ = .11). The same pattern was obtained for identity advancement, entrepreneurship, and impresarioship (Table 7). In each case the social identification networks accounted for a significant portion of the variance (R^2s= .07 - .58, .11 - .62, .11 - .59 respectively; all ps < .05) in most teams (all but two, one, and three, respectively; R^2s = .04 - .09, ps ≥ .06). An inspection of the coefficients also indicated that in each case the strongest positive associations were detected for ingroup ties (βs$_{average}$ = .28, .37, .35, respectively) than either cognitive centrality (βs$_{average}$ = .09, .10, .09, respectively) or ingroup affect (βs$_{average}$ = .15, .12, .10, respectively). Overall, then, the pattern of results supports H3 in so far as athletes' perceptions of their teammates' social identification were positively associated with subsequent perceptions of those teammates' identity leadership.

To illustrate between-team variability in the association between early season social identity and later season identity leadership, beta coefficients also ranged between teams. As in the previous set of prospective analyses, some coefficients were negative in direction (as low as β = -.32 between ingroup affect and identity entrepreneurship in Team 2) and as high in the positive direction as β = .71 (between ingroup ties and identity impresarioship in Team 19).

Discussion

The purpose of this study was to better understand how athletes' perceptions of other team members' identity leadership relate to their perceptions of those same team members' social identification. More specifically, we used SNA to test the hypothesised concurrent and prospective associations between the degree to which athletes regarded their teammates as identity leaders and the degree to which they saw those same teammates as identifying with the team. The novel insights gained through this analysis suggest that when teammates are seen as acting in ways that embody, advance, craft, and embed a sense of 'us' (i.e., as displaying identity leadership), they are also seen to identify more strongly with the team in ways that span both cognitive (i.e., ingroup ties, cognitive centrality) and affective elements of identity (i.e., ingroup affect).

The study results address a notable gap in the literature by offering important theoretical and empirical findings to understand the relationships between identity leadership and social identity. Indeed, while there was variation in the relationships between teams, across the teams it was the entrepreneurship and impresarioship dimensions of identity leadership that were associated with the ingroup ties dimension of social identification. In terms of specifics, the most consistent and strongest prospective associations (when averaged) were detected between early season ingroup ties and later season identity leadership dimensions. In the other direction (i.e., early season identity leadership and later season social identification), the relationships were not as consistent and were weaker in magnitude. This adds important nuance to existing theory – for example, in suggesting that early identification in the form of greater bonding and belongingness may be a facilitator of subsequent identity leadership. Similarly, this also offers preliminary practical insight – for example, that offering opportunities to build greater ingroup ties early in

the season could open a pathway for athletes to later lead their team in identity enhancing ways. In what follows, we unpack some of the key implications that emerged from our findings.

Consistent with H1, to the extent that athletes regarded team members as engaging in identity leadership, they perceived those same teammates as identifying strongly with the team at two different points of team development (i.e., early and later in the season). Each dimension of identity leadership was positively correlated (with all relationships of moderate strength) with each dimension of social identity. In addition, we tested the prospective association between identity leadership and social identity networks and found evidence of the proposed bidirectional hypotheses. Results suggested mutually reinforcing relationships between perceptions of identity leadership and social identification whereby team members who perceived other members as a source of identity leadership early in the season also perceived those members as identifying more strongly with the team later in the season (and vice versa; consistent with H2 and H3).

Of particular interest was the finding that the more action-oriented dimensions (i.e., identity advancement, entrepreneurship, and impresarioship) showed stronger concurrent and prospective associations with social identification networks than the more passive prototypicality dimension. This may suggest that perceptions of team members' social identification hinge on what they are perceived to *do* (i.e., to develop and create structures to implement a sense of 'us' through active identity-developmental behaviours), not just which attributes they are seen to possess (i.e., being more or less prototypical of the group). This accords with the emphasis of more recent research into identity leadership, which has asserted that this is often as much – and sometimes more – about "doing" than "being" (e.g., McLaren et al., 2021). In particular, rather than leadership being only about identity prototypicality (Hogg, 2001), it also rests on the degree to which a leader is perceived to engage in identity advancement, entrepreneurship, and

436 impresarioship (Haslam et al., 2020; Reicher et al., 2005; Steffens et al., 2014). This key finding
437 highlights the novelty of how social network analysis can shed light beyond that of the previous
438 self-report approaches with social identity in sport.

439 Indeed, generally speaking, the pattern of results indicated that identity entrepreneurship
440 (followed by impresarioship) tended to have the strongest relationships with social identity
441 dimensions. This finding suggests that athletes who are perceived to bring teammates together by
442 clarifying what it means to be a member of the team (which then helps *others* to gain a sense of
443 connection to the team; Steffens et al., 2014) are seen by their teammates as identifying more
444 strongly with that particular group (i.e., social identification). Unsurprisingly perhaps, this
445 suggests that one important way to foster others' perceptions that one is 'in it for the group' is to
446 endeavour to talk about and shape the group in ways that affirm and embed the importance of the
447 group.

