The Impact of Visible and Non-visible Attributes on Group Potency and Effectiveness Expectations

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This study examines the impact of visible and non-visible attributes on group potency and effectiveness expectations in temporary small groups. It was hypothesized that diversity in visible and non-visible attributes have a negative impact through psychological safety/trust and interpersonal communication on group potency and group outcome expectations. It was further assumed that diversity in non-visible than visible attributes has a more negative impact on group processes and outcome expectations. The hypotheses, tested with 139 students in 46 groups, provide support for most hypotheses, indicating that diversity has an overall negative impact on group processes and outcome expectations.

Key words: group potency; group outcome expectations, diversity, visible attributes; non-visible attributes

1. Introduction

Scholars have discussed the influence of diversity in groups at length. Diversity refers to the extent to which members of a group are dissimilar with respect to individual-level characteristics (Jackson, 1992). Research show, for example, that diversity in visible attributes, such as age and gender, has a negative impact on group processes, but a positive impact on performance due to cognitive variety (Millken & Martins, 1996; Williams & O'Reilly, 1998 for literature reviews). Longitudinal studies suggest further that diverse groups perform better than homogeneous ones, if they fully utilize their cognitive variety (e.g., Watson, Kumar & Michaleson, 1993). Unfortunately little is known about the combined impact of visible and non-visible diversity on group processes and outcomes because most of these studies focus solely on visible attributes due to widespread belief that they are related with non-visible attributes, such as attitudes and values (e.g., Bantel & Jackson, 1989).

The focus on visible attributes may lead to wrong conclusions because an increasing amount of studies provide evidence that visible and non-visible attributes are not always related, and may have differentiated impact on group processes and performance. Studies show, for example, that culture and ethnicity have a different impact on values (Cox, Lobel & McLeod, 1991), and that age and gender diversity is not always an indication of value differences (Beutell & Brenner, 1986; Sanders, 1993). Because the influence of diversity on group processes and performance is often inconsistent in empirical research, it is premature to assume that visible and non-visible attributes are always related and have similar influence on group processes and performance.

This study seeks to link diversity with group potency and outcome expectations. A group's performance is determined partly not only by the sum of the objective qualities of its members, but also by their shared confidence in both these qualities and their effectiveness as a group (Peterson, Mitchell, Thompson & Burr, 2000). Despite its possible performance implications, with few exceptions (Harrison, Price & Bell, 1998; Jehn, Northcraft & Neale, 1999), little research compare the differences between and impact of visible and non-visible attributes on a group's belief concerning its effectiveness. This is surprising because non-visible attributes are purported to predict more accurately and have longer impact on group processes than visible attributes (Jehn, Northcraft & Neale, 1999). Both types of diversity consequently need to be taken into account to understand the impact of diversity on group processes and outcomes.

The purpose of this study thus is to investigate

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the impact of visible and non-visible attributes on group potency and outcome expectations in temporary small groups. More specifically the research questions are: (1) Does diversity in visible and non-visible attributes have a negative impact on group potency and outcome expectations? (2) Can the impact of diversity in both visible and non-visible attributes on group potency and outcome expectations be explained by psychological safety/trust and interpersonal communication? (3) Are visible and non-visible attributes related in temporary work groups? The focus in the present study is on age, gender, nationality, and work values because they are present in most multinational groups (Jackson, 1992). The hypotheses were tested with 139 students (46 groups) in Finland.

The rest of this study is structured as follows. The second section reviews literature on the effects of diversity in visible and non-visible attributes in groups, and their impact on group potency and outcome expectations. The third section presents a set of hypotheses regarding the direct and mediated effect (through psychological safety/ trust and interpersonal communication) of visible and non-visible attributes on group potency and outcome expectations. The fourth section describes the sample, task procedures, measures, and statistical procedures. The fifth section discusses the findings. The study ends with conclusions and limitations.

2. Literature Review

Scholars have categorized diversity in groups to visible and non-visible attributes (e.g., Jackson, 1992; Jackson, Stone & Alvarez, 1993). Visible attributes, such as age, gender, and race, can be determined quickly due to their visibility (Jackson, 1992). Most of these attributes are unchanging (with the exception of age), and subject to social consensus (Jackson, Stone & Alvarez, 1993). In contrast, non-visible attributes, such as attitudes, values, and personality, are subject to more interpretation and construal than visible attributes (Jackson, Stone & Alvarez, 1993). Although attitudes and personality are an individual level phenomenon, values can be both an individual and a social phenomenon.

