02-008

Capturing the Elusive "Value in Diversity" Effect: Individuation, Self-Verification and Performance in Small Groups

William B. Swann, Jr.
Virginia S. Y. Kwan
Jeffrey T. Polzer
Laurie P. Milton

Capturing the elusive "value in diversity" effect:

Individuation, self-verification and performance in small groups

William B. Swann, Jr.
University of Texas at Austin
Department of Psychology
University of Texas at Austin
Austin, TX 78712

Virginia S. Y. Kwan
University of California at Berkeley
Department of Psychology
Berkeley, CA 94720

Jeffrey T. Polzer
333 Morgan Hall
Soldiers Field Road
Harvard Business School
Boston, MA 02163
(617) 495-8047
jpolzer@hbs.edu

Laurie P. Milton
Department of Management
University of Calgary
Calgary, Alberta
Canada T2N 1N4

Capturing the elusive "value in diversity" effect:

Individuation, self-verification and performance in small groups

Abstract

A prospective study examined the role of identity negotiation processes in determining the impact of diversity on the performance of small groups of MBA students. When group members (N = 253) formed relatively positive impressions of one another, higher diversity encouraged participants to individuate other group members, which encouraged self-verification processes, which in turn enhanced performance on creative tasks. When the initial impressions of group members were relatively negative, diversity encouraged in-group homogenization, which in turn fostered appraisal effects, which enhanced performance on computational tasks. These findings suggest that reaping the full benefits of diversity will require a deeper understanding of the identity negotiation processes that mediate its impact.

When people join groups, something magical can happen. Previously unaffiliated individuals may unite and act as one, all eyes riveted on a common set of goals. Working together, individual group members may accomplish objectives that would have been unimaginable were they acting alone. Particularly magical, according to the "value in diversity" hypothesis, are groups in which members possess varied ideas, knowledge, and skills. Such diverse groups, the argument goes, combine their unique perspectives to devise exceptionally creative solutions to the problems they encounter (e.g., Jehn, Northcraft, & Neale, 1999; Watson, Kumar, & Michaelsen, 1993).

Despite its enormous intuitive appeal, the value in diversity hypothesis has proven to be devilishly difficult to demonstrate. In fact, at this juncture the research literature suggests that diversity (inter-individual variability across several characteristics) is about as likely to hamper, as it is to improve, performance (Guzzo & Dickson, 1996; Jehn, et al., 1999; Milliken & Martins, 1996; Pelled, Eisenhardt, & Xin, 1999; for a review, see Williams & O'Reilly, 1998). We address this perplexing state of affairs by proposing and testing a theoretical model that builds upon previous work on this topic by Polzer, Milton, and Swann (2001). As we explain below, the model we present here advances a more nuanced picture of the cognitive and interpersonal processes through which diversity influences performance. We begin by describing self-categorization theory's account of the relation of diversity to group processes, as it is currently the most widely accepted treatment of the topic.

Self-categorization theory and diversity

On the surface, the process through which several previously unaffiliated individuals become active group members seems simple enough: Upon recognizing that it behooves them to cooperate with other group members, people identify with the group and subsequently

subordinate their personal goals and agendas to those of the group. Self-categorization theory embraces the spirit of this possibility by suggesting that new group members de-emphasize their sense of self as distinct from other members of the group (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) and instead define themselves as components of the group. As Turner and his colleagues put it, identification with groups triggers a "depersonalization of self-perception, a shift toward the perception of self as an interchangeable exemplar of some social category and away from the perception of self as a unique person defined by individual differences from others" (Turner, et al., 1987, pp. 50-51).

The research literature suggests that the act of identifying with a group can indeed trigger the depersonalization process articulated by self-categorization theory. For example, people who share some quality ("in-group" members) exaggerate their similarities with other in-group members and their differences from out-group members (e.g., Haslam, Oakes, Reynolds, & Turner, 1999; Spears, Doosje, Ellemers, 1997). Moreover, people tend to like and value in-group members to a greater extent than out-group members (e.g., Brewer, 1979; Hogg et. al, 1993; Hogg & Hardie, 1991; 1992). Joining a group can even influence the way people process information. Smith and his colleagues (e.g., Smith, Coats, & Walling, 1999; Smith & Henry, 1996), for example, have reported that people are particularly quick in rating themselves on traits that are stereotypic of the group and slow in rating themselves on qualities that do not characterize the group. Similarly, Tropp and Wright (2001) found that people who identified with a group were more inclined to include that group in a visual representation of the self. Such findings led Smith and Henry (1996) to suggest that "inclusion of a group as part of the self is more than just a metaphor—it reflects a concrete reality concerning the cognitive representation of the self" (p. 641).

In theory, the depersonalization process may represent an invaluable means of attenuating difficulties that arise in diverse groups. In particular, a tendency for members of diverse groups to emphasize categories that make them unique will take a toll on group harmony, cohesion, and ultimately, performance (e.g., Smith et al., 1994; Tsui, Egan, & O'Reilly, 1992). Theoretically, depersonalization that is organized around identification with the workgroup may address this problem. If, for example, allegiance to identities associated with the group's goals and purposes replaces allegiance of members to their category-based group identity (e.g., race, sex, educational background), group harmony may result (e.g., Chatman & Flynn, 2001; Chatman, Polzer, Barsade, & Neale, 1998; Gaertner, Mann, Murrell, & Dovidio, 1989). In this way, depersonalization may sever the roots of dissension between group members who are members of different categories.

Yet there may be a fly in the depersonalization ointment. Consider the central contention of the "value in diversity" hypothesis: that the <u>value</u> in diversity derives from the varied ideas and perspectives that diverse group members communicate to one another. Insofar as group members forfeit their unique identities in favor of the workgroup identity, they will be that much less likely to communicate the idiosyncratic perspectives and qualities that make them unique. Contrary to self-categorization theory, which contends that the key to performance is the process through which group membership brings individual members to <u>relinquish</u> their idiosyncratic identities, the value in diversity hypothesis suggests that performance is maximized when individual members bring the group to <u>recognize</u> their identities. The flow of influence here is precisely the opposite of that specified by the depersonalization process. It is, however, quite consistent with the emphasis of a form of identity negotiation known as self-verification. In what follows, we describe the process of self-verification and its counterpart, the appraisal process.

