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Similarity and Group Performance*

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This paper investigates the effects that different patterns of similarity among group members have on a group's performance on a problem-solving task. I discuss and test hypotheses on the effects of similarity on group performance derived from two literatures: balance theory and research on homophily. In an experiment I found that the relative balance of the pattern of similarity was more important in predicting how quickly groups establish norms of interaction and complete a task than how similar group members were to each other. Neither balance nor the degree of similarity had a significant effect on the quality of the groups' work. I conclude that groups with balanced similarity structures produce task solutions that approximate the quality of those from other groups, but they do so in significantly less time. That is, balanced groups are more efficient than unbalanced groups.

Does group member similarity affect group performance on a task? Groups often convene to solve problems or make decisions (juries, administrative groups, and work teams, for example), and members of such groups are either more or less similar to each another. Similarity, when group members are aware of it, may influence groups' task performance, although little work documents effects of this nature. Some research (Carley 1991; Heider 1953; Ibarra 1992, 1995; Marsden 1987) suggests that the more similar group members are, the better the group will perform. Balance theory (Heider 1946, 1953; Cartwright and Harary 1956), which takes a structural perspective, indicates that certain patterns of similarity are consonant and others dissonant. Assumptions derived from the balance perspective suggest that the consonance or dissonance of a structure of similarity, rather than the positive or negative character of the relations, affects tension among group members, which in turn may affect performance. I elaborate the two approaches to generate competing hypotheses regarding the effects of similarity on how quickly groups orient themselves to interaction, how quickly they complete a task, and how well they perform. Then, I describe an experiment that tests the competing predictions. I conclude by discussing the results of the experiment and its theoretical and empirical implications.

THEORY

Dyadic and Structural Balance

Heider's (1946) original theoretical work on balance explored signed (positive or negative) relationships among people and objects in dyads and triads. Positive ties are links between a person and an object (another person or a physical entity) that indicate the affirmative state or presence of a particular type of relationship, whereas negative ties indicate the negative state or lack of that relationship. Originally, Heider dealt with two types of relationships: (1) unit formation, including similarity, proximity, and belongingness, and (2) positive sentiment, including liking, loving, and valuing. He defined balance in dyads as the case when all relationships between a focal person and a single object (e.g.: material good, another person) are identically signed, that is, either all positive or all negative. When the ties between the person and the object are of mixed signs, imbalance exists, and either the positive or the negative ties will change direc-

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tion to bring the overall relationship into alignment. With regard to balance in triads, Heider provided the definition, "In the case of three entities, a balanced state exists if all three relations are positive in all respects, or if two are negative and one is positive" (110).

Cartwright and Harary (1956) extended Heider's definition of balance to include groups of any size. The authors took the group as the level of analysis and posited that balance is a group characteristic, effectively broadening the applicability of the theory. This group level characteristic is called *structural balance.* Using graph theory, the authors provided more general operational definitions of balance and imbalance based on the positive and negative character of each semicycle (that is, within each collection of unidirectional, consecutive ties that connects back to itself) within the group. The sign of a semicycle is calculated by multiplying the signs of the ties in the semicycle. If all semicycles in the group are positive, the group is balanced; if at least one is negative, the group is unbalanced. When Cartwright and Harary's generalization is applied to triads, triadic balance is defined in the same way as in Heider's original formulation.

Many earlier investigations present and test the tenets of balance theory and its implications, finding strong support for its claims.[1] Aronson and Cope's (1968) experiment, for example, found that, when a supervisor punished the participant's "enemy" (a rude experimenter), the participant reported a greater degree of liking for the supervisor than when punishment did not take place. This study supported balance theory's claim that, when the signs of two ties in a triad are established, the third tie will form in a manner that achieves balance. Evidence supporting the theory in a naturalistic setting came from a study of a men's college dormitory (Priest and Sawyer 1967). Proximity of room assignments and year in school predicted positive sentiment, supporting the assumption that one positive tie (close proximity) induces another (liking). Opp (1984) provides a good review of the progress of balance theory up to the mid-1980s and gives a more precise explication of balance theory in the form of linked, logically progressing claims. Research since that time has been relatively sparse, despite the theory's strong showing in the 1960s and 1970s.