448 Interestingly, the strongest associations were found between the ingroup ties dimension
449 of social identification and (the four dimensions) of identity leadership. Put in the context of our
450 operationalization of each construct, athletes who perceived a teammate as engaging in crafting a
451 sense of 'us' also regarded that teammate as having stronger bonds with others throughout the
452 season. Taken together, we see initial evidence that a teammate's active identity-developmental
453 behaviour of identity entrepreneurship was of particular importance as it related to perceived
454 social identification of that teammate in the form of bonding and belongingness. Related to the
455 study design (i.e., using SNA to generate perceptions of teammates' identity leadership and
456 social identification), this may suggest that behaviours associated with demonstrating stronger
457 ingroup ties may be more tangible as they are noticed more in those who are seen to engage in
458 more action-oriented identity leadership.

One of the key strengths of this study was that the use of SNA and the corresponding QAP analyses allowed us to examine both identity leadership and social identity in a novel way. As described here (and in other sport group dynamics research; e.g., McLaren & Spink, 2020), an SNA approach offers unique insight as athletes consider each of their teammates individually rather than being asked to make generalizations about the team (e.g., by reflecting only on the identity leadership of team captains; Steffens et al., 2014) or to reflect only on one's own identification (Bruner & Benson, 2018). Further, the prospective research design allowed us to test the relationship between identity leadership and social identity networks over time in a large number of competitive sport teams. This sample of teams included those comprised of athletes of different sex (i.e., men's, women's, and mixed athlete sex composition) and from different types of sport (i.e., independent and interdependent), in which group dynamics constructs such as leadership and identity play an important role in the sport experience (e.g., Evans et al., 2012). In spite of this, there was a notable consistent pattern of relationships between identity leadership and social identification, suggesting that the hypotheses we have tested (and supported) have broad relevance rather than being specific to particular sporting groups or contexts.

Limitations and Directions For Future Research

Despite the notable strengths of the present study, which include the longitudinal social network design and the large sample of complete sport teams, it is important to acknowledge the limitations of the study and highlight opportunities for future research. First, although we tested the association between identity leadership and social identification across both concurrent and prospective aspects of the study design, we still cannot make inferences about the causal links between these constructs. Related to this point, the use of QAP regressions was of value because it allowed us to control for the non-independence of data in a SNA-based design. However, one

limitation of the analysis is that is does not allow for a hierarchical model to control for prior perceptions of the dependent variable (or other covariates). Accordingly, we are unable to comment on the percentage of unique variance accounted for by an independent variable (above and beyond the stability of the outcome). Also, the averaging of team-level scores to produce an overall correlation or regression coefficient is designed to give a general indication of the relative strength of each construct, but we also have to be mindful of the fact that the relationships do not index the varied nature of individual team scores. We therefore recommend the interpretation of these averaged team-level network data with caution. Going forward, it will be important to replicate and follow up the present research with experimental work that manipulates both identification and identity leadership in order to clarify their causal status.

In addition, although studying a highly competitive team sport sample is a strength, we cannot infer that the same relationships would emerge for all competitive levels and ages. For instance, one might wonder if the same patterns emerge for youth teams or those with a more recreational focus. In this regard it is notable that while social identity research in sport has explored the importance of social identification in youth sport contexts (e.g., Bruner et al., 2020), the same cannot be said for identity leadership. It is likely that this limitation is related to the absence of a measure validated for youth samples (Steffens et al., 2014). Future research would benefit from such a contribution.

Related to measurement, it is also important to acknowledge that our measure of social identification deviated from the typical self-report measures used in research (e.g., Bruner & Benson, 2018). Specifically, instead of using multiple items to measure one construct, the items were combined in one overarching definition of that specific construct, that then needs to be rated for each of the team members. This approach is recommended when adopting social

network analyses to reduce the burden on participants. However, we should note that no previous study has evidenced the validity of the shortened measure of social identity or of its application to SNA where an athlete is asked to reflect on the social identity of others. We encourage readers to be mindful of these adaptations when interpreting the findings. In the future, it will also be important to examine athletes' identification with the team (i.e., social identity) not as a 'stand alone' outcome, but as a mechanism through which identity leadership behaviours have an impact on other outcomes in sporting contexts (e.g., well-being, mental health, resilience; Vella et al., 2020). In particular, with recent research suggesting a positive link between a global identity measure and athlete well-being (and a negative link with psychological distress; Vella et al., 2020; see also Cruwys et al., 2020), it would be appropriate to build on this work by testing separate dimensions of social identity on mental health, through the lens of identity leadership.

From a more applied perspective, it will also be important for future research to investigate the specific actions, behaviours, or interactions that serve as a source of information that someone is a more (or less) strong identity leader or identifies more (or less) strongly with the team. For instance, one of the more prominent dimensions of identity leadership to emerge in this study was identity entrepreneurship, defined generally as crafting a sense of 'us' by making all members feel that they are a part of the same team and increasing cohesion and inclusiveness within the team. Building on this, future qualitative designs might probe athletes to reflect on *how* the leaders on their team accomplish this, and establish whether specific forms of identity entrepreneurship stand out as cues for the way athletes come to think of their teammates as identity leaders. A qualitative design might also help to explain why in some teams identity leadership and social identity are negatively associated with each other. For instance, for some groups certain qualifiers might exist in the team environment (e.g., normative content of the team

identity; external factors such as a losing streak) that our quantitative measures were not sensitive enough to detect and might alter the nature of the relationship.

