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Workforce diversity in manufacturing companies and organizational performance: the role of status-relatedness and internal processes

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ABSTRACT

This study investigates workforce diversity at the organization level, which has been relatively overlooked. We focus on status-related processes that complement the ambiguities involving social categorization and information processing perspectives. We further identify the theoretically meaningful mediators (i.e. innovative climate, employee competence and employee satisfaction) of the diversity–performance relationship at the organization level. We empirically validate our hypothesis using time-lagged, multi-source data collected from 256 Korean manufacturing companies at 2 time points over a 2-year period. Results indicate that hierarchical position diversity is negatively related to employee competence and satisfaction, which in turn negatively affects operational performance. Education diversity positively affects innovative climate, employee competence and employee satisfaction, thus increasing the innovation and operational efficiency of an organization. This study elaborates the distinct implications of diversity dimensions with different levels of status-relatedness, and offers empirical contributions that highlight the mediating mechanisms through which diversity enhances different forms of organizational performance.

KEYWORDS

Employee competence; employee satisfaction; innovative climate; innovative performance; operational performance; status-relatedness; workforce diversity

Introduction

Increasing workforce diversity and the prevailing endorsement of the value of diversity within organizations (Han, Han, & Brass, 2014; Shin, Kim, Lee, & Bian, 2012) have prompted contemporary organizations to shift their human resource strategy for engendering greater diversity among employees (Kossek, Markel, & McHugh, 2003). Although the issue of diversity is significant for the entire organization, existing studies have been dominated by analyses at lower levels focusing

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on phenomena such as group diversity and relational demography (Jackson, Joshi, & Erhardt, 2003). Empirical findings at the group and dyadic levels of analysis have implications for understanding the roles of workforce diversity regarding organization-level processes and outcomes. Nevertheless, assuming a multi-level homology between groups and organizations, concerning the implications of diversity is unreasonable (McDonald, 2003). The reason is that the phenomenon of organization-level diversity is partly based on distinct social interactions among members similar to group-level diversity, but it also initiates purely symbolic and institutional dynamics related to the entire organization. Considering that employees' actual social interactions are limited to a very small portion of the entire workforce in the organization, organization-level diversity primarily affects organizational performance by creating an overall corporate work environment that operates as a macro-level institutional context for employees (McDonald, 2003). The different functional mechanisms and discontinuity of diversity at different levels induce the necessity for conceptual and empirical investigations regarding the process and performance implications of workforce diversity at the organization level.

Drawing on prior literature (Jackson et al., 2003; Joshi & Roth, 2009), we define organizational diversity as an aggregated organization-level construct that represents the differences among employees with respect to a specific individual attribute. Self-categorization theory denotes that diversity creates social division and interpersonal conflict, which have negative implications for various outcomes (Riordan & Shore, 1997; Van der Vegt, 2002). By contrast, information processing theory endorses that diversity can promote creativity, innovation and performance by supplying informational cues and diverse cognitive resources (Wu, Wei, & Lau, 2010). Employing these two distinct perspectives, previous studies have differentiated the roles of social category or relational diversity from informational or task-related diversity (Choi, 2007a). Nevertheless, several meta-analytic reviews of empirical studies on diversity do not provide a clear pattern regarding the performance implications of diversity in different personal attributes (e.g. Webber & Donahue, 2001). This phenomenon occurs because typical social category variables, such as gender and age, also implicate informational diversity based on distinct experiences and views (Ali, Kulik, & Metz, 2011; Vendramin, 2009). Typical task-related variables, such as tenure and functional background, also activate social categorization processes and stereotyping based on in-group and out-group perceptions (Knight et al., 1999; Van der Vegt, Van de Vliert, & Oosterhof, 2003).

To complement the existing focus on the two functions involving either social categorization or information processing, we focus on the status-related implications of diversity. Status characteristics theory (SCT) highlights the role of status disparity among individuals, which engenders interpersonal undermining and often diminishes performance (Berger, Fişek, Norman, & Zelditch, 1977). The social categorization process may determine individual behavior more strongly when the social category clearly implicates status differential. Diversity researchers

have only recently started to adopt SCT as a core theoretical ground that provides complementary explanations for the effects of diversity at group-level analysis (Chatman & O'Reilly, 2004; Chattopadhyay, George, & Lawrence, 2004; Choi, 2007a). Status-related processes seem particularly critical at the organization level because they may engender the overall climate for employee interactions and convey a signal regarding the social structure of the organization. Drawing on extant studies, the present research identified various types of diversities based on status differentials, which are directly and indirectly related to prestige and power within organizations.