Few studies have examined the possible task-related outcomes of balance.[2] In a search conducted on electronic databases, including ABI/Inform Global, Academic Search Elite (EbscoHost), JSTOR, PsycARTICLES, and Sociological Abstracts, I was unable to identify a study addressing the effect structural balance has on task performance. Task groups, including juries and work teams, are an important venue in which to study structural balance, because of both the prevalence of groups engaging in problem-solving and the desire for these groups to perform at full potential. People in these groups are necessarily more or less similar to one another, and knowing how similarity affects performance may be important for maximizing and balancing the quality and quantity of groups' outputs.

Group Development Processes

Several theories address the development of task groups, most agreeing that groups have some type of orienting phase at their inception (Chidambaram and Bostrom 1996; Gersick 1988; McGrath 1984; Theodorson 1953; Tuckman 1965). Members of groups meeting for the first time naturally experience some degree of uncertainty about how to work together. During the preliminary phase, groups are consumed with establishing norms that will govern subsequent interaction (Tuckman 1965). The norms relevant to the current study concern who will cooperate with whom and who will agree or disagree with

[1] More recently, Doreian and Krackhardt (2001) found mixed support for the theory. The number of balanced triads increased and the number of unbalanced triads diminished over time, supporting the claim that structures tend toward balance. Further analysis, however, showed that when the authors broke the unbalanced triads into subcategories, the frequency of certain types of unbalanced triads actually increased over time.

[2] See Knoke (1990) and Laumann and Pappi (1973) for reviews including some macro studies on balance and cooperation among political entities working on policy-related tasks.

whom. Once group members reach consensus about how interaction will proceed, the group will then begin task-related work. The "norming" (Tuckman 1965) phase may be the period of group development when the effects of similarity and/or balance are most clearly manifest.

Figure 1 shows a graphical depiction of the four possible patterns of ties in triads. When a triad is unbalanced, the pattern of relations is not consistent—in Aronson and Cope's (1968) terms, a group member in an unbalanced group either has a positive tie to a friend's enemy or a negative tie to an enemy's enemy.

The contradictions in unbalanced groups may increase the level of normative ambiguity; that is, these groups lack the unspoken rules that will govern interaction. If a group experiences greater normative ambiguity, group members may require more time to establish norms before they can begin productive work on the task. This would extend the duration of the orienting phase of the group's development, which would in turn result in a longer time to task completion for unbalanced groups. On the basis of the integration of balance theory with literature on group development processes, I propose:

> *Hypothesis 1:* Balanced groups will begin productive task work sooner (in less time) than unbalanced groups.

> *Hypothesis 2:* Balanced groups will complete the task work sooner (in less time) than unbalanced groups.

Past research has explored the consequences of disorganized interaction for a group's performance on a task (Gladstein 1994; Sundstrom et al. 1999; Tuckman 1965), concluding that groups with more disorganized interaction perform worse on tasks than groups with more organized interaction. Because unbalanced groups may experience more normative ambiguity, their interactions may be more disorganized, leading to poorer performance on the task relative to balanced groups. Thus, with respect to task performance, I propose:

> *Hypothesis 3:* Balanced groups will produce better quality task solutions than unbalanced groups.