Two sides of the identity negotiation coin: Self-verification and appraisal effects

When people encounter other group members, one of their first orders of business is to establish "who is who." To this end, a process of identity negotiation ensues in which each group member (arbitrarily dubbed the "perceiver") carefully observes cues to the identities of the other group members (the "targets") and makes inferences about the characteristics of each target. Simultaneously, targets try to influence how perceivers view them. Eventually, a "working consensus" emerges concerning the identities that each individual will assume during the relationship. Once mutual identities are established, people are expected to honor them for the remainder of the relationship unless a re-negotiation occurs (e.g., Goffman, 1959; Swann, 1987).

One important component of the identity negotiation process is self-verification, as manifested in the efforts of targets to bring perceivers to see them as they see themselves (Swann, 1983, 1987, 1999). Two considerations motivate such activities. First, self-views provide people with a crucial source of coherence and an invaluable means of defining their existence, organizing experience, predicting future events, and guiding social interaction (cf. Cooley, 1902; Lecky, 1945; Mead, 1934; Secord & Backman, 1965). By bringing perceivers to see them as they see themselves, targets obtain a steady supply of "nourishment" for their self-views. These self-views will, in turn, provide a stable source of coherence. Second, stable self-views will stabilize the behavior of targets and thus make targets more predictable to their relationship partners.

Numerous studies suggest that people are indeed motivated to bring others to see them congruently (for a review, see Swann, Rentfrow, & Guinn, in press). For example, people prefer marriage partners who are apt to provide them with verifying evaluations (e.g., De La Ronde & Swann, 1997; Katz, Beach, & Anderson, 1996; Ritts & Stein, 1995, Schafer, Wickrama, & Keith,

1996; Swann, De La Ronde & Hixon, 1994), even if this means preferring partners who think poorly of them. Similarly, if their interaction partners develop perceptions of targets that disagree with targets' self-views, targets will take steps to correct the "error" (e.g., Swann & Read, 1981; Swann & Hill, 1982).

But if there is clear evidence for self-verification theory's suggestion that the flow of influence in social interaction moves from targets to perceivers, there is also evidence for the operation of the opposite, perceiver-to-target, flow of influence. Researchers have discussed this evidence under the rubric of appraisal effects, a cousin to self-categorization effects discussed above. The early symbolic interactionists (e.g., Cooley, 1902; Mead, 1934) first discussed appraisal effects in attempting to explain the development of self-views. They suggested that people derive self-views by noting how significant others appraise them and inferring that they must have deserved these appraisals. For instance, if a boy senses that his parents hold him in low regard, he will develop correspondingly negative self-views.

Evidence of appraisal effects comes from several sources. Just as some researchers have shown that perceivers' appraisals and self-concepts are related (e.g., Felson, 1980, 1985), others have pointed to evidence that evaluations of performance or personality can alter the self-concepts of targets in laboratory settings (e.g., Jussim, Soffin, Brown, Ley, & Kohlhepp, 1992; Shrauger & Lund, 1975). Most persuasively, several researchers have conducted longitudinal field studies and found that the initial appraisals of perceivers shape the subsequent self-views of targets (Cole, 1991; Felson, 1989; McNulty & Swann, 1994).

Of greatest interest here, both self-verification and appraisal effects have been observed in groups, and both seem to influence group performance. In a prospective study of MBA students, Swann, Milton, and Polzer (2000) measured self-verification by assessing the extent to which

individuals brought other group members to see them as they saw themselves (i.e., congruently) over the first nine weeks of the semester. They not only found evidence of self-verification, they also found that the verification index predicted feelings of connection to the group as well as performance on creative tasks (e.g., devising a marketing plan for a new product). Also, verification was linked to connectedness and performance even when it was negative attributes that were being verified. Apparently, when group members had their unique attributes and perspectives verified, they felt recognized and understood. Such feelings emboldened them to express creative ideas and insights that they might otherwise have been inhibited to share. In addition, feeling known and understood by the group may have fostered identification with the group and thus encouraged cooperation.

Swann et al. (2000) also discovered evidence of appraisal effects, as indexed by the extent to which the group members brought individual targets to see themselves as the group saw them at the beginning of the semester. Although these appraisal effects were unrelated to performance on creative tasks, they were linked to performance on what Hambrick, Davison, Snell, and Snow (1998) referred to as computational tasks. Computational tasks (e.g., solving a math problem) require people to analyze fairly clear-cut information to derive a solution that has an objective criterion. Because such tasks are often best performed by people with relevant, identifiable expertise, the key to success will be to insure that the most appropriate person or persons provide the most input on the task. Appraisal effects should facilitate performance on such tasks by encouraging targets to provide a level of input commensurate with their expertise. Support for this idea came from evidence that appraisal effects predicted how well the study groups performed on computational tasks.

One issue that Swann et al. (2000) did not address, however, was the relation of their

findings to the value in diversity hypothesis. Polzer et al. (2001) addressed this issue. They discovered that the level of self-verification achieved within the first ten minutes of interaction was a powerful moderator of the effects of diversity.[1] True to the value in diversity hypothesis, among groups that achieved high levels of self-verification, diversity facilitated performance. In contrast, among groups that failed to achieve substantial self-verification, diversity undermined performance.

Polzer et al.'s evidence of links between self-verification, diversity, and performance are provocative, for they suggest that the failure of previous researchers to consider self-verification processes may explain why they obtained mixed support for the value in diversity hypothesis. Nevertheless, Polzer et al. did not specify the variables that set into motion the chain of events that led to self-verification. In particular, why did some groups achieve higher levels of self-verification than others? It is with this question that we are concerned here.

Our primary hypothesis is that, during the first few minutes of interaction, members of groups react differently to the diversity of their compatriots and these reactions sow the seeds of subsequent self-verification and appraisal processes. Furthermore, these self-verification and appraisal processes, in turn, determine subsequent performance on creative and computational tasks.