As many researchers have asserted (Harrison, Price, Gavin, & Florey, 2002; Wu et al., 2010), the effect of diversity on outcomes is most likely indirect and mediated by a number of intervening processes. In the meta-analysis of 76 studies, Webber and Donahue (2001) identified two mediating mechanisms as the core factors in the diversity–performance link, namely: (a) task-related knowledge, skills and abilities (KSAs) and (b) morale involving interpersonal attraction and satisfaction. In addition to these cognitive and affective processes, we argue that organization-level diversity creates a certain climate, such as flexibility and tolerance, toward ambiguity and differences (Phillips & Loyd, 2006; Van der Vegt, Van de Vliert, & Huang, 2005). Thus, we propose that organizational diversity indirectly affects organizational performance outcomes through its direct effect on organizational climate, employee KSAs and employee satisfaction. Based on the recommendation of Horwitz and Horwitz (2007), the present study investigates both the qualitative and quantitative outcomes of an organization, such as innovative performance and operational efficiency. The theoretical framework is verified using time-lagged, multi-source data collected from 256 Korean manufacturing companies.

Theoretical framework and hypotheses

Status differentials have received increasing scholarly attention as a core theoretical mechanism that provides complementary and perhaps more elaborate explanations of the diversity–outcome relationship beyond social categorization and information processing perspectives (Chatman & O'Reilly, 2004; Chattopadhyay et al., 2004; Choi, 2007a). The SCT suggests that various individual characteristics, such as ethnicity, gender, age, education and task experience, serve as status cues that induce differentiated perceptions of task competence and/or performance expectations for others. Such expectations automatically shape the status structure in the workplace, resulting in the discrimination between higher and lower status members (Amoroso, Loyd, & Hoobler, 2010; Bunderson, 2003; DiTomaso, Post, & Parks-Yancy, 2007). Status disparity suppresses the voice, reduces communication and engenders interpersonal undermining, which have negative implications for creativity and performance (Berger et al., 1977; Harrison & Klein, 2007; Van der Vegt et al., 2005).

Most dimensions of diversity are apparently associated with status differentials. Pelled, Xin and Weiss (2001) suggested that males, whites, seniors and supervisors have higher status than their female, non-white, junior and subordinate counterparts. Stereotypically, the formation of differentiated status among members based on these characteristics may be true. Nevertheless, the fundamental assumption of SCT involving status formation driven by perceptions of task competence and performance expectation may not hold consistently over time for most demographic variables. As Van Dijk, Meyer and Van Engen (2012) demonstrated, individuals' initial competence perceptions of others based on observable attributes such as gender are often inaccurate, inducing negative consequences for the group. For example, although some women are better in math than men, men are expected to perform better on mathematical tasks than women; thus, males tend to garner greater status and influence in the context of math-related tasks than females, resulting in suboptimal performance for the group. Thus, in ongoing work units, status based on performance expectations associated with differing social categories can be broken and reassessed continually due to inconsistency between expected competence and actual competence.

Although the gender, age and education of employees can be used as status cues (Bunderson, 2003; Pelled et al., 2001; Van Knippenberg & Schippers, 2007), their status implications are limited and ambiguous due to their informal nature and vulnerability to reality checks, which may invalidate the perceived status. Therefore, the demographic diversity of organizational workforce based on gender, age and education is less likely to be directly related to the authority and control over others in organizations, and thus is relatively free from potentially negative implications of status differentiation. By contrast, hierarchical position constitutes the most salient and formal indicator of authority and prestige within an organization (Choi, 2007a; Harrison & Klein, 2007). Considering the explicit power implications of hierarchical ranks, hierarchical position is identified as the attribute that causes status-related diversity, inviting status-driven dynamics and interpersonal processes due to its unambiguous status connotations.

Based on this distinction between demographic and status diversities, we propose the differentiated effects of these diversity dimensions on organizational performance mediated by various internal processes involving employees (see Figure 1). As diversity researchers have reported (Kunze, Boehm, & Bruch, 2011; McMahon, 2010), the collective perceptions of employees, such as innovative climate and their KSAs and affective reactions, are expected to account for the diversity–performance link at the organization level. Considering the multidimensional nature of performance (Horwitz & Horwitz, 2007), we include two forms of outcomes (i.e. innovative and operational performances) in our theoretical framework, each reflecting the qualitative and quantitative aspects of organizational outcomes.