Similarity of Group Members

Whereas structural balance (Cartwright and Harary 1956) provides the basis for Hypotheses 1–3, Heider's (1953) original dyadic conceptualization of balance reveals that arguments exist even within balance theory for why similarity should lead to a quicker task completion time as well as a better task solution. First, people who are similar are more likely to agree (Davis 1963; Heider 1953). Should group members readily agree with one another, it is likely that they would settle on a task solution more quickly than groups whose members disagree. Also, homogeneous groups, groups whose members are similar, have been found to reach conclusions faster than heterogeneous groups (Carley 1991). Second, balance theory suggests that those who are similar will interact more. For instance, Heider (1953) posits that if one person is similar to another, s/he will seek out contact with that other. Carley (1991) reports

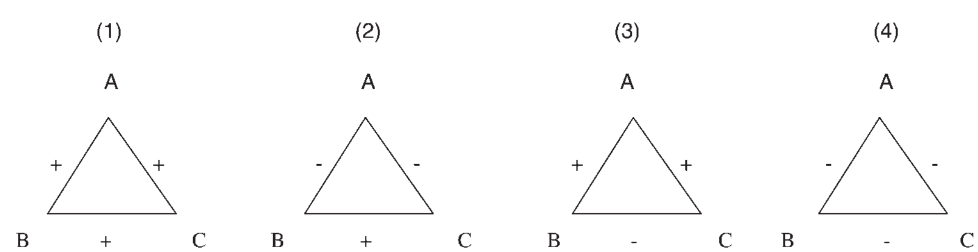

Figure 1: All Possible Balanced and Unbalanced Triads
Notes: [a] "+" indicates similarity; "-"indicates dissimilarity
[b] Triads (1) and (2) are balanced; Triads (3) and (4) are unbalanced

that the stronger the tie of similarity, the more likely two people are to interact.

Research on homophily also examines the impact of similarity on communication. The homophily perspective argues that similarity produces other types of connections between people (Lazarsfeld and Merton 1954; McPherson, Smith-Lovin, and Cook 2001), and psychological characteristics, such as personality, are one basis of homophily (Richardson 1940). One of the connections produced by personality similarity is increased communication, or, transfer of information. Supporting research shows that people are more likely to interact with similar others (Lazarsfeld and Merton 1954; Rogers and Kincaid 1981; Sorenson and Stuart 2001), and people who are more similar to one another interact with greater frequency (Van den Bulte and Moenaert 1998).

Because of balancing processes and homophily, groups whose members are more similar will be more likely to agree with each other. If they more readily agree, they will reach consensus and complete a task more quickly than groups whose members are more dissimilar. This is summarized in the following hypothesis:

> *Hypothesis 4:* If a group contains more similar people, then the group will reach consensus on a task solution more quickly, compared to groups with fewer similar people.

It is important to note here that both Hypothesis 2 and 4 imply that (1) a triad with three positive ties will complete a task as or more quickly than any other type of triad and (2) a triad with three negative ties will complete the task as or more slowly than any other type of triad. Hypothesis 4 differs from Hypothesis 2 in the implied ordering of the remaining two types: a triad with two negative ties (and one positive) and a triad with two positive ties (and one negative). Hypothesis 2 suggests that the triad with two negative ties, which is balanced, will complete the task more quickly than the unbalanced triad with two positive ties. Hypothesis 4, on the other hand, predicts the opposite—the triad with more positive ties will complete the task more quickly.

With more equal participation in task-related discussion, the amount and diversity of information the group will have to work with increases. On some tasks that require innovation and creativity, more voluminous and diverse information will lead to a better solution. For tasks in which more equal participation will yield better solutions on the task, groups with more similar members will produce better task solutions. These arguments suggest the following hypothesis:

> *Hypothesis 5:* If a group contains more dyads of similar people, then the group will produce a better quality task solution, compared to groups with fewer similar dyads.

Although balance theory and theories of group development do not include scope conditions, the five hypotheses I presented here were developed under the assumption that three scope conditions are satisfied: (1) groups are task-oriented, (2) groups are collectively oriented, and (3) the nature of the task is such that more interaction generally results in better performance.[3] Differently stated, these theoretical statements apply when group members are solving a problem to which they believe there is a correct solution, when group members are paying attention to each other's contributions, and when increased interaction among group members will improve the likelihood of finding the correct solution. There is nothing inherent in balance theory to necessitate the first and third conditions, as they are task-related and the theory is not specific to task groups. The theory's focus on ties between individuals, however, does suggest a collective orientation when applied to the context of task groups. Were task group members to ignore the contributions of one or more partners, the ties around which the above hypotheses are built would be inconsequential. In the absence of a shared goal on which collaboration is requisite for success, the group development literature would be inapplicable, as it theorizes mainly about task groups. Research on similarity concludes that

[3] The first and second scope conditions are identical to those for status characteristics theory (see Berger et al. 1977) and other theories in the expectation states theoretical research program.

people who are similar to one another will interact more, so it follows that the task should be one on which increased interaction facilitates a successful outcome.

