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The Impact of Normative Social Influence on Group Homogeneity in Media Preferences and Group Meeting Outcomes

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GROUP COHESION, SIMILARITY OF MEDIA PREFERENCE AND GROUP PERFORMANCE¹

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Abstract

This paper empirically investigates the impact of normative social influence on group homogeneity in media preferences and group meeting outcomes in a setting where 58 student groups voluntarily used various communication media over a three-month software development project period. Group homogeneity in media preferences was argued to mediate the impact of normative social influence on group meeting outcomes. The overall results suggest that conformity to group norms is positively associated with increased group homogeneity in media preferences, which in turn is positively associated with increased group meeting outcomes. The paper concludes with a discussion of the importance and implications of understanding normative social influence on technology use and meeting outcomes.

Keywords: media choice, social aspect of IS, human computer interaction, normative social influence, group homogeneity in media preferences, group meeting outcomes

¹ The comprehensive research model and a pilot study paper were accepted by HICSS2006 and ConF-IRM2008

1 INTRODUCTION

Grounded in the belief that social interaction in the workplace shapes the creation of shared meanings and that these shared meanings provide an important basis for shared patterns of media selection, Fulk and her colleagues (1987; 1990) developed “The Social Influence Model of Technology Use” to explain the accumulating body of anomalous findings in media richness theory, especially for new communication media. The model focuses on the role of social information to explain media choice. It posits that social forces such as workgroup norms and co-workers’ and supervisors’ attitudes and behavior will influence individual perceptions and choices of new media. The net effect is to produce “a similar pattern of media attitude and use behavior within groups, even across tasks with different communication requirements,” and “different patterns of media usage across groups” (Fulk et al. 1987, p542-543).

While the social influence model of technology use has found empirical support with perceptions and use of email being influenced by variables such as co-workers’ perceptions of and use of the medium (Fulk 1993; Webster & Trevino 1995), there are some issues arising from the model.

Firstly, few of the empirical studies that tested the social influence model of technology use have explicitly examined the similarity of media choice within groups. Little is known about how such patterns develop within groups. According to social information processing theory, there are actually two different mechanisms, informational social influence and normative social influence, accounting for the effects of context or the environment on individual behavior (Moscovici 1976; Pfeffer 1982). This distinction is important since previous investigations of the social influence on media choice have concentrated almost exclusively on informational social influence and ignored the impacts of normative social influence. Fulk (1993), and Yoo and Alavi (2001) argue that the members’ attraction to the group, called group cohesion, influences workgroup technology attitudes, social presence, task participation, and group consensus. But this premise, as articulated in relation to normative social influence, has not been discussed explicitly, especially as a mechanism to promote similar media choice behavior within groups. This creates a void in the literature. There is, therefore, a need to examine how normative social influence plays a role on communication media choice behavior.

Secondly, although numerous studies have examined the social influence model in a mediated communication system, most of them stop when media choices are made (Fulk & Boyd 1991). What are the effects of media choice? What is the consequence of group homogeneity in media choice to organizational performance? In terms of the social influence model of technology use, nothing is known about the effect of the group homogeneity in media choice behavior on group meeting outcomes. Computer-Mediated Communications (CMCs) have played a distinctly social, interpersonal role in organizations. Numerous theories and frameworks have been introduced to describe how CMC improves various aspects of group meeting outcomes (e.g., Baltes et al. 2002; Yoo & Alavi 2001). Thus, taking a step forward, this paper aims to examine how the impact of normative social influence on media choice patterns affects group meeting outcomes.

Our research addresses two criticisms of extant small group research. First, it has been argued that the use of ad hoc groups created specifically for laboratory experiments—common in much group research—can bias research findings with respect to the relationship of system use and outcomes. This suggests that the use of established groups faced with familiar tasks would be critical in obtaining results that may generalize to typical work settings. Second, most research on the effects of CMC use has been performed in controlled settings, and many use the method of comparing results when groups meet with and without the technology. This feature has deviated from actual work conditions, where information technology is used as a supplement to, rather than a substitute for, other modes of interaction. Straus (1997) found that interacting by CMC alone is inappropriate for both the instrumental and expressive functions of small groups, particularly when performing tasks that require consensus.

This study goes beyond prior research by incorporating all of these concerns into its research design - using established groups facing meaningful tasks, communicating via all media available within groups, and collecting data at the end of a three-month software development group project. The next section illustrates our research framework. Then we discuss relevant theoretical perspectives and lay out our research hypotheses. This is followed by a brief description of the research methods. Next, the data analysis results are reported. Finally, the paper concludes with a discussion that focuses on interpreting the results and on examining the theoretical and practical implications of the study.

