

## **Moderating Effects of Group Cohesiveness in Competency-Performance Relationships: A Multi-Level Study**

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### **Abstract**

This study examines the moderating effect of group cohesiveness both at the individual and at the group level. In the individual-level study, moderating effect of group cohesiveness was tested with 249 employees from a Korean manufacturing company. Group cohesiveness turned out to have a negative moderating effect on the individual competency-performance relationship, and this finding suggests that competency of a given group member would be restrained by other group members under high cohesiveness. For the group-level study, group data of 42 teams from the same company were formed. Unlike results at the individual level, group cohesiveness had a positive interaction effect with competency on performance at the group level. In other words, group cohesiveness reinforced competent group to achieve better performance.

Keywords: Competency, Group cohesiveness, Performance, Multi-level



## INTRODUCTION

Along with the rapid development of technology and changes in the environment, many organizations have come to consider human resources as a critical part of their competitive advantage. For better human resource management, organizations need greater numbers of highly competent employees. In addition, business performance is not a single function of personal characteristics. There have been well-accepted frameworks about performance so far, such as person-context interactions (Amabile, 1996; Woodman, Sawyer & Griffin, 1993), person-environment fit (Kristof, 1996; Schneider, 1987), and function of motivation  $\times$  ability (Campbell, McCoy, Oppler, & Sager, 1993). Based on these frameworks, the current study considers a group context in person-performance relationship.

Group cohesiveness was chosen as a group factor due to its ambivalence. Although considerable research over the past 50 years has demonstrated the relationship between cohesiveness and performance, it is unclear whether or not cohesiveness would influence performance positively. In this study, group cohesiveness was considered differently depending on individual or group level. For instance, at the individual level, group cohesiveness would be a negative moderator based on social control theory. According to social control theory, people can be restrained if they belong to groups which have strong ties (Hirschi & Stark, 1969). When applying this theory to business situations, it can be assumed that a competent employee who belongs to a highly-cohesive group would be restrained; in other words, group cohesiveness would weaken the competency-performance relationship.

On the other hand, unlike the individual level, positive aspects of group cohesiveness have been observed at the group level (Barrick et al., 1998). The prominent way of thinking about groups is the *Input-Process-Output* framework, in which inputs (i.e., collective competency) combine to influence intra-group processes (i.e., group cohesiveness), which in turn affect group performance. That is, competent members in highly-cohesive groups engage in synergistic interaction creating better performance (Barrick et al., 1998).

This framework is also explained based on the social capital theory which indicates economic concepts of human capital. The social capital theory suggests that competent members in highly cohesive groups are not only willing to share their resources, but also willing to cooperate with others for mutual interests.

The major purpose of this paper is to explore the moderating effect of group cohesiveness in the person-context framework. Furthermore, group cohesiveness would assume a different entity when observed at the individual versus the group level.

### Competency and Performance

According to Hoffman (1999), the term *competency* has been defined in literature from two different points of view. One is referring to organizational performance, and the other definition is referring to individuals' underlying attributes. While management strategists emphasize competencies that are unique and firm-specific, organizational psychologists are more concerned with developing individual competencies. The individual competency concept was originally initiated by McClelland (1973). He demonstrated that behavioral traits and characteristics were much more effective than aptitude tests in determining who had better performance. Boyatzis (1982) presented an intensive study (surveying 2,000 managers in 12 organizations) that provided a context for identifying the special characteristics, as well as

assessing and developing managerial talent. Spencer and Spencer (1993) developed a competency dictionary consisting of twenty competencies distributed in six clusters. These generic competencies were illustrated with typical example drawn from the interviews of superior performers. Recent studies (Stoof, Martens, Merrienboer, & Bastiaens, 2002) have proposed competency should be defined by how it fits into existing organizational processes. In this paper, competency is defined as an underlying behavioral characteristic that can result in effective individual performance focusing on personal characteristics not directly tied to work and achievement itself.

