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Social Identification in Sports Teams:
The Role of Personal, Social and Collective Identity Motives

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Abstract

Based on motivated identity construction theory (MICT, Vignoles, 2011), we offer an integrative approach examining the combined roles of six identity motives (self-esteem, distinctiveness, belonging, meaning, continuity and efficacy) instantiated at three different motivational levels (personal, social and collective identity) as predictors of group identification. These identity processes were investigated among 369 members of 45 sports teams from England and Italy in a longitudinal study over 6 months with 4 time points. Multilevel change modelling and cross-lagged analyses showed that satisfaction of four personal identity motives (individuals' personal feelings of self-esteem, distinctiveness, meaning, and efficacy derived from team membership), three social identity motives (individuals' feelings that the team identity carries a sense of belonging, meaning, and continuity) and one collective identity motive (a shared belief in group distinctiveness) significantly predicted group identification. Motivational processes underlying group identification are complex, multi-layered, and not reducible to personal needs.

Keywords: identity motives, social identity, multilevel modelling, group processes, sports teams

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“This is our land that rumbles
It's my time! It's my moment!
This defines us as the All Blacks”

Translated extract from the haka – dance of war

(Kapa o Pango, NewZealand.com, 2015)

When the All Blacks perform their famous haka, they know they are more than a collection of 15 players – they are seen to have a sense of tradition, purpose and belonging that goes beyond them as individuals – they have a team identity. This could help explain why they are the most successful rugby team in history (e.g., Wilson, 2011) and arguably the most successful professional team in any sport ever (e.g., Kerr, 2013). Yet, why do the All Blacks have such a strong team identity? More generally, what motivates people to form a team identity and identify with a team or group? This is the question that we seek to answer here.

Social identity theory (SIT, Tajfel & Turner, 1979) is considered by many as the major theoretical framework for understanding group phenomena (Brown, 2010; Haslam, van Knippenberg, Platow, & Ellemers, 2014). When an individual identifies with a group they incorporate it into their self-concept, which has been shown to have wide reaching implications for behaviours (e.g., Brown, 2000), cognitions (e.g., Abrams & Hogg, 1999), beliefs (e.g., Brown, 2010), and even health (e.g., Haslam, Jetten, Postmes & Haslam, 2009). Given the influence of SIT across theoretical and applied domains, researchers have striven to understand the underlying motivations involved when people identify with a group. However, little consensus exists regarding which identity motives are most prominent in group identity construction, and on which levels they operate.

By combining insights from SIT, motivated identity construction theory (MICT, Vignoles, 2011), and other motivational theories in the social identity literature (e.g., Brewer, 1991; Hogg, 2007; Smeekes & Verkuyten, 2015), we offer the most comprehensive evaluation to date of motives for social identification, comparing the role of multiple identity motives across different levels of identity and across different levels of analysis. Using a 4-wave clustered longitudinal design involving 45 sports teams from England and Italy, we explore how satisfaction of different identity motives, instantiated at different motivational levels, predicts identification with a group.

Early theorising: Positive group distinctiveness and the self-esteem hypothesis

Tajfel and Turner (1979) originally proposed that group members are driven to maximise their group's "positive distinctiveness", which became the key motivational principle behind SIT (see Mummendey, 1995). However, further conceptualisations departed from this notion by focusing exclusively on the "positive" aspect and reducing it to an individual level. Abrams and Hogg (1988) proposed the "self-esteem hypothesis" advocating an individual-level need for self-enhancement as a primary basis for group identification. Yet, this instantiation of identity motives as personal needs – in our terminology, personal identity motives – neglects the role of group motives and even prompted some theorists to accuse SIT of the same shortcomings that it points out in others, namely reducing complex group phenomenon to individual wants and desires (e.g., Farr, 1996).

Subsequent theorising and research in the social identity tradition has extended the list of potential social identity motives beyond the original focus on positive distinctiveness (Brewer, 1991; Hogg, 2007; Vignoles, 2011). However, there has been little clarity about the level at which these motives operate—or even what it means for identity motives to operate at a 'group' rather than an 'individual' level. As Hogg and Abrams (1993) put it, "Clearly, if we talk about group motivation, we need to know whether we are talking about

distinctly group as opposed to personal motivation, or whether we are talking about basic individual motivation that is mutated in some way by group membership” (p x). Below, after a brief review of motivational perspectives in the social identity literature, we describe two very different ways in which identity motives might be said to operate ‘at a group level’—one focused on group content and the other on group processes.

Extending the list of motives

Various motivational extensions of SIT have emerged over the past few decades. Brewer’s (1991) optimal distinctiveness theory states that individuals are motivated by opposing needs for inclusion and differentiation. This interplay between motives for inclusion or belonging and differentiation or distinctiveness can be resolved through group membership, where belonging is provided by in-group inclusion, and distinctiveness through intergroup differentiation. Meanwhile, Hogg and colleagues (Hogg, 2000; Hogg, 2007; Hogg & Adelman, 2013) have argued that group identification is driven by the individual’s need to reduce uncertainty, which can be ameliorated by creating certainty or meaning. A more recent motivational expansion of SIT proposes that national identification is motivated by a need for self-continuity (Smeeke & Verkuyten, 2013). Lastly, although not directly synonymous with identity motives, research into self-determination theory (Deci & Ryan, 1985) has suggested that satisfaction of personal needs for autonomy and competence can impact on group identification (e.g., Amiot & Sansfaçon, 2011).

MICT provides an integrative theory of identity enactment, construction and defence that draws together motivational constructs from these and other theoretical perspectives (Vignoles, 2011). According to MICT, people are motivated to identify with groups (and with other identity aspects) in order to feel positively about themselves (self-esteem motive); to feel distinguished from others (distinctiveness motive); to feel included and accepted (belonging motive); to feel that their lives are meaningful (meaning motive); to feel that their past, present, and future are connected (continuity motive); and to feel competent and

capable of influencing their environments (efficacy motive). MICT is well suited to the study of group identification, as it incorporates six identity motives into one holistic framework (Easterbrook & Vignoles 2012; Vignoles et al., 2006, Study 2).

Using a longitudinal design, Easterbrook and Vignoles (2012) demonstrated that satisfaction of personal identity motives predicted group identification among first-year students: Personal feelings of self-esteem, belonging and efficacy predicted within-person changes in identification with interpersonal network groups (flatmates), whereas personal feelings of meaning, self-esteem, and distinctiveness predicted within-person changes in identification with an abstract social category (halls of residence). Thus, identity motives may differentially affect group identification, depending on the properties of the group. This study was among the first to integrate MICT with SIT, and provides one of the few comparisons between the influence of different motives on group identification (see also Vignoles et al., 2006, Study 2).

To date, MICT research into group identification has focused on personal identity motives, assuming that individuals identify with a group in order to form or maintain a satisfactory sense of personal identity. However, the theory acknowledges that identity motives may be instantiated at more than one level (Vignoles, 2011).

Identity motives at different ‘levels’

In an exchange between Tajfel (1979) and Taylor and Brown (1979), Tajfel explicitly criticised the assumption that group identification is purely based on individuals preferring a positive self-image. He reasoned that one of the aims of SIT was to understand social behaviour in groups—to do this we must understand how groups construct their identities and the psychological effects of these constructions. It follows that, in order to understand how a group identity is constructed, identity motives must encompass more than individual needs. The idea that social identity processes can be understood sufficiently in terms of personal identity motives departs from the original spirit of the social identity

perspective, as described by Tajfel.