Diversity, initial impressions, in-group homogenization/individuation, and appraisal/self-verification effects.

We proposed that the positivity of people's initial impressions of other group members will be associated with the extent to which they homogenize versus individuate them. Specifically, we expect that perceivers who form negative impressions will tend to homogenize targets and that perceivers who form positive impressions will tend to individuate targets. We

proposed further that whereas homogenization will foster appraisal effects, individuation will foster self-verification effects. We elaborate on these predictions below.

Homogenization/individuation and positivity of impressions.

Perceivers can use at least two distinct types of information in forming impressions of targets. In the homogenization strategy, perceivers may note the race, gender, and other characteristics of the target and consider the target as a mere exemplar of one or more of these categories (e.g., Allport, 1954; Brewer, 1988; Fiske & Neuberg, 1990). When applied to a group of somewhat similar targets, this strategy leads perceivers to impute the same qualities to all members of the group or "homogenize" them. Alternatively, in the individuation strategy, perceivers treat the target as an individual rather than a mere exemplar of a category. Specifically, perceivers note what the targets says and does and use this idiosyncratic information as a basis for their impressions.

Intuitively, members of diverse groups should perceive their groups as more variegated than non-diverse groups simply because, by definition, there is more variability in such groups. Nevertheless, some perceivers may not fully appreciate such variability because they may pay more attention to superficial information about category membership rather than information about the unique properties of the individuals in their groups. For example, research on the out-group homogeneity effect suggests that perceivers tend to believe that members of other social categories are less variable than members of their own categories (e.g., Boldry & Kashy, 1999; Brauer, 2001; Judd & Park, 1988; Linville, Fischer, & Salovey, 1989; Park & Rothbart, 1982). As a result, perceivers who attend to information about category membership may actually perceive less variability in their groups as diversity increases.

What determines when perceivers regard targets as exemplars of a category as compared

to individuals with unique qualities? The positivity of perceivers' impressions may be the key

here. That is, perceivers who are neutral or negative toward targets may pay relatively little

attention to targets unique qualities. Instead, they may focus on superficial cues to group

membership and use these cues as a basis for making homogenized inferences about them as in,

for example, "outgroup members." This tendency to homogenize targets may be particularly

strong if targets possess diverse characteristics, as it may be particularly tempting to apply the

"outgroup" label to all such targets. Thus, when perceivers are relatively negative toward targets,

more diversity should lead to more homogenization.

In contrast, perceivers who have positive impressions of targets may attend to the

idiosyncratic qualities that provide the basis for individuating such targets. Among such

perceivers, then, increases in diversity will mean increases in the raw materials available for

individuation. Thus, when perceivers are relatively favorable toward targets, more diversity

should lead to more individuation.

Homogenization/individuation and appraisal/verification effects.

Homogenization may lead to appraisal effects because the failure of perceivers to

individuate targets may cause targets to conclude that perceivers are implacable. Once targets

become convinced that the identities they are to assume are non-negotiable, they may simply

attempt to "be" the persons that they sense that perceivers expect them to be. Simply put, targets

will display appraisal effects.

In contrast, targets who recognize a willingness of perceivers to individuate them may

conclude that perceivers can be persuaded to see them as targets see themselves. So convinced,

targets may take steps to ensure that perceivers recognize them for who they are. In this way,

individuation may foster self-verification effects.

From diversity to performance: A process model

The foregoing reasoning led us to propose the model depicted in Figure 1. The model begins with actual diversity. The relation of diversity to homogenization/individuation is moderated by the positivity of people's impressions of others. That is, just as more diversity is associated with more homogenization when impressions of others are negative, more diversity is associated with more individuation (low perceived homogeneity) when impressions of others are positive. Next, there are two parallel sets of mediated relationships. First, homogenization is associated with appraisal effects that are, in turn, associated with increments in performance on computational tasks. Second, individuation is associated with self-verification effects that are, in turn, associated with increments in performance on creative tasks.

Method

Participants. A total of 423 first-year MBA students at the University of Texas at Austin participated on a voluntary basis. Most participants were male (74%), Caucasian (67%), and U.S. citizens (82%). In addition, 17% were Latino, 5% were African American, and 11% were Asian. The mean age was 27 years. Occasionally, participants failed to complete a measure, which is why the ns vary slightly across analyses.

Prior to the beginning of the semester, the administration of the Graduate School of Business randomly divided members of the incoming class into 83 study groups with four to six members per group. Once assigned, members of each group worked on all group projects within their academic program for the remainder of their first 15-week semester. We were confident that participants would take seriously their involvement in the study groups because their group projects were responsible for a substantial portion of each student's course grade.

Design of the Investigation. We used a round-robin design (Warner, Kenny, & Stoto, 1979) in which each participant served as both a perceiver and a target. Participants rated all other group members and all other group members also rated them at two different sessions. We also had participants rate themselves at these sessions. All the ratings were made privately, and confidentiality was guaranteed.

Procedure. Theoretically, identity negotiation processes begin as soon as group members encounter one another. With this in mind, we conducted the first two (of three) data collection sessions during the orientation week for entering MBA students. Specifically, we measured self-views one or two days prior to the groups' initial meeting and impressions of other group members immediately following the groups' initial meeting. We introduced the first session (T1a) by asking students to participate in an investigation of the characteristics of effective study groups. In addition, we told students that their participation would involve completing a series of questionnaires over the semester. Participants then completed the initial measure of self-views as well as several other measures that we will not discuss because they were irrelevant to our concerns here.

Over the next two days participants returned to complete the initial measures of impressions of other group members (T1b). The experimenter began by informing participants of their group assignments and then having them interact with the other group members for 10 minutes. After this interaction, all participants recorded their impression of each of the other members of the group. Because the T1a and T1b sessions took place within 2 or 3 days of one another, we will henceforward refer to both as the "initial session."