Values as a broad concept can be understood as standards or criteria, for choosing one's goals or guiding one's actions (Kluckhohn, 1951). They develop over time through the multiple and long-term influence of culture, society, and experience (Dose & Klimoski, 1999), and derive partly from genetics (Meglino & Ravlin, 1998). As a central part of individuals' identity, they are resistant to change and have a long-term impact on work group processes. Work values constitute a narrower conceptual domain than values in general. They are evaluative standards relating to work or the work environment, which individuals use to discern what is "right" or to assess the importance of preferences for actions or outcomes (Dose, 1997). A cross-cultural study in a multinational corporation shows that national cultures to influence work values (Hofstede, 1980). Using the polarity of individualism and collectivism, scholars further propose that people in collectivist cultures place greater emphasis on the needs and goals of the group, social norms and duty, shared beliefs, and cooperation with group members, than the people in individualistic cultures (Triandis, 1989).

While studies show that cultural and work values are often interrelated (Hofstede, 1980), the link between visible and non-visible attributes is often context-specific and complex. For example, race and ethnicity (cultural values) can be connected under the term of racio-ethnicity in a team of Finnish and Japanese employees. A linkage between race and ethnicity might not be justified in a team of Finnish and German employees due to possible racial homogeneity and value diversity. A study in student groups indicate further that culture and ethnicity have a different impact on work values because minority members tend to be bicultural and sensitive to situational cues (Cox, Lobel & McLeod, 1991). Furthermore, in contrast to the common assumption that gender and values are related, a study indicates a lack of gender differences in work values (Beutell & Brenner, 1986).

In addition to the possible overlapping nature of visible and non-visible attributes, empirical studies and conceptual discussions imply that they have a different impact on group processes and performance over time (Larkey, 1996; Harrison, Price & Bell, 1998; Dose & Klimoski, 1999). A discussion of work value effects on formative team processes, for example, indicates that work values have a moderating impact on visible diversity, and a greater impact on group processes (Dose & Klimoski, 1999). In addition, a field study in hospital and grocery store work groups shows

that the length of time worked together weaken the negative impact of visible diversity, and strengthen the effects of non-visible diversity (Harrison, Price & Bell, 1998). If visible diversity and value homogeneity exist simultaneously in a group, similar values tend to promote social integration and enable "accurate" evaluation of the possessed knowledge and skills (Larkey, 1996).

Diversity in visible and non-visible attributes is also likely to have an impact on group potency and outcome expectations. Unfortunately, previous empirical studies provide limited guidance on the factors related to group potency and outcome expectations in diverse work groups. Moreover, little is known about the simultaneous impact of the visible and non-visible attributes. In general, literature reviews indicate that diversity hinders early group processes (Milliken & Martins, 1996; Williams & O'Reilly, 1998). However, recent research show that cognitive variety introduced by diversity has a contributing impact, over time, on group potency (Sargent & Sue-Chan, 2001), and performance (Watson, Kumar & Michelson, 1993) in student groups. It can be assumed, on the one hand, that the cognitive variety is not likely to be utilized in temporary groups due to a visual categorization process. However, on the other hand, visual differences might be in a secondary role in temporary groups and groups performing under time pressure.

3. Hypotheses

3.1 Group potency and outcome expectations

Group potency refers to the collective belief that the group can be effective (Guzzo, Yost, Cambell & Shea, 1993). In contrast to group efficacy, which measures performance expectations of specific task outcomes in groups (Gibson, Randel & Earley, 2000), group potency measures shared beliefs about general task effectiveness in groups (Peterson, Mitchell, Thompson & Burr, 2000). Outcome expectations refer to beliefs that group members hold about the likely consequences their group will experience as the result of the group performance of work tasks (Giggs & Knight, 1994).

Group potency and outcome expectations are influenced by group composition, processes, and context (Gibson, Randel & Earley, 2000; Shea & Guzzo, 1987). Group composition and social-cultural context, for example, have an impact on these concepts because they are conceptualized as by-products of task-relevant affective experiences (Gibson, 1999). Gibson (1999) proposed that feedback and knowledge pertaining to group is more valued in collectivist cultures than knowledge pertaining to any individual member of the group. As a consequence, Gibson (1999) argued that group-oriented knowledge create a strong linkage between the expected and actual group performance in collectivist cultures. In contrast, group knowledge in individualistic countries may be considered secondary and such linkage is weak. These assumptions were proved correct in two studies with students in Hong Kong and USA showing that when collectivism in groups is low, group performance expectations are not related to group effectiveness (Gibson, 1999).

In regard to visible attributes, a study in 31 cross-functional teams shows that moderate race and gender diversity has a negative short-term impact on perceived group effectiveness (Baught & Graen, 1997). In contrast, racio-ethnic diversity in 24 student groups was found to have a positive linkage with performance expectations later in group's performance cycle, if the members are cohesive and task interdependent (Sargent & Sue-Chan, 2001). These findings are similar to a study in 36 student groups, which indicates that the positive linkage between diversity and group processes and performance is not likely to occur during the early stages of the group performance cycle due to the negative impact of visible attributes (Watson, Kumar & Michelson, 1993). These studies imply that while the effects of visible attributes can evolve and mature over time, values relatively resistant to change remain as the most important predictor of group processes and performance.