Social identity motives (group content, individual processes). Attempting to reconcile the apparent departure from a group-orientated approach, Spears and colleagues reaffirmed the relevance of “group distinctiveness” for social identity processes (Scheepers, Spears, Doosje & Manstead, 2002; Spears, Jetten, Scheepers & Cihangir, 2009). They reasoned that, although occurring in individual minds, a focus on group distinctiveness is more in accordance with the original spirit of SIT. This is consistent with self-categorisation theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), which posits that individuals can categorise themselves as interchangeable group members, and therefore experience the group’s identity as defining who they are. When an individual’s sense of self is defined by their group membership, other aspects of their personal identity will become less salient; hence, it will be the group’s positive distinctiveness (or other properties of the group’s identity), rather than the individual’s personal distinctiveness (or other properties of their personal identity) that they are motivated to protect. Accordingly, the extent to which an individual perceives the group as having a satisfactory identity may influence their experience of group membership, and in turn group identification, irrespective of their sense of personal identity. This could be particularly true for social groups that require frequent and enduring involvement from group members (see Haslam & Ellemers, 2011). Thus, as Tajfel advocated, what we will call social identity motives – involving the *individual’s* perception of the group, rather than their perception of themselves – may also explain group identity construction.

Notably, each of the six identity motives proposed within MICT have been studied separately as social identity motives, but rarely in combination. For example, numerous researchers have demonstrated that collective self-esteem (i.e. social identity esteem) is an important factor in intergroup relations and social identity construction (e.g., Ellemers, Kortekaas & Ouwerkerk, 1999). Elsewhere, Scheepers et al. (2002) demonstrated that group

identification is not only a function of an individual's needs for distinctiveness (i.e. personal identity motive) but also varies in response to changes in the features of the group (i.e. social identity motive) (see also Baumeister & Leary, 1995; Pickett, Silver & Brewer, 2002; Vignoles, Chryssochoou, & Breakwell, 2000).

Spears et al. (2009) used an experimental design that manipulated the meaningfulness of minimal groups, demonstrating that group meaning (i.e. social identity meaning) positively influences group identification. They concluded that meaning should not be reduced to an individual property, but is instead “irreducibly groupy” (p. 36, Spears et al., 2009). Similar work has also shown that perceptions of group continuity (i.e. social identity continuity) predict stronger emotional attachment to the group and increased group identification (Sani, Bowe, & Herrera, 2008; Smeekes & Verkuyten, 2014). Meanwhile, in research by Lee, Farh and Chen (2011), feelings of group potency or efficacy have also been associated with group identification.

Only rarely have personal and social identity motives been studied together, which makes it difficult to understand the relationship between them. Notably, there is evidence that satisfaction of personal and social identity motives may sometimes be at least partly interchangeable—for example, individuals made to feel personally indistinctive show increased identification with distinctive groups as well as tightening of group boundaries (Pickett et al., 2002). This raises the possibility that social identity motives may be no more than routes to satisfying personal identity motives, and not “irreducibly groupy” after all. To confirm that social identity motives are not reducible to personal identity motives – as suggested by our reasoning above – it would be necessary to study both together and show that the effects of social identity motives persist while controlling for corresponding effects of personal identity motives.

Collective identity motives (group content, group processes). However, it is important to distinguish between two different forms of “groupiness” that SIT theorists often

conflate when referring to identity motives. For example, Spears and colleagues (Scheepers et al., 2002; Spears et al., 2009) refer to and treat “group distinctiveness” and “group meaning” as group-level motives, but it is actually the *individual’s* perception of the group that they focus on (i.e. social identity motives), and thus the motivational processes that they refer to are still occurring within the individual. However, a group as a whole cannot be considered distinctive solely on the basis of one member’s perception of group distinctiveness. If, across the whole group, members on average perceive the group as distinctive, then one can more confidently claim that the group does indeed have a shared view of itself as distinctive (i.e. collective distinctiveness).

In contrast to social identity motives, we define collective identity motives as motivational influences that occur at the level of shared group processes. Recent multilevel research indicates that individuals’ identification with a group is not based solely on their personal representation of the group, but is also influenced by group-level processes (Jans, Leach, Garcia & Postmes, 2015). Thus, social identification is not simply an intrapsychic process of each separate individual but also an emergent property of the group as a whole (see also Ozeki, 2015). Seen thus, the motivated identity processes of group members may influence each other, leading to an emergent motivated identity process that occurs at the collective or group level and is “greater than the sum of its parts” (i.e. collective identity motives).

Multilevel analyses involving aggregate or contextual predictors can reveal findings that would have been overlooked by focusing solely on individual-level processes. For example, multilevel longitudinal research by Christ and colleagues (2014) demonstrated that the context-level effect of intergroup contact on outgroup prejudice was greater than the effect of individual contact. This and similar research demonstrates that collective or contextual processes can influence individual-level processes and outcomes (e.g., Becker et al., 2012, 2014; Thomas et al., 2016). The vast majority of motivational research to date

within the SIT literature has focused on motivational influences on individual-level processes (personal and social identity motives). Given that SIT seeks to explain group-level phenomena, it is entirely possible that motives operating at a group level are also influencing group identity construction.

Summary. Based on the reasoning above, a given identity motive can be instantiated not only on multiple levels of self-representation (personal and social identity motives) but also on multiple levels of analysis (individual and group levels). Accordingly, three instantiations of the same identity motives could potentially influence group identity construction: personal, social and collective.¹ For example, I might identify with a group because it makes me feel distinctive (personal identity motive), because I perceive the group as distinctive (social identity motive), or because the group members collectively perceive the group as distinctive (collective identity motive). Unravelling the unique effects of each identity motive, instantiated on each of these levels, is crucial to our understanding of group identification, but this requires multivariate and multilevel research studying the combined effects of multiple identity motives on both personal and social levels of self-representation and at both individual and group levels of analysis.

The Present Study

Diverse motivational extensions of SIT have been shown previously to have theoretical and practical importance. However, the research literature can appear somewhat fragmented, with researchers too often focused on their particular motive(s) and motivational level of interest, offering little cross-reference or comparison with other motives or motivational levels. Since motive satisfactions are highly correlated (e.g., Vignoles et al., 2006), this leaves existing findings in a precarious position, as results are likely to be confounded by other unmeasured motives. Moreover, we are aware of no previous research investigating the potential of motives to operate on the level of group processes (i.e. collective motives), even though researchers have often theorised that

motives such as distinctiveness are a property of the group, not of the individual (e.g., Spears et al., 2009). Unsurprisingly, then, little agreement exists with regard to which identity motives are most prominent in predicting group identification or from which motivational level (e.g., Jaspal & Breakwell, 2014).

To address this research void, we conducted longitudinal research with 45 sports teams from England and Italy over a 6-month period with 4 time-points. Sports teams are meaningful social groups with parallels to many other kinds of groups across various situations. For example, they contain established and new group members, have a team history and future, contain a team leader (team captain), and compete on a regular basis. Team members also interact outside of sporting functions, with social activities held throughout the year. Accordingly, for some members, the sports team they join can form an integral part of daily life.

