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# Reports Sharing differences: The inductive route to social identity formation

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# ABSTRACT

A dominant assumption in social science is that shared similarities are the foundation for social categorization and identification. Accordingly, heterogeneity should hinder social identity formation. This paper argues the opposite can also be true: in heterogeneous groups, strong social identities can be built on expressions of individuality (inductive social identity formation), instead of shared similarities (deductive social identity formation). Two experiments manipulate social identity formation (deductive vs. inductive social identity formation) and support this idea. Study 1 shows that in heterogeneous groups, inductive social identity formation can result in higher identification and perceived entitativity than deductive social identity formation. Study 2 manipulates heterogeneity and confirms that while deduction of a social identity fosters a strong sense of identification in homogeneous groups, in heterogeneous groups a strong sense of identification can be brought about through induction. This pattern is also visible in real within-group cooperation.

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# Introduction

The assumption that heterogeneity undermines social cohesion and communion is widespread in social psychology and beyond (e.g., Putnam, 2000). For example, it is often assumed that shared similarities are the foundations of social categorization and identification (Turner, 1985). Individuals identify with groups on the basis of shared characteristics such as skin color or attitudes. Minimal group research has shown that mere categorization of individuals into one social group on the basis of some arbitrary similarity, is sufficient to make individuals see their similar others as 'in-group' and different others as out-group (Taifel & Turner, 1979). This implies that the more within-group similarities there are, the stronger the social identity would be (Tajfel, 1978). Thus, for heterogeneous groups it may be quite difficult to form a shared social identity. Indeed, research has shown that within-team differences tend to erode team identification (e.g. Luijters, Van der Zee, & Otten, 2008). More generally, diversity within teams has consistently been found to have negative effects on affective outcomes (see Milliken & Martins, 1996, for a review).

However, more recent research suggests that the outcomes of diversity in teams are more mixed and can be positive (Jackson, Joshi, & Erhardt, 2003). Sociological research suggests that, counter to Putnam's suggestions, diversity can actually foster social cohesion and communion, too (Savelkoul, Gesthuizen, & Scheepers, 2011). Indeed, in the present paper we propose that heterogeneity does not *necessarily* undermine the formation of a shared social identity because similarity is not the

only foundation upon which social identities can be built. In fact, we propose that shared differences can be a profound basis on which individuals can form a social identity. Unique and distinct contributions by group members (i.e., expressions of individuality) may contribute to the emergence of solidarity (Durkheim, 1984) and social identity (Jans, Postmes, & der Zee, 2011; Postmes, Haslam, & Swaab, 2005; Postmes, Spears, Lee, & Novak, 2005). We therefore propose that in groups characterized by within-group differences, a strong social identity can be formed on the basis of a process in which those differences are shared (inductive social identity formation). Thus, although within-group differences may at times undermine the emergence of a social identity (cf. Tajfel, 1978), paradoxically, in the right circumstances these same differences may serve as foundation for the emergence of *new* social identities. This idea is examined in two studies that seek to demonstrate that while members of homogenous groups can form a strong social identity by a process of sharing similarities, members of heterogeneous groups can form a strong social identity by a process of sharing individual differences, or individuality.

## Forming social identities

In theory, the formation of social identities may be influenced through two distinct paths (Postmes, Haslam, et al., 2005). On the one hand, superordinate categories may influence a social identity through a deductive route. Through a *top-down* process, group members form a social identity on the basis of shared characteristics that differentiate their in-group from other groups, as is the case in minimal group research (Tajfel & Turner, 1979). A soccer team for example can have a shared social identity symbolized by team colors and an outfit which are distinct from those of opposing teams. By knowing who the

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out-group is, and how they are different from the in-group, a social identity can be deduced. This is described in self-categorization theory as a process of "depersonalization" of self and other in-group members in terms of a social identity—a form of perceptual homogenization (Turner, 1985). While homogeneity fosters this process and thus aids the deduction of shared identity, in-group heterogeneity undermines it.

However, social identity formation may not only be formed through a deductive path. At the same time, inductive processes may influence the formation of a social identity. That is, social identities may also be shaped by individual contributions of group members. In this bottom-up process, the shared identity of the group may be induced on the basis of individual expressions by group members. Thereby, within-group differences may be integrated into the shared cognitive representation of the group (Swaab, Postmes, van Beest, & Spears, 2007). This alternative pathway to identity formation may be strengthened to the extent that each individual group member contributes to it. The example of the soccer team also fits here. If we gave two teams the same shirts, and compared them with the same out-group, the content of the shared identity would still be different for the two groups, because the individuals that make up the team are different. That is, who we are is not just determined by who "they" are, but also by who "we", as separate individuals, are (cf. Gaertner, Juzzini, Witt, & Oriña, 2006). Thus, it is clear that there are different routes to form strong social identities. Yet, surprisingly little research has investigated the inductive route to social identity formation, and no research has examined its implications for social identity formation in heterogeneous groups.

