Running Head: DIVERSITY, IDENTITY, AND DIVERSITY BELIEFS

Group diversity and group identification: The moderating role of diversity beliefs

Rolf van Dick[1], Daan van Knippenberg[2], Silvia Hägele[3], Yves R. F. Guillaume[4], and Felix C. Brodbeck[4]

[1] Goethe University, Frankfurt, Germany

[2]Erasmus University Rotterdam, The Netherlands

[3]Eberhard-Karls-University, Tübingen, Germany

[4]Ludwigs-Maximilians-University, München, Germany

This is a preprint of a manuscript accepted for publication in *Human Relations*.

Authors Note

We are grateful to Christina Vohwinkel and Jeremy Dawson for their comments on a previous version and Johannes Ullrich for his help with the analyses.

Address correspondence to Rolf van Dick, Institute of Psychology, Johann Wolfgang Goethe University, Frankfurt, Kettenhofweg 128, 60054 Frankfurt, Germany, Phone: 0049 69 798 23727, email: van.dick@psych.uni-frankfurt.de.

Abstract

Research on diversity in teams and organizations has revealed ambiguous results regarding the effects of group composition on work group performance. The categorization-elaboration model (van Knippenberg, De Dreu, & Homan, 2004) accounts for this variety and proposes two different underlying processes. On the one hand diversity may bring about intergroup bias which leads to less group identification, which in turn is followed by more conflict and decreased work group performance. On the other hand, the information processing approach proposes positive effects of diversity because of a more elaborate processing of information brought about by a wider pool and variety of perspectives in more diverse groups. We propose that the former process is contingent on individual team members' beliefs that diversity is good or bad for achieving the team's aims. We predict that the relationship between subjective diversity and identification is more positive in ethnically diverse project teams when group members hold beliefs that are pro-diversity. Results of two longitudinal studies involving postgraduate students working in project teams confirm this hypothesis. Analyses further reveal that group identification is positively related to students' desire to stay in their groups and to their information elaboration. Finally, we found evidence for the expected moderated mediation model with indirect effects of subjective diversity on elaboration and the desire to stay, mediated through group identification, moderated by diversity beliefs.

Group diversity and group identification: The moderating role of diversity beliefs

The concept of work group diversity gains more and more attention in today's organizational life. The increase in demographic and functional diversity of the workforce has led to the question of whether diverse work groups perform better or worse than homogeneous groups. There is a bulk of studies that examine whether work groups diverse in attributes such as ethnic and educational background, gender, age, etc., perform better than homogeneous work groups or not (e.g., Pelled, 1996) yielding inconclusive empirical findings (for reviews, see van Knippenberg & Schippers, 2007; Williams & O'Reilly, 1998). In an attempt to reconcile these contradictory empirical findings, van Knippenberg, De Dreu, and Homan (2004) propose the categorization-elaboration model (CEM). According to the CEM the negative effects of work group diversity are brought about by social categorization processes interrupting the elaboration – exchange, discussion, and integration – of task-relevant information. Information elaboration in turn is proposed to bring about the positive effects of work group diversity on work group performance. Recent empirical evidence supports the CEM (Brodbeck, Guillaume, & Lee, 2007; Homan, van Knippenberg, Van Kleef, & De Dreu, 2007a, 2007b; Homan, Hollenbeck, Humphrey, van Knippenberg, van Kleef, & Ilgen, in press; Kooij-De Bode, van Knippenberg, & van Ginkel, in press; van Ginkel & van Knippenberg, 2008).

The CEM and these recent empirical findings pose a paradoxical challenge for practitioners because the benefits of work group diversity, such as creativity and elaboration, can only be harvested when differences are preserved. Traditional interventions, such as facilitating goal interdependence (Wageman, 1995) or superordinate goals (Gaertner & Dovidio, 2000), may reduce intergroup bias, but may at the same time reduce the focus on the diversity within the group, which is an antecedent of the information-elaboration processes bringing about the positive effects of work group diversity. Thus, an intervention

likely to harvest the benefits of work group diversity will have to resolve this paradox.

Van Knippenberg et al. (2004) suggested that focusing on *diversity beliefs* held by individual group members may be one way to overcome this paradox (van Knippenberg & Haslam, 2003; van Knippenberg, Haslam, & Platow, 2007). Diversity beliefs are similar to other concepts which have recently been introduced, such as diversity perspectives (Ely & Thomas, 2001), diversity attitudes (e.g. Sawyerr, Strauss, & Yan, 2005), and preference for diversity (Paulus, Nakui, Parthasarathy, & Baruah, 2004), in that they reflect the extent to which individuals belief there is value in diversity (or in similarity). Diversity beliefs are of particular interest, because they may be associated with positive responses rather than the negative effects of social categorization processes when work group diversity is subjectively salient(van Knippenberg & Haslam, 2003; van Knippenberg & Schippers, 2007). In line with this reasoning, the present study examines the moderating influence of diversity beliefs on the relationship between subjective diversity and group identification.

Work Group Diversity

We define work group diversity according to van Knippenberg and Schippers (2007) as a "characteristic of a social grouping (i.e., group, organization, society) that reflects the degree to which there are objective or subjective differences between people within the group (without presuming that group members are necessarily aware of objective differences or that subjective differences are strongly related to more objective differences)" (p. 519). It is important to note that this definition incorporates both actual existing differences and individual perceptions of diversity.

Harrison and Klein (2007) correspondingly differentiate between objective and subjective diversity. According to Harrison and Klein, objective measures of diversity – that is, assessing the variation of a certain dimension within a group – are important to examine the effects of diversity and they must not be replaced by subjective measures. Harrison and

Klein acknowledge, however, that measuring subjective diversity can bring added value to diversity research. In line with Lawrence's (1997) reasoning, that the effects of objective diversity unfold by provoking subjective diversity, and with findings of Harrison, Price, Gavin, and Florey (2002), Harrison and Klein (2007) state that subjective diversity "may have unique and more proximal explanatory power" (p. 36) than objective diversity (cf. Homan et al., in press). Diversity research therefore seems to benefit from a double-barreled approach that considers objective as well as subjective diversity. In the present paper, we tested the effects of subjective diversity while controlling for objective diversity.

The perceptual process that has been linked to diversity in previous research is social categorization (see Williams & O'Reilly, 1998). This refers to the group members' cognitive differentiation between themselves and other members due to perceived differences on a certain attribute (such as ethnic background, age, gender, functional background, etc.). Van Knippenberg et al. (2004) point out that categorization is not elicited automatically by whatever differences exist in a group, but that it depends on the salience of categories. By attributing a category's salience to its cognitive accessibility, its *normative fit* (i.e., does the category seem important), and its *comparative fit* (i.e., does it capture similarities and differences between people), the authors conceptualize a dynamic relationship between diversity and social categorization. Social categorization, in turn, is considered to set the preconditions for negative affective or evaluative reactions, such as less identification with and more conflict within a diverse group.

According to van Knippenberg et al. (2004) any type of diversity that is salient within a particular context can elicit social categorization processes. In the present study, we examine diversity beliefs in the context of ethnic diversity. Ethnicity here refers to membership in a group that shares a common and distinctive cultural heritage. We follow Cox definition of cultural diversity as "the representation, in one social system, of people with distinctly

different group affiliations of cultural significance" (1994, p. 6) and we chose this dimension of diversity because it is highly relevant in today's working environment and business schools, which are characterized by globalization and intercultural collaboration. Ethnic diversity has already been found to be a salient dimension for social categorization in such settings (Chattopadhyay, George, & Lawrence, 2004). It thus seems reasonable to expect ethnic diversity to be linked to group identification and to examine it in the current investigation.