Furthermore, identifying these salient behaviours through observational research may provide specific examples and points of emphasis that are pertinent to identity leadership interventions with athletes. As an example, recent observational studies of athlete behaviours within team contexts have used electronic ambulatory recording devices to capture real-time conversations between athletes in their natural environments, which can then be coded into different behaviour types (see Herbison et al., 2020). This novel method may help researchers capture athletes' actual identity leadership behaviours and interactions in ways that provide important insight into its relationship with other outcomes of interest.

Conclusion

Based upon the social identity approach to leadership, this study used social network analyses to shed light on how athletes' perceptions of their teammates' ability to embody, advance, craft, and embed a sense of 'us' (i.e., their identity leadership) were associated with perceptions of their teammates' social identification. Overall, we found that athletes who saw their teammates as engaging more in identity leadership (particularly identity entrepreneurship) viewed those same teammates as identifying more strongly with the team in ways that spanned both cognitive (i.e., ingroup ties, cognitive centrality) and affective (i.e., ingroup affect) identity elements. These findings are important from both a theoretical and a practical perspective in suggesting identity leadership and social identification are mutually reinforcing so that identity leadership may foster subsequent social identification but also that social identification may give rise to perceptions of identity leadership.

However, keeping in mind the preliminary nature of the study and the non-experimental design, this appears to suggest that offering opportunities to build greater ingroup ties early in the season could be one way to open a pathway for athletes to lead in identity enhancing ways towards teammates. Examples may include getting to know the history of the club, training activities that help form an understanding of other team members' strengths, and engaging in social activities that allow the team to get together. Such activities may not only help members 'feel at home' in their team but they may also facilitate the development of better subsequent identity leadership in the team. These insights thus serve as foundational research for the development of intervention programs to develop both leadership and identification (e.g., $5R^S$; Fransen, et al., 2020). In particular, these findings point to the dual importance of team members doing identity leadership to encourage identification but also being sufficiently identified to want to do that identity leadership.

References

Bruner, M. W., Balish, S. M., Forrest, C., Brown, S., Webber, K., Gray, E., McGuckin, M., Keats, M. R., Rehman, L., & Shields, C. A. (2017). Ties that bond: Youth sport as a vehicle for social identity and positive youth development. *Research Quarterly for Exercise and Sport*, *88*, 209-214. http://dx.doi.org/10.1080/02701367.2017.1296100

Bruner, M. W., & Benson, A. J. (2018). Evaluating the psychometric properties of the Social Identity Questionnaire for Sport (SIQS). *Psychology of Sport and Exercise*, *35*, 181-188. http://doi.org/10.1016/j.psychsport.2017.12.006

Bruner, M. W., Boardley, I. D., Benson, A. J., Wilson, K. S., Root, Z., Turnnidge, J., Sutcliffe, J., & Côté, J. (2018). Disentangling the relations between social identity and prosocial and antisocial behavior in competitive youth sport. *Journal of Youth and Adolescence*, *47*, 1113-1127. https://doi.org/10.1007/s10964-017-0769-2

Bruner, M. W., Sutcliffe, J., Herbison, J., Martin, L. J. (2020). A social identity approach to enhancing youth development and sport participation. In *The Power of Groups in Youth Sport* (pp. 91-105). London: Academic Press, Elsevier. https://doi.org/10.1016/B978-0-12-816336-8.00006-8

Borgatti, S. P., Everett, M. G., & Freeman, L. C. (2002). Ucinet for Windows: Software for social network analysis. *Harvard, MA: Analytic Technologies*, *6*.

Borgatti, S. P., Everett, M. G., & Johnson, J. C. (2018). *Analyzing social networks*. Sage.

Cameron, J. E. (2004). A three-factor model of social identity. *Self and Identity*, *3*, 239-262. https://doi.org/10.1080/13576500444000047

583 Cotterill, S. T., & Fransen, K. (2016). Athlete leadership in sport teams: Current understanding
584 and future directions. *International Review of Sport and Exercise Psychology, 9*, 116-
585 133. https://doi.org/10.1080/1750984X.2015.1124443
586 Chrobot-Mason, D., Gerbasi, A., & Cullen-Lester, K. L. (2016). Predicting leadership
587 relationships: The importance of collective identity. *The Leadership Quarterly, 27*, 298-
588 311. https://doi.org/10.1016/j.leaqua.2016.02.003
589 Cruwys, T., Stevens, M., Haslam, C., Haslam, S. A., & Olive, L. (2020). Mental health and
590 resilience. In S. A. Haslam, K. Fransen, & F. Boen (Eds). *The new psychology of sport:*
591 *The social identity approach* (pp.265-284). London: Sage.
592 Cruwys, T., Steffens, N. K., Haslam, S. A., Haslam, C., Jetten, J., & Dingle, G. A. (2016). Social
593 Identity Mapping: A procedure for visual representation and assessment of subjective
594 multiple group memberships. *British Journal of Social Psychology, 55*, 613-642.
595 https://doi.org/10.1111/bjso.12155
596 Dekker, D., Krackhardt, D., & Snijders, T. A. (2007). Sensitivity of MRQAP tests to collinearity
597 and autocorrelation conditions. *Psychometrika, 72*, 563-581.
598 https://doi.org/10.1007/s11336-007-9016-1
599 Evans, M. B., Eys, M. A., & Bruner, M. W. (2012). Seeing the "we" in "me" sports: The need to
600 consider individual sport team environments. *Canadian Psychology/Psychologie*
601 *Canadienne, 53*, 301-308. https://doi.org/10.1037/a0030202
602 Eys, M. A., Bruner, M. W., & Martin, L. J. (2019). The dynamic group environment in sport and
603 exercise. *Psychology of Sport and Exercise, 42*, 40-47. https://doi.org/dr4k
604 Fransen, K., Haslam, S. A., Steffens, N. K., & Boen, F. (2020). Standing out from the crowd:
605 Identifying the traits and behaviors that characterize high-quality athlete leaders on and