### Forming social identities in heterogeneous or homogenous groups

The idea of an inductive route to the formation of social identity has received some empirical support. Research has documented deductive and inductive processes in social influence (Postmes, Spears, et al., 2005) and shown that these processes foster pro-social intentions and positive negotiation outcomes (Swaab, Postmes, & Spears, 2008). Research also suggests that measured levels of perceived inductive social identity formation may affect entitativity and social identification (Jans et al., 2011). But crucially, this prior research has not demonstrated experimentally that these processes affect social identification. Moreover, the suggestion above that heterogeneity can be the foundation for a strong social identity, provided that it is induced, has to our knowledge never been examined.

Indirect evidence for our proposition comes from research that has shown that groups who are given group norms of independence and individualism, or social values of diversity, can also increase groups' valuation of heterogeneity (e.g., Homan, Van Knippenberg, Van Kleef, & De Dreu, 2007; Jetten, Postmes, & McAuliffe, 2002; Postmes, Spears, & Cihangir, 2001). This research shows that when experimenters or other authorities activate or instill norms that diversity and heterogeneity ought to be valued positively, the group or organizational members do indeed start valuing diversity more. Further research has shown that also when a group expects heterogeneity, then diversity is valued more highly (Rink & Ellemers, 2007). In our view, the induction of shared identity in heterogeneous groups is qualitatively different, however. Induction is a process wherein an individual makes an active contribution to the emergence of a shared identity, simply because they have an opportunity (or "voice"). No prior norms or expectations about the heterogeneity need to be provided in this process, although it is possible that norms may emerge as a *consequence* of having this ability to have influence. Thus, induction is not just the "fit" of group composition to shared social norms (cf. Rink & Ellemers, 2007).

In sum, this research tests the prediction that inductive processes can lead to the formation of a social identity. We test this prediction by measuring social identification directly, as well as measuring two closely related variables: the perceived entitativity (the perceptual groupiness of a social aggregate, Campbell, 1958), and (in Study 2) a behavioral measure of cooperation. These measures represent three important aspects of social identity, namely members' cognitive perception of the group as a categorical entity (entitativity), their affective relation to this entity (identification), and their willingness to act in concert with it (cooperation). In addition, this paper tests the prediction that while heterogeneity might be a problem in the process of deductively forming a social identity, heterogeneous groups can form a strong social identity inductively. To this end, we manipulate diversity in Study 2.

# Study 1

In Study 1, social identity formation was manipulated by the way in which a shared representation of the group, in the form of a team shirt, is created. To find support for the formation of a social identity, we measured social identification and entitativity.

# Method

*Participants and design.* Students (115 women and 41 men,  $M_{age} = 20.26$ ) were randomly allocated to one of two conditions of social identity formation: deduction vs. induction. In total, 39 groups of 4 participants were formed. One participant was removed, because he participated twice.

*Procedure.* Participants were invited to the lab in groups of four<sup>1</sup>. As a manipulation of social identity formation, groups had to make team shirts. The intention for the manipulation was to vary the amount of visible individual contribution to a team t-shirt, while keeping everything else constant. Participants were seated around a table, and each participant was handed a white T-shirt with four blocks printed on it. In the deduction condition, the group was shown a design for a team shirt. In line with the process of identity deduction, participants were told that this design was distinctive for their group. They were instructed to copy this design onto their T-shirts with color markers. In the induction condition, each group member was asked to individually design and draw one part of the team shirt. First, all group members drew their individual design on the first guarter of a t-shirt. Then, they copied this individual design onto the other T-shirts. In this way, each individual member made a direct and unique contribution to the development of a shared representation of the whole group. Thus, except for the extent to which individuals had the opportunity to make a unique contribution to the team-shirt, the two conditions were kept completely similar. In both conditions, the drawing task took 10 min to complete, and all group members spent the full 10 min drawing their t-shirts. During the task participants were allowed to talk, but not about their drawings.<sup>2</sup> After the paint on the t-shirts had dried, participants were asked to put their team-shirts on. They were told that the team shirt was necessary for a task in the second part of the experiment. Then, participants put on their shirts and filled out a questionnaire. At the end of the experiment, groups were photographed. Unfortunately, the camera was not available at all times. In total, there were 13 group pictures of the deduction and 12 group pictures of the induction condition.