Empirical studies examining the simultaneous impact of visible and non-visible attributes provide supporting evidence (Earley, 1994, 1999; Jehn, Northcraft & Neale, 1999). First, a study in 92 work groups indicates that, whereas age and gender diversity positively influence group member morale, value diversity decrease satisfaction, commitment, and performance (Jehn, Northcraft & Neale, 1999). In contrast, low value diversity was found to promote high performance expectations. Second, two studies with data from several countries indicate that congruence between cultural values and social context has a positive impact on self/group efficacy and group performance (Earley, 1994, 1999). First of these studies

indicates that a fit between training methods and work-related values has a positive impact on individual performance beliefs and group performance (Earley, 1994), and the second that group performance beliefs are more equally distributed in low power distance countries (Earley, 1999).

The above studies indicate that the diversity in visible and non-visible attributes has a negative, but differentiated, impact on performance expectations in temporary groups. A more debatable issue is the magnitude of the negative influence. The reviewed studies indicate parallel to the Social Identification Theory (Hogg & Abrams, 1990; Turner, 1987) that diversity in visible attributes triggers an automatic categorization process in which people considered different are evaluated based on stereotypes, with a negative impact on performance expectations. It is further likely that diversity in non-visible attributes increases to cognitive confusion in terms of task processes and goals especially in temporary groups (Watson, Kumar & Michelson, 1993; Jehn, Northcraft & Neale, 1999). Whereas the cognitive variety may provide benefits to groups over time, homogeneity in non-visible attributes, especially in values, is hypothesized to be most beneficial for groups working under time pressure.

Hypothesis 1a: Diversity in visible and non-visible attributes is negatively related to group potency and outcome expectations.
Hypothesis 1b: Diversity in non-visible attributes is more negatively related to group potency and outcome expectations than diversity in visible attributes.

3.2 Mediating Variables: Psychological safety/ trust and interpersonal communication

Diversity in visible and non-visible attributes can influence group potency and outcome expectations through social interactions. The main element of group functioning in the present study is social integration, that is, the degree to which group members are psychologically linked or attracted towards interacting with one another in pursuit of a common objective (O'Reilly, Caldwell & Barnett, 1989). The focus here is on the behavioral dimension of social integration that includes cooperative behavior and interpersonal communication (Van Der Vegt, 2002). Parallel to previous studies (Dose & Klimoski, 1999; Lester, Meglino & Korsgaard, 2002), psychological

safety/trust and interpersonal communication are regarded as integral components of social integration.

3.2.1 Psychological safety/trust

Empirical research and the Social Identification Theory indicate that positive social identification enhances the perception of trust because similar in-group members are perceived in more desirable ways (Hogg & Abrams, 1990; Turner, 1987). While visible attributes provide a salient base for social categorization, the comparison and validation of non-visible attributes occur through social interaction. Based on Sitkin and Roth (1993), if an individual holds even a single key value that is different from the dominant group, the influence of schematized stereotypes and the desire for cognitive consistency make it more likely that all the person's values will be perceived as different. Conversely, the relative overlap in values increases the psychological affect among group members (Dose & Klimoski, 1999).

Trust has a positive impact on group processes in the form of enhanced participation and involvement, mutual influence, and approachability (Friedlander, *et al.,* 1985). When trust is high, people feel that group is psychologically safe to engage in reciprocal cooperation, without fear that they will be ridiculed or exploited by other group members. A research in with 122 work groups in three social care institutions indicates that trust is positively related with perceived task performance, team satisfaction, and relationship commitment, and negatively related with stress (Costa, Roe & Taillieu, 2001). In the study, the perceived task performance was positively related with overall team satisfaction. Based on findings from 80 student groups, scholars further claim that self-disclosure and the acceptance of the ideas and contributions of other group members creates the basis for positive social emotional climate-performance expectation linkage (Porter & Lilly, 1996).

Hypothesis 2: Psychological safety mediates the relationship between visible and non-visible attributes, group potency, and outcome expectations.

3.2.2 Interpersonal communication

Interpersonal communication acts as a medium through which group members explore what each contributes to group in terms of skills, experience,

and knowledge (Gibson, Randel & Earley, 2000). Interpersonal communication refers to "the acquisition and/or offering of information through interpersonal channels" (Jackson, Stone & Alvarez, 1993: 59). Based on the Social Identity Theory and research, group composition influences communication depth and spread (i.e., who talks to whom about what), and communication frequency (i.e., how much people talk to each other overall) (Milliken & Martins, 1996 for literature review). Interpersonal communication is used as a mediating variable in the present study because it is a primary example of a work process that favors similarity and undermines the potential gain from diversity (Zenger & Lawrence, 1989).