The categorization-elaboration model (CEM) integrates two hitherto separately pursued perspectives on diversity. On the one hand, there is the social identity/social categorization perspective, which proposes negative effects of diversity on performance brought about by social categorization processes disrupting team processes and outcomes (e.g., Williams & O'Reilly, 1998). The information/decision making perspective, on the other hand, suggests that diversity brings about a broader pool of information, perspectives and opinions that might benefit work group performance on complex tasks, such as group decision making, innovation and creativity, and learning outcomes. In an attempt to reconcile these apparently contradictory processes, CEM proposes that these two processes may interact. Intergroup biases may impede groups in using the informational resources introduced by diversity. Specifically, diversity is proposed to have the potential to benefit group performance through a process of group information elaboration – the exchange, discussion, and integration of task-relevant information and perspectives. Intergroup biases engendered by diversity may however disrupt this process of elaboration of task-relevant information and perspectives, because intergroup biases result in a "closing of the mind" to perspectives from diverse others (cf. Kooij-de Bode et al., in press). In support of CEM, Brodbeck et al. (2007) for instance demonstrated in an empirical study investigating ethnically diverse student groups playing a business game that diversity can trigger both

negative and positive effects simultaneously. Homan et al. (2007a) showed that diversity may stimulate elaboration of task-relevant information only to the extent that diversity does not trigger intergroup tension. However, as van Knippenberg et al. (2004) note, evidence for the proposed moderators of perceived diversity and information elaboration processes is still scarce.

Diversity Beliefs as a Moderator of Responses to Diversity

The CEM proposes potential benefits of diversity for the elaboration of task-relevant information that can be disrupted by group members' negative affective and evaluative reactions towards diversity. These reactions evolve due to social categorization processes, which refer to the perceptual grouping of people. In the present study, these categorization processes are measured as participants' subjective perceptions of group diversity. We argue that those who perceive their groups as highly diverse also use categories (such as ethnic groups) to form subgroups more often.

According to the CEM, social categorization does not inevitably lead to negative affective and evaluative reactions towards group members not seen as belonging to one's own in-group. Van Knippenberg et al. (2004) argue that it is not social categorization (i.e., distinguishing between subgroups – "us and them" – within the work group) per se that brings about the negative reactions and disrupts group functioning, but intergroup bias that may flow from social categorization. Only when there is subjective reason to respond negatively to different others in the group – for instance because different others are believed to pose a threat to effective group functioning – will social categorization engender intergroup biases that disrupt group functioning.

The concept of diversity beliefs (van Knippenberg & Haslam, 2003; van Knippenberg et al., 2007) was proposed to capture exactly such beliefs about the influence of diversity on group functioning and performance. Following van Knippenberg and colleagues, we define

diversity beliefs as beliefs individuals hold about how group composition affects work group functioning, i.e., the extent to which individuals perceive diversity to be beneficial for or detrimental to the group's functioning. For ease of presentation of our moderator hypotheses, we henceforward refer to this continuum as ranging from pro-diversity beliefs to pro-similarity beliefs. Diversity beliefs are not general beliefs about diversity – they are specific to dimensions of diversity and task contexts. An individual may for instance believe that gender diversity is beneficial to the functioning of management teams. The same individual may, however, also believe that ethnic diversity is detrimental to the functioning of management teams and that gender diversity is bad for military teams. Diversity beliefs may be contingent on individual differences, prior experience, as well as stereotypes (see van Knippenberg et al., 2007). The present analysis focuses on the influence of diversity beliefs, however, rather than exploring their origins.

The key aim of this research is to show that diversity beliefs moderate responses to ethnic diversity. Ethnic diversity is often seen as a source of dysfunctional group processes (Williams & O'Reilly, 1998), and less often as an asset from which the group may benefit (Cox, Lobel, & McLeod, 1991). The available evidence (Milliken & Martins, 1996; van Knippenberg & Schippers, 2007; Williams & O'Reilly, 1998) is inconclusive about the influence of ethnic diversity, however, and begs the question of which variables moderate the effects of ethnic diversity. Following van Knippenberg and Haslam (2003), we argue that beliefs about the value in ethnic diversity moderate the extent to which ethnic diversity leads to positive or negative responses to diversity. In the present study, we test this prediction for group members' identification with their work group. Group identification is an important variable that might suffer from any negative responses to diverse others within the group (van Knippenberg & Schippers, 2007; Williams & O'Reilly, 1998; see Turner, Hogg, Oakes, Reicher, & Wetherell, 1987).

As group identification is assumed to depend on perceptions of diversity rather than the mere existence of differences within a group, we based our hypothesis on the effects of subjective rather than objective diversity. The underlying reasoning for this procedure comes from self-categorization theory (Haslam, 2004; Turner et al., 1987), which states that the psychological inclusion of self and others within a single group membership engenders the perception of others as identical to self. Conversely, subjectively perceived differences between group members may be taken to indicate that other group members are categorized as different from self. Therefore, we propose that it is subjective diversity more than objective diversity that makes a difference when comparing homogeneous and heterogeneous groups (cf. Harrison & Klein, 2007; Harrison, Price, & Bell, 1998; Homan et al., in press).

Hypothesis 1: The relationship between subjective diversity and group identification will be moderated by diversity beliefs such that the relationship will be more positive for individuals holding pro-diversity beliefs compared with individuals holding pro-similarity beliefs.

A second aim of the present study is to examine the link between group identification and more distal variables of perceived group functioning in the context of diverse teams. Organizational identification in general (Edwards, 2005; van Dick, 2001) and team or workgroup identification in particular (Riketta & van Dick, 2005) are important variables that correlate positively with work-related attitudes and behavior because they help satisfy the individual's needs for safety, belonging, etc. (Pratt, 1998). Particularly team members with a stronger sense of team identification should be willing to process information in a more elaborate way as predicted by the CEM. Finally, team members who identify more strongly with their teams should also have a stronger desire to stay in their groups. Thus, we put forward:

Hypothesis 2: Group identification is positively related to information elaboration and

team members' desire to stay in their groups.

As a final hypothesis, we expected a combination of mediation and moderation as explicated in Edwards and Lambert's (2007) first stage moderation model. This means that we expect diversity beliefs to act as a moderator (Z) between the independent variable (X) subjectively perceived diversity and the mediator (M) group identification, which in turn predicts certain outcome variables (Y) as measured in Study 2 of the present paper (stay intentions and information elaboration). According to the CEM, identification, as an affective reaction to group composition, can explain both negative (in the case of low identification) and positive (in the case of high identification) outcomes of group composition. Whether identification in diverse groups is lower or higher will depend, as explicated in Hypothesis 1, on individual's diversity beliefs. For individuals who prefer similarity (i.e. who uphold pro-similarity beliefs), identification in diverse groups should be weaker and this in turn will lead to lower team member desire to stay in the groups and less task-related information elaboration. For individuals with pro-diversity beliefs, however, this chain of effects should be less negative. We put forward

Hypothesis 3: Contingent on diversity beliefs, subjective diversity has an indirect relationship with group members' information elaboration and the desire to stay in their groups mediated by identification with their work group; more specifically, the indirect effect will be more positive for group members with more pro-diversity beliefs.

Note that according to this analysis, the relationship between subjective diversity and identification (and elaboration, and intent to stay) may vary from negative to positive depending on how much the individual believes in the value of similarity or diversity respectively. As we cannot make predictions about how pro-diversity or pro-similarity beliefs will be in our sample nor compare our assessment of diversity beliefs to absolute standards to determine whether they are "truly" pro-diversity or pro-similarity, we cannot predict whether

the relationships obtained between subjective diversity and identification will be predominantly positive or negative. The phrasing "more positive" in our hypotheses should thus be read to include "less negative".

We use data from two longitudinal studies to test our hypotheses. Study 1 attempts to test the central hypothesis of a moderating effect of diversity beliefs on the relationship between subjective diversity and group identification, whilst Study 2 is aiming at a replication of this, and a test of the other two hypotheses. For both studies, samples of business school students are used.

General Procedure

We surveyed part-time and full-time MBA and MSc students enrolled in various business-related study programs (Business & IT, Business Studies, e-Business, Finance & Investments, Human Resource Management, International Business, Marketing Management, Operational Research and Management Studies, Operational Research and Performance Management, Work Psychology and Business, Accounting and Business, Managing Public Services, Community and Hospital Pharmacy Management). All students were assigned to so-called syndicate groups, whereby members from the same study program were grouped together. These syndicate groups were student learning groups which stay together for the duration of their study programs. In nearly all courses they had to accomplish various assignments involving analyses of business cases, group decision making and problem solving exercises, the development of business plans, various group projects and group presentations. As many of these projects counted towards students' final marks the atmosphere during syndicate group work was usually very professional. Typically, they assigned their own team leaders or leadership was shared. It is suggested here that the composition, task structure, and group dynamics within these teams resemble those of project teams in organizations. In those project teams employees are required to integrate into a team

environment as a leader or a member, knowing that the team will disband in the near future (Allred, Snow, & Miles, 1996). These fast-acting, temporary project teams have become the norm within many organizations (Gordon, 1992). As with our groups, project team members' day-to-day activities differ from those of other employees, requiring them to move from one task to another on a frequent basis (Ellis, Hollenbeck, Ilgen, Porter, West, & Moon, 2003). Because they are working on a number of unfamiliar tasks, project team members must invest in continuous learning (Allred et al., 1996).