606 off the field. *Scandinavian Journal of Medicine and Science in Sports, 30*, 766– 786.
607 https://doi.org/10.1111/sms.13620
608 Fransen, K., Haslam, S. A., Steffens, N. K., Mallett, C., Peters, K., & Boen, F. (2020). Making
609 'us' better: High-quality athlete leadership relates to health and burnout in professional
610 Australian football teams. *European Journal of Sport Science, 20*, 953–
611 963. https://doi.org/10.1080/17461391.2019.1680736
612 Fransen, K., Haslam, S. A., Steffens, N. K., Mallett, C. J., Peters, K., Mertens, N., & Boen, F.
613 (2020). All for us and us for all: Introducing the 5R Shared Leadership Program.
614 *Psychology of Sport and Exercise, 51*, 1-13.
615 https://doi.org/10.1016/j.psychsport.2020.101762
616 Fransen, K., Vanbeselaere, N., De Cuyper, B., Vande Broek, G., & Boen, F. (2014). The myth of
617 the team captain as principal leader: Extending the athlete leadership classification within
618 sport teams. *Journal of Sports Sciences, 32*, 1389-1397.
619 https://doi.org/10.1080/02640414.2014.891291
620 Haslam, C., Cruwys, T., Chang, X.-L., Bentley, S. V., Haslam, S. A., Dingle, G. A., & Jetten, J.
621 (2019). GROUPS 4 HEALTH reduces loneliness and social anxiety in adults with
622 psychological distress: Findings from a randomized controlled trial. *Journal of*
623 *Consulting and Clinical Psychology, 87*, 787-801. http://doi.org/10.1037/ccp0000427
624 Haslam, C., Jetten, J., Cruwys, T., Dingle, G., & Haslam, A. (2018). *The new psychology of*
625 *health: Unlocking the social cure*. Routledge: London
626 Haslam, S. A., Fransen, K., & Boen, F. (2020). *The new psychology of sport and exercise: The*
627 *social identity approach*. Sage.
628 Haslam, S. A., Reicher, S. D., & Platow, M. J. (2020). *The new psychology of leadership:*

Identity, influence, and power (2nd ed.). Routledge.

Haslam, S. A., Steffens, N. K., Peters, K., Boyce, R. A., Mallett, C. J., & Fransen, K. (2017). A social identity approach to leadership development: The 5R program. *Journal of Personnel Psychology, 16,* 113-124. https://doi.org/10.1027/1866-5888/a000176

Herbison, J. D., Martin, L. J., Slatcher, R. B., Boardley, I., Benson, A., Sutcliffe, J., McLaren, C. D., Carré, J. M., Côté, J., Coletti, J. T., Bruner, M. W. (2020). The Electronically Activated Recorder (EAR): A novel approach for examining social environments in sport. *International Review of Sport and Exercise Psychology*. Advance online publication. https://doi.org/10.1080/1750984X.2020.1790025

Hogg, M. A. (2001). A social identity theory of leadership. *Personality and Social Psychology Review, 5,* 184-200. https://doi.org/10.1207/S15327957PSPR0503_1

Hornsey, M. J. (2008). Social identity theory and self-categorization theory: A historical review. *Social and Personality Psychology Compass, 2,* 204-222. https://doi.org/fshg98

Krackhardt, D. (1988). Predicting with networks: Nonparametric multiple regression analysis of dyadic data. *Social networks, 10,* 359-381.https://doi.org/10.1016/0378-8733(88)90004-4

Lee, E. S., Park, T. Y., & Koo, B. (2015). Identifying organizational identification as a basis for attitudes and behaviors: A meta-analytic review. *Psychological Bulletin, 141,* 1049-1081. https://doi.org/10.1037/bul0000012

Martin, L, Balderson, D., Hawkins, M., Wilson, K., & Bruner, M.W. (2018). The influence of social identity on self-worth, commitment, and effort in school-based youth sport. *Journal of Sports Sciences, 36,* 326-332. https://doi.org/10.1080/02640414.2017.1306091

McLaren, C. D., Boardley, I. D., Benson, A. J., Martin, L. J., Fransen, K., Herbison, J. D., Slatcher, R. B., Carré, J. M., Côté, J., & Bruner, M. W. (2021). Follow the leader:

Identity leadership and moral behaviour in social situations among youth sport teammates. *Psychology of Sport & Exercise, 55*, 101940. http://doi.org/10.1016/j.psychsport.2021.101940

McLaren, C. D., & Spink, K. S. (2020). Examining the prospective relationship between communication network structure and task cohesion and team performance. *Group Dynamics: Theory, Research, and Practice*, 27, 74-87. doi: 10.1037/gdn0000110

Miller, A. J., Slater, M. J., & Turner, M. J. (2020). Coach identity leadership behaviours are positively associated with athlete resource appraisals: The mediating roles of relational and group identification. *Psychology of Sport and Exercise, 51*, 101755.