The use of competencies has become widespread in human resource management (Wang & Chen, 2002; Rodriguez, Patal, Bright, Gregory, & Gowing, 2002), and competency methods have served the HR profession well for several decades (Athey & Orth, 1999). However, most prior research has tended to center around competency modeling (Langdon & Marrelli, 2002; Leach, 1996; Burke & Day, 1986) and case studies (Dubois, 1998). Therefore, some researchers have seriously questioned the validity of these approaches (Barrett & Depinet, 1991). Furthermore, the study of competencies has few common methods available for examination in academic fields. In previous studies, qualitative methodologies (i.e., in-depth interview, panel workshop) were adopted (Özçelik & Ferman, 2006) or Q-sort methods (i.e., Portfolio Sort Card) were used (Lievens, Sanchez, & Corte, 2004). In this study, we adopt a qualitative methodology to measure competency and to develop the hypothesis.

Hypothesis 1. Individual competency has positive influence on individual performance.

In addition, this relationship was extended to the group level. Studies have been done which look at the aggregation of individual characteristics in work teams since this has become an important variable in achieving business results. Rapisards (2002) examined the relationship between the average score of team members' emotional intelligence and ratings of team performance. Barsade and Gibson (1998) discussed the need for research to consider a group measure of individual characteristic on a team. This study has been made in response to the need for competency research with teams.

Hypothesis 2. Collective competency has positive influence on group performance.

### **The Moderating Effect of Group Cohesiveness**

Cohesiveness is generally defined as "the resultant of all forces acting on all the members to remain in the group" (Cartwright, 1968, p. 91). Group cohesiveness is one of the essential concepts for understanding group dynamics (Zander, 1979) studied for its conceptual similarity with teamwork.

Early theorists identified group cohesiveness with other concepts such as group spirit, interpersonal attraction, sense of belongingness, and sense of we-ness (Mudrack, 1989). Later, 'the desire to stay in a group' was added to the meaning (Evans & Dion, 1992). For clear conceptualization of cohesiveness factor analyses were conducted in the 1950s and 1960s; however, this concept lacks general acceptance so far. Since the mid-1980s, cohesiveness studies show an increasing tendency to separately look at the multiple facets of group cohesiveness. Cota, Longman, Evans, Dion, and Kilik (1995) argued that making division of social and task cohesion is significant not only for the conceptual articulation of group cohesiveness, but also for understanding the relationship between cohesiveness and performance. As a matter of fact,

studies that examined the relationship between cohesiveness and performance have generally shown an ambivalent link. For instance, Mullen and Copper's (1994) meta-analysis of the cohesion-performance effect reported that the average correlation between cohesion and performance was small but significant. However, another meta-analysis of the cohesion-performance effect (Gulley, Devine, & Whitney, 1995) failed to clearly explain the relationship.

In this current study, group cohesiveness is approached with a traditional view which concentrates on social cohesion. A social cohesion (i.e., interpersonal aspect) would be a proper concept for examining the moderating effect in the person-context framework study. Even though is an important aspect of the cohesiveness concept, this paper is only focused on interpersonal and social parts.

In addition, this paper is considered a level (individual vs. group) problem, since there has been level inconsistency between individually-measured cohesiveness and group performance measured at the group level. Mullen and Copper (1994) conducted individual and group level studies together in their work. As a result, only task commitment had a significant effect on performance, whereas interpersonal attraction did not. On the contrary, Beal, Cohen, Burke, and McLendon (2003) found a different result when they considered the level issue using only group level data for analysis. Consequently, both 'task commitment' and 'interpersonal attraction' were shown to significantly affect performance.

Beyond these issues, it is clear that some uncertainty remains as to the exact nature of the relationship between cohesiveness and performance (Langfred, 1998). Therefore, many researchers (Schachter, Ellertson, McBride, & Gregory, 1951; Tziner & Vardi, 1982; Forsythe, 1990) have suggested the existence of a moderator.