We test Hypothesis 1 by looking into the relationships between subjectively perceived diversity and team identification (measured at time 2) moderated by diversity beliefs (time 1) while controlling for objective diversity. We tested for the diversity beliefs at time 1 because diversity beliefs are conceptualized as general (but dimension-specific) beliefs which should be relatively independent of experience in a given group. To test Hypothesis 2, we add a third point of measurement and test the effect of group identification at the second point of measurement on variables indicating the perceived quality of group functioning (elaboration and desire to stay in the group) at the third time of measurement. To test Hypothesis 3, we apply moderated mediation analysis using bootstrapping.

Study 1

Study 1 was a two-wave survey of students who worked together in project teams. Data were collected in the first (t1) and third week (t2) of the academic year. We aimed to show if and how students' beliefs about cultural diversity influence their identification with a culturally diverse group. Our survey included measures of both subjective and objective diversity (with the latter being used as a control variable), group identification and diversity beliefs.

Method

Sample

Participants were postgraduate students enrolled in either a Master or a MBA program at Aston Business School. From the original sample of 359 students only the 316 students who answered both the first and the second questionnaire were included in our final analysis (response rate = 88.02%). Forty-nine percent of these were female. Fifteen percent of the participants were MBA students who had at least three years of work experience, and 12% were part-time students. The average age of our sample was 25.07 years (*SD* = 5.00) with a range from 20 to 50 years. The percentage of students who were not born in England was 66%. Concerning participants' ethnic background, our sample consisted of 54% students of Asian origin (i.e. Bangladeshi, Indian, Kashmiri Pakistani, Kashmiri other, Pakistani, Sri Lankan, Other), 35% White heritage (i.e. White UK, Irish, Roma, Albanian, Bosnian, Croatian, European, Other), 3% Black heritage (i.e. Black African, Caribbean, Somali, Other), 2% Arab origin, and 6% with other cultural backgrounds. Participants were allocated to one of 61 small student project teams in which they worked together over the whole ten weeks of the term. The average group size of these so-called syndicate groups was 6.41 members (*SD* = 0.92). Groups consisted of at least four and no more than eight members.

Measures

Objective diversity. As objective diversity was retrieved from university files we obtained a complete picture of the objective cultural diversity in all groups. If available, this information was triangulated with students' self-reported ethnic origin and country of birth. On the basis of this categorization, group-level diversity was calculated by using Blau's Index (Blau, 1977):

$$D = (1 - \sum_{i=1}^{k} p_i^{\,2}),$$

where *p* is the proportion of members in a particular ethnic category and *i* is the number of different categories represented in a student group. This group level score was assigned to all individuals in each group.

Subjective diversity. Subjective diversity was assessed on a scale from 1 (*not diverse*) to 7 (*very diverse*) with the items "How diverse do you think your syndicate group is in general?" and "How diverse do you think your syndicate group is in terms of its ethnic composition?" (cf. Paulus et al., 2004).

Group identification. Students' identification with their syndicate group was measured on a 5-point scale (ranging from *totally not applicable* to *completely applicable*) developed by Doosje, Ellemers, and Spears (1995). The scale consists of four items (see Appendix 1).

Diversity beliefs. Inspired by the two-item measure used by van Knippenberg et al. (2007), we developed four items that assessed the degree to which participants believed in the value of diversity on a 5-point scale (ranging from *totally not applicable* to *completely applicable*; see Appendix 1 for all items). Higher ratings on the scale for diversity beliefs reflect rather pro-diversity beliefs whereas lower ratings indicate rather pro-similarity beliefs.

Procedure

Questionnaires were filled in twice during the first term of the academic year. The first questionnaire was distributed in term week 1, the second questionnaire in term week 3. Demographic data, objective diversity, and diversity beliefs were assessed with the first questionnaire, whereas subjective diversity and group identification were assessed with the second questionnaire. Students were asked to answer the questionnaires during one of their lectures. Participation was voluntary and anonymous. We used student identification numbers for the duration of the study to allow for the tracking individuals across the two waves but numbers were recoded by research assistants at the end of the study to ensure anonymity. Students received feedback and a debriefing about the purpose of the study after

completing the questionnaires.

Results

Descriptive statistics are provided in Table 1. Potentially ranging from 0 to 1 the average Blau's Index we used to measure objective cultural diversity was .72 (*SD* = .10) for the groups in our sample with a minimum of .32 and a maximum of .83. Cronbach's alphas of α = .68 for subjective diversity (inter-item correlation *r* = .49), α = .83 for group identification, and α = .63 for diversity beliefs indicate satisfactory intra-scale consistencies for all scales.

Data gathered for this study are of a nested nature with participants grouped within syndicate teams. Therefore, to test our hypothesis we employed hierarchical linear modeling (i.e. we tested random coefficient models; however, we also ran ordinary least square regression analysis, which delivered identical results. For purposes of parsimony and simplicity, we only report results obtained by the hierarchical linear modeling analysis). In these analyses, data are not aggregated to the group level but analyzed on an individual level but the analysis simultaneously takes account of the variation between individuals and between groups. Also, using multilevel modeling allows for combining group-level variables (here: objective group diversity) and individual variables (all other variables in our study such as subjective diversity, diversity beliefs, and group identification). Bliese and Hanges (2004) argue that multilevel modeling techniques such as random coefficient modeling (RCM) provide advantages to researchers who collect data from hierarchical structures even if the researchers have no particular interest in modeling the influence of higher level variables. This recommendation is derived from the methodological argument that one of the problems with nested data is the violation of the assumption of independence which is a core assumption underlying regression analysis and classical test theory. Chen, Bliese, and Mathieu (2005) argue that when data are collected from individuals nested within groups,

"…then the lower level parameter estimates should be estimated in models that account for potential nonindependence due to groups to avoid bias …. One reasonable solution is to use RCM, which provides unbiased and efficient lower level (i.e., within-units) parameter estimates in multilevel (i.e., nested) contexts …" (p. 14-15).

Thus, we tested the random coefficient models using hierarchical linear modeling analysis employing the MLwiN (Version 2.0) software. The strategy involved expressing the individual-level outcomes identification$_{ij}$ (i.e. the identification of the *i*th participant in the *j*th team) using a pair of linked models – one at the level of the individual participant and one of the level of the team. In the individual level model, identification of the *i*th participant in the *j*th team was expressed as the sum of an intercept for the participant's team (β_{0j}) and random error (r_{ij}) associated with the *i*th participant in the *j*th team. In the group level model, individual-level intercepts were expressed as the sum of an overall mean (γ_{00}) and a series of random deviations (μ_{0j}). Substituting the group-level model yields the multilevel model (e.g., identification$_{ij} = \gamma_{00} + \mu_{0j} + r_{ij}$). This multilevel model tests whether the identification of the *i*th participant in the *j*th team can be predicted from individual level data within teams. Multilevel modeling thus provides the advantage of disentangling individual and team-level variation. Finally, multilevel modeling allowed us to include Blau's index as a group-level variable to control for objective diversity in all analyses. Specifically, all variables (except for the measure of objective diversity as a group level parameter) were entered as individual level variables.

Table 2 presents the results for the test of Hypothesis 1. In model A, an empty model is calculated allowing the intercept to vary across both individual and group levels. This model reveals significant variation between groups and individuals. In model B, we entered objective diversity as a control variable, which had the expected negative effect on individual members' identification with their work group, though only marginally significant. We

standardized the predictor variables before computing the interaction terms, and entered the standardized scores in models C, D, and E.

Model C shows a significant positive relationship between subjective diversity and identification, and model D shows that diversity beliefs per se have a small positive effect on identification. Most importantly, however, is the significant interaction between subjective diversity and diversity beliefs included in the final model E. Table 2 shows Chi-Square equivalent log-values to evaluate the overall model fit with a reduction in the scores expressing better a model fit. As can be seen, comparisons between each model and the respective previous model show significant improvements.