Diversity in visible attributes is claimed to have a negative impact on interpersonal communication (e.g., Zenger & Lawrence, 1989). In day-to-day group communication, the impact can be shown, for example, in that people do not share information with non-similar out-group members, and that they concentrate on communicating with those who are perceived as being similar (Larkey, 1996). Empirical research in an advertising agency shows that men and women form communication and support networks with others of the same gender (Ibarra, 1992). In addition, a study with 96 black and Caucasian people shows that formal and informal meetings among peers and with immediate subordinates are lower in racially diverse teams (Hoffman, 1985).

The impact of non-visible attributes on interpersonal communication is parallel in many respects. Examining the impact of work-value diversity among 545 employees in 96 groups, Jehn, Northcraft and Neale (1999) found that perceived value differences decrease the willingness to share information. Conversely, value similarity makes communication easy and accurate (Dose & Klimoski, 1999) because the similarity helps group members to create a shared language concerning a wide spectrum of task-related issues influencing group members' motivation to engage in communication. Furthermore, attitudinal similarity was found in 272 superior-subordinated dyads to reduce role conflict and help people to form similar conceptualizations of their organizations and jobs due to increased communication (Tsui & O'Reilly, 1989).

While the positive communication-performance is well documented, only a few studies link communication to group potency and outcome expec-

tations. A recent study shows that communicative interaction is positively related to group potency among 691 high school students (Lester, Meglino & Korsgaard, 2002). As members communicate and work together, they learn about each others' skills and capabilities, which might have a positive impact on group potency. In a related study, interpersonal communication was found to have a contributing impact on role breadth self-efficacy (Parker, 1998). The study shows that communication increases the perceived capability to carry out broader and more proactive set of work tasks that extend beyond prescribed technical requirements. In another study independent and interdependent self-images were found to have a significant impact on communication processes, satisfaction, and performance (Kerr & Kaufman-Gilliland, 1994).

Hypothesis 3: Interpersonal communication mediates the relationship between visible and non-visible attributes, group potency, and outcome expectations.

4. Method

4.1 Participants

The sample consisted of 139 undergraduate students (46 groups) in three business polytechnics and one business school in Finland. The mean age of the subjects was 23 years, with a range from 19 to 42 years (s.d.=3.2 years), and 64% were female. The sample has students from 27 countries. About 69% of the respondents were Finnish. Of the international students, 15%, 9%, 6%, and 1.4% were from the other European Union countries, non-European Union countries, Africa, and America, respectively. The data were collected in 2000.

4.2 Procedure and task

This study was conducted in controlled settings. When assigning students into groups, I controlled national diversity and group member familiarity for two reasons. First, the purpose was to form multinational groups to examine the impact of nationality and work-values on group performance expectations. Second, group member familiarity was controlled because a study indicates that friendship groups perform significantly better than acquaintance groups due to a greater degree of group commitment and cooperation (Gruenfeld, Mannix, Williams & Neale,

1996).

The study relies on a fictional case study entitled "*Southern Pacific Airlines* (*SPA*): *Making Innovations Fly*" (see appendix). Student groups were given 60 minutes to generate a strategy for a small Australian airline. The participants were told that their plans would be evaluated based on both their novelty and appropriateness. Only a general overview of the company and aviation industry in the region was provided. Since the time period was too short to create a comprehensive corporate plan, the length of the case was limited to one page and the subjects were instructed to focus mainly on international expansion strategy.

4.3　Measures

The study consists of two dependent (group potency and outcome expectations), two mediating (psychological safety/trust and interpersonal communication), four independent (age, relational nationality, gender, and perceived value diversity), and one control variable (familiarity). All dependent and mediating variables as well as the independent variable, perceived value diversity, and the control variable, were measured by a five-point Likert-format scale ranging from "I totally disagree" (1) to "I totally agree" (5). Categorical data were used to create relational demographic variables, and continuous data were used for the age variable.

Group potency was measured using a modified scale adapted from Guzzo, Yost, Cambell and Shea (1993). The scale was adapted similarly to Sargent and Sue-Chan (2001) because the groups in the present study were student groups; not industry groups for which the original scale was developed. The subjects were asked to indicate the extent to which they agreed with the following statements: (1) "My group believes that it can be very productive," (2) "My group believes that it can solve any problem it encounters," and (3) "My group can get a lot done when it works hard" (α = .76).