Summing up, group cohesiveness is an important factor of performance, but it may not have a direct relation with the performance. In the current study, cohesiveness would be proposed as a moderator. In doing so, this paper responds to a call for examining the role of a group context in individual and group outcomes.

### **The Moderating Effect of Group Cohesiveness at the Individual Level**

***Social Control Theory.*** The most well-known figure in control theory is Hirschi and Stark (1969). They focus on restraining or controlling factors that are broken or missing inside personalities. If these restraining factors are thought to involve society in some ways, as with the sociological notion that norms are internalized, then the theory is said to be a social control theory, and is most probably a social bond theory. The theory demonstrates that people can be restrained if they belong to groups which have strong ties. In business situations, personal characteristics could be restrained when group member belong to cohesive groups. Competent employees in high-cohesive group would be influenced by other members due to strong social bonds; consequently, group cohesiveness would weaken the individual competency-performance relationship

### **The Moderating Effect of Group Cohesiveness at the Group Level**

***Intra-group Process and Group Performance.*** Hackman (1987, p. 315) defined group process as "the interaction that takes place among members". Group cohesiveness reflects synergistic interactions between team members (Barrick et al., 1998); thus, group cohesiveness is suggested as a general indicator of intra-group process. *Input-Process-Output* model (Gladstein, 1984; Guzzo & Shea, 1992; Hackman, 1987; McGrath, 1964) is the predominant way of thinking

about groups in research. The model illustrates that inputs combine to influence intra-group processes, which in turn affect group performance (Barrick et al., 1998). In this study, this model is simplified; that is, the related input is group members' competency, process is group cohesiveness, and output is group performance. Consequently, competent members in highly-cohesive groups engage in synergistic interaction, and group cohesiveness positively reinforces the competency-performance relationship.

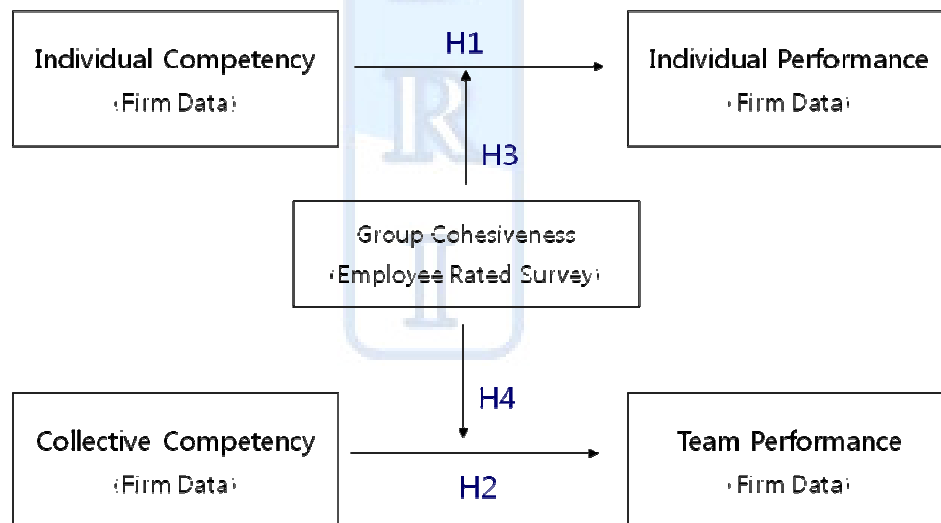
***Social Capital on Group Performance.*** The term *social capital* indicates the well-established economic concept of human capital. Nan (2001) described social capital as an investment in social relations with expected returns in the marketplace. Putnam (1993) suggested that social capital would facilitate co-operation and mutually supportive relations in communities. It was assumed that competent members in highly-cohesive groups are willing to share their resource and cooperate with others due to mutual interest; thus, group cohesiveness helps their group to achieve better performance. Group performance will increase in such situations; hence, group cohesiveness would be a moderator in the competency-performance relationship.

Based on the argument so far, this paper proposes that group cohesiveness would moderate the competency- performance relationship at both levels.