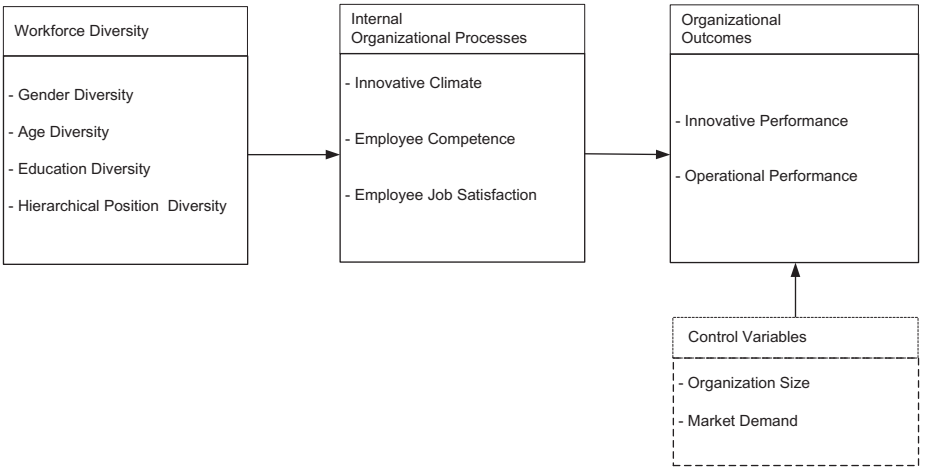

Figure 1. Theoretical framework predicting organizational outcomes.

Demographic and status diversities and organizational performance

Acknowledging the plausibility of both self-categorization process based on the similarity–attraction paradigm (Chatman & Flynn, 2001; Kunze et al., 2011; Riordan & Shore, 1997) and information processing perspective (Shin et al., 2012; Talke, Salomo, & Rost, 2010; Wu et al., 2010), we propose the status-relatedness of diversity dimensions as a third theoretical perspective that might offer a more elaborate explanation. Specifically, we posit that the process and performance implications of diversity may vary depending on the level of the status-relatedness of the given diversity dimension. For instance, functional diversity may generate different outcomes when it does not significantly involve status implications (e.g. cross-functional teams composed of first-line managers from different departments) compared with the condition in which functional diversity implies status differential (e.g. cross-functional teams composed of members from the parent company and subcontractors).

At the organization level, we propose that more status-related diversity dimensions may develop an overall organizational environment that emphasizes the intergroup differences based on social categorization and suppresses the potential informational benefit of the given dimension. The SCT suggests that lower status members are given less time to express their views and often disagree with the alternatives proposed by higher status members due to dissatisfaction with the process (Amoroso et al., 2010; Bunderson, 2003; Deanna & Alison, 2003). Higher status employees discount the ideas of lower status employees because the former view the latter as people with lower ability and competence (Van der Vegt et al., 2005). Hence, status differentials generate severe social divisions that separate organizational members from each other (Amoroso et al., 2010; Harrison & Klein, 2007). A high level of hierarchical position diversity intensifies organizational

hierarchy and divides members based on organizational echelons, which block communication and diminish the integration of different perspectives of junior and senior members of the organization (Berger & Fişek, 2006). Diversity in the hierarchical positions of organizational members should decrease both the qualitative and quantitative outcomes of the organization by creating an organizational environment that endorses and invigorates divisive formal and informal organizational structures.

Hypothesis 1: The status diversity of organizational members is negatively related to innovative and operational performance.

By contrast, diversity in less status-related attributes, such as gender, age and education, may not generate severe social divisions among employees. Thus, the informational benefit from employees with differences in gender, age and education is more likely to be achieved. Gender, age and education diversities promote the division of labor among employees, which can be realized more effectively because these attributes impose less status differential and social chasm among employees. Gender diversity is a source of intangible and socially complex resources that improve problem-solving, creativity and overall organizational performance (Ali et al., 2011; McMahon, 2010). Scholars have explained the reason for the positive implications of a gender-diverse workforce for organizational performance as complementarity between males and females with regard to their skills and abilities (Ali et al., 2011; Wood, 1987). Similarly, organizations tend to be more effective and productive when composed of members of diverse ages due to the potential complementarity and division of labor between older and younger employees based on their distinct social experiences, skill profiles and differing perspectives (Bantel & Jackson, 1989; Vendramin, 2009). An age-diverse workforce also softens interpersonal tension and unnecessary competition because employees at the same life and career stages tend to pursue the same resources and positions in organizations, thus inducing potential strain and destructive competitive behavior (Choi, 2007a). Organizations intentionally diversify the age composition of their workforce to maintain the continuity of their workforce in the long run and facilitate adequate knowledge transfer from the older to the younger generation of employees (Backes-Gellner & Veen, 2009; Vendramin, 2009).