METHOD

Design

I used an independent groups experimental design. I randomly assigned triads to four conditions, which mirror the four triads depicted in Figure 1. In condition one, all three people are similar; in condition two , two people are similar, and they are both dissimilar to the third; in condition three, one person is similar to two others who are dissimilar; and in condition four, all three people are dissimilar. In Figure 1, groups 1 and 2 are balanced, and groups 3 and 4 are unbalanced.

The arguments I developed above suggest five hypotheses, one predicting the amount of time groups spend in the orienting phase of development, two predicting the amount of time to task completion, and two predicting task performance. These hypotheses are summarized in Table 1. Balance theory, when combined with claims about group development processes, predicts that the balanced groups will establish norms of interaction (Hypothesis 1) and complete the task (Hypothesis 2) more quickly than unbalanced groups, whereas literature on similarity and homophily predicts that groups with more similar ties will finish more quickly than groups with fewer similar ties (Hypothesis 4). Two hypotheses emerge regarding groups' scores on the task. Balance theory predicts that balanced groups will score higher than unbalanced groups (Hypothesis 3), and homophily predicts that groups with more rather than fewer similar ties will perform better (Hypothesis 5).

Participants

Participants in the experiment were 180 male students at a large university, recruited from undergraduate classes.[4] All students were promised pay for participation during the recruitment process. Most students at this university are age 18–22, and most are white, though I do not have any demographic statistics about the men in this particular sample. These 180 men formed 60 triads that completed the study as a group. Assignment of participants to experimental conditions was randomized.

Task

The task the group members solved was the Lost on the Moon task, adapted from an exercise developed by NASA (Hall and Watson 1970).[5] I chose this particular task because it has a correct answer that, in its entirety, is unknown to most participants and more discussion of the task (i.e., more interaction) increases the likelihood of reaching the correct solution. It is also an inherently interesting task, which gives groups more fodder for discussion than a less engaging task. The existence of an objective, correct answer allowed for clear and easy evaluation of the groups' task solutions. The task asks participants to imagine that they are members of a spaceship crew that has crash-landed on the moon. The crewmembers have salvaged 15 items from the wreckage, but they cannot take all 15 items along on their trek to the mother ship located 200 miles across the terrain of the moon; the crewmembers must rank the items in order of importance to their survival.

Independent Variables

The independent variables were the balance of the group (balanced or unbalanced) and the amount of similarity in the group. I manipulated perceived similarity by administering an abridged version of the short Eysenck personality questionnaire (Eysenck, Eysenck, and Barrett 1985) and giving respondents a false report of their results. The report included false information on all group members' scores and the group's similarity structure (depicted graphically in a

[4] So as not to introduce any gender effects that may arise in mixed-sex groups, I chose to invite participants of one sex only. I chose men simply because more men were available to participate in the study.

[5] See Shelly and Troyer (2001) for an example of a recent study that employed the NASA Lost on the Moon task.

Table 1: Hypotheses and Predicted Orderings

Hypothesis	Effect	Predicted Order
1	Effect of Balance on Time to Orientation	1 = 2 < 3 = 4
2	Effect of Balance on Time to Completion	1 = 2 < 3 = 4
3	Effect of Balance on Score	3 = 4 < 1 = 2
4	Effect of Similarity on Time to Completion	1 < 3 < 2 < 4
5	Effect of Similarity on Score	4 < 2 < 3 < 1

manner similar to Figure 1). Thus, each participant had full information on his similarity to each of his partners, as well as knowledge of the partners' similarity to one another.