We timed the next session (T2 or "later session") so that it occurred nine weeks into the semester--presumably after students had ample opportunities to interact and sort out their mutual

identities. Participants completed measures of their self-views and impressions of other group

members. At the end of the semester, we asked all 15 course instructors to supply us with group

project grades (i.e., creative and computational task performance) and 10 instructors did so.

Measures

Initial impression of group members. Participants rated each of the other members on 11

dimensions at the initial session after interacting for 10 minutes. Four dimensions

(intellectual/academic ability, competency or skill at sports, social skills/social competence, and

creative and/or artistic ability) were from the Self-Attribute Questionnaire (SAQ; Pelham &

Swann, 1989). Six additional items were derived from a preliminary survey of 110 MBA

students in which participants indicated that the following six characteristics were particularly

important for MBA students: trustworthy, leadership ability, cooperative, a hard-worker, fair, and

competitive. We also included one final item to tap people's global positive versus negative

impressions of the target of the rating: competent and likable in general. Participants made each

of their ratings relative to other first-year MBA students in the university on graduated-interval

scales ranging from 1 (bottom 5%) to 10 (top 5%).

To index the initial impressions that individuals formed of the other group members, we

averaged the ratings participants within each group gave to their fellow group members on each

of the 11 dimensions. We then averaged over the 11 items after establishing that there was

substantial agreement across items ($\alpha = .94$). The higher the value on this index of initial

impressions, the more positively members of the group viewed one another.

Homogenization/individuation. Past researchers have used three distinct approaches to

assessing out-group homogeneity. Linville and her colleagues (Linville et al., 1989) asked

participants to construct a distribution representing the proportion of members of in-group and

out-groups who fell at various points on the distribution. The variance in the distribution or the probability that two members scored differently provided the estimate of out-group homogeneity. Park and Judd (1990) had participants either estimate the percentage of group members who possessed a given quality or the characteristics of the most extreme group members as well as where the group members fell on particular traits. Both the Linville and Park/Judd strategies for assessing out-group homogeneity required participants to possess some knowledge about the distributions of the in-group and out-group. Boldry and Kashy (1999) developed a more direct measure of out-group homogeneity that does not require participants to have knowledge of group distributions. Instead, participants simply rated other group members and the researchers estimated the homogeneity inherent in their ratings. We adapted Boldry and Kashy's (1999) measure for use in our research to estimate in-group (i.e., within the workgroup) homogeneity rather than out-group homogeneity.

Our index of in-group homogenization/individuation, like Boldry and Kashy's (1999) measure of out-group homogenization, was derived using the Social Relations Model (SRM; Kenny, 1994). Conceptually, SRM is analogous to a 2-way analysis of variance (ANOVA) design.   SRM allows researchers to decompose the variance in a given rating into 3 components: perceiver, target, and relationship. The perceiver and target effects are analogous to the two main effects in ANOVA and the relationship effect is analogous to the interaction term between the two main effects. Thus, the perceiver variance is the amount of variation in the ratings that can be explained by the characteristics of the perceivers; the target variance is the amount of variation in the ratings that can be explained by the characteristics of the targets; and the relationship variance is the variance that cannot be explained by either the characteristics of the perceivers or the targets. The first and third of these variance components--perceiver and

relationship variance—constitute our measure of homogenization/individuation.[2]

Conceptually, the perceiver variance reflects homogenization: the extent to which participants see their group members as being highly similar to one another. In contrast, the relationship variance reflects individuation: the extent to which participants recognize the unique qualities of other group members. Our index of homogenization/individuation, then, was the ratio of the perceiver variance to the relationship variance. This index was internally consistent across the 11 dimensions on which perceivers rated targets, $\alpha = .81$. High values on this index indicated substantial amounts of homogenization and low values on this index indicated substantial amounts of individuation.

To obtain the amount of the perceiver and relationship variance on each of the 11 dimensions, we used Kenny's (1995) SOREMO software package. Because SOREMO requires that there be no missing data, we included only those groups that had either (a) complete data; (b) only a few missing data from a particular set of ratings or (c) complete data except that one individual rated all but one or two group members. For this reason, the final sample size consisted of 57 groups (253 persons). Deleting these participants did not appear to be problematic, as a series of independent t-tests on the positivity of initial impression, self-verification, appraisal, and diversity indicated that the excluded groups did not differ from the groups that were included.

Self-verification. To index self-verification, we computed the absolute value of the difference between a given target's initial self-views at T1a and the average of perceivers' later impressions of that target at T2. We then averaged these verification scores across the 11 dimensions to arrive at an overall verification score for each target. The verification score for each group was the average verification score of all members of that group.

Note that our index of verification taps the verification that occurred from the moment targets met their group members to nine weeks later. This index thus combines components of the index used by Swann et al. (2000), who measured the verification that occurred between the first and second sessions, and Polzer et al. (2001), who measured the verification occurring during the first 10 minutes of interaction (i.e., the first session). The current measure is thus the most comprehensive of the three measures of verification because it assesses <u>all</u> verification that occurred up to the second session.

Appraisal. The appraisal effect for each group was the degree to which the self-views of targets moved closer over time to the initial impressions of perceivers. Specifically, we subtracted the absolute value of the difference between the average of perceivers' initial impressions of a given target and that targets' later self-views from the absolute value of the difference between the average of perceivers' initial impressions of a given target and that target's initial self-views. We then averaged these appraisal scores across the 11 dimensions to arrive at an overall score of appraisal for each target. This appraisal score for each group was simply the average appraisal score of all members of that group.

Diversity of groups. We measured group diversity along seven dimensions. We used the coefficient of variation (standard deviation divided by the mean) to calculate age diversity, which was the only continuous diversity dimension. We used Blau's (1977) heterogeneity index to compute group diversity scores for each of the six remaining categorical dimensions. This index is calculated with the formula:

$$1 - \sum p_i^2$$

where p is the proportion of the group in the ith category. A higher index score indicates greater

diversity among team members along the particular dimension. These categorical dimensions included U.S. citizenship, race, sex, previous degree, MBA concentration, and previous job function. Race categories included White, Black, Hispanic, Asian, and American Indian. We coded previous degree into five categories (business, engineering, liberal arts, science, and other), and previous job function into six categories (finance/accounting, marketing, engineering/research and development, general management/management consulting, military, and other). We borrowed the categories used by program administrators to classify participants' MBA concentration. Finally, we averaged all seven diversity indices to form an overall index of group diversity.