Most importantly, as hypothesized, there was a significant interaction between subjective diversity and diversity beliefs (model E).

To further explore the moderating effect of diversity beliefs found here, we tested the simple slopes for respondents with beliefs that are relatively pro-diversity (one standard deviation above the mean) and respondents with beliefs that are relatively pro-similarity (one standard deviation below the mean; cf. Aiken & West, 1991). In line with the hypothesis, subjective diversity was positively related to group identification for students with beliefs that are relatively pro-diversity ($b = 0.16$, $p < .01$), and there was no significant relationship between subjective diversity and group identification for students with beliefs that are relatively pro-similarity ($b = 0.04$, $p = .43$). Thus, identification was higher among those participants who perceived their groups as more diverse and who hold pro-diverse beliefs compared to those who perceived their groups as diverse but favored similarity. Our main prediction of a positive impact of pro-diversity beliefs was thus supported (see Figure 1).

Study 2

The aim of Study 2 was threefold. First, we wanted to replicate results of Study 1 to cross-validate our central prediction. Second, we wanted to tap into subjectively perceived

diversity deeper by including items of both surface-level and deep-level aspects of diversity. Finally, Study 2 aims at extending the findings of Study 1 by including work-relevant criteria (information processing and desire to remain with the group) at a third point of measurement, demonstrating the role of diversity beliefs for other variables than identification, and the mediating role of identification in this process.

Method

Sample and procedure

From the original sample of 238 students only the 214 students who answered all questionnaires were included in our final analysis (response rate = 90%). Fifty-eight percent of these were female. Twenty-five percent of the participants were MBA students who had at least three years of work experience, and 16% were part-time students. The average age of our sample was 26.0 years (*SD* = 5.62) with a range from 20 to 53 years. The percentage of students who were not born in England was 72%. Concerning participants' ethnic background (see Study 1 for details of categorizing students into ethnic groups), our sample consisted of 57% students from Asian origin, 29% White heritage, five percent Black heritage, one percent Arab origin, and eight percent with other backgrounds. Participants worked together in 43 syndicate groups. The average group size was 5.82 members (*SD* = 0.69). Groups consisted of at least four and no more than seven members.

Questionnaires were filled in at three times of measurement during the first term of the academic year. The first questionnaire was distributed in the second week of the term, the second questionnaire in the fourth week, and the final questionnaire three weeks later (in week 7). Demographic data, ethnic group membership, and diversity beliefs were assessed with the first questionnaire, and subjective diversity and group identification were assessed with the second questionnaire. Information elaboration and the desire to stay in the group were measured in the final questionnaire. Ethnic group membership was assessed by asking

students to indicate the ethnic group they belong to. We instructed students that: "Ethnic origin describes how we think of ourselves. This may be based on many things, for example, our language, culture, ancestry or family history. Ethnic background is not the same as nationality or country of your birth. Therefore, please tick one box from the list below." The list comprised 30 different ethnic groups, and allowed students to name their ethnic origin in case it was not on the list. Students were asked to answer the questionnaires during their Organizational Behavior lecture. Participation was voluntary and anonymous. We used student identification numbers for the duration of the study to allow for the tracking individuals across the three waves but numbers were recoded by research assistants at the end of the study to ensure anonymity. Students received feedback and a debriefing about the purpose of the study after completing the questionnaires.

Measures

Objective diversity. We first determined ethnic group membership, by asking two research assistants to compare students self-report on their ethnic group membership with data retrieved from university files comprising nationality and students cultural background. This procedure yielded no contradictions and each student could be assigned unambiguously to one ethnic group, and no group member had missing data on this variable. On the basis of this categorization, group-level diversity was calculated using Blau's Index (Blau, 1977) as in Study 1.

Subjective diversity. To measure subjective diversity we used eight items adapted from Harrison et al. (1998) to assess surface-level as well as deep-level components of diversity (see Appendix 1). Answers were given on a 5-point scale from *very similar* to *very diverse.*

Group identification. Students' identification with their syndicate group was measured with a 5-point scale (ranging from *totally not applicable* to *completely applicable*) developed by Doosje, Ellemers, and Spears (1995) that consists of four items (see Appendix 1).

Diversity beliefs. Building on previous work by van Knippenberg et al. (2007) we created a four-item scale of diversity beliefs concerning ethnic diversity (see Appendix 1). Answers were given on a 7-point scale from *totally not applicable* to *totally applicable.*

Desire to stay as a group member. Building on research by van der Zee, Atsma and Brodbeck (2004), we measured students' desire to stay in their groups with a 5-point scale consisting of five items (see Appendix 1).

Information elaboration. Seven items were adapted from Homan et al. (2007a) to assess participants' perception of the degree of elaboration in their syndicate group (see Appendix 1). A 5-point scale ranging from *totally not applicable* to *totally applicable* was provided.

Results

Descriptive statistics are provided in Table 3. The average value of Blau's Index for objective ethnic diversity was .73 (*SD* = .13) with a range from .32 to .86 for the groups in this sample. Scale reliabilities were good for subjective diversity and group identification and still adequate for diversity beliefs given that the scale comprises only four items.

Because of the nested nature (i.e. individual members are nested within their team) of the data, we again tested random coefficient models using hierarchical linear modeling analysis techniques as in Study 1. Table 4 presents the results for the test of Hypothesis 1. In model A, an empty model is calculated allowing the intercept to vary across both individual and group levels. This model reveals significant variation between groups and individuals. In model B, we entered objective diversity as a control variable, which had the expected negative effect on group identification, though only marginally significant. We standardized the predictor variables before computing the interaction terms, and entered the standardized scores in models C, D, and E.

Model C shows a significant negative relationship between subjective diversity and identification, and model D shows that diversity beliefs per se have a small positive effect on

identification. Most importantly, however, is the significant interaction between subjective diversity and diversity beliefs included in the final model E. Table 4 shows Chi-Square equivalent log-values to evaluate the overall model fit with a reduction in the scores expressing better a model fit. As can be seen, comparisons between each model and the respective previous model show significant improvements.

To further explore the nature of the interaction, we tested the simple slopes for respondents with beliefs that are relatively pro-diversity and respondents with beliefs that are relatively pro-similarity (cf. Aiken & West, 1991). There was no significant relationship between subjective diversity and group identification for students with beliefs that are relatively pro-diversity (b = -0.09, p = .11), but subjective diversity was negatively related to group identification for students with beliefs that are relatively pro-similarity (b = -0.29, p < .001). Figure 2 illustrates the results. Figure 2 suggests that, as in Study 1, identification in the context of subjective diversity was higher for individuals with more pro-diversity beliefs, albeit that in Study 2 as opposed to Study 1 the relationship between subjective diversity and identification tended to be negative.

To test the individual-level Hypothesis 2, we conducted hierarchical regression analyses. On Step 1 we entered objective diversity, subjective diversity, and diversity beliefs as control variables, on Step 2 we entered group identification. The results are shown in Table 5 and support our hypotheses for the two outcome variables. Group identification was a significant predictor of elaboration (β = .41, p < .001) and desire to stay (β = .46, p < .001), when objective diversity, subjective diversity, and diversity beliefs are controlled for.

To test for the moderated mediation as predicted in Hypothesis 3, we used a bootstrap procedure to test the magnitude of the indirect effect (the effect of subjective diversity on elaboration and desire to stay through the mediator, group identification) at each level of the moderator variable, i.e. -1 SD diversity beliefs (i.e. relative pro-similarity beliefs) and +1 SD

diversity beliefs (i.e. relative pro-diversity beliefs). Mediation is indicated when the size of an indirect effect differs significantly from zero (Shrout & Bolger, 2002). We implemented bootstrap by drawing 10000 random samples with replacement from the full sample (Efron & Tibshirani, 1993). The indirect effect was computed using each of these bootstrap samples, and based on these results; we constructed bias-corrected confidence intervals to ascertain whether the indirect effect differed significantly from zero (see MacKinnon, Lockwood, & Williams, 2004). In the pro-similarity beliefs condition, the indirect effect from subjective diversity on elaboration, mediated through identification was the original data set was -.23, and the 95% confidence interval for this effect excluded zero (-.42, -.10), indicating a significant indirect effect. In the pro-diversity beliefs condition, the indirect effect was -.04, and the 95% confidence interval included zero (-.13, 0.04), indicating a non-significant indirect effect. The results for the relationship between subjective diversity and students' desire to stay in their groups, mediated through identification were almost identical, yielding a significant indirect effect in the pro-similarity condition of -.26 (95% confidence interval: -.44, -.11), and a non-significant indirect effect in the pro-diversity condition of -.04 (95% confidence interval: -.14, 0.05).