I coded groups according to the number of similar dyads in each condition to create the similarity variable. Thus, groups in condition one received a value of three for similarity, condition two received a value of one, condition three received a value of two, and condition four received a value of zero. Groups in conditions one and two, the balanced groups, received a value of one on a dummy variable for balance. Groups in conditions three and four, the unbalanced groups, received a value of zero.

I checked the success of the similarity inducement by using participants' self-reported similarity to their partners. The post-task survey asked participants to rate how similar they felt they were to each of their fellow group members using a scale from 0 (not at all similar) to 100 (completely similar). To calculate the perceived similarity between any two participants, I took the rating each person gave with reference to the other and averaged them. I then performed a t-test, comparing the similarity scores of those pairs that I expected to be similar to the scores of those pairs I expected to be dissimilar.

Further, I included in the post-task questionnaire items regarding the first two scope conditions of the theory. These conditions were, first, that groups are task-oriented, and second, that groups are collectively oriented. The questionnaire asked participants how important it was to them to do well on the task (task orientation) and how important it was to them to work together with their fellow group members (collective orientation). For both scales, participants gave a rating from 0 (not at all important) to 100 (extremely important).

Dependent Variables

The dependent variables were (1) the amount of time the group spends in the orienting phase, (2) the amount of time it takes the group to reach a solution to the problem-solving task, and (3) the accuracy of the group's solution to the task.

Time for orientation was the amount of time that passed from when the first group member spoke to when the group made a decision on the rank-order placement of any one item (timing ceased at the moment the decisive statement commenced).

I measured the amount of time to task completion in minutes from the moment the first group member spoke until the moment the group placed the decision form into the "completed" box. I calculated the accuracy of the groups' solutions by subtracting their numerical ranking of each item from the ranking presented in NASA's solution and then summing these deviations. To facilitate interpretability, I then subtracted this number from 161 (the largest possible sum). The result was a continuous accuracy scale, with a higher score indicating a higher level of accuracy and a lower score indicating a lower level of accuracy.

Control Variable

Because random assignment in experimental design controls for prior omitted variables, there is little need for control variables. One element that varied across groups, however, was the sex of the experimenter. Fifty-two groups had a female experimenter, whereas 18 groups had a male experimenter. I included a dummy variable coded "1" for groups run by the male experimenter and "0" for the remaining groups.[6]

RESULTS

Internal Analyses

I began my analyses by assessing whether groups met the scope conditions of the theory. I chose 25 (which approximates "somewhat important") as the point at which scores would indicate a sufficiently positive response. Scores on the task orientation question ranged from 36.33 to 96.00 with a mean of 63.17 (SD = 12.60). Participants' scores on the collective orientation question varied from 48.33 to 93.67 with a mean of 75.84 (SD = 11.85). These scores are sufficiently high to conclude that participants in all groups were adequately task-oriented and collectively oriented.

I also conducted an internal analysis of perceived similarity. For dyads intended by the inducement to be similar, the average perceived similarity was 60.76, indicating that these participants believed themselves to be somewhat similar. For dyads intended to be dissimilar, the average perceived similarity was 52.40, demonstrating that participants here were fairly ambivalent about their similarity. The difference in the means is significant at the .001 level.

Analysis of Variance

Table 2 gives means and standard deviations for various groupings on the three endogenous variables. For all analyses, I used one-tailed significance tests, as all differences hypothesized were in a specified direction. To address Hypotheses 1, 2, and 3, the balance hypotheses, I performed three separate t-tests. First, I compared the mean time to orientation (in seconds) for balanced groups (m = 27.13, sd = 29.90) to the mean for unbalanced groups (m = 67.30, sd = 154.79). This difference was marginally significant (t = –1.40; $p < .10$), with balanced groups beginning productive task work earlier than unbalanced groups.[7]

Second, the t-test for the difference between balanced and unbalanced groups in time to task completion was significant at the .05 level (t = –1.76). Balanced groups (m = 6.10, sd = 3.09) solved the task in significantly less time than unbalanced groups (m = 7.78, sd = 4.21). Third, balanced groups (m = 126.80; sd = 9.61) and unbalanced groups (m = 124.90; sd = 8.77) performed similarly well on the task (t = .810; p = .427).