Slater, M. J., & Barker, J. B. (2019). Doing social identity leadership: exploring the efficacy of an identity leadership intervention on perceived leadership and mobilization in elite disability soccer. *Journal of Applied Sport Psychology*, 31, 65-86. https://doi.org/fzxg

Slater, M. J., Coffee, P., Barker, J. B., & Evans, A. L. (2014). Promoting shared meanings in group memberships: A social identity approach to leadership in sport. *Reflective Practice, 15*, 672-685. https://doi.org/10.1080/14623943.2014.944126

Steffens, N. K., Haslam, S. A., Reicher, S. D., Platow, M. J., Fransen, K., Yang, J., ..., & Boen, F. (2014). Leadership as social identity management: Introducing the Identity Leadership Inventory (ILI) to assess and validate a four-dimensional model. *The Leadership Quarterly, 25*, 1001-1024. https://doi.org/10.1016/j.leaqua.2014.05.002

Steffens, N. K., & Haslam, S. A. (2017). Building team and organisational identification to promote leadership, citizenship and resilience. In *Managing for resilience: A practical guide for employee wellbeing and organizational performance* (pp. 150-167). Routledge.

Steffens, N. K., Munt, K. A., van Knippenberg, D., Platow, M. J., & Haslam, S. A. (2020).

Advancing the social identity theory of leadership: A meta-analytic review of leader group prototypicality. *Organizational Psychology Review*, 2041386620962569.

Stevens, M., Rees, T., & Cruwys, T. (2021). Social identity leadership in sport and exercise: Current status and future directions. *Psychology of Sport and Exercise*, 101931.

Tajfel, H. (1972). Experiments in a vacuum. In J. Israel & H. T. Triandis (Eds.), *The context of social psychology: A critical assessment* (pp. 69–119). London: Academic Press.

Tajfel, H. (1981*). Human groups and social categories: Studies in social psychology*. Cambridge: Cambridge University Press.

Tajfel, H., & Turner, J. (1979). An integrative theory of intergroup conflict. In W. Austin (Ed.), *The Social Psychology of Intergroup Relations* (pp. 33-47). Monterey, CA: Brooks-Cole.

Turner, J. C., & Haslam, S. A. (2001). Social identity, organizations and leadership. In: M. E. Turner (Ed.), *Groups at work: Advances in theory and research* (pp. 25-65). Erlbaum.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. (1987). *Rediscovering the social group: A self-categorization theory*. Cambridge, MA: Basil Blackwell.

Van Dick, R., Hirst, G., Grojean, M. W., & Wieseke, J. (2007). Relationships between leader and follower organizational identification and implications for follower attitudes and behaviour. *Journal of Occupational and Organizational Psychology*, *80*, 133-150. https://doi.org/10.1348/096317905X71831

Wasserman, S., & Faust, K. (1994). *Social network analysis: Methods and applications* (Vol. 8). Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511815478

Vella, S. A., Benson, A. J., Sutcliffe, J., McLaren, C. D., Swann, C., Schweickle, M. J., …,, & Bruner, M. W. (2020). Self-determined motivation, social identification and the mental

health of adolescent male team sport participants. *Journal of Applied Sport Psychology*, 33(4), 452-466. https://doi.org/10.1080/10413200.2019.1705432

Table 1

Team Demographic Information

Team	Athlete Sex	Sport Type	Roster Size	Participants Early Season	Participants Later Season
1	M	Basketball	11	11	6
2	F	Basketball	11	10	8
3	M	Volleyball	12	12	12
4	M	Volleyball	11	10	10
5	F	Volleyball	12	12	11
6	F	Volleyball	13	13	13
7	M	Soccer	18	16	14
8	M	Soccer	21	15	11
9	F	Soccer	21	15	8
10	F	Soccer	19	11	8
11	M	Basketball	15	10	12
12	F	Basketball	11	11	11
13	Mixed	Cross-Country	20		16
14	Mixed	Rowing	18		15
15	M	Lacrosse	25		17
16	M	Soccer	25		23
17	F	Soccer	24		16
18	F	Ice Hockey	25	25	19
19	Mixed	Nordic Skiing	12	10	8
20	M	Basketball	17	17	15
21	F	Basketball	19	15	17
22	F	Volleyball	16	13	15
23	M	Volleyball	16	15	16

Note: For Athlete Sex, M denotes a team registered to compete in a men's league competition, F in a female's league competition, and Mixed that both male and female athletes competed under the same team in league competition.