General Discussion

Our results provide support for the proposition that diversity beliefs moderate the relationship between perceived ethnic diversity and group identification. Across both studies we find consistent evidence that it depends on the individuals' diversity beliefs whether a high degree of subjective diversity has a negative or positive influence, and whether group identification as a consequence is weaker or stronger compared to groups with a low degree of subjective diversity. This finding is particularly valuable as the moderating effect of diversity beliefs might, at least partly, explain mixed evidence from previous studies on the effect of diversity (van Knippenberg & Schippers, 2007). Moreover, pro-diversity beliefs

seem to prevent negative effects of subjectively perceived diversity and thus might be able to facilitate positive consequences of diversity (cf. Homan et al., 2007b). We have shown that the effect of subjective diversity is moderated by the beliefs individuals have about diversity. This may be interpreted as important evidence that perceived diversity per se is not problematic for diverse work groups. Rather, it is the potential intergroup bias that may result from social categorizations (van Knippenberg et al., 2004) and whether or not these negative consequences are obtained, is contingent on people's beliefs about the value of diversity. Given the importance of diversity beliefs, an important step for future research would be to identify the determinants of people's beliefs about diversity – especially determinants that may be under managerial control. These determinants might include individual differences, task requirements, and organizational culture; among others (cf. van Knippenberg et al., 2007).

In line with predictions from the CEM, our second hypothesis has also been supported in Study 2. Group identification early on in the academic term was found to be a strong predictor of task-related elaboration and the desire to stay in the group towards the end of the academic term. It seems that identification unfolds a positive effect over time. As we controlled for the effect of objective diversity, subjective diversity, and diversity beliefs, our findings underline the importance of group identification as a link between diversity and variables that indicate the perceived quality of group functioning.

The final result of our second study provides evidence for the predicted mediation of the diversity's relationship with relevant outcome variables via group identification – contingent on individual's diversity beliefs. In line with Hypothesis 3, we found negative indirect effects between subjective diversity and both participants' desire to stay in their groups and elaboration for participants with relative pro-similarity beliefs, whereas we did not find any reliable indirect effects for participants with relative pro-diversity beliefs. As

suggested by the CEM this means that a mismatch of an individual's working environment (i.e., diverse groups) and his or her attitudes (i.e., a tendency to work in homogenous groups) can yield negative affective responses (i.e., lower group identification) and in turn less information processing and desire to stay.

This study obviously has some limitations. Although longitudinal in design, causal relationships cannot be established here. Experimental research is necessary to corroborate our findings. Secondly, all data are self-reported. This is less of a problem, however, for our hypothesis of diversity beliefs as a moderating variable. Common method variance cannot account for interactions in regression but rather leads to an underestimation of statistical interactions (Evans, 1985; McClelland & Judd, 1993). Despite the mono-source design, we may therefore have some confidence in the interaction obtained.

One might also consider the use of student samples a limitation. Note however, that our main aim was to provide a first test of a new theoretical proposition. In accordance with Cook and Campbell (1979, see also Calder, Philips, & Tybout, 1982) we therefore think that external validity, which pertains to generalization of established findings, is a secondary concern. Nevertheless, it is important to note that the context and setting in which the groups operated closely resemble work environments of project teams in organizations. As in many organizational settings, tasks were often complex. They required a variety of activities such as the identification of problems, decision making, generation of solutions, generation and implementation of action plans and the generation of presentations and reports. Thus, although these student teams are not the same as teams in organizations, they do rely on the same processes and mechanisms (such as communication, or active management of time and other resources) to succeed on their tasks (see for similar arguments for the validity of student project teams as research subjects, Taggar, 2002). Based on the nature of our sample and setting of the research, we therefore believe that our findings can be generalized to other

work and organizational contexts.

The time frame of our studies, while certainly not representative for all forms of teamwork, can be regarded as important for organizational practice. As Gersick (1988, 1989) has shown, project teams who work together towards specified deadlines can go full cycle in a matter of weeks. Thus, the syndicate groups studied in this research can be assumed to go through the transitions suggested by Gersick in a very similar way.

Despite some of the above limitations, the fact that we could replicate our main hypothesis across two samples gives us some confidence in the generalizability and stability of the main results. It is particularly important to note, that the findings, with respect to the moderating effect of diversity beliefs, hold for a rather narrow operationalization of subjective diversity perceptions, assessing surface-level diversity only, as well as for a broad assessment that includes various aspects of deep-level diversity. Note, though that while the relationship between diversity and identification tended to be negative in Study 2 (as is typically assumed in diversity theories), it actually tended to be positive in Study 1. Interestingly and importantly, while Studies 1 and 2 did not appear to differ in average diversity beliefs, they did differ in the extent to which group members subjectively experienced diversity. Subjective diversity was higher in Study 1. One reason for this difference might be purely methodologically as we used different scale anchors ("very similar" and "very diverse" in Study 1;"not diverse" and "very diverse" in Study 2, respectively) which might have provided a different frame of reference to participants and should be controlled in future research. But there might also a more substantial reason for the difference, namely that we aimed at assessing subjective diversity in a much broader way in Study 2. In addition to the items tapping into surface level diversity (general diversity and ethnicity) in Study 1, we added aspects of deep level diversity in Study 2 (attitudes, goals, etc.). Future research should focus on these different aspects of diversity which might

probably further moderate our interaction effect. It might be, for instance, that surface level diversity will be moderated by diversity beliefs as in our first study because those aspects can be more easily overcome in the short time span of our investigation. Deep level diversity, on the other hand, might interact with diversity beliefs in the way our second study showed and it might take more time to overcome the negative influences of deep-level diversity and to turn them into positive influences (cf. Harrison et al., 2002).

The above findings of similarities across studies regarding diversity beliefs but differences with respect to subjective diversity in combination may be taken to imply that group members with pro-diversity beliefs may favor diverse groups over homogeneous groups, and may actually come to identify more with diverse groups than they would with more homogeneous groups provided the group's diversity is sufficiently large (i.e., in terms of their subjective preferences; cf. van Knippenberg & Haslam's, 2003, notion of diversity as an aspect of identity).

We do believe that ideology, driven by societal norms and/or individual prejudices, is the driving force that to a large extend determines whether an individual holds pro-diversity or pro-similarity beliefs. However, this is not the full story as diversity beliefs are conceptualized as the specific belief whether heterogeneity or homogeneity is preferred - in a given group and context and with respect to the particular task. Thus, although diversity beliefs probably correlate with measures of racism or prejudice, they are not identical with these constructs. One can imagine, for instance, that more prejudiced people can still hold pro-diversity beliefs when they are aware of the necessity for some heterogeneity in attitudes, abilities, or backgrounds for success in the task at hand. An open, prejudice-free attitude, on the other hand, must not automatically mean that an individual welcomes diversity in his or her workgroup – provided that the goals and targets require similar experiences and backgrounds, the individual group member might prefer similarity despite of his or her

positive attitudes. Nevertheless, more in-depth research on the nature and antecedents of diversity beliefs should provide an interesting avenue for future research.

More specifically, we believe that future research should focus on the following aspects. First as stated above, it would be desirable to know more about the nature of diversity beliefs and its relationships with more general attitudes in the area of stereotypes and prejudice. Research assessing both diversity beliefs and other concepts in the area of outgroup attitudes and by means of confirmatory factor analyses could help answering this question. Second, research could focus on the contingency factors that help understand when diversity beliefs are a better and when they are a weaker moderating factor. Variables from general attitude research such as strength or accessibility are obvious candidates to be explored. Finally, it would be of great value to understand whether diversity beliefs are stable or more malleable and to investigate whether diversity trainings could help change employee mindsets towards a more favorable attitude – provided the task requires some heterogeneity.