Hypotheses 4 and 5 dealt with the effects of similarity on task completion time and score. Because each prediction projects a rank ordering of the four conditions along the dependent measure, I used Spearman's rho to obtain nonparametric rank-order correlation coefficients. Results did not align with the predicted ordering of conditions along either time to task completion (r_s = –.129, p = .325) or task score (r_s = .169, p = .196).

Efficiency in completing a task is a factor of both how quickly and how well the task is performed. The mean scores and mean task completion times for balanced and unbalanced groups suggest that balanced groups may be more efficient than unbalanced groups.[8] I decided post hoc to create a single variable indicating each group's efficiency. Because less time is associated with more efficiency, I subtracted each group's time to task completion from 21.08, the largest amount of time in the sample, to put both time and score on continuums where a higher number indicates greater association with efficiency. I then multiplied this inverted measure of time by the group's score to yield a measure of efficiency. A t-test comparing the efficiency of balanced and unbalanced groups demonstrated that balanced groups (m = 1,896, sd = 410), compared

[6] There were two reasons I included this variable in the analysis. First, all group members were men, and men may have behaved differently depending on whether they were instructed by a man or a woman. Second, twelve of the eighteen groups with the male experimenter were unbalanced, creating a correlation between balance and the dummy variable for male experimenter.

[7] Whereas 59 of the 60 groups fell within a range of four to 176 seconds for orientation, one group produced a time of 863 seconds. To test whether this outlier impacted the significance test, I conducted the t-test once more, excluding this group from the analysis. The change did not yield any difference in the conclusion drawn from the significance test.

[8] Although the difference in mean scores was not significant, the difference was in the hypothesized direction.

Table 2. Means and Standard Deviations (in parentheses) of Time to Orientation, Time to Task Completion, and Score on Task for Groups According to Balance and Similarity.

Grouping	N	Time to Orientation[a]	Time to Completion[b]	Score on Task[c]
Total Sample	60	47.21 (112.37)	6.94 (3.76)	125.85 (9.17)
Balanced Groups	30	27.13 (29.90)	6.10 (3.09)	126.80 (9.61)
Unbalanced Groups	30	67.30 (154.79)	7.78 (4.21)	124.90 (8.77)
Similarity = 0	15	87.40 (216.03)	8.17 (4.68)	124.73 (8.17)
Similarity = 1	15	34.13 (39.70)	6.27 (2.90)	124.47 (7.47)
Similarity = 2	15	47.20 (45.77)	7.38 (3.81)	125.07 (9.62)
Similarity = 3	15	20.13 (13.07)	5.92 (3.35)	129.13 (11.12)

Notes: [a] Measured in seconds; [b] Measured in minutes; [c] Score ranging from 0 to 161

to unbalanced groups (m = 1,657. sd = 526), were significantly more efficient ($p < .05$).

DISCUSSION

The results of the experiment provide support for Hypotheses 1 and 2. Balanced groups completed the task in less time than unbalanced groups, and this difference is mediated by a quicker time to orientation in balanced groups. In addition to the statistical significance of these effects, the difference between the mean times to orientation and task completion for balanced and unbalanced groups is substantively large. On average, balanced groups organize their interaction in about one-third of the time of unbalanced groups, and complete the task in about three-quarters of the time. Balance does not significantly predict groups' scores on the task, and Hypothesis 3 is thus not supported. The data provide no support for Hypothesis 4; similarity does not reduce the amount of time groups spend establishing interactional norms and completing the task. Similarity did, however, have a marginal, positive impact on score, providing some support for Hypothesis 5.