<sup>&</sup>lt;sup>1</sup> This study also attempted to manipulate diversity of the group, but this was unsuccessful according to the manipulation check and other dependent variables: all effects involving diversity were non-significant. The diversity manipulation sought to distinguish between employed and non-employed students but it turned out that most of the non-employed students had either been employed shortly before, were looking for employment or both. We therefore do not report any of the effects involving diversity.

<sup>&</sup>lt;sup>2</sup> Although we did not record the interactions, and so cannot do a formal content analysis, there was actually very little interaction during the task: participants spent most of their time drawing in silence. Moreover, a recent unpublished study provides a replication of these results using a manipulation of induction/deduction during which participants could not interact (Jans, Postmes, Van der Zee, & Seewald, 2012), with similar effects on identification.

Dependent variables. The questionnaire consisted of statements with 7-point scales (1 = fully disagree; 7 = fully agree). Identification was measured with the solidarity and satisfaction subscales of Leach et al. (2008); 7 items,  $\alpha = .93$ , e.g., "I felt connected to this group" and "It gave me a good feeling to be a member of this group"). Four items measured *entitativity* (Jans et al., 2011), e.g.: "Members of this group are as one" ( $\alpha = .88$ ). The manipulation check of social identity formation consisted of the item "The group identity was formed by members themselves."

To test if the induction condition only manipulated the extent to which group members could make a distinct contribution and not the amount of effort invested in the task, two independent coders rated the drawings on the team shirts. They were asked to rate the amount of effort each member put into the team shirt (r=.53, p=.000) on a 5-point scale (1 = *very little*; 5 = *very much*).

# Results

The hypotheses were tested in a multilevel analysis (HLM; Raudenbush & Bryk, 2002), in which we looked at the effects of social identity formation at the group level (Level 2) on variables measured at the individual level (Level 1)<sup>3</sup>. Intraclass correlations (ICC's) were relatively high for groups of such a small sample size (see Bliese, 2000), and given the time participants spent on the drawing task. Thus, a large proportion of the total variance in individual's identification and entitativity was attributable to their shared group membership (see Table 1).

### Manipulation checks

As expected, the manipulation of social identity formation had a marginal significant effect on the formation check,  $\gamma = .44$ , t(37) = 1.88, p = .068. This main effect resulted in a significant improvement in the goodness of fit compared to a null model,  $\chi(1) = 4.26$ , p = .038, suggesting that social identity formation condition accounted for a considerable amount of variance. Participants in the induction condition felt more strongly that members themselves formed the group identity ( $M_{group} = 5.28$ ,  $SD_{group} = 0.81$ ), than participants in the deduction condition ( $M_{group} = 4.82$ ,  $SD_{group} = 0.67$ ). Moreover, the manipulation had no effect on the perceived effort group members put in creating the team-shirt,  $\gamma = .12$ , t(23) = 0.59, p = .560.

### Identification and entitativity

Social identity formation had significant effects on the outcomes. Participants in the induction condition identified more strongly with their group and experienced higher entitativity than participants in the deduction condition (see Table 1).

# Discussion

Study 1 provides support that groups can form a shared social identity inductively. Induction resulted in a stronger sense of social identity than deductive processes did, as was reflected in higher identification and entitativity. These results extend previous research (Postmes, Spears, et al., 2005; Swaab et al., 2008) by showing directly that induction increases levels of cognitive and affective identification. Moreover, the results support work of Gaertner et al. (2006), suggesting that intra-group processes can be the source of entitativity and positive group regard. The finding that induction even results in higher levels of identification and entitativity than deduction, seems to suggest that within these ad hoc groups, members assume more within-group differences than similarities. Although, this provides support for the suggestion that shared identities can be formed out of distinct contributions by group members, it does not directly test the prediction that inductive processes

### Table 1

Social identity formation effect on entitativity and identification, intra-class correlations, group means and standard deviations in Study 1.

Dependent variables	ICC	Social identity formation				Deduction		Induction	
		γ	t(37)	$R^2$	$\chi^{2}(1)$	М	SD	М	SD
Identification	.33	.67 (.20)	3.32*	.33	10.40*	4.60	0.57	5.28	0.69
Entitativity	.32	.62 (.23)	2.72*	.22	7.64*	4.78	0.71	5.41	0.73

Note. Standard errors are in parentheses.

\* p<.01.

of social identity formation would be a good method to unite groups that are heterogeneous.

# Study 2

In order to seek support for our proposal that heterogeneity within groups can foster unity, we replicated Study 1 with a high-impact manipulation of diversity. We chose to manipulate diversity by providing false feedback on within-group differences in personality. Moreover, we included cooperation as an extra dependent variable, to show that social identity formation leads to actual group-serving behavior.

