
Does it Matter If I Know You Before Joining the Group? Investigating the Moderating Impact of Familiarity

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Abstract

Teamwork has been extensively deployed by organizations to adapt to an unpredictable and fast-paced environment. As teams are often formed by members with low levels of familiarity, we have embarked on this research to investigate the impact of familiarity on group performance in higher education. Drawing on the literature on group cohesion, we have proposed and tested a theoretical model conceptualizing the relationship between familiarity and student group performance. Our findings have confirmed the moderating impact of familiarity on group performance.

Keywords: Group Cohesion, Familiarity, Teamwork, Social Loafing

1. INTRODUCTION

In the last 20 years teamwork has been extensively deployed by organizations to adapt to an unpredictable and fast-paced environment (Zijlstra, Waller & Phillips, 2012), in order to deal with emergency and crisis situations (Hollenbeck, Beersma & Schouten, 2012; Schraagen, Huis in't Veld, & de Koning, 2010), and to work on complex tasks (McKinney et al., 2005). While a team is often composed of members who are familiar with each other (as they are from the same department), increasingly a team is formed by members with low levels of familiarity (Klien et al., 2006). For

example, flight crews are constantly changing and are expected to perform effectively shortly after a brief meeting with each other (Ginnet, 2006). Similarly, ad hoc healthcare teams are often formed to address complex health conditions and emergencies (Marsch, 1987).

Despite the widespread applications of teams with low levels of familiarity across organizations, researchers have just started examining this phenomenon (Zijlstra et al., 2012; Marsch, 1987). To bring an insightful understanding of teams with low levels of familiarity, our research intends to answer the research question: "How would teams composed

of strangers perform differently from teams comprised of members who are acquainted with each other?" To do so, we draw from the literature on group cohesion (Carron, Widmeyer & Brawley, 1985; Pescosolido & Saavedra, 1985), and develop a conceptual model hypothesizing the relationship of familiarity on group performance.

This paper is organized in the following manner. First, we present a review of the related literature. Then we describe the conceptual background of the research, and introduce the theoretical model hypothesizing the impact of familiarity on group performance. After explaining the research methodology, we discuss the research findings and conclude with significant implications for researchers and educational practitioners.

2. REVIEW OF RELATED LITERATURE

Careers in the field of information technology (IT) demand that individuals develop the ability to work effectively in groups (Troth & Jordan, 2012). Research has shown that the extent to which individuals develop this ability to work in groups depends on various factors such as emotional intelligence (Troth & Jordan, 2012), team intimacy (Rosh, Offermann & Diest, 2012) and team cohesion (Troth & Jordan, 2012). The curriculum, in a Canadian University, that prepares undergraduate students in Business Technology Management (BTM) has a significant amount of courses with a group project component. Therefore, the use of group projects is an important pedagogical tool that provides BTM students with the opportunity to develop the skills necessary to work in teams. Accordingly, a review of these areas in an educational setting will contribute to an understanding of their influence on group performance.

Despite the requirement that BTM students complete several courses containing group projects, including the capstone course, there seems to be some growing students' resentment to working in groups. Some researchers attribute this phenomenon to the lack of essential behavioral elements such as team intimacy, team cohesion and emotional intelligence that are necessary for effective group performance (Troth & Jordan, 2012; Rosh et al., 2012). Other researchers contend that factors such as trust in group work (Huff, Cooper & Jones, 2002), social loafing (Aggarwal &

O'Brien, 2008; Hall & Buzwell, 2012; Ying et al., 2014) and group task satisfaction (Mason & Griffin, 2003) have an influence on the welfare of the group and its ultimate performance on a project.

Furthermore, the diverse composition of the student population also presents challenges to group activities. In particular, interpersonal communication emerges as another component that inhibits effective group performance (Troth & Jordan, 2012). Students that are unable to express themselves fluently in, what is supposed to be, a socially conducive group setting generally display an elevated level of personal frustration. Such frustration, if left unchecked, may result in group dysfunction and poor performance.

Ultimately, a group is expected to leverage the strengths of its members in order to develop a high level of task cohesion. Researchers have attempted to shed light on the relationship between group composition and performance. Some investigators focused on group characteristics (Civettini, 2007), to explain group performance. While others contend that work group diversity (Van Knippenberg, De Dreu, & Homan, 2004), and personality traits (Driskell, Goodwin, Salas, & O'Shea, 2006; Halfhill, Sundstrom, Lahner, Calderone & Nielsen, 2005) have varying degrees of influence on group performance.

3. CONCEPTUAL BACKGROUND AND RESEARCH MODEL

The concept cohesion, rooted in the force theory (Lewin, 1943), is viewed as a "field of binding social forces" (Festinger, 1950, p. 37) driving team members toward a goal shared by the team. Over the years, cohesion is considered as one of the most important properties of groups (Lott, 1961), and has been found to be a key factor affecting group performance (Beal et al., 2003; Chiochio & Essiembre, 2009).