An *Outcome expectation* scale was developed to measure the beliefs that group members hold about likely results of the group performance of work tasks. The subjects were asked to evaluate the extent to which the group has been able to create an innovative corporate strategy. The scale was measured by the following statements: (1) "Our group produced an outcome that was greater than the sum of individual contributions," (2) "My group produced novel and appropriate ideas," (3) "This group has made highly innovative decisions," and (4) "My group has taken many innovative ways to solve the problem" (α = .74).

Interpersonal communication was measured using an adapted scale from Hoegl and Gemuenden (2001). The original scale was reduced from ten to four statements and adapted for the student groups because the original study was conducted in German software teams. The scale assesses different aspects of interpersonal communication during the task execution: (1) "People talked freely in my group," (2) "There were real attempts to share information in my group," (3) "The frequency of communication increased over time in my group," and (4) "We listened to each individuals' input in my group" (α = .72).

Psychological safety/trust was measured with a scale adapted from Edmondsson (1999). The statements were modified because the groups in the current study were student groups; not groups in a manufacturing company for which the original scale was developed. The subjects were asked to indicate the extent to which they agreed with the following five statements: (1) "There was a feeling of trust among members in my group," (2) "People in my group were friendly and easy to approach," (3) "Members respected each other's ideas," (4) "A feeling of unity was high in my group," and (5) "I was satisfied with the overall quality of my relationship with the group" (α = .82).

Value diversity was measured similarly to Posner, Kouzes and Schmidt (1985) by asking respondents to estimate the extent to which their work-related values were similar with those of the others. In addition to its simplicity, this method allows the assessment of values at a perceptual level (Meglino & Ravlin, 1998). The subjects were asked to indicate the extent to which they agreed with the following statements: (1) "Our approaches to execute the task were similar," (2) "Our individual styles seemed compatible," (3) "I found my values and the group's values were very similar," and (4) "We shared similar task-based values." The scale was reversed in order to assess perceived value diversity (α = .77).

Relational demography represents the difference between a student and all other students in his/her group on gender and nationality. Following

Chatman, Polzer, Barsade, and Neale (1998), relational demography was measured using the following equation: $[1/n \sum (X_i - X_j)^2]^{1/2}$; where: $X_i =$ focal group member's score on the dimension; X_j = each other group member's score on that dimension; and $n =$ the number of students in the group. Categories for gender were 0 for women and 1 for men. Relational nationality was measured by 27 different national categories. *Age* was measured in years.

Familiarity was included to rule out alternative explanation by extraneous influence, even though the subjects were randomly assigned to groups. The familiarity was measured in parallel with Louis (1978) by the question: "How well do you know the other group members?"

4.4 Statistical analysis and results

Table 1 presents means, standard deviations, and correlations for the dependent, mediating, independent, and control variables.

Several results are worth mentioning. First, the correlation between group potency and outcome expectations ($r = .541$, $p > .01$) supports theoretical linkages between the concepts (Shea & Guzzo, 1987). Second, the insignificant correlation between value diversity, age, and relational cultural and gender diversity supports previous research, indicating that visible attributes do not always equate with values (e.g., Sanders, 1993). Third, in contrast to previous research (Ibarra, 1992), relational gender diversity is positively related with both dependent variables (outcome expectation, $r = .229$, $p > .01$; group potency, $r = .183$, $p > .05$) and mediating variables (psychological safety/trust, $r = .187$, $p > .01$; interpersonal communication, $r = .237$, $p > .01$). Fourth, familiarity

correlates with outcome expectations ($r = .170$, $p > .05$) and the mediating variables (psychological safety/trust, $r = .330$, $p > .01$; interpersonal communication, $r = .216$, $p > .05$). Lastly, the highest correlation between perceived value diversity and psychological safety/trust ($r = -.676$, $p > .01$) does not indicate serious problems of multicollinearity because a correlation below .75 is not considered problematic in hypothesis testing (Kennedy, 1979).

4.5 Regression analyses

Hierarchical regressions were used to test each hypothesis, entering first the control variables, second the independent variables, and third the mediating variables (Table 2).

The table shows that the inclusion of independent and mediating variables increases explanatory power of hierarchical regressions. The statistical analysis of mediating relationships follows the conditions suggested by Baron and Kenny (1986). First, independent variables need to affect the dependent variable in the first equation. Second, independent variables need to account for significant variance in the mediating variable. Third, the mediator need to affect the dependent variable. Further, independent variables should explain less variance in the mediated analyses rather than in the main effect analyses. The table shows that these conditions were partially supported.