Our aim was to investigate which identity motives (meaning, belonging, self-esteem, continuity, distinctiveness and/or efficacy), instantiated at which motivational levels (personal, social and/or collective identity), would predict stability and change in group identification. A longitudinal multilevel design allowed us to explore group processes and to draw tentative conclusions about causality regarding the relationship between satisfaction of multiple identity motives instantiated at different levels (personal, social and collective) and group identification. These methodological advantages allow us to go beyond previous cross-sectional, single-level research (e.g., Johnson et al., 2006).

Method

Participants and Design

A total of 401 team members participated in the research. We excluded 31 participants who completed the questionnaire at only one wave, and one participant who reported belonging to a team that included only himself (male trampolining team), leaving 369 participants for our analyses. Of those 369 participants, 188 were from a university on

the south coast of England (106 men, $M = 20.80$ years, $SD = 2.63$ and 82 women, $M = 20.27$ years, $SD = 1.75$). Joining a team at this university typically involves team trials at the start of term, whereby team coaches select individuals based on ability. A further 181 participants were from recreational amateur sports teams in Italy (100 men, $M = 22.52$ years, $SD = 7.01$ and 81 women, $M = 22.85$ years, $SD = 6.77$). The Italian teams comprised students and non-students and were open to anyone who played to a similar standard. Participants from both English and Italian samples would typically be involved with the team for 1 to 3 years.

In total, there were 1,202 occasions of data collection ($T0 = 312$, $T1 = 290$, $T2 = 309$, $T3 = 291$) with 274 missing occasions. At time 0, participants had been part of their team for an average 6.48 ($SD = 9.54$) months. Participants were from 45 different teams ($M_{\text{size}} = 8.2$, $SD_{\text{size}} = 3.54$) from 14 different sports (basketball, hockey, netball, fencing, tennis, football, volleyball, trampolining, ultimate Frisbee, badminton, water polo, synchronized swimming, swimming and cycling). Thus, we had a clustered longitudinal design, with individuals nested within teams over time.

Procedure

The English teams held training sessions during the first 6-7 months of an academic year (late September through to mid-March), while Italian teams have a 9-months sport season (from mid-September through to late May). In order to allow the teams to settle (i.e. for members to be stably allocated into 1st or 2nd teams), the first wave of data was collected 2 weeks after the initial training sessions in both samples. Subsequent waves were collected at approximately 8-week intervals. Therefore 4 waves of data were collected over a 6-month period at parallel times for the English and Italian samples. Data collection involved approaching team members at the start of their training sessions and asking them to complete a short questionnaire on team psychology. In order to preserve anonymity, self-generated identification codes were used to link participant responses over time. On completion of the questionnaire, participants were thanked for their time and given a small

confectionary item.

Questionnaire

Group identification was recorded using a 6-item measure of identification with a 7-point response scale (see Table 1 for items and scale anchors). These items, distilled from a wide range of previous scales (e.g., Easterbrook & Vignoles, 2012; Cameron, 2004; Ellemers et al., 1999; Jackson, 2002; Luhtanen & Crocker, 1992; Sellers, Rowley, Chavous, Shelton, & Smith, 1998), covered various facets of group identification including feelings of solidarity with the group, cognitive centrality, and self-stereotyping (see Ashmore, Deaux, & McLaughlin-Volpe, 2004; Leach et al., 2008). Scales using very similar items have been shown to prospectively predict a wide variety of outcomes from psychological wellbeing to organisational performance (Haslam et al., 2009; Haslam et al., 2014). Postmes, Haslam and Jans's (2013) single item measure of group identification was also included and has been shown to be valid and reliable measure of identification across a broad range of groups (see also Reysen, Katzarska-Miller, Nesbit, & Pierce, 2013). Recent research, using the same data set as the present paper, has shown that our 6-item measure prospectively predicts both perceived and actual team performance (Thomas et al., 2016). This scale showed excellent reliability (T0-T3: $\alpha = .85-.90$).

Items measuring personal identity motives were adapted from Easterbrook and Vignoles (2012). Items measuring social identity motives were developed based on discussion among the authors, adaptation of the items measuring personal identity motives, and use of relevant literature (Smeekes & Verkuyten, 2014). Single items were used to reduce participant load, as is well established when participants are required to make repeated ratings on the same dimension (e.g. Easterbrook & Vignoles, 2012; Vignoles et al., 2006). Items were translated from English into Italian, then independently back-translated by translators naïve to the aims of the study (Brislin, 1970). Back-translated and original versions were compared, any discrepancies were discussed, and the translation was adjusted

where necessary (Sireci, Yang, Harter, & Ehrlich, 2006). The presentation of item order was fixed. Full questions with scale anchors are recorded in Table 1.

Results

Descriptive statistics for items are shown in Table 2. Within-person and between-person zero order correlations are shown in Table 3.

In order to be able to compare motives at different motivational levels, our first analytic approach involved multilevel change modelling. This approach demonstrates the unique contribution of a particular identity motive over and above the effect of all other motives. However, it only accounts for contemporaneous or concurrent relations between the satisfaction of motives and group identification, making it impossible to draw conclusions regarding the causal direction between motive satisfaction and group identification. In order to investigate potentially causal relationships, a second analytic approach involved multilevel cross-lagged models. Accordingly, this two-stage analytic approach enabled us to compare the effects of different identity motives on different levels of identity and levels of analysis (multilevel change analyses) and to examine potential causal directions between motive satisfaction and group identification (multilevel cross-lagged analyses). Within both analyses, it is important to note that team level effects (collective motives) require larger effect sizes in order to achieve significance (i.e. because of the differences in power: teams $N = 45$, individuals $N = 369$).

Analytic Approach 1 – Multilevel Change Modelling

Group identification across 4 occasions was examined in 369 team members who were nested within 45 teams, for a total of 1202 occasions of data. Given the clustered longitudinal design, three-level multilevel models for change were estimated using full maximum likelihood estimation in MLwiN version 2.31 (Rasbash, Browne, Healy, Cameron & Charlton, 2014). Level-1 occasions were nested within level-2 individuals, within level-3 teams. This analytic approach enabled us to model both individual-level and team-level

variance, permitted the use of time-varying predictors at level 1, allowed us to test for any between-country differences in the results, and allowed participants who completed less than 4 waves to be included in the analyses (Hoffman, 2015).

Intercept only and unconditional growth models. Intercept-only (i.e., empty means) models were first examined to partition the variance in identification scores across levels. This three-level model produced an estimate of the grand intercept $b = 4.398$ (SE = 0.084), which represents the grand mean of identification. The total variance across levels = 0.913 was calculated as the sum of the level 3 random intercept variance $\sigma^2_{u0} = 0.239$ (SE = 0.084; 26.18% of total) representing variation across teams, a level-2 random intercept variance $\sigma^2_{v0} = 0.423$ (SE = 0.04; 46.33% of total) representing variation among team members in the same team, and a level-1 residual variance $\sigma^2_{e0} = 0.251$ (SE = 0.012; 27.49% of total) representing variation across occasions from the same team member.