Workforce diversity with varying levels of educational attainment may also enhance the division of labor by providing heterogeneous skills and expertise to the organization. Organizations, particularly those in the manufacturing industry as in the present research setting, need to staff a number of different functions with varying levels of complexity and skill requirements (Nagel & Bhargava, 1994). In such a context, having employees with diverse skills and educational attainment is necessary to avoid the under-utilization of high-skilled employees in routine tasks or the imposition of extremely complicated problems on low-skilled members (Anderson & Taylor, 2006; Peri & Sparber, 2009). The relatively low-status implications of gender and education boost the potential performance gain from

gender and education diversities because the division of labor and task specialization based on these attributes help the organization resolve complex problems more creatively and utilize internal resources more efficiently.

Hypothesis 2: The demographic diversity of organizational members (gender, age, and education diversity) is positively related to innovative and operational performance.

Internal processes of organizations as mediating mechanism

Employing the well-established input–process–output model of group effectiveness, researchers have positioned diversity as an input factor formed by the relatively stable dispositions of members. As an input to the collective, diversity affects the psychological states of members and internal group processes, which are more directly responsible for group outcomes (Chatman & Flynn, 2001; Harrison et al., 2002). At the organization level, contextual perceptions, such as organizational climate and employee-related processes (e.g. employee competence and satisfaction), have been presumed as plausible intervening processes that explain the relationship between diversity and performance (Phillips & Loyd, 2006; Webber & Donahue, 2001). However, empirical evidence of such mediation remains limited. The present study hypothesizes and empirically validates whether those internal processes operate as significant intervening processes through which workforce diversity affects organizational performance.

Innovative climate

Diversity with strong status implications can create situations in which members are unlikely to voice their own ideas and opinions because lower status members are fearful of creating conflicts with senior or higher ranking members due to potential negative reputation (e.g. being rude) and unfavorable performance appraisal (Choi, 2007a; Pelled et al., 2001). Furthermore, even when lower status members express ideas, their opinions are often discounted or neglected by higher status members (Van der Vegt et al., 2005). Thus, hierarchical position diversity may impede the innovative climate of organizations, which is a core enhancer of challenging the conventional mode of operation and exploring new approaches (Choi, 2007b).

In the case of demographic or less status-related diversity dimensions, opposite internal processes are expected to occur. Studies have indicated that disagreement with individuals from the same background increases the feelings of surprise and irritation due to the violated expectations of similarity, thus reducing voice or creativity among the homogeneous members (Phillips & Loyd, 2006). Therefore, the diversity in less status-related attributes, such as gender, age and education, can break the pursuit of uniformity among members without inviting severe social divisions in the organization. The presence of such diverse members may signify that the organization cherishes differences and flexibility, which form a more

innovative climate, encouraging employees to be cognitively flexible and express different ideas without fear of being rejected or punished, consequently boosting creativity and innovation (West & Richter, 2008). Thus, we propose the following mediation hypothesis:

Hypothesis 3: The relationship between workforce diversity and innovative performance is mediated by an innovative climate.

Employee competence

The strong social chasm caused by hierarchical position diversity tends to impair learning and knowledge-sharing processes (Amoroso et al., 2010; Kunze et al., 2011). Status diversity may negatively affect the development of employee competence because the task ability of employees often results from interpersonal learning and knowledge sharing among members (Bowers, Pharmer, & Salas, 2000; Van Knippenberg, De Dreu, & Homan, 2004). Scholars have argued that superior organizational performance is achieved when employees possess sufficient cognitive resources, such as knowledge, skills and information, which are required for performing job tasks (Bowers et al., 2000; Han et al., 2014; Katou, 2009; Shin et al., 2012). Hence, reduced cognitive stimulation and knowledge repertoire available to employees induced by status diversity may impede the generation of innovative ideas and high-quality solutions, as well as the efficient and reliable operation of organizational functions (Webber & Donahue, 2001).