Hypothesis 1a predicted that diversity in visible and non-visible attributes have a negative impact on group potency and outcome expectations. The regression analyses show a partial support for the hypothesis. While value diversity was negatively

Table 1. Means, standard deviations, and correlations

Variable	Mean	S.D.	1	2	3	4	5	6	7	8
1. Outcome expect.	3.66	.72								
2. Group potency	3.69	.69	.541**							
3. P. safety/trust	3.86	.80	.531**	.583**						
4. Communication	4.30	.64	.483**	.464**	.634**					
5. Value diversity	2.28	.66	−.468**	−.593**	−.676**	−.568**				
6. Relational culture	.528	.33	.041	.039**	.024	.061	.016			
7. Relational gender	.528	.28	.229**	.183*	.187*	.237**	.134	−.120		
8. Age	23.2	3.2	.042	−.015	−.004	−.047	.012	.061	−.096	
9. Familiarity	2.50	1.1	.170*	.141	.330**	.216*	.119	.090	−.030	−.121

Note: ** $p < .01$, * $p < .05$

Table 2.   Hierarchical regression analyses

Predictor	P. safety/trust	Communication	Group potency	Outcome exp.
Control variable				
Familiarity	.280**	.213*	.141†	.170*
Adjusted R square	.072	.039	.013	.022
F	11.663**	6.534*	2.785†	4.069†
Main effects				
Familiarity	.210**	.154*	.075	.142*
Age	.022	−.038	−.006	.063
Relational gender	.065	.132*	.069	.150*
Relational culture	−.038	.005	−.056	.045
Value diversity	−.648**	−.560**	−.562**	−.413**
ΔR square	.420	.340	.314	.200
Adjusted R square	.492	.379	.327	.222
F	27.122**	17.476**	14.129**	8.726**
Mediator 1				
Familiarity			.019	.077
Age			−.012	.057
Relational gender			.052	.130†
Relational culture			−.046	.056
Value diversity			−.390**	−.215*
P. safety/trust			.265**	.306**
ΔR square			.031	.043
Adjusted R square			.358	.265
F			13.545**	9.093**
Mediator 2				
Familiarity			.033	.102
Age			.005	.073
Relational gender			.033	.116†
Relational culture			−.057	.043
Value diversity			−.409**	−.268**
Communication			.274**	.260**
ΔR square			.042	.037
Adjusted R square			.369	.259
F			14.161**	8.857**

Note: † $p < .10$, * $p < .01$, ** $p < .001$

related with both the outcome expectations and group potency ($\beta = −.413$, $p < .01$ and $\beta = −.562$, $p < .01$, respectively), the relationship between the other independent variables did not meet the original hypothesis. In contrast with the original hypothesis, relational gender diversity leads to positive outcome expectations among the respondents ($\beta = .150$, $p < .05$).

Hypothesis 1b predicted that diversity in non-visible attributes has a more negative impact on group psychological processes than diversity in visible attributes. The hypothesis is partly sup-

ported because value diversity is the most negatively related to both dependent variables.

Hypothesis 2 which predicted a mediating relationship between the independent and dependent variables through psychological safety/trust, was partially supported. This is because value diversity affects the dependent variables and the mediating variable [(outcome expectations, $\beta = −.413$, $p < .01$) (group potency, $\beta = −.562$, $p < .01$) (psychological safety/trust, $\beta = −.648$, $p < .01$)]. The mediating variable further affected both of the dependent variables [(outcome expectations, $\beta = .306$, $p < .01$) (group potency, $\beta = $

.265, $p < .01$)], and the impact of the independent variable decreased in the mediated regression analysis. The mediated relationship between the other independent and dependent variables was not supported. In contrast with the original hypothesis, there is an indication of the mediated relationship between relational gender diversity and outcome expectations.

Hypothesis 3 predicted a mediated positive relationship between the independent and dependent variables through interpersonal communication. The regression analyses provide partial support for the hypothesis. Similar to the first mediating relationship, value diversity affected both the dependent and the mediating variable [(outcome expectations, ($\beta = -.413$, $p < .01$) (group potency, $\beta = -.562$, $p < .01$) (interpersonal communication, $\beta = -.560$, $p < .01$)]. Since the mediating variable affected both of the dependent variables [(outcome expectations, $\beta = .260$, $p < .01$) (group potency, $\beta = .274$, $p < .01$)], and the impact of the independent variable decreased in the mediated model, value diversity has a statistically significant mediated relation with the dependent variables. The mediated relationship between the other independent and dependent variables was not supported. Similar to the other mediated relationships, the regression analyses indicate a weak moderated relationship between relational gender diversity and outcome expectations.

5. Discussion

The purpose of this study was to explore the impact of visible and non-visible attributes on group potency and outcome expectations. The examination is important for two reasons. First, little research links diversity and social integration with group potency and outcome expectations. Second, most previous studies in the focal topic examine this phenomenon through a single heading of visible diversity (demographics) (Sargent & Sue-Chan, 2001). Even when a distinction is made, most researchers focus on visible attributes.