Performance. We collected grades for 14 group projects in several different required courses (all participants took Managerial Economics, Financial Accounting, and Statistics; three of the cohorts were also enrolled in Operations Management and Marketing Management, two cohorts also took Organizational Behavior and Financial Management, and the remaining two also took Financial Management and an elective course). To strengthen the causal implications of our analyses, we only used grades from group projects that were handed in after the administration of the later session. We collected three or four group project grades for the teams in each cohort (except for one cohort for which we collected two group project grades), computed z-scores for the grades for each course within each cohort, and then averaged each group's scores across courses. All told, we were able to obtain approximately 70% of all group grades earned after the later session.

We distinguished creative projects (that would benefit from considering divergent perspectives) from computational projects (that would benefit from having a group member with specialized task expertise). For example, one group project in the organizational behavior course

required study groups to devise a plan for how a specific company should go about changing its organizational culture. Because there is no quantifiable criterion for such a task, groups benefited from considering a variety of perspectives on this problem. Similarly broad analyses of business problems were critical to performance on group projects in marketing, statistics, and operations management. We accordingly averaged z-scores on group project grades from these courses to form a measure of group performance on creative tasks.

In contrast, the course project in accounting emphasized quantitative analyses of various companies' financial statements, analyses that students who possessed specialized accounting expertise could solve more or less on their own. We averaged the z-scores for the two group projects in the accounting course to form a measure of group performance on computational tasks.

<div align="center">Results</div>

Were the effects of diversity on homogenization/individuation moderated by the positivity of perceivers' initial impressions of targets?

We expected contrasting relations between group diversity and homogenization/individuation in groups in which perceivers' initial impressions were relatively positive as compared to groups in which perceivers' initial impressions were relatively negative.[3] To test this prediction, we conducted a moderated multiple regression with diversity, positivity of initial impressions of group members, and the interaction term of diversity and positivity as predictors and the overall index of homogenization/individuation as the criterion. The predicted interaction was significant ($\beta = -.46$, r^2 change $= .20$, $\underline{p} < .001$), such that when the initial impressions of perceivers were relatively positive, higher diversity was associated with less homogenization, but that when the initial impressions of perceivers were relatively negative, higher diversity was associated with

more homogenization. There were no significant main effects of initial impression positivity, $\beta =$ -.17, $p > .20$. Similarly, the diversity main effects were non-significant whether we examined the overall index of diversity, $\beta = .12$, $p > .38$, or each of the seven individual diversity indices, all β's < .14, all p's > .31.

Did Individuation Foster Verification and Homogenization Foster Appraisal?

As anticipated, the overall index of homogenization/individuation was correlated negatively with the verification score, $\underline{\beta} = -.47$, $\underline{p} < .001$. The more individuation (and the less homogenization) just after the group was formed, the more likely the perceivers brought targets to see them as targets saw themselves. In sharp contrast, the overall index of homogenization/individuation was correlated positively with the appraisal score, ($\underline{\beta} = .44$, $\underline{p} < .01$). Thus, the less individuation (and the more homogenization) at the early stage of the group formation, the more the perceivers brought targets to see themselves as the perceivers saw them.

Did Self-Verification Enhance Performance on Creative Tasks and Appraisal Enhance

Performance on Computational Tasks?

As expected, the verification score covaried with creative task performance ($\underline{\beta}= .35$, $\underline{p} < .01$) and the appraisal score covaried with computational performance ($\underline{\beta} = .32$, $\underline{p} < .01$). Note, however, that verification was not significantly related to computational task performance ($\underline{\beta} = -.17$, $\underline{p}$ > .22) and appraisal was not significantly related to creative task performance ($\underline{\beta} = .05$, $\underline{p} > .75$). Thus, verification and appraisal had unique effects on performance, with verification enhancing creative task performance only and appraisal enhancing computational task performance only.

Supplementary analyses revealed that partialling out the effects of variables such as average age of group members, size of the group, the average number of months members had worked in a work group in their previous employment, and training in organizational behavior

courses did not alter the relations of performance to verification and appraisal effects. In addition, when Swann et al. (2000) tested the hypothesis that our performance data might reflect a tendency for people to correctly identify the "true" or "actual" characteristics of targets and for their partners to converge on this "truth" subsequently (Jussim, 1991; Kenny & DePaulo, 1993), they found no evidence that such a process could explain the verification effects and only tentative support that such "accuracy" processes might explain appraisal effects.

Did Verification and Appraisal Processes Mediate the Effects of Homogenization/Individuation on Group Performance?

Kenny and his colleagues (Baron & Kenny, 1986; Kenny, Kashy, & Bolger, 1998) have identified two essential steps for establishing mediation: (a) the predictor significantly predicts the mediator and (b) the mediator significantly predicts the outcome variable.[4] Above we showed that homogenization/individuation significantly predicted both verification and appraisal effects, and the verification effect predicted creative task performance and the appraisal effect predicted computational task performance. The two essential steps were met, and we thus conducted Baron and Kenny's (1986) modified Sobel tests. In both instances, these tests revealed that the magnitude of the relation between the predictor and the outcome variable was significantly reduced when the mediator was included in the equation: verification, $Z = -2.15$, $\underline{p} <$ .05; appraisal, $Z = 2.02$, $\underline{p} < .05$. Thus, individuation fosters more self-verification, which in turn enhances creative task performance, and homogenization fosters more appraisal effects, which in turn, enhances computational task performance.

Was the link between self-verification and performance restricted to positive qualities?