2 RESEARCH FRAMEWORK

Figure 1 depicts our research model. It suggests that, as the group members interact with each other, they will develop perceptions about the medium with which they are working. Such interaction will also influence the way group members communicate with each other. Ultimately, such interaction processes will have an impact on group meeting outcomes.

There are two theoretical perspectives relevant to the above framework. The first one focuses on the social influence process on individuals' media preference behaviors. The second one extends the social impact of group norms on individual behavior to group meeting outcomes. The discussion below develops these perspectives further.

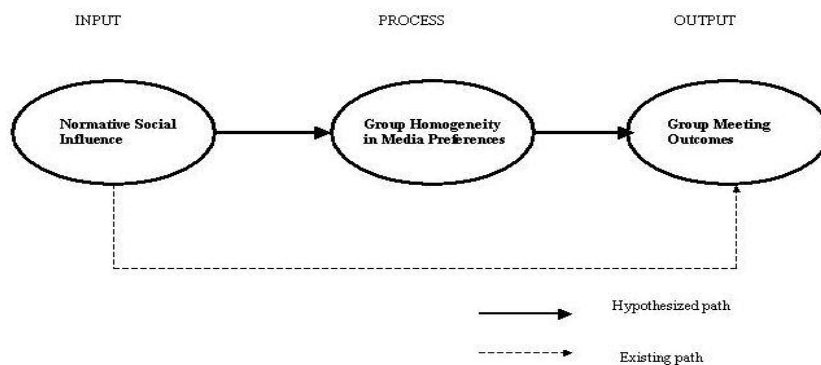


Figure 1 Research Model

3 THEORETICAL FOUNDATION AND HYPOTHESES DEVELOPMENT

3.1 Normative social influence and group homogeneity in media preferences

Deutsch and Gerard (1955) offer the following definition of normative and informational social influence:

We shall define a normative social influence as an influence to conform with the positive expectations of another. An informational social influence may be defined as an influence to accept information obtained from another as evidence of reality (p.303).

The former effect proceeds from a mechanism of social exchange, in which behavior complies with group norms and role expectations with the acceptance of members. The latter effect posits a mechanism of informational influence through uncertainty reduction, in which ambiguity is resolved through reliance on shared judgment and perceptions of salient others. It should be clear that these

effects are not mutually exclusive and that both can, and do, operate in the same situations with different processes (O'Reilly III & Caldwell 1985; Pfeffer 1982).

As Deutsch and Gerard (1955) noted, conceptually one can distinguish between normative and informational social influence. The former is based on the pressure or sanctions applied by group members to produce conformity in terms of attitude and behavior. By conformity, it means the change in behavior or beliefs toward a group as a result of real or imaged group pressure. By group, it is typically constituted through more dense communication within the group than across its boundaries, and a similarity in orientation that distinguishes the group from other social actors in its environment (Pfeffer 1982). An individual complies with group norms, and in turn, he or she achieves membership and the social support that such membership affords, as well as goal attainment that can occur only through group actions or group membership. It can be strengthened by cohesion which serves to attract group members. The evidence for the impact of normative social influence on individual attitudes and behavior is substantial, ranging from the early study of Festinger, Gerard and Hyman (1952) and Kaplan and Miller (1987) to more recent empirical tests in CMC systems (Lee & Nass 2002; Postmes et al. 2000).

Because normative social influence will affect individual beliefs about the nature of jobs and work, about what attitudes are appropriate, and indeed, about how people ought to behave (Pfeffer 1982), we would expect that media choice behavior would be constrained by each individual's existing socially-constructed "how to's" for interaction with other individuals in the group. Within workgroups, there may emerge a consensus about what are the important features of the work environment regarding media choice; in this manner, group members may act to make salient certain aspects of media choice and downplay others (O'Reilly III & Caldwell 1985). This may lead to media being preferred similarly within groups. In other words, conformity to group norms may lead to group homogeneity in media preferences within groups.

Normative social influence refers to the pressure on individuals to conform to group norms that are implicit or explicit in the choice preference of group members. One index of this conformity pressure may be group cohesion (O'Reilly III & Caldwell 1985). Group cohesion is defined as "members' attraction to the group" (Hogg 1992, p.30). It is generally associated with normative pressure to conform, and hence with a drive for consensus and unanimity that implies intolerance toward dissent and intellectual independence of group members (Deutsch & Gerard 1955). It is often described as resultant forces that are acting on the members to stay in a group (Festinger 1950). In Social Information Processing terms (Salancik & Pfeffer 1978), this pressure for conformity may reduce the variance in members' views and result in greater consistency of attitudes and behaviors. Hence, group cohesion is used as the manifest of normative social influence.