The results indicate that used independent variables do not have similar direct effects on group potency and outcome expectations. The direct impact of value diversity is parallel to the original hypothesis, indicating that the perceived value differences decrease the feeling of group potency and outcome expectations. Since values are not readily detectable like visible attributes, they are likely to influence the performance beliefs through group processes, such as interpersonal communication. In case of value diversity, one possible reason for the decreased performance expectations might be a lack of shared understanding of the task and behavior required for accomplishing it successfully. Conversely, perceived value congruence can lead to an increased social interaction and increased belief that the group can complete given tasks successfully. In contrast with previous research and the original hypothesis (Watson, Kumar & Michelsen, 1993), national diversity did not have an impact on the dependent variables. This finding is surprising because national differences tend to create initial problems in social inversion through mediating variables, such as interpersonal communication.

Although the hypothesis regarding value diversity provides support in the predicted direction, hierarchical regression analyses provide an unexpected finding. The finding that relational gender diversity has a direct impact on group outcome expectations indirectly supports some, but runs counter to other studies. This is because, while a research by Jehn, Northcraft and Neale (1999) shows that gender diversity increases group member morale, Baught and Graen (1997) report negative effects related to race and gender diversity on perceived group effectiveness. One possible explanation is that the subjects in this study— most brought up in gender egalitarian Nordic countries—are accustomed, and can appreciate gender diversity. This explanation is supported by cross-cultural research showing that cultural values in the Nordic countries support gender equality (Hofstede, 1980). The reason why visible differences were not related to the perceived value diversity can be explained partly by the rather loose boundaries for expected gender roles in Finland. Whereas women are expected to adopt a submissive role in masculine and vertically oriented countries, they are expected to take a more proactive role in group processes in gender egalitarian Nordic societies (Hofstede, 1980).

In addition to the direct interaction, the present study addresses the 'black box' (i.e., the processes that causes the linkage between diversity and group diversity/outcome expectations) concerns raised by Lawrence (1997). The estimation of an intervening process model is considered to be important because research shows that group processes are related to group performance expec-

tations (Sargent & Sue-Chan, 2001). The statistical analysis confirm the hypotheses that interpersonal communication and psychological safety/ trust partially mediate the relationship between value diversity, relative gender diversity, and output variables. This interaction among the input and mediating variables is in line with a conceptual model by Dose and Klimoski (1999), which proposes that value congruence has a positive impact on group processes. The results show further, in parallel with a previous research, that communication-cooperation has important effects on the development of group potency (Lester, Meglino & Korsgaard, 2002). In addition, the linkage between the mediating and dependent variables provide indirect support that people form performance expectations through social processes (Guzzo & Dickson, 1996). Basically, a higher level of perceived value differences decreases the levels of interpersonal communication and psychological safety, which in turn decreases the perception of group potency.

The mediated relationship between gender diversity and interpersonal communication is in contrast to some research, claiming that visible attributes are vulnerable to negative stereotyping, and influence communication (Ibarra, 1992). Three alternative explanations can be used to shed light on the contrasting result. First, the limited time and controlled group size may facilitative interpersonal communication. In contrast to small temporary groups, there is more freedom for people to form their communication networks based on visible and non-visible attributes in larger social units over time. Second, people tend to display good qualities in order to be integrated into the group (Goffman, 1956). This is why a group member may try to exert an effort to prove him or herself to be an attractive associate. What constitutes a positive-self image depends on how the self is construed and can be derived from values. This involves, essentially, revealing characteristics that are assumed to be positively valued by the others and concealing those he/she expects to be negatively valued.

The results finally indicate that visible and non-visible attributes are not directly related during early phases of group performance cycle. This non-significant relationship between work values and nationality is slightly surprising because researchers assert that nationality is related to work values (Hofstede, 1980). The non-significant re-

lationship examined through intercorrelations can be an indication of the attitudinal and perceptual differences of different forms of diversity, which makes it hard to predict how the attributes are related. A plausible explanation is that, whether the actual diversity matters or not, it may be a function of the extent to which members are open to different types of diversity, regardless of whether they are visible or non-visible. For example, in gender egalitarian and culturally and racially homogeneous countries, such as Finland, people can be more sensitive to racio-ethnic diversity than to gender diversity.

6. Limitations

This study has limitations. Perhaps the most obvious concern in this, and all laboratory studies, is external validity. In this study, college students were brought together to perform a particular task for a brief period in controlled settings with the consequence that the results of this study should be extended with caution to real work groups. This issue has occurred in social psychology for a long time and is difficult to resolve. However, evidence from meta-analyses suggests that it may not be of so much concern (Mullen & Copper, 1994). In those meta-analyses, laboratory findings generally resembled those from the field, though the latter were usually much stronger.