*Hypothesis 3. Group cohesiveness negatively moderates an individual's competency-performance relationship.*

*Hypothesis 4. Group cohesiveness positively moderates the group level's competency-performance relationship.*

**Figure 1. Research Model**



For the individual level, this study hypothesize that individual competency has a positive effect on individual performance; however, group cohesiveness would attenuate the competency-performance relationship. For the group level, it is assumed that group level competency also has a positive impact on group performance. Furthermore, group cohesiveness would reinforce the competency-performance relationship.

## METHODS

### Sample

Data were collected three times. First, in time 1, real personnel data (i.e., competency rating) were collected from a Korean manufacturing company (digital electronic parts industry). Second, in time 2, surveys were sent designed to measure group cohesiveness to the Human Resource Management Department for internal distribution. Questionnaire data were collected from 462 members of 52 teams who worked in the same company. Finally, in time 3, real personnel data were collected again. Teams that had responses from at least two people and available performance data were included. Therefore, 249 members of 42 teams were used for analysis.

### Measures

**Competency.** The Human Resource Management Department of the company provided real data. The company developed a general competency model referring to Boyatzis's (1982) framework. They completed the model using (a) content analysis; analyzing the vision statement and annual strategy report, (b) workshop; defining who competent employees are, and (c) FGI (Focus Group Interview); generic characteristics of competent employees were selected by SMEs (Subject Matter Experts). As a result, 3 items (i.e., person: conscientiousness, job: declarative skill and knowledge, organization: understanding organizational culture) were confirmed. In addition, leadership and managerial skill were also included, because they are considered to be effective in business. Finally, in a panel workshop, the competency model was confirmed based on the person-job-organization framework.

Supervisors assessed their subordinates' competency levels from the firm's appraisal form. A 5-point scale (1= "far below average", 5= "far above average") was used ( $M = 3.99$ ,  $SD = .31$ ).

**Group Cohesiveness (individual level).** This was measured to assess the degree that members feel attracted to their groups and are willing to remain in the group. Six items of Choi (1991) who translated and modified Price and Muller's (1986) items were used. Example items are, 'I feel a strong sense of belonging to my team' and 'I want to be friendly to my coworkers in my team'. These items were measured on a seven-point Likert scale where a higher score indicated greater cohesiveness. The Cronbach's alpha for the combined scale was .85 ( $M = 5.32$ ,  $SD = 1.04$ ).

**Individual Performance.** Human Resource Management Department provided individual performance rating scores ( $M = 3.52$ ,  $SD = .76$ ). The data were collected with a 7-month time-lag from the survey and a 1-year time-lag from the competency data. A 5-point scale was used.

**Collective Competency.** Collective competency were measured through aggregation of individual competency ( $M = 4.00$ ,  $SD = .15$ ).

**Group Cohesiveness (group level).** Group cohesiveness were measured through aggregation of individual perceived group cohesiveness ( $M = 5.34$ ,  $SD = .55$ ).

**Group Performance.** The Human Resource Management Department provided team performance data (i.e., fulfillment of task, completion of projects, degree of innovation). The team performance data were collected with a 7-month time-lag from the completion of collection of the survey data (group cohesiveness) and a 1-year time-lag from the completion of collecting competency data ( $M = 90.40$ ,  $SD = 10.82$ ).

**Control Variable: Position, Gender, Task Interdependence.** This paper statistically controlled the effect of demographic variables (position, gender) and task interdependence, which have been identified to have a significant moderating effect on performance (Gully, Devine, & Whitney, 1995).

## RESULTS

Table 1 presents correlations and descriptive statistics for all measures included at the individual level.