The fact that perceivers were most apt to individuate and verify targets when their initial impressions were positive raises the possibility that the self-verification of positive self-views

were strongest. To test this idea, we regressed the verification effect, initial self-rating, and the interaction term on creative task performance. We found that higher levels of verification fostered higher levels of creative task performance, $\beta = .35$, $p < .05$, but neither the main effect of self-regard nor the interaction term predicted creative task performance significantly, $\beta = .18$, $p > .20$, and $\beta = .05$, $p > .73$, respectively. Therefore, verification fostered creative task performance whether the self-views of targets were positive or negative.

Discussion

Past research on the value in diversity hypothesis has focused on the relation between input variables, such as group composition, and output variables, such as group harmony or performance. Our investigation goes beyond this "black box" approach by laying bare the events that intervene between these input and output variables (cf. Pelled et al, 1999). In particular, our findings suggest that identity negotiation processes play a critically important role in determining the impact of diversity on performance.

The moderated-mediated model displayed in Figure 1 summarizes the relation between our variables. The first link in our model is among diversity, positivity of impressions, and homogenization/individuation. Whereas perceivers who formed relatively positive impressions of targets translated information about the diverse characteristics of targets into individuated impressions, those who formed relatively negative impressions translated information about the diverse qualities of their fellow group members into homogenized, category-based inferences. Perceivers who individuated targets were apt to provide them with self-verification, presumably because only perceivers who discriminated between different targets were in a position to provide them with self-verification. In contrast, perceivers who homogenized targets were apt to produce appraisal effects, apparently because the failure of perceivers to recognize the idiosyncratic

qualities of targets caused targets to realize that their only recourse was to "be" the persons that perceivers expected them to be.

We offered two complementary rationales to explain the relation of identity negotiation processes to performance. On the one hand, we believe that having their unique attributes and perspectives verified made people feel recognized and understood, which emboldened them to express freely creative ideas and insights. This explains why individuation fostered performance on creative tasks. On the other hand, because computational tasks require specialized knowledge and expertise, they were best performed by persons whom the group recognized as "specialists." Appraisal effects apparently facilitated the goal of getting these "specialists" (and no one else) to take on these tasks.

The most striking contribution of this report, then, is our evidence for a fairly comprehensive model of the links between diversity, identity negotiation processes, and performance. Of the various links in this model, the most novel ones were associated with our index of homogenization/individuation. Like Boldry and Kashy's (1999) index of perceived out-group homogeneity, our index of in-group homogenization/individuation does not require participants to be aware of the distribution of scores in their group. Relative to previous indices of in-group homogeneity, then, ours may offer a more straightforward and less cognitively demanding strategy for assessing the extent to which perceivers individuate members of their groups. Similarly, for researchers interested in the self who do not have access to information about the self-views of group members, our index of perceived homogenization/individuation may offer an indirect estimate of the extent to which group members provide their compatriots with self-verification.

For those who wish to reap the benefits of diversity on creative task performance, our research suggests that maximizing the positivity of the atmosphere early in the formation of diverse groups holds promise. This suggestion contrasts with self-categorization theory's (e.g., Turner, et al., 1987) contention that the key to capitalizing on the benefits of diversity is to reduce the salience of diversity-related differences among group members through depersonalization. As noted earlier, such an interpretation is problematic because depersonalization should cause people to refrain from expressing the very identities that supposedly make them unique. In fact, our findings indicated that the extent to which perceivers individuated (rather than depersonalized) targets increased verification which, in turn, increased creative task performance. To the extent that individuation can be assumed to work against the depersonalization process, our findings challenge self-categorization theory's contention that the most effective way to enhance creative task performance is through depersonalization. Moreover, our results suggest that diversity may be problematic not due to the perception of differences per se but to the negative impressions associated with these differences.

Having said this, we hasten to add that other aspects of our data are roughly consistent with self-categorization theory. For example, we discovered that the extent to which perceivers homogenized targets fostered appraisal effects which, in turn, increased computational task performance. Although appraisal effects are not equivalent to depersonalization processes, it seems reasonable to assume that such effects represent one way of inducing depersonalization. From this vantage point, our findings represent indirect evidence that depersonalization may improve performance on computational tasks.

Conclusions

By identifying the psychological processes that forge the links between diversity and distinct performance outcomes, our findings offer a novel perspective on the value in diversity hypothesis. They suggest, for example, that one key to finding value in diversity may be ensuring that there is a "match" between the nature of the task and the favorability of initial impressions. It may thus be time for researchers to shift from relatively general questions such as "does diversity enhance performance?" to more nuanced questions such as "under what conditions does diversity enhance <u>specific</u> types of performance? (cf. Jehn, et. al., 1999; Pelled, 1996; Pelled et al., 1999; Westphal & Milton, 2000). Moreover, the answers to these more nuanced questions may reside in identifying the identity negotiation processes that mediate the links between the characteristics of group members and performance. From this vantage point, there is surely value in diversity, but reaping its full benefits will require developing a more complete understanding of the identity negotiation processes that regulate its expression.

Author Note

Footnotes

[1] Polzer et al.,'s measure of self-verification (or "initial congruence," as Polzer et al called it) captured only the self-verification that occurred during the first 10 minutes of interaction. The measure employed by Swann et al. (2000) captured the verification that occurred over the first nine weeks of the semester while controlling for the self-verification that occurred during the first 10 minutes. Also, the two papers and the present paper asked different questions of the same data set.

[2] We excluded target variance from our model of within group homogenization/individuation because, not surprisingly, after only 10 minutes of interaction there was very little target variance (i.e., low consensus) in group members' ratings of one another. Boldry and Kashy (1999) <u>did</u> find substantial target variance, presumably because their participants were well-acquainted cadets. Also, the computations of the perceiver and relationship variance in the SRM are conceptually similar to the computations in the conventional ANOVA, with the exception that SRM corrects for the bias due to the total n (without this correction, more perceivers would produce more target variance). A detailed description and derivation of the formula for the perceiver and the relationship variance can be found in the Appendix B of Kenny (1994).

[3] When we indicate that impressions were "positive" or "negative," we do so in a relative sense only, as diversity and positivity of impressions were negatively related, $r = -.42$.