### Method

### Participants and design

Students (74 women, 19 men;  $M_{age} = 21.44$ ) were randomly assigned to groups of three in a 2 (Diversity: Homogenous vs. Heterogeneous)×2 (Social Identity Formation: Induction vs. Deduction) design.

### Procedure

Diversity was manipulated by providing false feedback on a personality questionnaire (Hendriks, Hofstee, & De Raad, 1999). The personality questionnaire was taken before participants were invited in groups to the lab. Participants in the homogeneous condition were told that group members had very similar personalities. Participants in the heterogeneous condition were told that group members had very different personalities. Then, *social identity formation* was manipulated as in Study 1. This time the T-shirts had three blocks printed on them, because there were three members in each group. After the groups completed their team shirts in 10 min, participants filled in questionnaires.

### Dependent variables

The manipulation check for social identity formation, *identification* ( $\alpha = .90$ ) and *entitativity* ( $\alpha = .90$ ) were measured as in Study 1. As a diversity manipulation check, participants responded to the item: "I am similar to the average group member". Actual *cooperation* was measured through a public goods game in which participants had to decide whether or not to share a hypothetical amount of twenty euros. Shared money would be doubled and equally divided among group members. Thus, individual pay-off was higher in case of not sharing, while group pay-off was higher in case of sharing.

### Results and discussion

The hypotheses were tested in a multilevel analysis (HLM; Raudenbush & Bryk, 2002), in which we looked at the effects of social identity formation at the group level (Level 2) on variables, measured at the individual level (Level 1). The ICC's for identification and entitativity were .15 and .28, respectively.

### Manipulation checks

The manipulations were successful. Diversity had a significant effect on the diversity check,  $\gamma = -2.03$ , t(29) = -9.25, p < .001. Members of homogenous groups felt more similar to the average group member

<sup>&</sup>lt;sup>3</sup> Similar effects were obtained when we aggregated individual-level responses to the group level.

 $(M_{\text{group}} = 4.88, SD_{\text{group}} = 0.56)$ , than members of heterogeneous groups  $(M_{\text{group}} = 2.84, SD_{\text{group}} = 0.67)$ . Adding diversity to the empty model improved the goodness of fit significantly,  $\chi(1) = 41.82, p < .001$ .

Social identity formation had a significant effect on the formation check,  $\gamma = .82 \ t(29) = 3.84$ , p < .001. Participants in the induction condition felt more that members formed the group identity themselves ( $M_{\text{group}} = 5.10$ ,  $SD_{\text{group}} = 0.54$ ), more than participants in the deduction condition ( $M_{\text{group}} = 4.29$ ,  $SD_{\text{group}} = 0.64$ ), model fit improvement  $\chi(1) = 12.88$ , p < .001. All other effects were not significant.

#### Identification

Main effects of diversity and social identity formation on identification were not significant, |t|'s<.47. As expected, we found a significant interaction effect of diversity and social identity formation on identification,  $\gamma = .55$ , t(27) = 2.51, p = .019, model fit improvement  $\chi(1) = 6.48$ , p = .011 (see Fig. 1). Members of heterogeneous groups identified significantly more with their group when the group identity was induced rather than deduced,  $\gamma = .65$ , t(27) = 2.07, p = .048. For members of homogenous groups, if anything there was a trend in the opposite direction,  $\gamma = -.45$ , t(27) = -1.47, p = .153. Moreover, in line with the predictions from social identity theory (Tajfel, 1978), identification was marginally significantly higher for homogeneous than for heterogeneous groups when the social identity was deductively formed,  $\gamma = -.63$ , t(27) = -2.01, p = .054.

# Entitativity

No significant effects were found on entitativity. However, the interaction of diversity and social identity formation,  $\gamma = .48$ , t(27) = 1.57, p = .127, showed the same pattern of results, and model fit improvement was marginal,  $\chi(1) = 3.73$ , p = .053.

### Cooperation

Participants could cooperate by sharing money with the group. Overall, 83.9% decided to share. We tested the effects of condition on cooperation with a logistic multilevel analysis (1 = *sharing*), with Laplace approximation (Raudenbush & Bryk, 2002). The effects of diversity and social identity formation were not significant, *t*'s <.55, but the interaction was significant,  $\gamma = 1.76$ , *t*(27) = 2.16, *p* = .040 (see Fig. 2), model fit improvement  $\chi(1) = 7.63$ , *p* = .006. Members of heterogeneous groups cooperated marginally more with their group when the identity was inductively rather than deductively formed,  $\gamma = 2.22$ , *t*(27) = 1.94, *p* = .062. For members of homogenous groups, if anything the trend was in the opposite direction,  $\gamma = -1.30$ , *t*(27) = -1.08, *p* = .290.