713 **Table 2**

714 *Construct Definitions for Teammate Ratings*

715

Study Construct	Definition Provided to Participants
Identity Leadership	
Identity Prototypicality	*Being one of us*: "Representing the unique qualities that define the team and what it means to be a member of this team. Embodying those core attributes of the team that make this team special as well as distinct from other teams. Being an exemplary and model member of the team."
Identity Advancement	*Doing it for us*: "Advancing and promoting core interests of the team. Standing up for, and if threatened defending, team interests (and not personal interests of those of other teams). Championing concerns and ambitions that are key to the team as a whole. Contributing to the realization of team goals. Acting to prevent team failures and to overcome obstacles to the achievement of team objectives."
Identity Entrepreneurship	*Crafting a sense of us*: "Bringing people together by creating a shared sense of 'we' and 'us' within the team. Making different people all feel that they are a part of the same team and increasing cohesion and inclusiveness within the team. Clarifying people's understanding of what the team stands for (and what it does not stand for) by defining core values, norms, and ideals."
Identity Impresarioship	*Making us matter*: "Developing structures, events, and activities that give weight to the team's existence and allow team members to live out their membership. Promoting structures that facilitate and embed shared understanding, coordination, and success (and not structures that divide or undermine the team)."
Social Identity	
Ingroup Ties	"…has a sense of bonding and belongingness with other team members."
Cognitive Centrality	"…being a member of this team is an important part of how s/he sees herself/himself."
Ingroup affect	"…has positive feelings about their team membership"

716
717

Table 3

The quadratic assignment procedure correlations between the ingroup ties (SI) network and identity leadership quality networks

	Early Season				Later Season			
Team	IA (*r*)	IE (*r*)	II(*r*)	IP (*r*)	IA (*r*)	IE (*r*)	II (*r*)	IP (*r*)
1	.65***	.69***	.69***	.45**	.20	.64*	.59*	.20
2	.78***	.79***	.80***	.69***	.64***	.82***	.85***	.71***
3	.46***	.58***	.22*	.49***	.47***	.54***	.54***	.54***
4	.40**	.67***	.49***	.53***	.62***	.53***	.50***	.62***
5	.49***	.61***	.48***	.50***	.70***	.66***	.71***	.71***
6	.56***	.69***	.65***	.63***	.44***	.60***	.55***	.56***
7	.78***	.86***	.86***	.79***	.75***	.87***	.86***	.85***
8	.46***	.56***	.60***	.38**	.57***	.75***	.71***	.69***
9	.61***	.73***	.71***	.70***	.71*	.83*	.74*	.75*
10	.66***	.71***	.69***	.61***	.74***	.79***	.86***	.80***
11	.65***	.67***	.72***	.73***	.51**	.57***	.46**	.61***
12	.58***	.80***	.73***	.66***	.53***	.54***	.47**	.47***
13					.75***	.76***	.54***	.71***
14					.33**	.15*	.43***	.41***
15					.61***	.71***	.68***	.58***
16					.61***	.72***	.72***	.63***
17					.74***	.79***	.73***	.79***
18	.79***	.73***	.73***	.75***	.74***	.83***	.81***	.77***
19	.78***	.72***	.81***	.73***	.67***	.69***	.66***	.73***
20	.72***	.78***	.75***	.59***	.54***	.71***	.57***	.54***
21	.47***	.51***	.51***	.50***	.48***	.59***	.35***	.49***
22	.64***	.77***	.74***	.55***	.60***	.69***	.72***	.60***
23	.54***	.63***	.47***	.38***	.59***	.75***	.71***	.66***
$r_{average}$	**.61**	**.68**	**.64**	**.60**	**.58**	**.69**	**.65**	**.63**

Note: *$p < .05$, **$p < .01$, ***$p < .001$. IA is identity advancement, IE is identity entrepreneurship, II is identity impresarioship, and IP is identity prototypicality

Table 4

The quadratic assignment procedure correlations between the cognitive centrality (SI) network and identity leadership quality networks

	Early Season				Later Season			
Team	IA (*r*)	IE (*r*)	II(*r*)	IP (*r*)	IA (*r*)	IE (*r*)	II (*r*)	IP (*r*)
1	.42**	.52**	.45**	.42**	.13	.71*	.64**	.24
2	.78***	.79***	.80***	.69***	.66***	.79***	.83***	.65***
3	.09	.19	.20*	.32**	.24*	.34**	.34**	.25*
4	.02	.18	.12	-.02	.24*	.37***	.14	.16
5	.37***	.57***	.31*	.44***	.46***	.57***	.52***	.35*
6	.56***	.55***	.55***	.50***	.32**	.42***	.33**	.33**
7	.57***	.58***	.65***	.68***	.61***	.65***	.64***	.71***
8	.44***	.40***	.36***	.21*	.65***	.51***	.48***	.58***
9	.57***	.71***	.69***	.65***	.75*	.80*	.62*	.67*
10	.58***	.60***	.64***	.45***	.62***	.59***	.74***	.72***
11	.55***	.53**	.56*	.54**	.42*	.53**	.52*	.52**
12	.50**	.36*	.44*	.38*	.63***	.63***	.48**	.56***
13					.50***	.51***	.38**	.45***
14					.85***	.32**	.83***	.77***
15					.57***	.63***	.57***	.51***
16					.58***	.60***	.62***	.49***
17					.72***	.69***	.62***	.69***
18	.70***	.60***	.63***	.60***	.68***	.72***	.66***	.60***
19	.52**	.47**	.50**	.57**	.63***	.65***	.59**	.67***
20	.69***	.54***	.53***	.64***	.58***	.57***	.43***	.55***
21	.49***	.54***	.56***	.57***	.38***	.45***	.32**	.35***
22	.77***	.78***	.79***	.68***	.65***	.65***	.64***	.59***
23	.40***	.27*	.50***	.24**	.22*	.16	.15	.18
Average *r*	**.53**	**.52**	**.53**	**.50**	**.49**	**.56**	**.50**	**.48**