Researchers have frequently considered group cohesion to be an important component of group process and performance (Gully et al. 1995). Festinger et al (1952) found that highly cohesive groups exerted more pressure on members towards compliance with group norms than did less cohesive groups. Yoo and Alvai (2001) found that group cohesion has a significantly greater influence on social presence and task participation than media condition. We argue that the desirability to maintain their membership in the group calls attention to the potential willingness of the individual to respond to group communication norms, which would lead to similar media preferences within groups. Such similarity can be strengthened by cohesion that serves to attract group members. Accordingly,

Hypothesis 1: A higher level of group cohesion will be positively associated with increased group homogeneity in media preferences.

3.2 Group homogeneity in media preferences and group meeting outcomes

Fulk and Boyd (1991) argue that the study of the consequence of media choice could have an additional benefit of helping to answer the question of why study media choice. This paper goes

beyond the prior studies and examines the impact of group homogeneity in media preferences on group meeting outcomes.

Groups exert pressure on individuals to conform to central attitudes and behaviors with norms acting as a mechanism to produce a homogeneity of values (Santee & Jackson 1977). The higher the pressure for conformity, the greater the consistency of attitudes and behaviors, and the higher the satisfaction with job outcomes (O'Reilly III & Caldwell 1985). Postmes and Lea (2000) demonstrated that conformity pressure found in groups is a mechanisms that, in most situations, regulates group interactions productively and which facilitates group performance. Based on Festinger's social comparison theory (1954), Paulus and Dzindolet (1993) found that group members tend to compare with others to reduce uncertainty about their abilities and opinions. They were motivated to match their performance with that of others and such matching process stimulated groups to reach fairly high levels of performance.

Consensus forms the basis of normative regulation of behavior and thereby sets the standard of, and expectations for, group members' behavior (Postmes & Lea 2000). Thus, it seems reasonable to expect that groups that emerge with highly homogeneous media preferences behavior will be more productive than groups with less homogeneous media preference behavior. Accordingly,

H2: Greater group homogeneity in media preferences will be positively associated with increased group meeting outcomes.

Numerous studies in various disciplines have demonstrated the direct relationship between group cohesion and group meeting outcomes (Mullen & Copper 1994). The substantial evidences are provided in CMC group research (e.g., Easley et al. 2003; Hoegl & Gemuenden 2001; Reinig & Shin 2002; Yoo & Alavi 2001). However, these studies have never tested the possible mediating role of group homogeneity in media preferences. Thus, further research is warranted to determine whether this relationship is direct, mediated, or partially direct and partially mediated. Accordingly, it is necessary to add a hypothesis asserting that the level of group cohesion has a direct effect on group meeting outcomes.

H3: A higher level of group cohesion will be positively associated with a higher level of group meeting outcomes.

4 RESEARCH METHOD

In order to address the design issues discussed earlier, our research setting involved a set of 58 established groups working on various meaningful information systems development projects with all available communication media over a three-month period.

4.1 Samples and data collection

The participants for the study were 288 undergraduate students drawn from two consecutive years of two Information Systems subjects. For each subject, students were administratively assigned to a team of five that remained fixed for the one-semester (three-month) duration of this study. Due to unavoidable early withdrawals and variations in attendance patterns, we finally had 233 participants allocated in fifty-eight usable groups, which varied in size from three to five members. Among the 233 participants, 73.8% were male, and over 93% of them aged 18-24. The average team working experience was 2.0 years.

During the course of each subject, all students worked as a group to perform a group project. Projects varied across the different semesters and subjects. However, all of the tasks can be classified as decision-making tasks, according to McGrath's well-established taxonomy of group task types (1984). Projects involved the development of a substantial database design plan; in some cases they required to conduct physical implementation. All the projects carried at least 30 per cent of students' overall

subject marks. At the beginning of the semester, all participants completed a pre-session questionnaire to capture their demographic variables and pre-session group cohesion. The second questionnaire was administered at the end of the semester (12 weeks after) to capture participants' opinions about group cohesion, media preferences and group meeting outcomes. The participants were instructed to respond to all survey items with respect to their fixed team for the semester.

4.2 Measures

The latent constructs used in this study were all measured using the individual member perceptions of the respective group activities. Data were then averaged across group members before testing group-level hypotheses. This aggregation was being justified by r_{wg} analyses (James et al. 1984) for latent variables described later.