[4] When arguing for mediation, researchers often report whether the predictor significantly predicts the outcome variable as a first step. Our analyses revealed that these effects were marginally significant for the relation of homogenization/individuation to both creative task performance (beta = -.20, $p < .10$, and computational task performance, beta = .18, $p < .12$, one-

tailed). This does not undermine our mediational argument, however, as Kenny, et al., 1998)

have advised that this "Step 1 is not required, but a path from the initial variable to the outcome

is implied if Step 2 [the path from the predictor to the mediator] and Step 3 [the path from the

mediator to the outcome variable] are met" (p. 260).   We believe that the weakness of the

relation between the predictor and criterion reflects a power deficit imposed by the fact that the n

was reduced from 57 to 47 groups due to missing data on the performance measure.

References

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. Journal of Personality and Social Psychology, 70, 51, 1173-1182.

Blau, P. M. (1977). Inequality and Heterogeneity. New York: Free Press.

Boldry, J. G., & Kashy, D. A. (1999). Intergroup perception in Naturally occurring groups of differential status: A Social Relations Perspective. Journal of Personality and Social Psychology, 77, 1200-1212.

Brauer, M. (2001). Intergroup perception in the social context: The effects of social status and group membership on perceived out-group homogeneity and ethnocentrism. Journal of Experimental Social Psychology, 37, 15-31.

Brewer, M. B. (1979). In-group bias in the minimal intergroup situation: A cognitive-motivational analysis. Psychological Bulletin, 86, 307-324.

Brewer, M. B. (1988). A dual process model of impression formation. In T. Srull & R. Wyer (Eds.), Advances in social cognition. (Vol. 1, pp. 1-36). Hillsdale, NJ: Erlbaum.

Chatman, J. A., & Flynn, F. J. (2001). The influence of demographic heterogeneity on the emergence and consequences of cooperative norms in work teams. Academy of Management Journal, 44,

Chatman, J. A., Polzer, J. T., Barsade, S. G., Neale, M. A. (1998). Being different yet feeling similar: The influence of demographic composition and organizational culture on work processes and outcomes. Administrative Science Quarterly, 43, 749-780.

Cooley, C. H. (1902). Human nature and the social order. New York: Scribner's.

De La Ronde, C. & Swann, W., B. Jr. (1998). Partner verification: Restoring shattered images of our intimates. Journal of Personality and Social Psychology, 75, 374-382. Felson, 1980

Felson, R. B. (1985). Reflected appraisal and the development of self. Social Psychology Quarterly, 48, 71-78.

Felson, R. B. (1989). Parents and the reflected appraisal process: A longitudinal analysis. Journal of Personality and Social Psychology, 56, (6), 965-971.

Fiske, S.T. & Neuberg, S.L. (1990). A continuum of impression formation, from category-based to individuating process: Influences of information and motivation of attention and interpretation. In M. P. Zanna (Ed.), Advances in Experimental Social Psychology, 23, 1-74.

Gaertner, S. L., Mann, J., Murrell, A., Dovidio, J. F. (1989). Reducing intergroup bias: The benefits of recategorization. Journal of Personality and Social Psychology, 57, 239-249.

Goffman, E. (1959). The presentation of self in everyday life. Garden City, NY: Doubleday.

Guzzo, R. A., & Dickson, M. W. (1996). Teams in organizations: Recent research on performance and effectiveness. Annual Review of Psychology, 47, 307-338.

Hambrick, D. C, Davison, S. C., Snell, S. A., & Snow, C. C. (1998). When groups consist of multiple nationalities: Towards a new understanding of the implications. Organization Studies, 19, 181-205.

Haslam, S. A., Oakes, P. J., Reynolds, K., J., Turner, J. C. (1999). Social identity salience and the emergence of stereotype consensus. Personality and Social Psychology Bulletin, 25, 809-818.

Hogg, M.A., Cooper-Shaw, L., and Holzworth, D.W. (1993). Studies of group prototypicality and depersonalized attraction in small interactive groups. Personality and Social Psychology Bulletin, 17, 175-180.

Hogg, M. A. & Hardie, E. A. (1991). Social attraction, personal attraction, and self-categorization: A field study. Personality & Social Psychology Bulletin, 17, 175-180.

Hogg, M. A. & Hardie, E. A. (1992). Prototypicality, conformity and depersonalized attraction: A self-categorization analysis of group cohesiveness. British Journal of Social Psychology, 31, 41-56.

Jehn, K. A., Northcraft, G. B., & Neale, M. A. (1999). Why some differences make a difference: A field study of diversity, conflict, and performance in workgroups. Administrative Science Quarterly, 44, 741-763.

Judd, C. M., & Park, B. (1988). Out-group homogeneity: Judgments of variability at the individual and group levels. Journal of Personality and Social Psychology, 54, 778-788.

Jussim, L. (1991). Social perception and social reality: A reflection-construction model. Psychological Review, 98, 54-73.

Jussim, L., Soffin, S., Brown, R., & Ley, J. (1992). Understanding reactions to feedback by integrating ideas from symbolic interactionism and cognitive evaluation theory. Journal of Personality and Social Psychology, 62, 402-421.

Katz, J. Beach, S. R. H, & Anderson, P. (1996). Self-enhancement versus self-verification: Does spousal support always help? Cognitive Therapy and Research, 20, 345-360.

Kenny, D. A. (1994). Interpersonal perception: A social relations analysis. New York: Guilford

Press.

Kenny, D. A. (1995). <u>SOREMO version v.2: A FORTRAN program for the analysis of round-robin data structures.</u> Unpublished manuscript, University of Connecticut.

Kenny, D. A. & DePaulo, B. M. (1993). Do people know how others view them?: An empirical and theoretical account. <u>Psychological Bulletin, 114</u> 145-161.

Kenny, D. A., Kashy, D. A., & Bolger, N. Data analysis in social psychology. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), <u>The handbook of social psychology,</u> (4th ed., vol. 1, pp. 233-265). New York: Mcgraw-Hill.

Lecky, P. (1945). <u>Self-consistency: A theory of personality</u>. New York: Island Press.