Groups with more similar dyads performed slightly better on the task than groups with fewer such ties. The strongest findings were, first, that balanced groups came to an equally good task solution in less time, and this effect took precedence over the similar or dissimilar character of dyadic ties in the group and, second, that balanced groups were more efficient than unbalanced groups.

The results of this study tell an interesting story about group development and the role of group member similarity in the process. Balanced groups progressed through the preliminary developmental stages more quickly than other groups. This suggests that they were better able to organize and establish norms of interaction in a timely manner, and were therefore able to begin productive task work earlier and complete the task more rapidly. The theoretical extension of balance theory appears to be accurate in its predictions for task-completion time. Groups with a greater degree of similarity, however, did not necessarily develop more quickly. Counterintuitive though it is, the proclivity of friends to agree with one another did not speed the process of development or deflate the duration of groups' task work.

Results from this study could be applicable to those in organizational settings who oversee or participate in workgroups or teams. In order to have the most efficient workgroup, it may not be necessary for everyone in the group to be similar to all other group members. Group leaders may do just as well observing the pattern of similarity relations in the group and working to bring it into consonance. This could be a far less daunting task, especially in larger groups, than trying to get all group members on a friendly basis. The same benefits extrapolate to any situation in which people are working together to accomplish a task, such as academic departments, students working on a group project, and administrative groups.

Limitations

The small sample size, and lower statistical power, in the study may have contributed to the non-significance in some statistical analyses. More specifically, when testing Hypotheses 4 and 5, the four conditions are separated for the purpose of rank ordering, and the data are thus split into four "cells." This yields lower power compared to the tests of Hypotheses 1, 2, and 3, when the four conditions are aggregated into two comparison groups. In addition, groups in this study met only once for a period lasting approximately 40 minutes. It may be that in groups meeting numerous times over a longer period, changes in the similarity structure of the group would take place to regain a balanced state, and the unbalanced groups as they existed in this study would be fleeting. Finally, although the vast majority of the population from which I drew the sample is white and between the ages of 18 and 22, I have no information on which groups included non-white participants or participants outside that age range. Because of the small sample size and despite random assignment, this may have affected participants' perceived similarity or their liking for other group members.

CONCLUSION

Despite these limitations, this study is a step forward for structural balance theory, demonstrating the contemporary utility of a theory that has been relatively fallow of late. The theory is general and is centered on a fundamental, social process that permeates all forms and aspects of interaction, namely, the motivation to seek consistency—consistency both within relationships to individual others and within a system of ties to a group. The versatility of the theory has been underutilized, and this study exploits its broad applicability. Balance theory here proves its continued utility as a theoretical tool in social psychological research when integrated with other theoretical and empirical work on group processes. More broadly, the results bolster the truly sociological claim that understanding group-level characteristics, rather than only individual-level characteristics, is a necessary component of understanding group processes. That structural balance was a better predictor of task-group efficiency than similarity between individuals provides an important insight into group development and performance that would not be readily apparent in individual-level studies.

REFERENCES

Aronson, Elliot and Vernon Cope. 1968. "My Enemy's Enemy is My Friend." *Journal of Personality and Social Psychology* 8:8–12.

Berger, Joseph M., Hamit Fisek, Robert Norman, and Morris Zelditch. 1977. *Status Characteristics and Social Interaction: An Expectation States Approach.* New York: Elsevier.

Carley, Kathleen. 1991. "A Theory of Group Stability." *American Sociological Review* 56:331–354.

Cartwright, Dorwin and Frank Harary. 1956. "Structural Balance: A Generalization of Heider's Theory." *Psychological Review* 63: 277–293.

Chidambaram, Laku and Robert Bostrom. 1996. "Group Development (I): A Review and Synthesis of Development Models." *Group Decision and Negotiation* 6:159–187.

Davis, James. 1963. "Structural Balance, Mechanical Solidarity, and Interpersonal Relations." *American Journal of Sociology* 68:444–462.