We used items that had been validated in prior research. The constructs "group cohesion" and "group meeting outcomes" were measured with reflective items while the construct "group homogeneity in media preferences" was measured with formative items. For reflective items, all items were viewed as parallel measures capturing the same construct of interest (Chin 1998). In the case of formative measures, all item measures can be independent of one another since they are viewed as items that create the "emerging factor" (Chin 1998).

Measures of group cohesion were borrowed from Evans and Jarvis' (1986) Group Attitude Scale (GAS). Group meeting outcomes are a composite construct that include group decision quality (Gouran et al. 1978), decision process satisfaction, and decision satisfaction (Green & Taber 1980). All these measures were phrased as questions on a seven-point Likert scales, from 1 = strongly disagree to 7 = strongly agree.

Group homogeneity in media preferences was conceptualized as a formative construct measured by the following available media preference homogeneity within a group: face-to-face, telephone, email, Short Messaging Service (SMS), and Instant Messaging (IM). We firstly asked all respondents to specify their rankings of preferred media when they communicate with their group members and lecturers to accomplish each of the eight communication activities that were used to communicate with those people. These communication activities were originally developed by D'Ambra and Rice (1994) to capture daily organizational communication activities and have been used in previous media use and cross-cultural media studies (e.g., Guo & D'Ambra 2003; Rice et al. 1998) and have been rephrased to fit the university context. For each communication activity and for each medium, rankings were scaled as 1=chosen 5th, 2=chosen 4th, 3=chosen 3rd, 4=chosen 2nd, and 5=chosen 1st. We then calculated each individual's mean medium preference for each medium across eight communication activities. Next, following the procedures of Wagner, Pfeffer, and O'Reilly (1984), we used the Euclidean distance measure to measure an individual's similarity of medium preference from the others in the group.

$$\left[\frac{\sum_{j=1}^n (S_i - S_j)^2}{n} \right]^{1/2}$$

Where S_i is the mean medium preference for individual i , and S_j represents the mean medium preference of the j th member in a group of size n . This measure is a network analogue for representing social similarity (Wagner et al. 1984), which directly reflects the absolute distance of each individual person from every other individual in a group. Based on this individual level measure of medium preference similarity, group homogeneity in medium preference was obtained by using the coefficient of variation based on individual distance measures (standard deviation divided by the mean) (Wagner et al. 1984). A higher score indicates that group is less homogeneous in terms of that particular medium preference. We calculated this group-level measure for each of the five available media.

4.3 Control variables

Group size, project type, and pre-session group cohesion were added as control variables in our model. Group size for this project is from three to five. Gopal, Bostrom and Chin (1993) suggested that previous group cohesion should be considered in the model due to the potential effect of learning and previous results on group outcomes

4.4 Data analysis

The analysis of the data was done in a holistic manner using partial least squares (PLS). PLS has its capacity to estimate simultaneously both the structural component and the measurement component (Gefen et al. 2000). Compared with other structural equation models, PLS does not require a large sample size. Furthermore, PLS is more suitable when the objective is causal predictive testing, rather than testing an entire theory (Chin 1998). Another distinctive feature of PLS is that it allows links between the measurement model and the latent constructs to be considered either reflective or formative (Chin & Gopal 1995). Given that the model presented in this study has not been tested before and considering the difficulty of recruiting the large sample size, as well as the formative nature of some of the measures used in this model, we used PLS-graph version 3.0 to analyze our model.

5 RESULTS

5.1 Step one: within-group agreement

We conducted our analyses at the group level. In order to ensure that our participants' perceptions about group could indeed be aggregated at the group level, inter-rater agreement was assessed using the multiple-item estimator for within-group interrater reliability r_{wg} , as proposed by James, Demaree and Wolf (1984). In this study, the r_{wg} formula was applied to group cohesion and group meeting outcomes measures depicted in the model. 95 per cent, 98 per cent, 90 per cent, 95 per cent, and 98 per cent of the groups had r_{wg} greater than the suggested value of .70 (Fuller et al. 2006) for pre-session group cohesion, post-cohesion, post-meeting process satisfaction, post-meeting outcome quality, and post-meeting outcome satisfaction. The respective mean r_{wg} are presented in Table 1 for the applicable constructs (i.e. cohesion and group meeting outcomes). Based on these results, data were aggregated by calculating the arithmetic mean and used those scores in our analysis at the group level. Table 1 also provides descriptive statistics at the group level.

5.2 Step two: test of the measurement model at the group level

We followed a two-step procedure to analyze our model at the group level. First the measurement model was assessed and then the structural model was tested. We reported the result of measurement model test in this section.