The level-2 interclass correlation for the proportion of total variance due to individuals and teams was $ICC_{L2} = .725$. To partition the individual variance, we then calculated a level 3 interclass correlation for the proportion of individual variation actually due to variation across teams $ICC_{L3} = .361$. Likelihood ratio tests indicated significant variance at each level ($\Delta-2LL(1) = 778.5$, $p < .001$ and $\Delta-2LL(1) = 87.4$, $p = < .001$, respectively). Together, these ICCs indicate that of the total variation in group identification across all measurement occasions, 72.5% of the variance was stable over time, and 36.1% of this stable variance was actually across teams rather than at the individual level.

We then specified unconditional growth (i.e., time only) models, beginning with a saturated means, unstructured variances model in which all possible variances and covariances across waves were estimated, and in which any linear change was fixed across individuals or teams. These models estimate the linear change in identification over time by including time as a level-1 predictor variable². Compared to this random-intercept unconditional growth model, the model fit improved when we then allowed the slope of time

to vary across level-2 individuals (σ^2_{v1}), $\Delta\text{-2LL}(2) = 270.5$, $p < 0.001$, as well as across level-3 teams (σ^2_{u1}), $\Delta\text{-2LL}(2) = 107.5$, $p < 0.001$. This indicates that the size and/or direction of linear changes in identification significantly varied both across individuals and across teams. Results from the final unconditional growth model are given in the first set of columns in Table 4 and act as a baseline for our main analyses.

Final conditional model. All personal and social identity motives were centred at the grand mean and added as predictors of identification at level 1 (Hoffman, 2015). Collective motives were constructed using the team average for social identity motives. These were then centred at the grand-mean and entered into the same model as level 1 predictors. Using the unconditional growth model as a baseline (in which time was centred at the first wave), conditional growth models including all 6 motives instantiated at 3 levels (18 predictors) were examined. Unsurprisingly, adding all predictors significantly increased model fit $\Delta\text{-2LL}(18) = 727.9$, $p < .001$.

In order to examine the amount of variation explained by the model, pseudo- R^2 scores, which can be interpreted in a similar way to the partial R^2 statistic in ordinary least squares regression (Hoffman, 2015; Singer & Willett, 2003), were calculated. These showed that the identity motives accounted for 70.3% of the individual (i.e. level 2) variation in initial levels of group identification (σ^2_{v0}), and 75.0% of the individual variation in linear change in group identification (σ^2_{v1}). At the team level (i.e. level 3), the identity motives accounted for 88.6% of variation in initial levels of group identification (σ^2_{u0}), and 84.2% of the team variation in linear change in group identification (σ^2_{u1}). The model also accounted for 17.5% of non-linear residual variance (σ^2_{e0}).

Identity motives. As shown in the second set of columns in Table 4, satisfaction of personal identity motives for self-esteem, distinctiveness, belonging, meaning and efficacy predicted group identification. However, there was a strong interaction effect of country with the belonging motive ($p < .001$), with simple slope analyses revealing that the effect of

belonging was significant in the English sample ($p < .001$) but not the Italian sample ($p = .572$). Satisfaction of social identity motives for meaning, belonging and continuity also predicted group identification. Finally, distinctiveness was the only collective identity motive to positively predict group identification. Although collective belonging negatively predicted group identification, there was again a country interaction effect, with simple slope analyses revealing that the negative effect of belonging was significant in the Italian sample ($p = .045$), but not the English sample ($p = .739$). Accordingly, focusing on those effects that replicated in both English and Italian samples, satisfaction of personal identity motives of self-esteem, distinctiveness, meaning and efficacy, social identity motives of meaning, belonging and continuity, and collective distinctiveness all uniquely predicted group identification. From this point forward, only motives that were significant for both English and Italian teams will be considered as significant predictors.

Analytic Approach 2 – Cross-Lagged Analyses

Building on our multilevel change analyses, cross-lagged models were computed for those instantiations of identity motives that had been found to predict group identification concurrently in the above analyses. We ran separate models for each motive, as the number of parameters needed for multiple identity motives to be included in a cross-lagged analysis exceeded our sample size. Full information maximum likelihood estimation was used to fit models directly to the raw data to deal with missing values in Mplus 7.3 (e.g., Allison, 2003). Fit was assessed by the comparative fit index (CFI, good fit < 0.95), the Tucker-Lewis index (TLI, good fit < 0.95), the root-mean-square error approximation (RMSEA, good fit < 0.06) and the standardised root mean square residual (SRMR, good fit < 0.08), based on the recommendations of Hu and Bentler (1999).

Figure 1 provides a generic illustration of the models tested (Finkel, 1995). A significant cross-lagged effect indicates the prospective effect of one variable on the other (e.g., the effect of an identity motive at T0 on group identification at T1) after controlling for

their stability across time (e.g., the effect of group identification at T0 on group identification at T1). We accounted for variance due to specific measurement occasions by allowing residual variances to covary within waves (e.g., the residual of identity motive at T1 was allowed to covary with the residual of group identification at T1). To gain statistical power and parsimony, the autoregressive (stability) and cross-lagged coefficients were constrained to be equal across time (i.e. each T0 to T1 path was constrained to be equal to the corresponding T1 to T2 path and the corresponding T2 to T3 path), giving one parameter rather than three parameters to test each of the predicted effects. For the same reasons, residual covariances were also constrained to be equal at T1, T2 and T3. With just one exception, imposing these equality constraints caused no significant loss of fit.³

For individual-level motives (i.e. personal and social identity motives) the ‘complex’ command was used in Mplus allowing us to take account of the clustering of individuals within teams. For collective distinctiveness (the only significant team-level effect in the above analyses), a multilevel cross-lagged analyses using collective distinctiveness was computed.

In order to assess if there were any country-level differences in our cross-lagged analyses, we compared two multi-group models for each motive (i.e. by specifying countries as groups). For the initial model, all autoregressive and cross-lagged coefficients were constrained to be equal across countries. As we were only interested in country differences between autoregressive and cross-lagged effects, residual covariances were not constrained to equality across countries. In the subsequent model, autoregressive and cross-lagged coefficients were allowed to be different for each country. Chi-square difference testing, using the Satorra-Bentler Scaled Chi-Square (Bryant & Satorra, 2012), showed that these two multi-group models were not significantly different for any motive ($\Delta S-B \chi^2(4) \leq 8.67$; all $p \geq .07$). Given that there were no significant differences between English and Italian samples for any motive, results displayed are for single-group models, which show

substantively identical results to the multi-group models.

Model results. The initial RMSEA score on the social identity meaning model was not acceptable ($> .10$). This was corrected by adding an additional stability path between group identification T0 and group identification T3. Once this was corrected, the models had the following fit indices: CFI values ranged from 0.950 to 0.992, the TLI values ranged from 0.932 to 0.991, the RMSEA values ranged from 0.039 to 0.093 and the SRMR values ranged from 0.043 to 0.065 (see Table 5 for full fit values). Although the fit values in some models were slightly worse than those proposed by Hu and Bentler (1999), we judged the fit of the models to be overall satisfactory.