**Table 1 : Descriptive Statistics and Correlations: Individual Level**

	M	SD	1	2	3	4	5
1. Performance	3.52	.76					
2. Interdependence	4.68	1.07	-.027				
3. Gender	.02	.15	-.055	.071			
4. Position	2.29	1.23	.092	-.011	-.059		
5. Competency	3.99	.31	.177*	-.031	-.047	.013	
6. Cohesiveness	5.32	1.04	-.028	.202*	.010	.126*	-.016

\* $p < .05$ ,  $N = 249$

As can be seen, individual competency had a significant relationship with individual performance. However, group cohesiveness did not relate significantly to performance.

Hierarchical regression analysis was used to test hypotheses and verify the moderating effect of cohesiveness.

**Table 2 : Hierarchical Regression Analysis: Individual Level**

Step and variable	Individual performance	
	B(Standardized)	R Square Change
<b>Step 1</b>		.011
Task Interdependence	-.023	
Gender	-.049	
Position	.088	
<b>Step 2</b>		.31*
Task Interdependence	-.011	
Gender	-.041	
Position	.091	
Individual Competency	.173*	
Group Cohesiveness	-.034	
<b>Step 3</b>		.012 <sup>†</sup>
Task Interdependence	-.008	
Gender	-.034	
Position	.09095	
Competency	.742*	
Cohesiveness	1.411	
Competency × Cohesiveness	-1.549 <sup>†</sup>	

\* p < .05, <sup>†</sup> p < .10, N = 249

Table 2 presents the result of the hierarchical regression analysis. Firstly, control variable (task interdependence, sex, position) was entered, followed by the independent variables (individual competency, group cohesiveness) and the two-way interaction (competency × group cohesiveness). The results indicate that individual competency ( $\beta = .742$ ,  $p < .05$ ) influences significantly individual performance; thus, Hypothesis 1 was supported. The competency × cohesiveness interaction term explained a significant incremental portion of variance ( $\Delta R^2 = .012$ ,  $p < .10$ ). Thus, Hypothesis 3, the moderating effect of group cohesiveness was also supported.

To identify the form of the interaction, the equation at the high and low level of group cohesiveness was plotted. Figure 2 presents the form of the joint relationship of the competency and group cohesiveness on individual performance. That is, an increase in competency was significantly associated with performance, and this relationship was attenuated by group cohesiveness. Therefore, this study demonstrates that competent individuals with low group cohesiveness achieve the best performance.



**Figure 2. Moderating effect of cohesiveness at individual study**

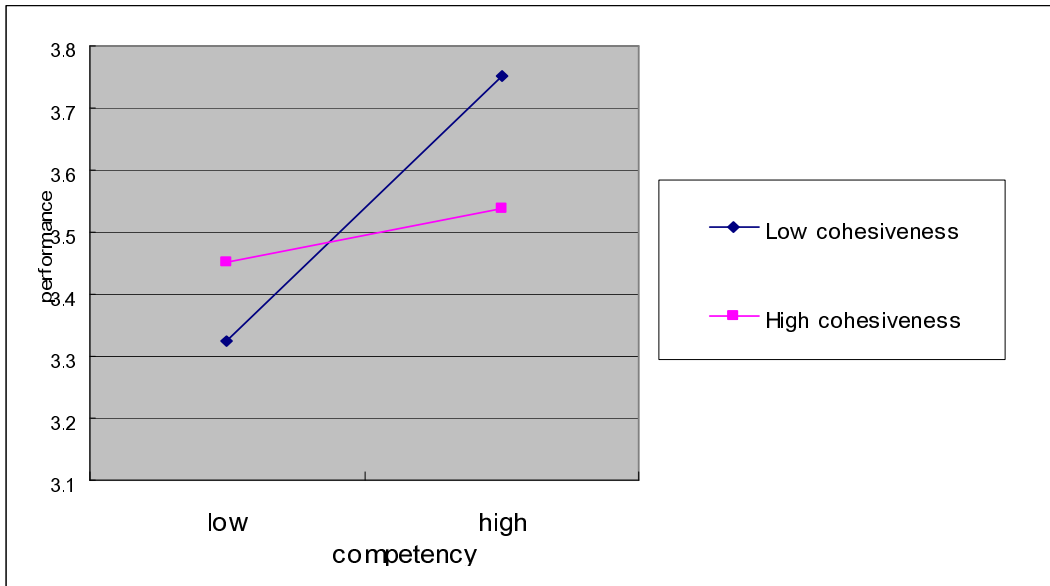


Table 3 presents correlations and descriptive statistics for all measures included at group level.