Note: *$p < .05$, **$p < .01$, ***$p < .001$. IA is identity advancement, IE is identity entrepreneurship, II is identity impresarioship, and IP is identity prototypicality

Table 5

The quadratic assignment procedure correlations between the ingroup affect (SI) network and identity leadership quality networks

	Early Season				Later Season			
Team	IA (*r*)	IE (*r*)	II(*r*)	IP (*r*)	IA (*r*)	IE (*r*)	II (*r*)	IP (*r*)
1	.36*	.33*	.32	.31*	.23	.50*	.34	.19
2	.41**	.43**	.48**	.35*	.49***	.62***	.56***	.43**
3	.21*	.20	.09	.28**	.32**	.52***	.52***	.26*
4	.19	.46***	.33**	.23*	.10	.13	.13	.24*
5	.33**	.38**	.24*	.34***	.60***	.57***	.60***	.66***
6	.41***	.47***	.41***	.39***	.39**	.47***	.36**	.35**
7	.65***	.66***	.72***	.73***	.69***	.72***	.73***	.74***
8	.50***	.50***	.36**	.32**	.55***	.64***	.54***	.65***
9	.62***	.60***	.55***	.64***	.68*	.49*	.33	.46*
10	.31*	.43**	.48***	.28*	.58***	.58***	.76***	.68***
11	.52**	.47*	.47*	.57***	.48**	.40*	.25	.44**
12	.46***	.46***	.67***	.37**	.35**	.47**	.37*	.36**
13					.63***	.63***	.39**	.59***
14					.74***	.35***	.74***	.76***
15					.63***	.65***	.55***	.61***
16					.54***	.64***	.64***	.57***
17					.64***	.63***	.55***	.63***
18	.70***	.77***	.75***	.68***	.61***	.65***	.60***	.55***
19	.72***	.66***	.67***	.72***	.69***	.77***	.67***	.61**
20	.68***	.65***	.62***	.60***	.62***	.61***	.55***	.52***
21	.50***	.57***	.53***	.57***	.55***	.56***	.48***	.51***
22	.80***	.81***	.79***	.72***	.61***	.61***	.63***	.58***
23	.23**	.26***	.25**	.19**	.45***	.42***	.42***	.37***
Average *r*	**.48**	**.51**	**.49**	**.46**	**.53**	**.55**	**.51**	**.51**

Note: *$p < .05$, **$p < .01$, ***$p < .001$. IA is identity advancement, IE is identity entrepreneurship, II is identity impresarioship, and IP is identity prototypicality

Table 6

The standardized regression coefficients of the multiple Quadratic Assignment Procedure regression with the early season (T1) identity leadership networks as independent variables and the later season (T2) social identification networks as the dependent variable.

	DV: Ingroup ties					DV: Cognitive centrality					DV: Ingroup affect				
Team	R^2	IA (β)	IE (β)	II (β)	IP (β)	R^2	IA (β)	IE (β)	II (β)	IP (β)	R^2	IA (β)	IE (β)	II (β)	IP (β)
1	.32*	-.15	.01	.63**	.12	.33*	-.04	.13	.52*	.00	.08	.01	.08	.22	-.15
2	.34**	.25	.19	-.03	.21	.20**	.17	.08	.08	.14	.19**	.14	-.18	.03	.39
3	.08*	.03	.25*	-.02	.05	.05*	-.07	.09	.03	.19	.06*	.14	.20	-.10	-.07
4	.30***	-.19	.10	.28*	.40**	.06*	.19	.06	.19	-.22	.06	.09	-.12	.25*	-.01
5	.28***	.27*	.15	.07	.12	.25***	-.04	.48**	-.17	.19	.21***	.13	.40*	-.19	.07
6	.40***	-.01	.40**	-.06	.33**	.19***	.03	.43**	-.06	.05	.17**	-.06	.48**	-.38*	.22*
7	.61***	-.11	.13	.40**	.38**	.41***	-.14	-.22	.49***	.46***	.40***	-.04	-.14	.39**	.42**
8	.35***	.14	.02	.05	.44***	.19***	.39**	-.10	.04	.12	.29***	.11	.06	-.07	.44**
9	.42*	-.18	.31**	.33**	.21	.47*	.13	.37*	.18	.08	.16*	.04	.16	.03	.20
10	.41***	-.26*	.79***	.07	-.05	.39***	-.16	.54**	.30**	-.10	.34**	-.30*	.49**	.22*	.14
11	.20**	.46**	.07	.20	-.33	.21*	.30	-.01	.45	-.32	.09	.29	-.16	.26	-.19
12	.33***	-.38*	.42	.11	.34	.28***	.07	.24	.30	-.05	.10*	.06	.37	.13	-.34
18	.46***	.27*	.06	.43**	-.05	.27***	.10	-.03	.34*	.16	.27***	-.04	-.07	.53**	.10
19	.38**	.17	.17	.24	.12	.33**	.30	-.13	.15	.28	.49***	.29*	.32*	.17	-.01
20	.16***	.19	.46**	-.13	-.16	.19***	.65**	-.02	-.25	-.04	.20***	.43*	.18	-.09	-.07
21	.22***	-.03	.37**	-.22	.33**	.05*	.07	.06	.06	.07	.11**	-.10	.12	.06	.26
22	.23**	-.23	.26	.32	.16	.22***	.12	.16	.13	.10	.28**	-.10	.24	-.22	.58**
23	.13**	.19	.13	.13	-.05	.03	.07	-.16	.10	.13	.07*	.19	-.17	.23	-.04
Average β		**.02**	**.24**	**.16**	**.14**		**.12**	**.11**	**.16**	**.07**		**.07**	**.13**	**.08**	**.11**