Table 5 reports the estimates for the autoregressive and cross-lagged coefficients. Although the coefficients were constrained to be equal across time intervals, the constraints were imposed on unstandardized coefficients (Kenny, 2005), which led to slight variation in the resulting standardised coefficients. For individual-level motives (personal and social identity motives), the cross-lagged effects showed a consistent picture: in each case, motive satisfaction significantly predicted group identification across all time points. Group identification also predicted motive satisfaction across all time points, demonstrating a bidirectional relationship between satisfaction of identity motives and group identification. As also shown in Table 5, collective distinctiveness showed no significant cross-lagged relationships.

In all cases, the effect of group identification on motive satisfaction was larger than the effect of motive satisfaction on group identification. However, as group identification was a scale measure and identity motives were single item measures, it difficult to draw definitive conclusions regarding the strength of these cross-lagged effects. This is because the greater reliability of the scale results in higher regression coefficients for the autoregressive paths, leaving less variance to explain in the cross-lagged relationship from motive satisfaction to group identification. In order to test whether the difference in these

autoregressive paths was statistically different, we constrained the paths to be equal. Satorra-Bentler Scaled Chi-Square test (Bryant & Satorra, 2012), revealed that the autoregressive paths were statistically different in all models ($p < .05$).

In order to explore this further, we tried replacing the social identification scale with Postmes and colleagues' (2013) single-item social identification measure, which has been shown to be a reliable measure of group identification, and re-ran all the models. As shown in Table 6, fit for these models were again satisfactory: CFI values ranged from 0.936 to 0.984, the TLI values ranged from 0.921 to 0.980, the RMSEA values ranged from 0.050 to 0.097, and the SRMR values ranged from 0.059 to 0.078. Using this single item measure, the strength of the cross-lagged relationships for the individual-level motives changed, with motive satisfaction predicting group identification (all $ps < .001$) more strongly than group identification predicted motive satisfaction (all $ps < .05$) in almost all cases. Because the single-item measure is likely to have a more similar reliability to the single item identity motive measures, this may be a more appropriate basis for comparing the size of the cross-lagged effects between group identification and identity motives.

Discussion

Satisfaction of four personal identity motives (self-esteem, distinctiveness, meaning, and efficacy) and of three social identity motives (belonging, meaning, and continuity) predicted group identification (individual process motives). Further cross-lagged analyses supported these findings by demonstrating bidirectional relationships between group identification and each of these identity motives. When motives were operationalised at a group level of analysis (i.e. collective motives), only distinctiveness significantly predicted group identification, and this was not repeated in our cross-lagged analyses.

Motivational Levels

Personal identity motives appear to be strong predictors of group identification, further validating their utility for understanding group situations (e.g., Easterbrook &

Vignoles 2012; Vignoles, 2011; Vignoles et al., 2006). Here, participants identified with their teams to the extent that the team provided them with a personal sense of self-esteem, distinctiveness, efficacy and meaning.

However, our analyses also demonstrate the substantial and unique influence on group identification of social identity motives. Thus, over and above the effects of personal identity motives, participants also identified with their teams to the extent that they perceived the team itself as having a cohesive (i.e. belonging), temporally persistent (i.e. continuity) and meaningful identity. These findings are important, as SIT came to prominence because it purported to describe processes that occur within and across groups, but has been accused of the same shortcomings that it points out in others—namely, reducing complex group phenomenon to individual wants and desires (Farr, 1996). By focusing on personal identity motives, some motivational expansions of SIT are not immune to this charge (e.g., Abrams & Hogg, 1988; Hogg, 2000). Although occurring in individual minds (i.e. still an individual process), social identity motives are more akin to the original spirit of SIT first proposed by Tajfel and Turner, as they focus on an individual's perception of the group's identity. Thus, motivational extensions of SIT should not be constrained to individual needs (e.g., Spears et al., 2009; Tajfel, 1979).

Collective motives are defined operationally as social identity motives aggregated for each group, and can thus be considered to operate strictly at the group level, when their effects are tested in tandem with those of social identity motives (e.g., Hofmann & Gavin, 1998). Over and above the effects of their own perceptions of the team, participants identified with their team to the extent that team members on average perceived the team as distinctive (although this was not repeated in our cross-lagged analyses). Admittedly, the effects of collective motives overall were weaker than motives instantiated at an individual level, suggesting that the motivational predictors of group identification generally have to pass through individual awareness (i.e. personal and social identity motives) to be effective.

Nevertheless, since collective motives were tested at the group level of analysis, such direct comparisons between individual-level (personal and social identity motives) and group-level motives (collective motives) are difficult to make because of the differences in power ($N = 369$ individuals, $N = 45$ teams). Thus, future research into collective motives would benefit from a larger number of groups.

Multiple Motives

Our finding that personal identity motives for self-esteem and distinctiveness predicted group identification, supports the original “positive distinctiveness” proposition of Tajfel and Turner (1979). However, given the original focus of SIT on positive group distinctiveness, it is perhaps surprising that these two “original” motives were not found in the form of social identity motives, suggesting that an individual is driven to identify with a group in order to satisfy their personal need to feel positive and distinctive, rather than their perception of the group as positive or distinctive. This resonates with previous findings that individual differences in ingroup bias are more strongly associated with personal, rather than collective self-esteem (for a meta-analysis, see Aberson, Healy & Romero, 2000).

Nonetheless, it is notable that collective distinctiveness was the one collective motive that significantly predicted group identification. This intriguing result (although not repeated in our cross-lagged analyses) supports the argument by Spears and colleagues (Scheepers et al., 2002; Spears et al., 2009), that collective distinctiveness may be an important factor in group identity construction.

Interestingly, only the meaning motive was comparably influential across personal and social levels of identity. Although the finding that feelings of personal meaning predict group identification lends supports for meaning as an individual need (e.g., uncertainty identity theory, Hogg, 2000), the approximately equivalent influence of social identity meaning supports the notion that theorising around meaning should not be restricted to the level of personal identity (e.g., Spears et al., 2009).

Our finding that the satisfaction of personal identity efficacy uniquely predicted group identification supports the proposal that efficacy is an important individual-level motive for group identity processes (Amiot & Sansfaçon, 2011). This influence of personal identity efficacy may also be particularly true for sports teams, as “self-efficacy” has been shown to be a fundamental component of sport-related behaviour that predicts effort, goal setting and performance (Feltz, Short & Sullivan, 2008).

Satisfaction of the belonging motive predicted group identification when instantiated as a social identity motive, suggesting that individuals identified with a group that they view as inclusive and cohesive (e.g., Pickett et al., 2002), even if they did not necessarily derive a personal sense of belonging from the group. We should also note here the observed differences in belonging between the English and Italian samples, in particular our finding that personal identity belonging predicted identification with the English but not the Italian sample. Although noteworthy, without a clear intuitive or theoretical basis, we prefer to avoid post-hoc speculations about this finding. Future research should continue to explore potential cross-cultural differences in the strength and routes to satisfaction of identity motives (for existing research, see Becker et al., 2012, 2014).