Studies on cohesion has revealed that cohesion has two distinct but closely related dimensions: social cohesion and task cohesion (Bales, 1999; Carron, 1988; Carron & Brawley, 2000). Social cohesion denotes "an attraction to the group because of satisfactory relationships and friendships with other members of the group" (Zaccaro, 1991, p. 164), while task cohesion "an attraction to the group because of a liking for or

commitment to the group" (Zaccaro, 1991, p. 388).

The two dimensions reflect different forces/needs drawing individuals to join a group: one dimension is reflective of the fact that an individual may be attracted to a group, may want to affiliate with group members, and develop or maintain friendships (Pescosolido & Saavedra, 1985; Carron & Brawley, 2000; Carless & De Paola, 2000), and another dimension suggests that individuals form a group to reach instrumental objectives that cannot be achieved by an individual (Tziner, 1982).

It is posited that members of cohesive groups tend to be motivated to advance the group's objectives (Carron & Brawley, 2000), and show strong commitment to group tasks and group goals (Klein & Mulvey, 1995). In addition, members of groups with strong cohesion tend to spend more time with each other and have the propensity to more comfortably share knowledge and new ideas than members of groups with a low level of cohesion (Pescosolido & Saavedra, 1985). However, cohesion is also viewed as "a double-edged sword" as high levels of cohesion may cause an unwillingness for group members to counter nonproductive group norms (Hackman, 1992; Langfred, 1998). Nonetheless, multiple meta-analyses conducted over the years have confirmed the positive and significant impact of group cohesion on group performance (Beal et al., 2003; Chiochio & Essiembre, 2009; Gully, Devine & Whitney, 1998; Carron et al., 2002). Therefore, we hypothesize:

Hypothesis 1a: Social cohesion is positively and significantly related to group performance.

Hypothesis 1b: Task cohesion is positively and significantly related to group performance.

Through social interactions over time, team members develop shared mental models (Cannon-Bowers, Salas & Converse, 1993), which allow "team members to draw on their own well-structured knowledge as a basis for selecting actions that are consistent and coordinated with those of their teammates" (Mathieu et al., 2000, p. 274). Shared mental models would enable teams to process information efficiently (Wegner, 1986; Peterson & Thompson, 1997) and adapt to changing task demands quickly (Cannon-Bowers, Salas & Converse, 1993).

As it takes time for group members to establish relationship and develop the mental models, it is reasonable to believe that teams whose members are acquainted are believed to have an advantage over those that are made up of strangers (Peterson & Thompson, 1997). Lack of experience with each other would limit the amount of information exchanged between team members (Lionel, Dennis & Hung, 2009), and negatively affect the relationship among team members (Mathieu et al., 2000). As teams formed by strangers are often performance-driven and motivated mainly by the need to complete tasks (Zijlstra et al., 2012; Owens, Mannix & Neale, 1998), we hypothesize:

Hypothesis 2: The influence of social cohesion on group performance will be moderated by familiarity among group members, such that the effect will be stronger for groups whose members are familiar with each other.

4. RESEARCH METHODOLOGY

The subjects for this study were recruited from 315 students (second and third year) enrolled in four undergraduate courses offered by a Business Technology Management (BTM) program at an urban university in one of the largest cities in Canada. In the first year of the program, students generally pursue foundation courses with individual projects. They also have opportunities to interact socially at various student events. Therefore, the second and third year provide opportunities for the students to interact in an academic group environment.

The students were required to form a group of three to seven throughout a semester to complete an assigned group project. At the end of the semester, an online survey was sent to the students to collect empirical data for this study.

Of 224 responses received, only 48 groups had all members respond to the survey, resulting in 197 valid responses, 78.2 percent of which (154) were from male, and 21.8 percent (43) from female. The minimum size of a group was 3, and maximum was 7. After taking out groups with incomplete member responses, we compared responses submitted in the first three days of the survey and those in the last three days. The analysis showed no significant differences in age ($F=1.573, p=.214$), nor were there any differences in gender ($F=0.079, p=.0780$).

4.1 CONSTRUCT MEASURES

4.1.1 Social and task cohesion

We adjusted the established group cohesion measurements developed by Carron and his colleagues (Carron et al., 1985) to our research context. Some measurement items were deleted as they strongly reflected the sports context (e.g., "I like the style of play on this team"). In the end, five items each were chosen to measure social cohesion (e.g., "Some of my best friends are in the group") and task cohesion (e.g., "we are united in trying to reach its performance goals"). The constructs were measured on the 7-point Likert scale, with 1 standing for "Strongly Disagree" and 7 for "Strongly Agree."

4.1.2 Familiarity

We used one item ("how well did you know your group members before you worked together on the group project?" to measure familiarity on the 7-point Likert scale, with 1 representing "we didn't know each other at all" and 7 "We knew each other very well."

4.1.3 Group Performance

We assessed group performance based on the course instructor's evaluation of the quality of the project (e.g., "The group presented creative ideas in the required report"). The complete list of construct measures can be seen in Appendix One.