PLS enables the assessment of measurement component by providing loadings and weights of indicators. In general, loadings are more suitable for examination of reflective indicators, while weights are appropriate for interpreting the effects of formative indicators. Apart from reflective constructs of group cohesion and group meeting outcomes, our model also included formative measure: group homogeneity in media preferences. So, we examined the measurement model as hypothesized for the model. Results show that the reflective measures in the model had adequate convergent and discriminant validity. Firstly, the factor loadings for all constructs with multiple-item measures exceed 0.7, the recommended parameter value (Chin 1998). Second, for all multiple-item measures, the composite scale reliability exceeds the recommended cutoff of 0.7. Third, no measurement item loaded more highly on a construct other than the construct it intends to measure. And fourth, the

square root of the average variance extracted exceeds the respective constructs' correlation with any other variable in the model.

		No. of Items	Mean	S.D	IR ^a	Composite Reliability	Weight	Correlation of Constructs (AVE ^b)				
								1.	2.	3.	4.	5.
1	pre-coh	7	5.27	0.57	0.92	0.93		0.81				
2	post-coh	7	5.66	0.57	0.94	0.95		0.20	0.85			
3	post-ops	4	5.44	0.54	0.88	0.94		0.03	0.57	0.90		
4	post-oq	4	5.43	0.55	0.89	0.93		0.06	0.61	0.85	0.88	
5	post-os	5	5.38	0.55	0.92	0.93		0.14	0.51	0.64	0.68	0.85
6	ftf-homo	1	0.66	0.38			0.15					
7	tel-homo	1	0.66	0.32			0.58**					
8	em-homo	1	0.67	0.34			0.36**					
9	sms-homo	1	0.51	0.30			0.03					
10	im-homo	1	0.47	0.28			0.11					

N=58; **: p<0.01

a: Average coefficient of interrater reliability

b: Correlation of constructs do not apply to constructs 6-10, and boldfaced elements on the diagonal represent the square root of the average variance extracted;

ftf-homo: post-session group homogeneity in face-to-face preference; tel-home: post-session group homogeneity in telephone preference; em-homo: post-session group homogeneity in email preference; sms-homo: post-session group homogeneity in SMS preference; im-homo: post-session group homogeneity in IM preference

Table 1 Number of Items, Means, Standard Deviations, Composite Reliability, Interrater Reliability, Correlation of Constructs, and AVE (Group Level)

For the formative measures, they are weighted according to their relative importance in forming the construct. The weights allow us to determine the extent to which each indicator contributed to the development of the construct (Sambamurthy & Chin 1994). Table 1 shows the weights for all formative indicators of group media preference homogeneity construct for the model. Among the formative indicators of group homogeneity in media preferences, data in Table 1 confirm that both group telephone preference homogeneity and email preference homogeneity were all influential factors in forming group homogeneity in media preferences in the model. However, the homogeneity of preferring face-to-face, SMS and IM contributed little to the group homogeneity in media preferences in the model.

5.3 Step three: test of the structural model at the group level

Having confirmed the psychometric properties of the scales in our model, the next step was to assess the explanatory power of the entire model on group homogeneity in media preference and meeting outcomes as well as the predictive power of the independent variable and mediating variable. The multiple R² values given for the endogenous constructs are used to assess the productiveness of the model. Paths in this model are interpreted as standardized regression weights. A bootstrapping procedure with replacement using 500 subsamples was used to estimate the statistical significance of the parameter estimates.

The results of the PLS analysis for the research model is shown in figure 2. Our results indicate that the structural model explains 55.4 percent of the variance, suggesting that there is a significant combined effect of all independent and mediating variables on the dependent variable in this operational model. Group cohesion exhibits a strong and significant effect on group homogeneity in media preferences ($\beta=-.877$, $t=34.206$), indicating that the higher the level of group cohesion, the more

homogeneous group media preferences are, supporting hypothesis 1. The relationship between group homogeneity in media preferences and group meeting outcomes is also significant at the .01 level ($\beta = -.735$, $t = 3.982$). This denotes that the more homogeneous group media preferences are, the higher the group meeting outcomes, supporting hypothesis 2. The relationship between the group cohesion and group meeting outcomes is negligible, leading to the rejection of hypothesis 3. As for the control variables, none of them exhibits significant impact on this model.