Linville, P. W., Fischer, G. W., & Salovey, P. (1989). Perceived distributions of the characteristics of ingroup and outgroup members: Empirical evidence and a computer simulation. <u>Journal of Personality and Social Psychology, 38</u>, 689-703.

Macrae, N. C., & Bodenhausen, G. V. (2000). Social Cognition: Thinking Categorically about Others. <u>Annual Review of Psychology, 51</u>, 93-120.

McNulty, S. E., & Swann, W. B., Jr. (1994). Identity negotiation in roommate relationships: The self as architect and consequence of social reality. <u>Journal of Personality and Social Psychology, 67</u>, 1012-1023.

Mead, G. H. (1934). <u>Mind, self, and society</u>. Chicago: University of Chicago Press.

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

Pelham, B. W., & Swann, W. B., Jr. (1989). From self-conceptions to self-worth: On the sources and structure of global self-esteem. <u>Journal of Personality and Social Psychology, 57</u>, 672-680.

Park, B., & Judd, C. M. (1990). Measures and models of perceived group variability. <u>Journal of Personality and Social Psychology, 59</u>, 73-91.

Park, B., & Rothbart, M. (1982). Perception of out-group homogeneity and levels of social categorization: Memory for the subordinate attributes of in-group and out-group members. <u>Journal of Personality and Social Psychology, 42</u>, 1051-1068.

Pelled, L. H. (1996). Demographic diversity, conflict, and work group outcomes: An intervening process theory. <u>Organization Science, 7</u>, 615-631.

Pelled, L. H., Eisenhardt, K. M.and Xin, K. R. (1999). Exploring the Black Box: An analysis of

work group diversity, conflict and performance. Administrative Science Quarterly, 44, 1-28.

Polzer, J. T., Milton, L. P., & Swann, W. B., Jr. (2001). Capitalizing on diversity: Interpersonal congruence in small work groups. Manuscript under review.

Ritts, V., & Stein, J. R. (1995). Verification and commitment in marital relationships: An exploration of self-verification theory in community college students. Psychological Reports, 76, 383-386.

Secord, P. F., & Backman, C. W. (1965). An interpersonal approach to personality. In BMaher (Ed.), Progress in experimental personality research (Vol. 2, pp. 91-125). New York: Academic Press.

Schafer, R.B., Wickrama, K.A.S., & Keith, P.M. (1996). Self-concept disconfirmation, psychological distress, and marital happiness. Journal of Marriage and the Family, 58, 167-177.

Shrauger, J. S., & Lund, A. K. (1975). Self-evaluation and reactions to evaluations from others. Journal of Personality, 43, 94-108.

Sinclair, L. & Kunda, Z. (1999). Reactions to a black professional: Motivated inhibition and activation of conflicting stereotypes. Journal of Personality and Social Psychology, 77, 885-904.

Smith, E. R., Coats, S., & Walling, D. (1999). Overlapping mental representations of self, in-group, and partner: Further response time evidence and a connectionist model. Personality and Social Psychology Bulletin, 25, 873-882.

Smith, E. R., & Henry, S. (1996). An in-group becomes part of the self: Response time evidence. Personality and Social Psychology Bulletin, 22, 635-642.

Smith, K.G., Smith, K.A., Olian, J.D., Sims, H.P., O'Bannon, D.P., & Scully, J.A. (1994). Top management team demography and process: The role of social integration and communication. Administrative Science Quarterly, 39, 412-438.

Spears, R., Doosje, B., & Ellemers, N. (1997). Self-stereotyping in the face of threats to group status and distinctiveness: The role of group identification. Personality and Social Psychology Bulletin, 23, 538-553.

Swann, W. B., Jr. (1983). Self-verification: Bringing social reality into harmony with the self. In J. Suls & A. G. Greenwald (Eds.), Social psychological perspectives on the self (vol. 2, pp. 33-66). Hillsdale, NJ: Erlbaum.

Swann, W. B., Jr. (1987). Identity negotiation: Where two roads meet. Journal of Personality and Social Psychology, 53, 1038-1051.

Swann, W. Jr. (1999). Resilient Identities: Self, relationships, and the construction of social reality. Basic books: New York.

Swann, W. B., De La Ronde, C. & Hixon, J. G., (1992). Embracing the bitter "truth": Negative self-concepts and marital commitment. Psychological Science, 3, 118-121.

Swann, W. B., Jr., & Hill, C. A. (1982). When our identities are mistaken: Reaffirming self-conceptions through social interaction. Journal of Personality and Social Psychology, 43, 59-66.

Swann, W. B., Jr., Milton, L. P., & Polzer, J.T. (2000). Should we create a niche or fall in line? Identity negotiation and small group effectiveness. Journal of Personality and Social Psychology.79, 238-250.

Swann, W. B., Jr., & Read, S. J. (1981). Self-verification processes: How we sustain our self-conceptions. Journal of Experimental Social Psychology, 17, 351-372.

Swann, W. B., Jr., Rentfrow, P. J., & Guinn, J. S. (in press). Self-verification: The search for coherence. Chapter to appear in M. Leary and J. Tagney, Handbook of Self and Identity. Guilford: NY.

Tajfel, H. (1978). Social categorization, social identity, and social comparison." In H. Tajfel (ed.), Differentiation between social groups: Studies in the social psychology of intergroup relations. London: Academic.

Tajfel, H. (1982). Social psychology of intergroup relations. Annual Review of Psychology, 33, 1-39.

Tsui, A. S., Egan, T. D., & O'Reilly, C. A. (1992).   Being different: Relational demography and organizational attachment. Administrative Science Quarterly, 37, 549-579.

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

Warner, R. M., Kenny, D. A., & Stoto, M. (1979). A new round robin analysis of variance for social interaction data. Journal of Personality and Social Psychology, 37, 1742-1757.

Watson, W. E., Kumar, K., & Michaelsen, L. K. (1993). Cultural diversity's impact on interaction process and performance: Comparing homogeneous and diverse task groups. Academy of Management Journal, 36, 590-602.

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

Figure 1