By contrast, differing and often complementing skills and viewpoints of males and females, of the old and the young and of highly educated and less educated may enhance the KSAs of employees by stimulating mutual learning (Ali et al., 2011; Backes-Gellner & Veen, 2009; Wood, 1987). In addition, members who are heterogeneous in gender, age and education are more likely to actively sharpen their skills in their specific task domain over time; consequently, the effective division of labor and task specialization prompted by gender, age and education diversities may enhance the task competence of employees, improving high-quality problem-solving and efficiency in various organizational functions (Anderson & Taylor, 2006).

Hypothesis 4: The relationship between workforce diversity and innovative and operational performance is mediated by employee competence.

Employee satisfaction

In addition to the detrimental effects on innovative climate and employee competence, position-based differentials may induce dysfunctional effects on employee satisfaction because they have overall destructive implications for employee morale. Organizations characterized by status-related diversity may engender employee perceptions of unfairness in resource allocation due to the concentration

of prestige and influence on high-status members (Findler, Wind, & Mor Barak, 2007). Employees tend to perceive such a situation as a highly politicized environment and feel relatively deprived of social and organizational resources (Van Knippenberg et al., 2004). The perceptions of unfair treatment and resource deprivation increase job-related stress and decrease satisfaction among employees (Findler et al., 2007). Scholars have noted that dissatisfied employees are reluctant to participate in work activities beyond the minimum task requirement (Kunze et al., 2011; Riordan & Shore, 1997), thereby diminishing the operational advantage of organizations.

In contrast to formal hierarchical differential that induces the negative perceptions and attitudes of employees, the complementarity and the overall efficient division of labor based on the member heterogeneity in gender, age and education attainment may enhance work and organizational satisfaction among employees. Organizations composed of all males, all young, or all highly educated individuals may generate intense competition among members, thus increasing interpersonal strain and job stress of employees (Inoue & Kawakami, 2010) and decreasing employee satisfaction. This expectation is congruent with those suggested by the complementary person–environment fit, which tends to improve individual outcomes (Muchinsky & Monahan, 1987). The dynamics involving the distinct skills of men and women and of the old and the young and the differing abilities of highly educated and less educated members are expected to promote employee satisfaction through the reduction of employee tension and strain; consequently, the efficient and reliable completion of routine organizational functions is enhanced.

Hypothesis 5: The relationship between workforce diversity and operational performance is mediated by employee satisfaction.

Method

Sample and data collection procedure

To empirically validate the present hypotheses, we used Human Capital Corporate Panel (HCCP) data archived by Korea Research Institute for Vocational Education and Training (KRIVET). The sample for the corporate survey was randomly drawn from the entire population of private business organizations with 100 or more employees in the manufacturing industry in Korea. Corporate survey data were collected at two time points in 2007 ($T1$, $N = 314$) and 2009 ($T2$, $N = 336$). Of the initial sample, 256 companies participated in both waves of data collection. These companies represented diverse manufacturing industries, such as energy, automobile, electronics, chemical products and machinery.

In each company, different groups of members participated in the corporate survey. The $T1$ sample consisted of the HRM directors of each company and 6,842 employees representing various functions, such as engineering, purchasing, production and marketing. On average, 26.73 respondents (SD = 13.49) participated

per company, consisting of 85.7% males with a mean age of 41.2 years (SD = 7.94) and an average tenure of 13.9 years (SD = 7.27). For the *T*2 data, strategy directors and 1284 department managers, with an average of 5.01 managers (SD = 2.09) per company, completed the survey. The *T*2 manager sample consisted of 97.9% males with an average age of 44.1 years (SD = 5.34) and an average tenure of 15.2 years (SD = 7.06).