Thus, the results from Study 2 provided support for our hypothesis. Diversity does not hinder inductive social identity formation. Heterogeneous groups could form a strong social identity inductively, as homogeneous groups could deductively, as evidenced by higher identification and more group-serving behavior.

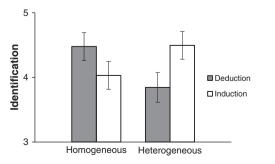


Fig. 1. Interaction effect of diversity and social identity formation on average identification, with standard errors.

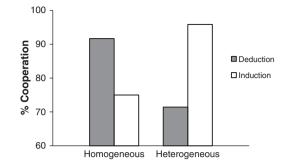


Fig. 2. Interaction effect of diversity and social identity formation on percentage of cooperation.

### **General discussion**

Two studies support the idea that a social identity can be formed on the basis of within-group diversity but only if it was formed inductively. In Study 1, inductive social identity formation resulted in stronger identification and entitativity than deductive social identity formation. Study 2 replicated these effects in heterogeneous groups, but further showed that deduction resulted in a stronger social identity in homogeneous groups compared with heterogeneous groups (e.g., as predicted by self-categorization theory; Turner, 1985). Interesting to note is that in Study 2, levels of identification were approximately equally strong in heterogeneous groups who had induced a shared identity, as in homogeneous groups that deduced one. This suggests in line with Postmes, Spears, et al. (2005) that different processes of social identity formation can produce ostensibly similar outcomes (i.e., comparable levels of entitativity and identification). Results of Study 2 also showed behavioral evidence for this same pattern: levels of cooperation paralleled those of identification. High social identification corresponded with a greater willingness to act in concert with the group.

The findings for deductive social identity formation fit the standard assumption in social psychology and beyond that homogeneity breeds cohesion. This is also consistent with traditional social identity and self-categorization theory assumptions that similarity is the foundation of social identity (Tajfel, 1978). However, we showed that heterogeneous groups can also create a strong social identity. This finding fits more recent propositions that diversity is not necessarily an obstacle but a potential opportunity for unity (cf. Hornsey & Jetten, 2004; Packer, 2008; Rink & Ellemers, 2007). Heterogeneous groups can function as well as homogeneous groups, as long as they can use their diversity. For example, research has found that group norms of independence and individualism, or social values of diversity increase appreciation of heterogeneity within groups (Homan et al., 2007; Jetten, McAuliffe, Hornsey, & Hogg, 2006; Jetten et al., 2002). Moving beyond this work, our studies show that social identity emerges in heterogeneous groups where no prior norms or values of diversity had been activated or imposed. In an inductive process, members can express who they are as an individual and contribute their individuality to the group, without hampering social identity formation.

Interestingly, our results also provide a hint that in truly homogeneous groups, deduction might result in a stronger social identity than induction. It seems that in order to form a strong social identity inductively, some within-group differences are beneficial. That is, the more heterogeneous the group, the larger each individual contribution to the group could be. Therefore, induction may lay the foundation upon which diversity becomes a social strength, rather than a weakness. Since the processes of inductive and deductive social identity formation are likely to co-occur in natural groups; both homogeneity and heterogeneity can foster the formation of a strong social identity. The shared similarities may help to define group boundaries and thereby form the foundation for a common categorization as in-group, while the within-group differences on other dimensions contribute to the shared induction of norms and practices. Such co-occurrence of deductive and inductive processes, may well be key to keeping the group viable and sustaining its ability to operate as an entity.

Thus, whether diversity is associated with negative or positive outcomes may be due to which process of social identity formation has the upper hand. For example, in times of intergroup competition or conflict, deductive processes might be the dominant route through which a social identity is formed. Future research should investigate the conditions under which deductive or inductive processes are likely to take the upper hand. Moreover, future research should also explore in greater depth the different aspects of the inductive process, carefully disentangling the influence of, for example, inducing a shared identity in the process of making a unique contribution to the group's implicit goals or symbols (as in the present study), or inducing it from the explicit negotiation of a shared sense of identity, or inducing it from within-group interactions or the observation of in-group members' behaviors.

In sum, this paper suggests that social identity is not just a product of homogeneity. Strong social identities can emerge and thrive even in heterogeneous groups. Therefore, the prevailing assumption that heterogeneity undermines social cohesion and community should be reconsidered. Our findings suggest that we can greatly enhance the utility of the social identity concept for groups and group functioning if we shift our focus from studying existing social identities to the process by which new ones emerge.

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