4.1.4 Control Variable

As group performance is affected as group size increases (Gardner, Staats & Gino, 2012), group size was controlled.

4.2 Data Aggregation

Since task, social cohesion and familiarity are group-level constructs, we examined within-group agreement and between-group variance before aggregating individual level data to the group level. The rwg score for task cohesion, social cohesion, and familiarity are .828, .779, and .725. All rwg were at or above the threshold of .7 suggesting that all groups exhibited high levels of within-group agreement. As a result, those constructs were aggregated to the group level.

4.3 Measurement Reliability and Validity

We examined reliability by assessing composite reliability, and construct validity by comparing factor loadings and calculating average variance extracted (AVE) score (Fornell & Larcker, 2012). The reliability for all constructs was higher than the .7 threshold (see Table 1), suggesting satisfactory reliability; factor loadings ranging from .66 to .97, showing satisfactory construct validity; the square roots of AVEs are above .50, satisfying convergent construct validity (see Table 1).

Table 1 Construct Mean, Standard Deviation, Reliability, Correlation, and AVE

Construct	Mean	Standard Deviation	Composite reliability	Correlation			
Social cohesion	4.49	1.24	0.97	0.94			
Task cohesion	4.60	0.89	0.91	0.50	0.81		
Familiarity	2.14	1.72	NA	0.26	0.12	NA	
Group performance	5.48	1.06	0.88	0.43	0.43	-0.1	0.84

Note: The numbers (highlighted in bold) shown on the diagonal represent average variance extracted (AVE).

4.4 Data Analysis

Partial Least Square, a rigorous structural equation modeling analytical tool, was employed to run the proposed conceptual model. To test the moderating effect of familiarity, we entered into the model the interaction term between familiarity and social cohesion. SmartPLS Bootstrapping method with 1000 resamples was used to test the statistical significance of the structural paths. The results indicate that the model accounts for 28.3 percent of the variance in group performance. Both social ($\beta = .435$, $t=6.079$, $p<.001$) and task cohesion ($\beta=.258$, $t=3.971$, $p<.001$) positively and significantly affect group performance. In particular, social cohesion exerts a stronger influence than task cohesion. Familiarity, however, negatively affects group performance ($\beta = -.223$, $t= 2.607$, $p<.01$). Group size shows no significant impact on group performance ($\beta = .028$, $t=0.484$).

5. RESEARCH FINDINGS

Teams are often formed by members with low levels of familiarity to accomplish tasks with various levels of complexity, urgency, and difficulty. As research on teams with low levels of familiarity has just begun, we contribute to the literature by embarking on the study investigating performance differences between teams composed of strangers and teams comprised of members that are acquainted with each other. Our research sheds light on the

moderating impact of familiarity on group performance.

First, drawing on the literature on group cohesion, we have proposed a conceptual model hypothesizing the impact of familiarity on group performance, and through the survey of 48 groups, examined the relationship between familiarity and group performance. Our findings confirm the moderating impact of familiarity on group performance.

Although our research has provided no support for the hypothesized relationship between familiarity and group performance, the survey results indicate that groups formed by strangers tend to perform better than those comprised of acquainted members. The finding is surprising as the group literature on shared mental models suggests better performance for groups that have shared mental models, which takes times to develop (Cannon-Bowers et al., 1993; Mathieu et al., 2000). As a result, future research is warranted to verify our research findings.

6. FUTURE RESEARCH AND IMPLICATIONS

First, future research needs to investigate the reasons that groups with strangers perform better than those formed by members who are familiar with each other. Would that be because familiarity reinforces social cohesion, which may hinder groups from being productive as suggested by Hackman (1992) and Langfred (1998)? Would that be because groups with strangers are more goal-oriented and committed to performance (Zijlstra et al., 2012; Owens et al., 1998)? Researchers have proposed that there seems to be a profound impact of the initial moments of team interaction prior to work activities (Eriksen & Dyer, 2004; Uitdewilligen & Waller, 2011) on team performance. Therefore, it is important that future research investigate differences in characteristics between groups with strangers and groups with acquainted members, and compare patterns of member interactions between teams formed with strangers and those comprised of acquainted members.

Our second contribution lies in the examination of the impact of group cohesion on group performance beyond the sports context (Carron, Widmeyer & Brawley, 1985; Pescosolido & Saavedra, 1985), and confirmation of the

significant and positive impact of social and task cohesion on group performance.

In summary, teamwork has been extensively deployed by organizations to adapt to ever-changing environment. As teams are often formed by members with low levels of familiarity, it is imperative to explore the impact of familiarity on group performance. Drawing on the literature on group cohesion, we have proposed and tested the conceptual model examining the relationship between familiarity and group performance. Our findings have confirmed the moderating impact of familiarity on group performance.

7. ACKNOWLEDGEMENT

We wish to acknowledge the participation of our students in this research project. We would also like to thank our reviewers for their insightful comments and feedback. These allowed us to revise and enhance our paper.

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