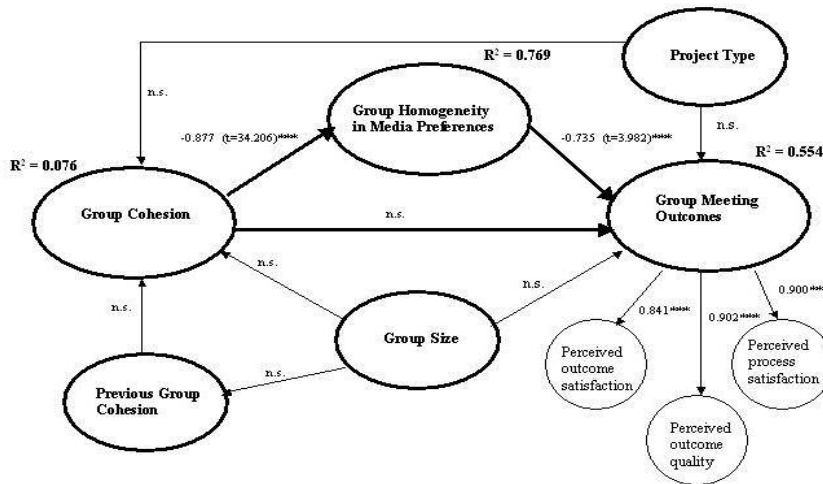


Figure 2: Structural Model

Using procedure recommended by Baron and Kenney (1986), we assessed whether the relationship between group cohesion and group meeting outcomes is direct, fully mediated by group homogeneity in media preferences, or partially direct and partially mediated. Evidence for partial mediation of group homogeneity in media preferences is present when the following conditions are met: a path from the independent variable (group cohesion in this study) to the dependent variable (group meeting outcomes in this study) and paths from the independent variable to the mediator (group homogeneity in media preferences in this study) and from the mediator to the dependent variable are all significant (Wold 1985). Full mediation is present when the path from the independent variable to dependent variable is not significant but the remaining paths are significant (Baron & Kenny 1986). The model here presented a full mediation with a non-significant path from the group cohesion to group meeting outcomes and the indirect effect of group cohesion on group meeting outcomes through group homogeneity in media preferences was 0.645 $\{(-0.877) \times (-0.735)\}$.

6 DISCUSSION AND IMPLICATIONS

With this research we extended and empirically validated the social influence model of technology use by linking group cohesion to group homogeneity in media preferences and group meeting outcomes. The results of the structural equation modeling analysis supported the general model of group meeting outcomes presented in Figure 1. The impact of normative social influence, as measured by group cohesion, was positively associated with group homogeneity in media preferences, and such homogeneity was in turn positively associated with group meeting outcomes. We also found that the group homogeneity in media preferences intervened between group cohesion and group meeting outcomes, ultimately leading to a fully mediation on the relationship of group cohesion and group meeting outcomes. These findings have a number of implications for both research and practice.

One theoretical contribution of this study is that it demonstrates that normative social influence plays an important role in group interaction and meeting outcomes. To our knowledge, this study was the

first test of this concept. We observed how groups interacted in a comprehensive research framework at the group level of analysis. We evaluated groups' interaction process and examined the impact of group interaction on group meeting outcomes. The positive relationship between group cohesion and group homogeneity in media preferences supported our hypothesis 1. Hypothesis 2, which explored the impact of group homogeneity in media preferences on group meeting outcomes, was also supported. The empirical results suggest that we can extend the social influence model of technology use by including normative social influence and its impact on group members' media preference similarity and group meeting outcomes, in an effort to better understand why some groups succeed to a greater extent than others.

Another significant contribution of this study is that it demonstrates that group-level similar media preferences within a group can play an important role in group interaction and success. Previous research has established that social influence within a group is associated with various group-level outcomes when information technology has been employed (e.g., Yoo & Alavi 2001), but relatively little was known about specific processes that accomplish this. The empirical results of this study document that the group homogeneity in media preferences mediated the relationship between group cohesion and group outcome perceptions. It demonstrates that the group homogeneity in media preferences may be a useful intervening mechanism that allows groups with certain group characteristic profiles to create good outcomes. It is not just the conformity to group norms that causes higher group meeting outcomes; rather, it is the fact that such conformity to group norms leads to helpful behaviors and processes that creates success.

By studying established groups operating in their natural setting, rather than ad hoc groups formed solely for experimental purposes, we were able to examine the relationship of groups themselves, such as group cohesion, with their media preferences and group meeting outcomes. The group cohesion measure would have little value or meaning for a temporary group, and our setting has permitted us not only to validate the measure, but also to empirically confirm its potential importance in the study of groups. Furthermore, the present study findings indicate that by applying group norms about media preference patterns, work groups may make a priori different interests between groups and individuals into consistent behavior, which in turn may affect group members' perceptions of the technology adoption and group meeting outcomes.