Lastly, our finding that social identity continuity predicts group identification supports research by Smeekes and Verkuyten (2014) who similarly found that social identity continuity is an important predictor of national identification. However, in our study, feelings of personal identity continuity derived from group membership did not uniquely predict group identification, which is contrary to earlier findings from the same authors (Smeekes & Verkuyten, 2013). One possible explanation for this difference is in terms of our unique approach that considers all motives from three motivational levels, indicating that the influence of personal continuity on group identification may be confounded with that of other motives or from different motivational levels. Alternatively, it may be simply that individuals look to other kinds of groups, such as family and nation, rather than sports

teams to provide a sense of personal continuity. Moreover, many participants in our study were relatively new members of the teams in question, providing little opportunity to derive a personal sense of continuity from team membership; yet, even new members could identify with a team identity that they recognised as having persisted over time on a group level since before their own personal involvement in the team.

It is interesting to compare our current findings for personal identity motives with those of Easterbrook and Vignoles (2012). In their study, satisfaction of personal identity motives for self-esteem, belonging and efficacy predicted within-person changes in identification with interpersonal network groups (flatmates). Conversely, satisfaction of personal identity motives for meaning, self-esteem, and distinctiveness predicted within-person changes in an abstract social category (halls of residence). Arguably, sports teams have properties of both interpersonal network groups and social categories. For example, sports team members interact on a regular basis (as is the case with interpersonal network groups) in addition to forming separate social categories that are different from other related categories (i.e. distinct and meaningful teams). Accordingly, our finding that satisfaction of personal identity motives for self-esteem and efficacy as well as meaning and distinctiveness predicts group identification is consistent with previous research.

Strengths, Limitations and Future Research

The present study has several notable strengths. Our finding that satisfaction of identity motives explains a high percentage of variation in group identification (more than 70% of the variation in initial states and in linear change trajectories on both individual and group levels of analysis), emphasises that motivational processes are vital to our understanding of group identification. This is also the first study to focus simultaneously on multiple motives instantiated on multiple levels of self-representation and multiple levels of analysis, and thus it avoids potentially confounded conclusions regarding the influence of motives that arise from the study of single or dual motivational theories.

Our four-wave clustered longitudinal design has several methodological strengths over previous research (e.g., Easterbrook & Vignoles, 2012; Johnson et al., 2006). The number of groups enabled us to explore group-level effects and make the novel discovery that shared perceptions of collective distinctiveness may be involved in group identity construction, over and above individuals' own perceptions. Moreover, examining cross-lagged relationships allowed us to draw somewhat stronger conclusions regarding the causal pathways between group identification and identity motives than previous research. These two advantages are crucial to the study of group identification, and we strongly encourage future researchers in this area to take a similar approach.

One methodological limitation is that the order of personal and social identity motives was not counterbalanced, which should be addressed in future research. Moreover, the moderate correlations that we observed among our single-item personal and social identity motive ratings will have been attenuated to some extent by error variance, with the result that partitioning the variance among the identity motives may be subject to some instability. Future research could seek to develop multi-item scales for each motive, giving more stability to the constructs and greater confidence in the findings.

A second limitation is that we focused only on amateur sports teams, which makes it unclear whether our findings can be generalised to other group identities. For example, previous research has shown that personal identity continuity uniquely and strongly predicts national identification (Smeeke & Verkuyten, 2013). The notion that different motives are at play for different groups is supported by previous research (Easterbrook & Vignoles, 2012). For example, sports teams are formed of members that have chosen to be part of that group. This may explain the prominence of social identity motives (i.e. members join teams because of how they perceive them). Accordingly, we must be cautious not to draw sweeping conclusions regarding the generalisability of the specific pattern of motivational effects demonstrated here. Nevertheless, our broad range of teams and sports, across two

countries, gives some confidence in the potential generality to our findings to at least some other small group environments.

Thirdly, our research does not consider the potential interplay between motives at different levels (e.g., Smeekes & Verkuyten, 2013). The relationships among different instantiations of identity motives are likely to be bidirectional and complex. Through self-stereotyping, social identity motive satisfactions may lead to personal identity motive satisfactions (e.g., belonging to a distinctive group makes me feel that I am a distinctive person); through self-anchoring, personal identity motive satisfactions may lead to social identity motive satisfactions (e.g., I am a distinctive person, so my group must be distinctive; see van Veelen, Otten, Cadinu, & Hansen, 2016). However, personal and social identity motive satisfactions may sometimes compensate for, rather than reflect, each other (e.g., if my personal distinctiveness is undermined, I may emphasize my group's distinctiveness to make up for this, or vice versa; Jetten, Spears, & Manstead, 1997; Pickett et al., 2002). These different processes may come into play at different times, and notably the possibility of compensatory effects indicates that personal and social instantiations of the same identity motive may not always be positively related. Adding further to the complexity, there is no necessary one-to-one correspondence between personal and social motive satisfactions: For example, Smeekes and Verkuyten (2013) found that feelings of social identity continuity predicted group identification via feelings of personal identity continuity, belonging and esteem, showing that the satisfaction of multiple personal identity motives was linked to satisfaction of a single social identity motive. Unravelling this complexity will be an important challenge for future research.

Implications

Having a more complete theoretical toolkit for understanding motivated identity processes could prove especially important in applied domains. For example, to foster group identification, team-building interventions could be designed to target certain identity

motives. As group identification is considered highly malleable, such team interventions could prove beneficial for teams across a wide variety of contexts (Onorato & Turner, 2004). Given the positive outcomes of group identification, these approaches could improve performance (e.g., Haslam et al., 2014, Thomas et al., 2016), wellbeing (e.g., Haslam et al., 2009) and decision-making (e.g., Brown, 2000) amongst team members. Accordingly, having an empirically grounded basis for focusing on particular identity motives lays the foundations for harnessing more effectively the spectrum of benefits of group identification already established in SIT research.

Concluding Remarks

The present research has connected a diverse and somewhat fragmented motivational literature, and taken one step towards a more integrative understanding of identity motives in group situations. By moving beyond single motives at a single motivational level, our approach enabled us to draw more comprehensive conclusions regarding the influence of multiple motives instantiated on multiple levels of self-representation and multiple levels of analysis. In particular, we showed the prominence of personal and social identity motives (individual processes), as well as some evidence for the role of a collective motive for distinctiveness (group process) in shaping group identification within the teams that we studied. In doing so, our research provides a framework for studying motives at different levels underlying identification. We encourage researchers to adopt this framework to confirm our findings and test parallel predictions in other types of groups.

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Footnotes

1 Another possible motivational level considers personal identity motives averaged for the whole group. This would indicate that an individual identifies with a group that on average satisfies the personal identity motives of its members. Intuitively, it is harder to envisage that someone would identify with a group based on whether other group members' personal identity motives were being satisfied. Exploratory analyses of our data also revealed that this potential motivational level had no impact on group identity construction. We therefore excluded it from discussion and further analyses.

2 To check for non-linear time-trends, effects of time² and time³ on team identity were also investigated. Neither effect was significant, and therefore these are excluded from further analyses.

3 Imposing these equality constraints caused a significant decrease in fit in the personal identity distinctiveness model ($p = .014$). However, the resulting model was more parsimonious, and still provided a good fit to the data (see Table 5).

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Table 1.