In summary, teams and groups in the workplace become ever more diverse in terms of age, sex, ethnic background and other demographic characteristics. We have shown that this increasing diversity can have both positive and negative effects on group identification and subsequent measures of well-being and information processing contingent on individuals' beliefs about diversity. Thus, we believe that managers should make an effort to understand the role of individuals' mindsets and to facilitate its benefits. Educating people in diverse settings to do so could imply training them to value diversity as conducive to achieving their aims and thus propagating more pro-diversity beliefs. Although at the moment we cannot say how individual diversity beliefs are formed, we suggest that educating individuals about the importance of diversity beliefs could help them to monitor and perhaps change their attitudes towards diversity. Furthermore, pro-diversity beliefs might be built up by providing individuals with as many opportunities as possible to experience

positive effects of diversity.

References

Aiken, L. S. & West, S. G. *Multiple regression: Testing and interpreting interactions*. New York: Sage, 1991.

Allred, B. B., Snow, C. C. & Miles, R. E. Characteristics of managerial careers in the 21st century. *Academy of Management Executive*, 1996, 10, 17–27.

Blau, P. M. *Inequality and heterogenity*. New York: Free Press, 1977.

Bliese, P. D. & Hanges, P. J. Being both too liberal and too conservative: The perils of treating grouped data as though it is independent. *Organizational Research Methods,* 2004, 7*,* 400-417.

Brodbeck, F. C., Guillaume, Y. R. F. & Lee, N. *Diversity as a multilevel construct: Predicting cross-level interaction effects on group member learning*. Manuscript submitted for publication*,* 2007.

Calder, B. J., Phillips, L. W. & Tybout, A. M. The concept of external validity. *The Journal of Consumer Research*, 1982, *9*, 240-244.

Chattopadhyay, P., George, E. & Lawrence, S. A. Why does dissimilarity matter? Exploring self-categorization, self-enhancement, and uncertainty reduction. *Journal of Applied Psychology,* 2004, 89, 892-900.

Chen, G., Bliese, P. D. & Mathieu, J. E. Conceptual framework and statistical procedures for delineating and testing multilevel theories of homology. *Organizational Research Methods,* 2005, 8, 375-409.

Cook, T. D. & Campbell, D. T. *Quasi-Experimentation: Design & analysis issues for field settings*. Boston: Houghton Mifflin, 1979.

Cox, T. *Cultural diversity in organizations: Theory, research, and practice*. San Francisco: Berrett-Koehler, 1994.

Cox, T., Lobel, S. & McLeod, P. Effects of ethnic group cultural differences on cooperative

and competitive behavior on a group task. *Academy of Management Journal*, 1991, 34, 827-47.

Doosje, B., Ellemers, N. & Spears, R. Perceived intragroup variability as a function of group status and identification. *Journal of Experimental Social Psychology,* 1995, 31, 410-436.

Edwards, M. R. Organizational identification: A conceptual and operational review, *International Journal of Management Reviews, 2005*, 7, 207-230.

Edwards, J. R., & Lambert L. S. Methods for integrating moderation and mediation: A general analytical framework using moderated path analysis. *Psychological Methods,* 2007, 12, 1-22.

Efron, B. & Tibshirani, R. J. *An introduction to the bootstrap. Monographs on statistics and applied probability*. New York: Chapman & Hall, 1993.

Ellis, A. P. J., Hollenbeck, J. R., Ilgen, D. R., Porter, C. O. L. H., West, B. J. & Moon, H. Team learning: Collectively connecting the dots. *Journal of Applied Psychology*, 2003, 88, 821-835.

Ely, R. J. & Thomas, D. A. Cultural diversity at work: The effects of diversity perspectives on work group processes and outcomes. *Administrative Science Quarterly,* 2001, 46, 229-273.

Evans, M. G. A Monte Carlo study of the effects of correlated method variance in moderated multiple regression analysis. *Organizational Behavior and Human Decision Processes,* 1985, 36, 305-323.

Ford, J. K., & Fisher, S. The role of training in a changing workplace and workforce: New perspectives and approaches. In E. E. Kossek & S.A. Lobel (Eds.) *Managing diversity: Human resource strategies for transforming the workplace*. Cambridge, MA: Blackwell Press, 1997, pp. 164-193.

Gaertner, S. L. & Dovidio, J. F. *Reducing intergroup bias. The common ingroup identity model*. Philadelphia, PA: Psychology Press, 2000.

Gersick, C.J.G. Time and transition in work teams: Toward a new model of group development. *Academy of Management Journal*, 1988, 31, 9-41.

Gersick, C.J.G. Marking time: Predictable transitions in task groups. *Academy of Management Journal*, 1989, 32, 274-309.

Gordon, J. Work teams: How far have they come? *Training*, 1992, 29, 59-62.

Harrison, D. A. & Klein, K. J. What's the difference? Diversity constructs as separation, variety, or disparity in organizations. *Academy of Management Review*, 2007, 32, 1199-1228.

Harrison, D. A., Price, K. H. & Bell, M. P. Beyond relational demography: Time and the effects of surface- and deep-level diversity on work group cohesion. *Academy of Management Journal,* 1998, 41, 96-107.

Harrison, D. A., Price, K. H., Gavin, J. H. & Florey, A. T. Time, teams, and task performance: Changing effects of diversity on group functioning. *Academy of Management Journal,* 2002, 45, 129-145.

Haslam, A. S. *Psychology in organizations. The Social Identity Approach* (2nd ed.). London: Sage, 2004.

Homan, A. C., Hollenbeck, J. R., Humphrey, S. E., van Knippenberg, D., Van Kleef, G. A., & Ilgen, D. R. Facing differences with an open mind: Openness to experience, salience of intra-group differences, and performance of diverse work groups. *Academy of Management Journal*, in press.

Homan, A. C., van Knippenberg, D., van Kleef, G. A. & De Dreu, C. K. W. Interacting dimensions of diversity: Cross-categorization and the functioning of diverse work groups. *Group Dynamics: Theory, Research, and Practice,* 2007a, 11, 79-94.

Homan, A. C., van Knippenberg, D., van Kleef, G. A. & De Dreu, C. K. W. Bridging faultlines by valuing diversity: Diversity beliefs, information elaboration, and performance in diverse work groups. *Journal of Applied Psychology*, 2007b, 92, 1189-1199.

Kooij-De Bode, H. J. M., van Knippenberg, D., & van Ginkel, W. P. Ethnic diversity and distributed information in group decision making: The importance of information elaboration. *Group Dynamics: Theory, Research, and Practice*, in press.

Lawrence, B. S. The black box of organizational demography. *Organization Science,* 1997, 8, 1-22.

MacKinnon, D. P.,Lockwood, C. M., & Williams, J. Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research*, 2004, 39, 99-128.

McClelland, G. H. & Judd, C. M. Statistical difficulties of detecting interactions and moderator effects. *Psychological Bulletin,* 1993, 114, 376-390.

Milliken, F. J. & Martins, L. L. Searching for common threads: Understanding the multiple effects of diversity in organizational groups. *Academy of Management Review,* 1996, 21, 402-433.

Paulus, P. B., Nakui, T., Parthasarathy, N. & Baruah, J. *Preference for diverse workgroups and its relationship to perceptions and performance in diverse groups.* Paper presented at the 19th SIOP Annual Meeting, Chicago, IL, 2004.

Pelled, L. H. Demographic diversity, conflict, and work group outcomes: An intervening process theory. *Organization Science,* 1996, 7, 615-631.

Pratt, M. G. To be or not to be? Central questions in organizational identification. In D.A. Whetten & P.C. Godfrey (Eds.), *Identity in Organizations: Building theory through conversations*. Thousand Oaks, CA: Sage, 1998, pp.171-207.

Riketta, M., & Van Dick, R. Foci of attachment in organizations: A meta-analysis comparison of the strength and correlates of work-group versus organizational commitment and identification. *Journal of Vocational Behavior,* 2005, 67, 490-510.

Sawyerr, O.O., Strauss, J., & Yan, J. Individual value structure and diversity attitudes: The moderating effects of age, gender, race, and religiosity. *Journal of Managerial Psychology*, 2005, 20, 498-521.

Shrout, P. E., & Bolger, N. Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 2002, 7, 422-445.