A limitation of this study is the use of student sample and its implications for the generalizability of the results. To minimize this limitation, we used students who engaged in naturally occurring projects and no constraints on the media they used to support their day-to-day collaboration with their group members. Although additional research certainly needs to be done in other organizational setting, we believe the generalization is less of an issue in this study. When people engage in a task that is meaningful to them, an accurate description of participants' judgments is more likely (Fredrickson & Mitchell 1984). This study was a longitudinal field study which provided a robust researching environment, where teams exist naturally and independent of the research project, where teams have a similar semester-long project, and no constraints for communication media. We also realize that this methodology does not control for extraneous variable, such as different courses, different semesters, and different team compositions. In order to enhance the confidence of the model's generalizability, further research should be conducted in both the laboratory and field to further verify the robustness of our findings (Fuller et al. 2006).

The use of teams is an increasingly prevalent phenomenon in organizations and information technologies designed to support team work is one way organizations attempt to improve the group effectiveness (Easley et al. 2003). Useful theories on technology-mediated group interaction process and group meeting outcomes can assist organizations to achieve better performance. Integrating the theory of normative social influence with group homogeneity in media preferences is a first step toward better understanding how groups can work more effectively. Future study should continue to explore the dynamic nature of group work in order to increase the variance explained in the model.

References

- Baltes, B. B., Dickson, M. W., Sherman, M. P., Bauer, C. C. and Laganke, J. S. (2002) Computer-mediated communication and group decision making: A meta-analysis. *Organizational Behavior and Human Decision Processes* 87 (1), 156-179.
- Baron, R. M. and Kenny, D. A. (1986) The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* 51 (6), 1173-1182.
- Chin, W. W. (1998) The partial least squares approach for structural equation modeling. In *Modern methods for business research* (Marcoulides, G. A., Ed), pp 295-336, Lawrence Erlbaum Associates, Hillsdale NJ.
- Chin, W. W. and Gopal, A. (1995) Adoption intention in gss: Importance of beliefs. *Database Advances* 26 (2&3), 42-64.
- D'ambra, J. and Rice, R. E. (1994) Multimethod approaches for the study of computer-mediated communication equivocality, and media selection. *IEEE Transactions on Professional Communication* 37 (4), 231-239.
- Deutsch, M. and Gerard, H. B. (1955) A study of normative and informative social influence upon individual judgment. *Journal of Abnormal and Social Psychology* 51, 629-636.
- Easley, R. E., Devaraj, S. and Crant, J. M. (2003) Relating collaborative technology use to teamwork quality and performance: An empirical analysis. *Journal of Management Information Systems* 9 (4), 247-268.
- Evans, N. J. and Jarvis, P. A. (1986) The group attitude scale: A measure of attraction to group. *Small Group Behavior* 17 (2), 203-216.
- Festinger, L. (1950) Informal social communication. *Psychological Review* 57, 271-282.
- Festinger, L. (1954) A theory of social comparison processes. *Human Relations* 7, 117-140.
- Festinger, L., Gerard, H. and Hyman, B. (1952) The influence processes in the presence of extreme deviants. *Human Relations* 5, 327-346.
- Fredrickson, J. W. and Mitchell, T. R. (1984) Strategic decision processes: Comprehensiveness and performance in an industry with an unstable environment. *Academy of Management Journal* 27 (2), 399-423.
- Fulk, J. (1993) Social construction of communication technology. *Academy of Management Journal* 36 (5), 921-950.
- Fulk, J. and Boyd, B. (1991) Emerging theories of communication in organizations. *Journal of Management* 17 (2), 407-446.
- Fulk, J., Schmitz, J. and Steinfield, C. W. (1990) A social influence model of technology use. In *Organizational and communication technology* (Fulk, J. and Steinfield, C., Eds), pp 117-142, Sage Publications, Newbury Park, CA.
- Fulk, J., Steinfield, C. W., Schmitz, J. and Power, J. G. (1987) A social information processing model of media use in organizations. *Communication Research* 14 (5), 529-552.
- Fuller, M. A., Hardin, A. M. and Davison, R. M. (2006) Efficacy in technology-mediated distributed teams. *Journal of Management Information Systems* 23 (3), 209-235.
- Gefen, D., Straub, D. W. and Boudreau, M. (2000) Structural equation modeling and regression: Guidelines for research practice. *Communication of the Association for Information Systems* 4 (7), 2-79.
- Gopal, A., Bostrom, R. P. and Chin, W. W. (1993) Applying adaptive structuration theory to investigate the process of group support systems use. *Journal of Management Information Systems* 9 (3), 45-69.
- Gouran, D. S., Brown, C. and Henry, D. R. (1978) Behavioral correlates of perceptions of quality in decision-making discussions. *Communication Monographs* 45 (1), 51-63.
- Green, S. G. and Taber, T. D. (1980) The effects of three social decision schemes on decision group processes. *Organizational Behavior and Human Performance* 25 (1), 97-106.
- Gully, S. M., Devine, D. J. and Whitney, D. J. (1995) A meta-analysis of cohesion and performance: Effects of level of analysis and task interdependence. *Small Group Behavior* 26 (4), 497-520.