Doreian, Patrick and David Krackhardt. 2001. "Pre-transitive Balance Mechanisms for Signed Networks." *Journal of Mathematical Sociology* 25(1):43–67.

Eysenck, S. B. G., H. J. Eysenck, and Paul Barrett. 1985. "A Revised Version of the Psychoticism Scale." *Personality and Individual Differences* 6(1):21–29.

Gersick, Connie J. G. 1988. "Time and Transition in Work Teams: Toward a New Mode of Group Development." *Academy of Management Journal* 31(1):9–41.

Gladstein, Deborah L. 1984. "Groups in Context: A Model of Task Group Effectiveness." *Administrative Science Quarterly* 29: 499–517.

Hall, Jay and W.H. Watson. 1970. "The Effects of Normative Intervention on Group Decision-Making Performance." *Human Relations* 23:299–317.

Heider, Fritz. 1946. "Attitudes and Cognitive Organization." *Journal of Psychology* 21:107–112.

———. 1953. "Sentiment." Pp. 174–217 in *The Psychology of Interpersonal Relations.* New York: Wiley.

Ibarra, Herminia. 1992. "Homophily and Differential Returns: Sex Differences in Network Structure and Access in an Advertising Firm." *Administrative Science Quarterly* 37:422–447.

Ibarra, Herminia. 1995. "Race, Opportunity and Diversity of Social Circles in Managerial Networks." *Academy of Management Review* 38:673–703.

Knoke, David. 1990. *Political Networks: The Structural Perspective.* New York: Cambridge University Press.

Laumann, Edward O. and Franz Urban Pappi. 1973. "New Directions in the Study of Community Elites." *American Sociological Review* 38(2):212–230.

Lazarsfeld, Paul F. and Robert K. Merton. 1954. "Friendship as a Social Process: A Substantive and Methodological Analysis." Pp. 18–66 in *Freedom and Control in Modern Society,* edited by M. Berger. New York: Van Nostrand.

Marsden, Peter V. 1987. "Core Discussion Networks of Americans." *American Sociological Review* 52:122–313.

McGrath, Joseph. 1984. *Groups: Interaction and Performance.* Englewood Cliffs, NJ: Prentice-Hall.

McPherson, Miller, Lynn Smith-Lovin, and James M. Cook. 2001. "Birds of a Feather." *Annual Review of Sociology* 27:415–444.

Opp, Karl-Dieter. 1984. "Balance Theory: Progress and Stagnation of a Social Psychological Theory." *Philosophy of Social Science* 14:27–49.

Priest, Robert F. and Jack Sawyer. 1967. "Proximity and Peership: Bases of Balance in Interpersonal Attraction." *American Journal of Sociology* 72:633–649.

Richardson, Helen M. 1940. "Community of Values as a Factor in Friendships in College and Adult Women." *Journal of Social Psychology* 11:303–312.

Rogers, Everett M. and D. Lawrence Kincaid. 1987. *Communication Networks.* New York: Free Press.

Shelly, Robert K. and Lisa Troyer. 2001. "Emergence and Completion of Structure in Initially Undefined and Partially Defined Groups." *Social Psychology Quarterly* 64(4):318–332.

Sorenson, Olav and Toby E. Stuart. 2001. "Syndication Networks and the Spatial Distribution of Venture Capital Investments." *American Journal of Sociology* 106(6):1546–1588.

Sundstrom, Eric and Associates. 1999. *Supporting Work Team Effectiveness.* San Francisco: Jossey-Bass.

Theodorson, George A. 1953. "Elements in Progressive Development of Small Groups." *Social Forces* 31(4): 311–320.

Tuckman, Bruce W. 1965. "Developmental Sequence in Small Groups." *Psychological Bulletin* 63(6): 384–399.

Van den Bulte, Christophe and Rudy K. Moenaert. 1998. "The Effects of R&D Team Co-Location on Communication Patterns among R&D, Marketing, and Manufacturing." *Management Science* 44(11):S1–S18.

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