**Table 3 : Descriptive Statistics and Correlations: Group Level**

	M	SD	1	2	3	4
1. Performance	90.4	10.82				
2. Interdependence	4.76	.47	.005			
3. Team Size	8.76	.59	-.085	-.157		
4. Collective Competency	4.00	.15	.127	.131	-.298 <sup>†</sup>	
5. Group Cohesiveness	5.34	.55	.149	.285	-.096	.034

<sup>†</sup> p < .10, N=42

As can be seen, there was no significant relationship among collective competency, group cohesiveness, team performance.

Hierarchical regression analysis was used to test the hypotheses and verify the effect of collective competency on team performance.

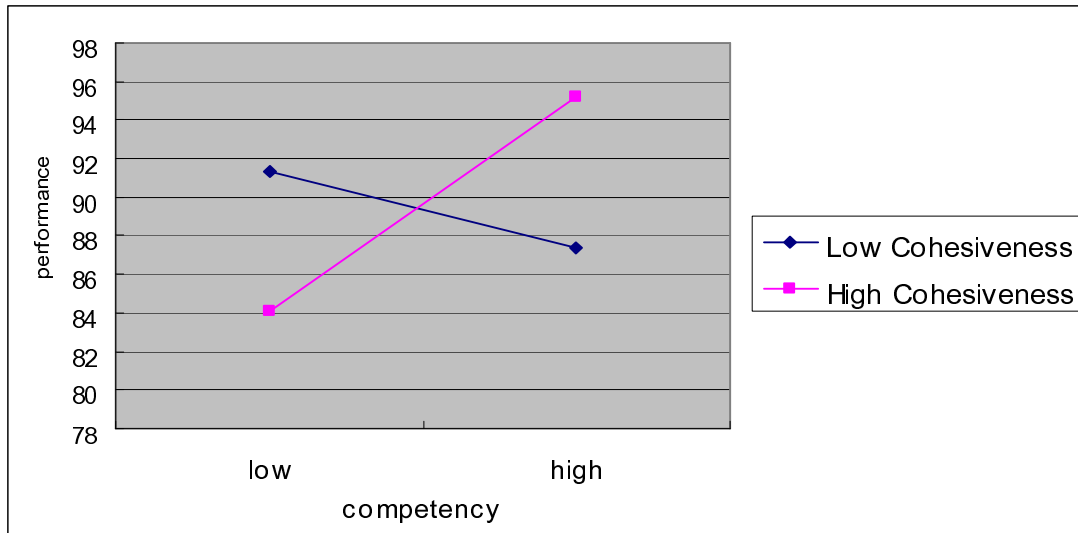
**Table 4 : Hierarchical Regression Analysis: Team Level**

Step and variable	Team performance	
	B(Standardized)	R Square Change
<b>Step 1</b>		.007
Task Interdependence	-.01	
Group Cohesiveness	-.09	
<b>Step 2</b>		.035
Task Interdependence	-.06	
Group Cohesiveness	-.05	
Collective Competency	.12	
Group Cohesiveness	.16	
<b>Step 3</b>		.077 <sup>†</sup>
Task Interdependence	-.08	
Group Cohesiveness	-.10	
Collective Competency	-2.43	
Group Cohesiveness	-6.81	
Collective Competency × Cohesiveness	7.50 <sup>†</sup>	

<sup>†</sup> p < .10, N = 42.

Table 4 presents results of the hierarchical regression analysis. Results indicate that collective competency did not explain significant amounts of variance. Thus, Hypotheses 2 was rejected. However, competency × cohesiveness interaction term explained a significant incremental portion of variance ( $\Delta R^2 = .077$ ,  $p < .10$ ). Thus, Hypotheses 4, the interactive effect of collective competency and cohesiveness on team performance was supported.