- Guo, Z. and D'ambra, J. (2003) Understanding role of national culture on communication media choice behavior: A cross-cultural comparison within a multinational organizational setting. In *Proceedings of the Seventh Pacific-Asia Conference on Information Systems*, Adelaide, Australia.
- Hoegl, M. and Gemuenden, H. G. (2001) Teamwork quality and the success of innovative projects: A theoretical concept and empirical evidence. *Organization Science* 12 (4), 435-449.
- Hogg, M. A. (1992) *The social psychology of group cohesiveness: From attraction to social identity*. New York University Press, New York.
- James, L. R., Demaree, R. G. and Wolf, G. (1984) Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology* 69 (1), 85-98.
- Kaplan, M. F. and Miller, C. E. (1987) Group decision making and normative versus informational influence: Effects of types of issue and assigned decision rule. *Journal of Personality and Social Psychology* 53 (2), 306-313.
- Lee, E.-J. and Nass, C. (2002) Experimental tests of normative group influence and representation effects in computer-mediated communication: When interacting via computers differs from interacting with computers. *Human Communication Research* 28 (3), 349-381.
- Mcgrath, J. E. (1984) *Groups: Interaction and performance*. Prentice-Hall, Englewood Cliffs, NJ.
- Moscovici, S. (1976) *Social influence and social change*. Academy Press, London; New York.
- Mullen, B. and Copper, C. (1994) The relation between group cohesiveness and performance: An integration. *American Psychological Association* 15 (2), 210-227.
- O'reilly Iii, C. A. and Caldwell, D. F. (1985) The impact of normative social influence and cohesiveness on task perceptions and attitudes: A social information processing approach. *Journal of Occupational Psychology* 58, 193-206.
- Paulus, P. B. and Dzindolet, M. T. (1993) Social influence process in group brainstorming. *Journal of Personality and Social Psychology* 64 (4), 575-586.
- Pfeffer, J. (1982) *Organizations and organization theory*. Pitman, Marshfield, MA.
- Postmes, T. and Lea, M. (2000) Social process and group decision making: Anonymity in group decision support systems. *Ergonomics* 43 (8), 1252-1274.
- Postmes, T., Spears, R. and Lea, M. (2000) The formation of group norms in computer-mediated communication. *Human Communication Research* 26 (3), 341-371.
- Reinig, B. A. and Shin, B. (2002) The dynamic effects of group support systems on group meetings. *Journal of Management Information Systems* 19 (2), 303-325.
- Rice, R. E., D'ambra, J. and More, E. (1998) Cross-cultural comparison of organizational media evaluation and choice. *Journal of Communication* 48 (3), 3-26.
- Salancik, G. R. and Pfeffer, J. (1978) A social information processing approach to job attitudes and task design. *Administrative Science Quarterly* 23, 224-253.
- Sambamurthy, V. and Chin, W. W. (1994) The effects of group attitudes toward alternative gdss designs on the decision-making performance of computer-supported groups. *Decision Sciences* 25 (2), 215-241.
- Santee, R. T. and Jackson, J. (1977) Cultural values as a source of normative sanctions. *Pacific Sociological Review* 20, 439-454.
- Straus, S. G. (1997) Technology, group, process, and group outcomes: Testing the connections in computer-mediated and face-to-face groups. *Human-Computer Interaction* 12 (3), 227-266.
- Wagner, W. G., Pfeffer, J. and O'reilly Iii, C. A. (1984) Organizational demography and turnover in top-management groups. *Administrative Science Quarterly* 29, 74-92.
- Webster, J. and Trevino, L. K. (1995) Rational and social theories as complementary explanations of communication media choices: Two policy-capturing studies. *Academy of Management Journal* 38 (6), 1544-1572.
- Yoo, Y. and Alavi, M. (2001) Media and group cohesion: Relative influences on social presence, task participation, and group consensus. *MIS Quarterly* 25 (3), 371-390.