List of constructs and questions in the questionnaires

Construct	Questions English version	Questions Italian version
Personal Identity Motives		
Esteem	Being a member of this team makes me see myself positively.	Essere un membro di questa squadra mi fa vedere me stesso positivamente.
Distinctiveness	Being a member of this team distinguishes me from other people.	Essere un membro di questa squadra mi distingue dalle altre persone.
Belonging	Being a member of this team gives me a sense that I “belong”	Essere un membro di questa squadra mi dà un senso di appartenenza.
Meaning	Being a member of this team gives me a sense that my life is meaningful	Essere un membro di questa squadra mi fa sentire che la mia vita ha un senso.
Continuity	Being a member of this team makes me feel that my past, present and future are connected.	Essere un membro di questa squadra mi fa sentire che il mio passato, presente e futuro sono connessi.
Efficacy	Being a member of this team makes me feel competent and capable.	Essere un membro di questa squadra mi fa sentire competente e capace.
Social Identity Motives		
Esteem	I see this team positively.	Vedo questa squadra positivamente
Distinctiveness	I see this team as having a distinctive identity—different from other teams.	Vedo che questa squadra ha un’identità distinta, differente dalle altre squadre.
Belonging	I see this team as forming a cohesive ‘whole’.	Vedo che questa squadra forma un insieme coeso.
Meaning	I see this team as having a clear and meaningful sense of identity.	Vedo che questa squadra ha un’identità chiara e ricca di significato.
Continuity	I see this team having an identity that persists over time—from past to present to future.	Vedo che questa squadra ha un’identità che persiste nel tempo, dal passato, al presente al futuro.
Efficacy	I see this team as competent and capable.	Vedo questa squadra competente e capace.
Group Identification Items		
1	I feel loyal to this team.	Mi sento fedele a questa squadra.
2	I often think about the fact that I am a member of this team.	Penso spesso al fatto che io sono membro di questa squadra.
3	I have a lot in common with other team members.	Ho molto in comune con gli altri membri della squadra.
4	Being a member of this team is important to who I am.	Essere un membro di questa squadra è importante per chi sono io.
5	I feel committed to this team.	Mi sento impegnato in questa squadra.
6	I identify with this team.	Mi identifico con questa squadra.

Note. All questions are rated on an 7-point scale ranging from 0-6. For motive items, scale anchors were 0 = Not at all, 3 = moderately, 6 = completely. For identification items, scale anchors were 0 = Strongly disagree, 3 = Neither agree nor disagree, 6 = Strongly agree

Table 2.

Means and standard deviations for identity motives and group identification scales at each time point.

	Time 0		Time 1		Time 2		Time 3	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Personal Identity Motives								
Esteem	4.41	1.13	4.27	1.15	4.24	1.17	4.11	1.23
Distinctiveness	3.65	1.53	3.63	1.49	3.68	1.45	3.78	1.37
Belonging	4.31	1.16	4.17	1.15	4.09	1.18	4.04	1.23
Meaning	3.91	1.39	3.83	1.24	3.93	1.25	3.89	1.28
Continuity	3.59	1.57	3.52	1.43	3.66	1.41	3.72	1.35
Efficacy	4.22	1.12	4.06	1.18	4.05	1.18	4.01	1.21
Social Identity Motives								
Esteem	4.90	1.02	4.62	1.11	4.53	1.19	4.37	1.29
Distinctiveness	4.15	1.34	4.17	1.30	4.13	1.32	4.09	1.37
Belonging	4.23	1.27	4.16	1.26	3.95	1.27	4.03	1.35
Meaning	4.21	1.31	4.16	1.29	4.05	1.24	4.13	1.34
Continuity	4.03	1.28	4.04	1.30	3.91	1.30	3.97	1.35
Efficacy	4.44	1.12	4.40	1.10	4.20	1.15	4.30	1.29
Collective Identity Motives								
Esteem	4.90	.54	4.62	.62	4.53	.84	4.37	.92
Distinctiveness	4.15	.77	4.17	.80	4.13	.80	4.09	.92
Belonging	4.23	.71	4.16	.74	3.95	.78	4.03	.89
Meaning	4.21	.78	4.16	.84	4.05	.82	4.13	.97
Continuity	4.03	.63	4.04	.71	3.91	.77	3.97	.90
Efficacy	4.44	.66	4.40	.70	4.20	.71	4.30	.92
Group Identification	4.36	0.90	4.30	0.96	4.25	0.99	4.28	1.06

Table 3.
Between-person and within-person correlations

	Personal Identity Motives						Social Identity Motives						GI
	1	2	3	4	5	6	1	2	3	4	5	6	
Personal Identity Motives													
1 Esteem		0.29	0.49	0.36	0.32	0.34	0.30	0.21	0.22	0.22	0.22	0.22	0.33
2 Distinctiveness	0.52		0.30	0.30	0.24	0.37	0.15	0.27	0.17	0.25	0.21	0.19	0.22
3 Belonging	0.51	0.45		0.54	0.28	0.36	0.30	0.28	0.25	0.26	0.19	0.19	0.28
4 Meaning	0.68	0.50	0.75		0.30	0.28	0.16	0.22	0.15	0.16	0.18	0.09	0.17
5 Continuity	0.51	0.38	0.46	0.49		0.35	0.15	0.18	0.15	0.15	0.14	0.17	0.19
6 Efficacy	0.44	0.54	0.56	0.55	0.53		0.26	0.30	0.23	0.27	0.22	0.22	0.30
Social Identity Motives													
1 Esteem	0.40	0.32	0.51	0.44	0.29	0.45		0.30	0.38	0.32	0.32	0.37	0.30
2 Distinctiveness	0.47	0.45	0.56	0.51	0.34	0.49	0.57		0.32	0.40	0.32	0.38	0.24
3 Belonging	0.50	0.32	0.51	0.41	0.29	0.42	0.63	0.59		0.47	0.40	0.38	0.33
4 Meaning	0.52	0.37	0.53	0.47	0.31	0.47	0.61	0.68	0.73		0.36	0.49	0.31
5 Continuity	0.42	0.34	0.47	0.42	0.37	0.42	0.53	0.61	0.64	0.67		0.25	0.25
6 Efficacy	0.46	0.31	0.44	0.39	0.30	0.45	0.64	0.62	0.65	0.73	0.56		0.30
Group identification	0.67	0.52	0.69	0.66	0.45	0.59	0.60	0.63	0.59	0.65	0.58	0.57	

Note: Within-person correlations (based on participant-centered items) are shown above the diagonal. Between-person correlations (based on averaged scores across time points) are shown below the diagonal.

Table 4.

Longitudinal Multilevel Analyses Predicting Concurrent Changes In Group identification.