Note: *$p < .05$, **$p < .01$, ***$p < .001$. IA is identity advancement, IE is identity entrepreneurship, II is identity impresarioship, and IP is identity prototypicality

Table 7

The standardized regression coefficients of the multiple Quadratic Assignment Procedure regression with the early season (T1) social identification networks as independent variables and the later season (T2) identity leadership networks as the dependent variable.

	DV: Identity advancement				DV: Identity entrepreneurship				DV: Identity impresarioship				DV: Identity prototypicality			
Team	R^2	IGT (β)	CC (β)	IGA (β)	R^2	IGT (β)	CC (β)	IGA (β)	R^2	IGT (β)	CC (β)	IGA (β)	R^2	IGT (β)	CC (β)	IGA (β)
1	.05	.07	-.28*	.08	.38*	.68***	-.12	.01	.40**	.64***	-.05	.07	.13	.45	-.29	-.02
2	.25**	.14***	.14***	.24	.44***	.44***	.44***	-.32	.37***	.24***	.24***	.15	.33**	.25**	.25**	.11
3	.20**	.29**	-.12	.29*	.04	.19	-.06	.02	.04	.19	-.06	.02	.18***	.37**	.08	.06
4	.16**	.31*	-.13	.22*	.11*	.19	-.04	.24	.06	.19	.00	.11	.11*	.33**	-.09	.00
5	.44*	.53***	.23***	.07	.53***	.39***	.51***	.00	.25***	.26*	.24	.16	.31***	.50***	-.11	.14
6	.07*	.16	.02	.12	.22***	.35**	.15	.03	.11**	.19	.20	-.03	.19***	.42***	.03	-.00
7	.43**	.36***	-.09	.42***	.62***	.58***	.00	.26**	.59***	.62***	-.06	.25**	.58***	.36***	.03	.43***
8	.09**	-.05	.23**	.12	.21***	.21*	.18*	.18	.22**	.18	.17	.22	.14**	.08	.12	.25*
9	.58*	.44**	-.07	.43*	.47*	.40*	.02	.29	.25*	.38*	.13	.00	.54*	.57**	.14	.04
10	.22**	.47**	.12	-.21	.16*	.45**	-.03	-.05	.23**	.46***	.16	-.21	.25**	.47***	.18	-.26**
11	.09	.23	.28	-.22	.16*	.21	.37*	-.17	.07	.25	.17	-.22	.17*	.17	.35*	-.06
12	.35**	.53***	-.07	.17*	.41***	.56***	-.07	.19*	.36**	.56**	-.07	.12	.32***	.56***	-.04	.05
18	.42**	.21**	.28***	.23**	.47***	.31***	.21**	.25**	.45***	.25**	.26**	.25**	.47***	.29***	.24**	.24**
19	.53***	.67***	.12	.01	.40**	.52**	.12	.09	.55***	.71***	.01	.04	.44**	.43*	-.02	.31
20	.33***	.13	.31**	.22*	.22***	.29*	.14	.12	.27***	.34**	.13	.13	.26***	.11	.35***	.14
21	.25***	-.05	.25*	.34**	.24***	.03	.28**	.24*	.30***	.06	.31**	.26*	.19***	-.08	.32**	.21
22	.37***	.16	.33*	.17	.33***	.26*	.03	.32*	.27***	.29*	.10	.18	.35***	-.04	.41**	.24*
23	.17**	.36***	.11	.08	.39***	.58***	.08	.08	.31***	.55***	-.11	.09	.28***	.49***	.03	.08
Average β		**.28**	**.09**	**.15**		**.37**	**.12**	**.10**		**.35**	**.10**	**.09**		**.32**	**.11**	**.11**

Note: $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$. IGT is ingroup ties, CC is cognitive centrality, IGA is ingroup affect