Taggar, S. Individual creativity and group ability to utilize individual creative resources: A multilevel model. *Academy of Management Journal*, 2002, 45, 315-330.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D. & Wetherell, M. S. *Rediscovering the social group*. Oxford: Blackwell, 1987.

Van Dick, R. Identification in organizational contexts: Linking theory and research from social and organizational psychology. *International Journal of Management Reviews*, 2001, 3, 265-283.

Van der Zee, K. I., Atsma, N. & Brodbeck, F. C. The influence of social identity and personality on outcomes of cultural diversity in teams. *Journal of cross-cultural psychology,* 2004, 35, 283-303.

Van Ginkel, W., & van Knippenberg, D. Group information elaboration and group decision making: The role of shared task representations. *Organizational Behavior and Human Decision Processes,* 2008, 105, 82-97.

Van Knippenberg, D., De Dreu, C. K. W. & Homan, A. C. Work group diversity and group performance: An integrative model and research agenda. *Journal of Applied Psychology,* 2004, 89, 1008-1022.

Van Knippenberg, D. & Haslam, A. S. Realizing the diversity dividend: Exploring the subtle

interplay between identity, ideology, and reality. In S. A. Haslam, D. van Knippenberg, M. J. Platow, & N. Ellemers (Eds*.), Social identity at work: Developing theory for organizational practice*. New York and Hove, UK: Psychology Press, 2003, pp. 61-77.

Van Knippenberg, D., Haslam, S. A. & Platow, M. J. Unity through diversity: Value-in-diversity beliefs as moderator of the relationship between work group diversity and group identification. *Group Dynamics: Theory, Research, and Practice*, 2007, 11, 207-222.

Van Knippenberg, D. & Schippers, M. C. Work group diversity. *Annual Review of Psychology*, 2007, 58, 515-541.

Wageman R. Interdependence and group effectiveness. *Administrative Science Quarterly,* 1995, 40, 140-80.

Williams, K. Y. & O'Reilly, C. A. Demography and diversity in organizations: A review of 40 years of research. *Research in Organizational Behavior,* 1998, 20, 77-140.

Table 1. *Means, Standard Deviations, Reliabilities, and Intercorrelations, Study 1*

Variable	*M*	*SD*	1	2	3	4
1. Objective diversity[1]	0.72	0.10				
2. Subjective diversity[2]	5.19	1.32	.13*	(.68)		
3. Group identification[2]	3.55	0.75	-.12*	.13*	(.83)	
4. Diversity beliefs[1]	3.62	0.64	.05	-.06	.16**	(.63)

Notes: Cronbach's alphas are displayed on the diagonal. *N* between 315 and 316 due to missing data. * $p < .05$, ** $p < .01$. [1]measured in term week one [2]measured in term week three.

Table 2. *Results of Multilevel Moderation Analysis for Group Identification as Dependent Variable (Hypothesis 1), Study 1*

Predictor	**Model A**	**Model B**	**Model C**	**Model D**	**Model E**
Fixed coefficients					
Intercept	3.55 (.06)	3.56 (.04)	3.56 (.05)	3.55 (.05)	3.55 (.04)
Objective Diversity		-.10† (.06)	-.11* (.05)	-.11* (.05)	-.11* (.05)
Subjective Diversity (SD)			.09* (.04)	.09* (.04)	-.47† (.24)
Diversity Beliefs (DB)				.10* (.04)	-.30 (.18)
SD x DB					.12* (.05)
Random coefficients					
Between group variation	.09* (.03)	.08* (.03)	.07* (.03)	.06* (.03)	.06* (.03)
Individual variation	.48** (.04)	.48** (.04)	.48** (.04)	.48** (.04)	.47** (.04)
Log-likelihood	735.40	732.24	725.18	689.34	683.96
Δ Log-likelihhod (df)		3.16 (df=1)†	7.06 (df=1)**	35.84 (df=1)**	5.38 (df=1)**

Notes: $N = 314$ (listwise). * $p < .05$, ** $p < .01$

Table 3. *Means, Standard Deviations, Reliabilities, and Intercorrelations, Study 2*

	M	*SD*	1	2	3	4	5	6
1. Objective diversity[1]	0.73	0.12	--					
2. Subjective diversity[2]	3.00	0.66	.40**	(.75)				
3. Group identification[2]	3.79	0.67	-.13†	-.25**	(.80)			
4. Diversity beliefs[1]	3.77	0.65	-.04	.02	.20**	(.68)		
5. Desire to stay [3]	3.84	0.91	-.14	-.18*	.49**	.14	(.91)	
6. Elaboration[3]	3.59	0.83	-.15	-.21**	.45**	.13	.64**	(.75)

Notes: Cronbach's alphas are displayed on the diagonal. *N* between 155 and 214 due to missing data. † $p < .10$; * $p < .05$, ** $p < .01$. [1]measured in term week two [2]measured in term week four [3]measured in term week seven.

Table 4. *Results of Multilevel Moderation Analysis for Group Identification as Dependent Variable (Hypothesis 1), Study 2*

Predictor	**Model A**	**Model B**	**Model C**	**Model D**	**Model E**
Fixed coefficients					
Intercept	3.80 (.06)	3.80 (.06)	3.80 (.06)	3.80 (.06)	3.80 (.05)
Objective Diversity		-.10† (.06)	-.04 (.06)	-.03 (.06)	-.04 (.06)
Subjective Diversity (SD)			-.15** (.05)	-.16** (.05)	-.17** (.05)
Diversity Beliefs (DB)				.14** (.04)	.11** (.04)
SD x DB					.13** (.05)
Random coefficients					
Between group variation	.06* (.03)	.06* (.03)	.06* (.03)	.06* (.03)	.06* (.03)
Individual variation	.38** (.04)	.38** (.04)	.36** (.04)	.34** (.04)	.32** (.04)
Log-likelihood	438.27	435.13	426.30	402.52	394.37
Δ Log-likelihhod (df)		3.14 (df=1)†	8.83 (df=1)**	23.78 (df=1)**	8.15 (df=1)**

Notes. Standard errors in parentheses. $N = 214$ (listwise). † $p < .10$; * $p < .05$, ** $p < .01$.

Table 5. *Results of Hierarchical Regression Analysis (Hypothesis 2), Study 2*

	Elaboration				**Desire to stay**			
Variable	*b*	SE *b*	β	ΔR^2	*b*	SE *b*	β	ΔR^2
Step 1				.06*				.08**
Objective diversity	-.57	.59	-.06		-1.51	.64	-.20*	
Subjective diversity	-.22	.11	-.17*		-.12	.12	-.09	
Diversity beliefs	.13	.10	.11		.16	.12	.12	
Step 2				.15***				.18***
Objective diversity	-.30	.54	-.04		-1.18	.58	-.16*	
Subjective diversity	-.10	.10	-.08		-.02	.11	.02	
Diversity beliefs	.03	.09	.03		.04	.10	.03	
Group identification	.50	.09	.41***		.61	.10	.46***	

Notes: $N = 155$ (listwise). * $p < .05$, ** $p < .01$, *** $p < .001$

Figure 1. Group identification as a function of subjective diversity and diversity beliefs (Study 1).