Level 1= Time points (N = 1,202), Level 2= Students (N = 369), Level 3 = Teams (N = 45)

Parameters	Unconditional Growth Model			Conditional Model		
	Est	SE	p	Est	SE	p
Fixed parameters						
Intercept	4.390	0.072	<.001	4.256	0.033	<.001
Time	0.009	0.026	0.729	0.025	0.017	0.141
Personal Identity Motives						
Esteem				0.130	0.020	<0.001
Distinctiveness				0.062	0.014	<0.001
Belonging				0.091	0.022	<0.001†
Meaning				0.072	0.020	<0.001
Continuity				0.027	0.014	0.054
Efficacy				0.055	0.019	0.004
Social Identity Motives						
Esteem				0.034	0.021	0.105
Distinctiveness				0.025	0.019	0.188
Belonging				0.074	0.020	<0.001
Meaning				0.076	0.022	<0.001
Continuity				0.051	0.017	0.003
Efficacy				0.043	0.022	0.051
Collective Identity Motives						
Esteem				0.067	0.050	0.180
Distinctiveness				0.129	0.050	0.010
Belonging				-0.119	0.058	0.040 †
Meaning				0.073	0.061	0.231
Continuity				-0.017	0.049	0.729
Efficacy				-0.026	0.059	0.659
Random effects						
Individual level						
Random intercept variance (σ^2_{v0})	0.510	0.053		0.151	0.023	
Random Linear Time Slope Variance (σ^2_{v1})	0.024	0.006		0.006	0.004	
Intercept-Time Slope Covariance (σ^2_{v01})	-0.041	0.014		-0.016	0.008	
Team level						
Random Intercept Variance (σ^2_{u0})	0.141	0.049		0.016	0.011	
Random Linear Time Slope Variance (σ^2_{u1})	0.019	0.006		0.003	0.002	
Intercept-Time Slope Covariance (σ^2_{u01})	0.019	0.012		0.000	0.003	
Residual Variance (σ^2_{e0}),	0.177	0.011		0.146	0.009	
-2LL	2385.287			1657.386		

Note: † denotes country interaction effect. Bolded values represent significant effects that did not interact with country.

Table 5.

Cross-lagged and Autoregressive Effects of Identity Motives and Group identification. Students (N = 369), Teams (N = 45)

Identity Motive	Cross-lagged effects		Autoregressive effects		Model Fit			
	IM → GI	GI → IM	IM → IM	GI → GI	CFI	TLI	RMSEA	SRMR
Individual level								
Personal Identity Esteem	0.117**	0.248**	0.514**	0.707**	.979	.975	.065	.048
Personal Identity Distinctiveness	0.053*	0.149**	0.628**	0.758**	.971	.964	.078	.056
Personal Identity Meaning	0.126**	0.228**	0.595**	0.687**	.989	.986	.044	.054
Personal Identity Efficacy	0.070*	0.213**	0.508**	0.738**	.962	.953	.082	.065
Social Identity Meaning	0.142**	0.167**	0.647**	0.682**	.965	.955	.093	.059
Social Identity Belonging	0.081*	0.220**	0.582**	0.730**	.954	.944	.096	.065
Social Identity Continuity	0.103**	0.272**	0.487**	0.721**	.954	.933	.094	.063
Team level								
Collective Distinctiveness	0.180	0.384	0.590**	0.737**	.954	.944	.074	.069

Note. The table shows standardised regression coefficients. IM = Identity Motives, GI = Group identification.

* p < 0.05, ** p < 0.001

Table 6

Cross-lagged and Autoregressive Effects of Identity Motives and Group identification using *Postmes et al.'s (2013) single item measure of identification*. Students (N = 369), Teams (N = 45)

Identity Motive	Cross-lagged effects		Autoregressive effects		Model Fit			
	IM → GI	GI → IM	IM → IM	GI → GI	CFI	TLI	RMSEA	SRMR
Individual level								
Personal Identity Esteem	0.214**	0.143**	0.597**	0.536**	.976	.971	.062	.070
Personal Identity Distinctiveness	0.148**	0.102*	0.659**	0.590**	.962	.953	.075	.065
Personal Identity Meaning	0.274**	0.154**	0.668**	0.507**	.984	.980	.050	.068
Personal Identity Efficacy	0.153**	0.137**	0.556**	0.563**	.948	.936	.082	.078
Social Identity Meaning	0.203**	0.085*	0.707**	0.541**	.948	.936	.097	.072
Social Identity Belonging	0.161**	0.108**	0.667**	0.573**	.936	.921	.099	.073
Social Identity Continuity	0.155**	0.156**	0.580**	0.585**	.938	.924	.085	.072
Team level								
Collective Distinctiveness	0.318	0.117	0.663**	0.884**	.950	.939	.060	.059

Note. The table shows standardised regression coefficients. IM = Identity Motives, GI = Group identification.

* $p < 0.05$, ** $p < 0.001$

Table 7.

Identity motives on each level that were found to significantly predict group identification with the team.

Motivational level	Social Identity Motive					
	Esteem	Distinctiveness	Belonging	Meaning	Continuity	Efficacy
Personal Identity Motives	✓	✓		✓		✓
Social Identity Motives			✓	✓	✓	
Collective Motives		✓				

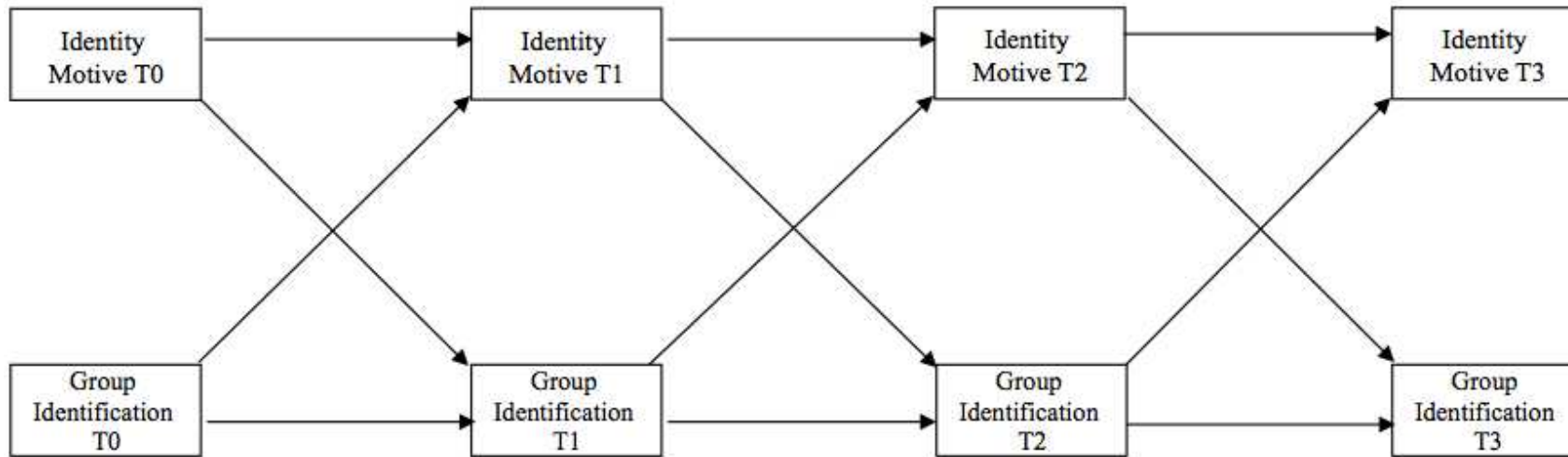


Figure 1. Cross-lagged model of the relations between identity motives and group identification across four time points (T0-T3). The relations between factors are specified as cross-lagged effects, which indicate the prospective effect of one variable on the other (e.g., the effect of Identity Motive T0 on Group Identification T1) after controlling for their stability across time (e.g., the autoregressive path of Group Identification T0 to Group Identification T1). Residual covariances are included in the model, but are not shown in the figure to aid clarity.