To identify the form of the interaction, the equation at high and low level of cohesiveness was plotted. Figure 3 presents the form of the joint relationship of collective competency and cohesiveness on team performance.

**Figure 3 : Moderating effect of cohesiveness at group study**

As shown in Figure 3, collective competency influenced positively to team performance at high level of group cohesiveness, but it influenced negatively at low level of group cohesiveness.

## DISCUSSION

A debate about group cohesiveness continues over whether or not it affects performance. In the current research, a direct relationship was not revealed. On the other hand, the moderating effect of cohesiveness was significant at both levels even though the direction is opposite. It is hoped that these results will theoretically contribute to the cohesiveness-performance relationship study.

In addition, another interesting result from this paper is that individual competency would predict performance, whereas collective competency does not reveal any relationship with performance. This result suggests that collecting competent individuals would not be important in itself unless a group process is added. The implications of our findings and limitations of our research are discussed below.

## Implications

Our findings expand upon the previous research in three important ways. First, the relationship between competency and performance was empirically examined. Despite the rise of competency studies, few have attempted to conduct empirical studies. This article has shown that individual competency could predict individual performance. Conversely, collective competency failed to predict team performance. This finding suggests that group level competency without a group process has no influence on group performance.

Second, it was found that group cohesiveness has a double-faced effect between the individual and group level. At the individual level, group cohesiveness negatively moderated the c-p relationship. This result suggests that competent people in highly-cohesive groups would not show their capabilities fully. It can, therefore, be explained that competent individuals who belong to socially bonded groups will not only concentrate on their individual performance but also on other member's work. As a result, group cohesiveness positively influences the c-p relationship at the group level. That is, group cohesiveness facilitates collective competency leading to group performance. However, it is achieved only if individuals have competencies. If individuals have no competencies, group cohesiveness would not influence group performance. This phenomenon is explained through social capital theory, which reveals expected returns in social relations.

Third, our research was designed so that the dependent variable was measured with a time lag. Therefore, this article more precisely examines the causality between variables than cross-sectional studies. Furthermore, this study minimizes the possibility of common method bias by measuring multiple sources (i.e., supervisor-rated, employees' self reports). Common method bias refers to the methodological error that occurs when independent and dependent variables are measured by the same method and from the same respondent. This can cause a serious effect on the validity of measurement, consequently distorting the research outcome by inflating or deflating the intensity of the relationship between variables (Podsakoff & MacKenzie, 1987). This study tried to avoid this problem by using different methods, sources, and points of time.

### **Limitations and Future Research**

Although this study has strong validity, it has limitations as well in using multiple sources. Since provided secondary data (i.e., competency, individual performance, team performance) were not controlled by the researchers, this paper may have weak reliability with academic perspective. In particular, competency items were developed by qualitative methods (i.e., panel workshop, interview) making it hard for generalization. In addition, even though the empirical study attempted to increase internal validity by using longitudinal data, it was difficult to generalize the findings because the data were collected from only one organization.

In future studies, two points need to be considered. First, the competency concept should be standardized and reinforced by quantitative methods. In doing so, competency studies could prosper in both academic and practical significance. Second, group cohesiveness needs to be reconsidered due to cohesiveness's indirect effect on performance. Until now, group size (Mullen & Copper, 1994), group goal (Podsakoff, MacKenzie, & Ahearne, 1997), performance norm (Schachter et al., 1951; Langfred, 1998), task interdependence (Gully, Devine, & Whitney, 1995), and past performance (Feltz & Lirgg, 1998; Lee & Farh, 2004) have been identified to exert a significant moderating effect on the cohesiveness-performance relationship. Therefore, future studies would benefit if three-way interaction (competency  $\times$  cohesiveness  $\times$  another moderator (i.e., group norm)) was examined.

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