Group performance expectations might also be unrealistically high in new groups due to inflated expectations and social-cultural context. First, a study indicates that prospective group members are overly optimistic about their future expectations in a group (Brinthaupt, Moreland & Levine, 1991). Second, a study shows that Western Europeans tend to be field-independent, meaning that they perceive an individual as separate from the group and the group as distinct from its environment (Shaw, 1990). There can thus be little or no relationship between performance expectations and actual effectiveness (Gibson, 1999). It can thus be asserted parallel with Lester, Meglino and Korsgaard (2002) that group performance expectations may decline as the group interaction patterns evolve.

Other limitations are methodological. First, it can be doubted whether teams are able to create shared mental constructs of group potency and outcome expectations within 60 minutes. Although scholars have asserted that the creation of

shared mental constructs require time (Klimoski & Mohammed, 1994), scholars have not specified how much time is needed for teams to create shared mental constructs. It can also be assumed, in parallel with previous research, that time moderates the impact of visible and non-visible attributes (Harrison, Price & Bell, 1998; Sargent & Sue-Chan, 2001). Second, subjective constructs increase the possibility for the mono-method bias. Efforts in future research should be made to obtain objective measures. Third, there might be some problems with reverse causation because some scholars propose that trust has a positive influence on interpersonal communication (Dose & Klimoski, 1999).

7. Conclusion

This study examines the impact of visible and non-visible attributes through two mediating variables and directly on group potency and outcome expectations. The results partially support hypotheses stating that (1) value diversity is negatively related to group potency and outcome expectations, (2) diversity in non-visible attributes is more negatively related to group potency and outcome expectations, and (3) visible and non-visible attributes are not directly related. In contrast to the original hypotheses, gender diversity had a direct and mediated relationship with group outcome expectations through mediating variables. The four types of visible and non-visible attributes were not related to each other.

Appendix:

Southern Pacific Airlines ("SPA") is a small Australian airline operating under a conservative policy laid down by its founder Bill Flanders. The reactive corporate policy helped the company to grow in the domestic market, but has not been able to keep it in line with recent developments in the aviation industry, such as internet booking. Now as Bill Flanders is retiring, company management is left with three managers who are responsible for creating a new, innovative corporate strategy for this small Australian airline.

SPA creates most of its profits (75%) by shuttle services between major cities in Australia. The profile of passengers on domestic flights has changed in recent years due to the improved economic situation and the rising importance of Perth as the technological center of Australia. The second largest source of profits (15%) is created by charter flights to popular resort places such as Bali, Fiji, Samoa, and Tahiti. Services on the chartered flights are differentiated with special food and flight attendant outfits (e.g., barbecue pork and colorful outfits for the Samoan flight). The company has also started to provide services for oil companies operating in the remote parts of Australia, Papua New Guinea, and Indonesia. However, special conditions such as short runaways and heavy cargoes will eventually require a purchase of new types of airplanes such as the Lockheed Hercules.

Recent changes in the airline industry have included international alliances and information technology with electronic booking, etc. Airline mergers are bad news for SPA. Their biggest domestic competitors, Quantas and Ansett, have been able to increase their market share through mergers from 60% (1985) to 70% (2000). Furthermore, new, aggressive competitors such as Virgin Blue are entering the market with innovative corporate strategies. Due to the alliances and increased competition, SPA's market share in Australia has decreased from 20% (1985) to 11% (2000). The other really rapid change has taken place in ticketing and information services. As recently as five years ago, the only way to book a ticket was by telephoning the airline, waiting in line at one of its ticket counters, or contacting a travel agent. Now more customers are booking their tickets either directly on an airline's own Web site or through one of the proliferating third party online travel agencies. At the moment, SPA offers services through airline service counters, over the telephone, and on a simple home page.

Despite the increased alliances there is room in the industry for small, innovative airlines. In recent years small airlines such as Virgin Atlantic and Southwest Airlines have been able to increase their market share with innovative strategies such as using low cost and underutilized airports close to metropolitan areas, budget connections, and differentiated in-flight services. In these companies the whole staff is constantly looking for and finding ways to do things better. Whereas technical staff is improving operating efficiency of aircraft, marketing and customer service employees are seeking new ways to fill seats and process passengers and cargo more efficiently. Unfortunately, though, SPA has not been a seedbed for innovation due to the bureaucratic, reactive, and risk adverse corporate culture. The inability to

change has deteriorated SPA's image even further as a low quality and inefficient airline.

It is evident that SPA has to innovate to increase its market share and stay in business. Your task as the new management team is to build an innovative strategic plan within the next 60 minutes reaching the following goals:

- The majority of turnover should be created in international markets.
- Sales, ticketing, and in-flight services should be changed.
- Marketing and services should be differentiated to build a new image.

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