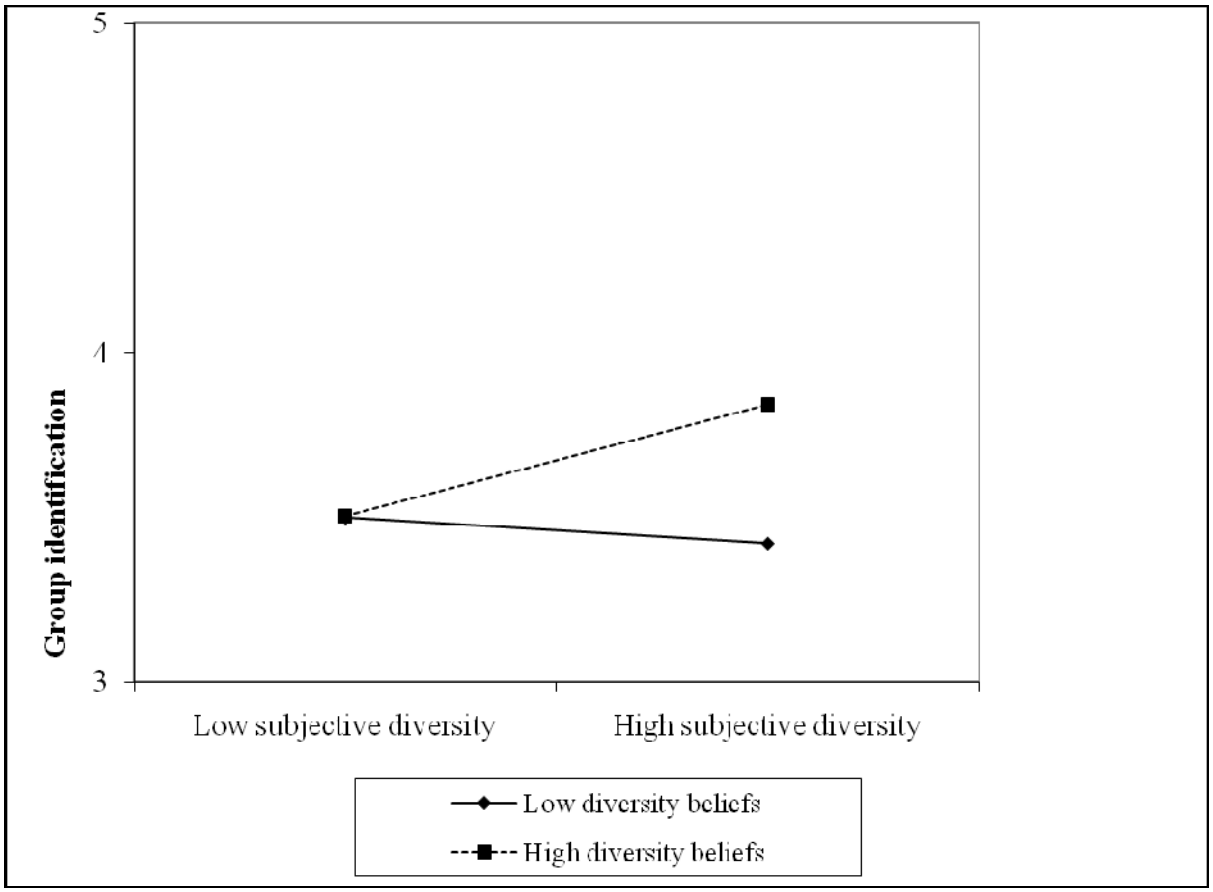
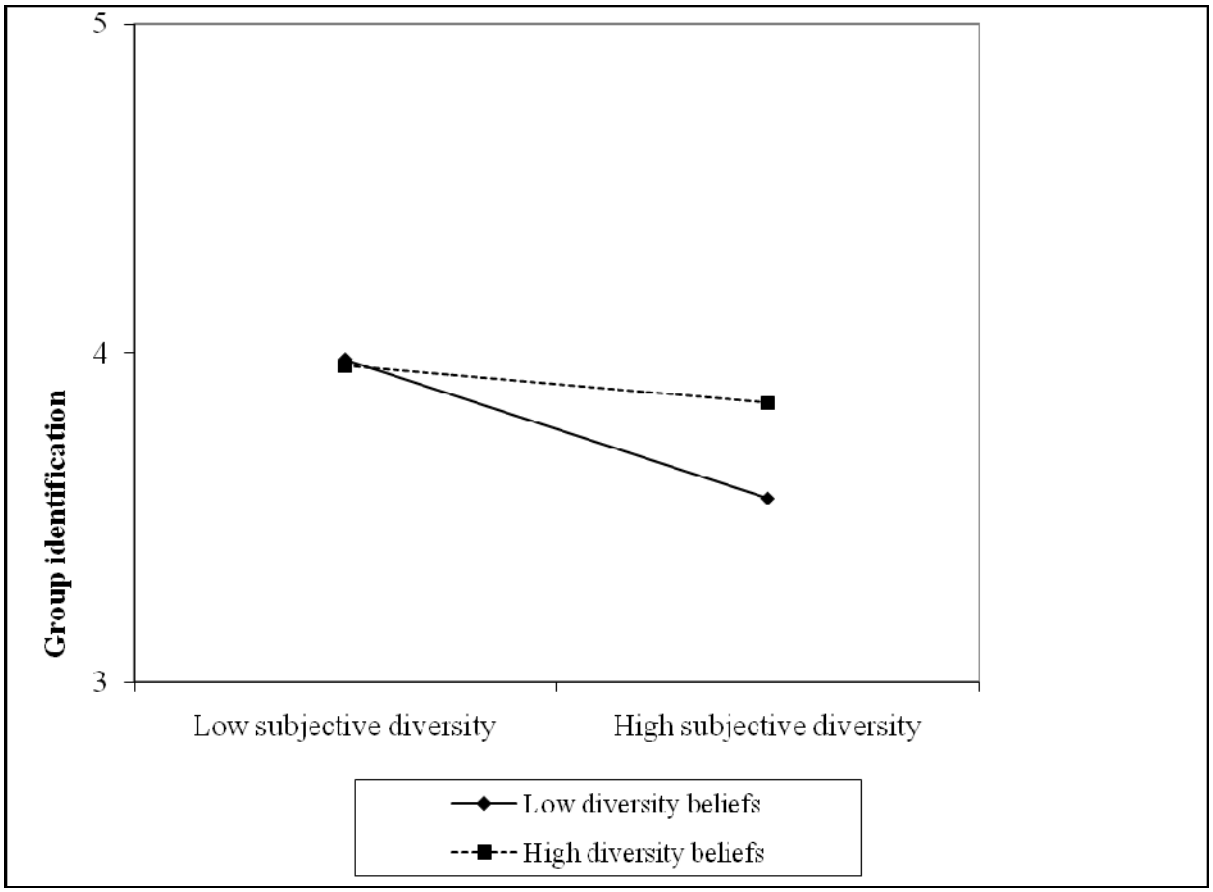


Figure 2. Group identification as a function of subjective diversity and diversity beliefs (Study 2).



Appendix 1: Operationalizations of all study constructs

Study 1

Measures at Time 1

Diversity Beliefs (see van Knippenberg et al., 2007)
I think that syndicate groups benefit from the involvement of people from different ethnic backgrounds.
Creating syndicate groups that contain people from different ethnic backgrounds can be a recipe for trouble. [reversed]
I think that syndicate groups should contain people with similar ethnic backgrounds. [reversed]
I think that syndicate groups are more harmonious if the people in them are similar.

Measures at Time 2

Subjective Diversity (see Harrison et al., 1998)
How diverse do you think your syndicate group is in general?
How similar or different are the members of your syndicate group with respect to their ethnic background?

Syndicate Group Identification (see Doosje et al., 1995)
I define myself as a member of my syndicate group.
I am pleased to be a member of my syndicate group.
I feel strong ties with members of my syndicate group.
I identify with other members of my syndicate group.

Study 2

Measures at Time 1

Diversity Beliefs (see van Knippenberg et al., 2007)
I think that syndicate groups benefit from the involvement of people from different ethnic backgrounds.
Creating syndicate groups that contain people from different ethnic backgrounds can be a recipe for trouble. [reversed]
I think that syndicate groups should contain people with similar ethnic backgrounds. [reversed]
A good mix of group members' ethnic backgrounds helps doing the task well.

Measures at Time 2

Subjective Diversity (see Harrison et al., 1998)
How diverse do you think your syndicate group is in general?
How similar or different are the members of your syndicate group with respect to their
... age?
... gender?
... ethnic background?
... educational background?
... personal values?
... attitudes about work?
... learning goals?

Syndicate Group Identification – identical to Study 1

Measures at Time 3

Information elaboration (see Homan et al., 2007a)
My syndicate group members exchange a lot of information about the task.
My syndicate group members often say things about the task that make me think.
In my syndicate group, we discuss the content of our work a lot.
In my syndicate group, we often talk about our ideas about the task.
My syndicate group members often say things that lead me to learn something new about the job.
My syndicate group members often say things that lead me to new ideas.

I often think deeply about what other group members say about the job.

Desire to stay as a group member (see van der Zee et al., 2004)
I would like to stay in my syndicate group.
I would regret it if my syndicate group would fall apart.
I would feel sorry when members would leave the syndicate group.
I would welcome the chance to continue working in this group.
I sometimes wished that I were in a different syndicate group. [reversed]