Measures

Data were collected from four different sources, namely: HRM directors, strategy directors, department managers and employees. The HRM directors of companies responded to the scales related to the workforce diversity of the organization and employee competence. The strategy directors rated the level of organizational innovative performance and control variables. Department managers reported on the operational performance of the company. Employees completed the scales of the organizational innovative climate and employee satisfaction. Individual responses (i.e. responses of department managers and employees) were aggregated to the organization level for analysis. All of the scales exhibited acceptable within-firm agreement ($r_{wg(j)}$) and intra-class correlations (ICC(1) and ICC(2)), suggesting that managers and employees of the same company shared similar perceptions of the present constructs conceptualized and analyzed at the organization level (Chen, Mathieu, & Bliese, 2004). All of the variables were assessed by multi-item measures using a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Workforce diversity (HRM Director, *T1*)

The HRM directors reported the composition of the employees in their organization regarding the four demographic characteristics using their company record, namely: (a) gender (0 = female, 1 = male); (b) age (in years); (c) education (1 = high school graduate, 2 = two-year college, 3 = bachelor's degree, 4 = master's degree and 5 = doctoral degree); and (d) hierarchical position (1 = entry level, 2 = associate, 3 = first-line manager, 4 = middle manager, 5 = general manager and 6 = executive). Diversity was operationalized on three continuous variables (age, education and hierarchical position) as the firm-level standard deviation of those attributes. Given that the standard deviation of an attribute is affected by its mean, the organization-level mean values of those attributes were included as control variables in the present analysis (Harrison & Klein, 2007). For the categorical composition variable (gender), an entropy-based diversity index (Teachman, 1980) was calculated by the following equation:

$$H = -\sum_{i=1}^{n} P_i(\ln P_i)$$

where i is a particular category, n is the total number of possible categories and Pi is the proportion of the members of the particular category within the organization. For both the standard deviation and the entropy-based diversity index, an organization is more heterogeneous when these indices of diversity have larger values.

Innovative climate (Employees, T1)

To assess the innovative climate, we used a three-item scale ($\alpha = .63$, $r_{wg(3)} = .91$, ICC(1) = .17, ICC(2) = .84, $F = 6.21$, $p < .001$), which was drawn from previous studies (Van der Vegt et al., 2005). The items included in the scale were: (a) 'Our company is concerned with the status quo than with change and suppresses new experiments' (reverse coded); (b) 'Our company rewards people who dedicate themselves to innovation'; and (c) 'In our company, those who are creative are more respected than those who are hardworking'.

Employee competence (HRM Director, T1)

The HRM directors rated the level of employee competence on the following measurement items ($\alpha = .78$): 'In our company, employees in the following functional areas have adequate levels of task-related expertise and knowledge: (a) research and development, (b) sales and service, and (c) manufacturing' (cf. Katou, 2009).

Employee satisfaction (Employees, T1)

Adopting the existing measurement items (Findler et al., 2007), we constructed a three-item scale to measure the job and work–life satisfaction of employees ($\alpha = .70$, $r_{wg(3)} = .93$, ICC(1) = .15, ICC(2) = .82, $F = 5.47$, $p < .001$): 'I am satisfied with (a) my job, (b) wage, and (c) my relationship with colleagues in our company'.

Innovative performance (Strategy Director, T2)

Strategy directors reported on the innovative performance of their companies by responding to the following three items ($\alpha = .79$): 'In the past two years, to what extent did your company (a) introduce administrative changes (e.g. organizational restructuring), (b) introduce technological changes related to your products and (c) develop and introduce new products?' (1 = not at all, 5 = a great deal) (Bantel & Jackson, 1989; Talke et al., 2010).

Operational performance (Department Managers, T2)

Department managers rated the operational performance of their companies by responding to five items ($\alpha = .91$, $r_{wg(5)} = .93$, ICC(1) = .23, ICC(2) = .62, $F = 2.60$, $p < .001$): 'Our company has competitive advantage over other companies in (a) efficiency of task procedures, (b) cost reduction, (c) product quality, (d) overall productivity and defect reduction and (e) prompt response to customer requests' (Katou, 2009; Kunze et al., 2011).

Control variables (Strategy Director, T1)

To consider the effects of other factors that may be significant for organizational performance, we included two control variables in our analysis, namely: market demand and organization size. Market demand is a critical environmental factor that affects organizational performance (Bantel & Jackson, 1989). Market demand was measured by an item, 'In the past two years, how was the market trend in the demand for the main products of your company?' (1 = rapidly decreasing; 5 = rapidly increasing). Organization size was also acknowledged as a critical firm-specific factor that affected various firm outcomes (Ali et al., 2011; Wu et al., 2010). In the present data, organization size was measured using a scale with four categories to represent the number of employees (1 = 100–299; 2 = 300–999; 3 = 1000–2999; and 4 = above 3000).

Results

Table 1 reports the descriptive statistics and correlations among the study variables. To test the present model, structural equation modeling (SEM) was used to provide an omnibus test of all hypotheses involving multi-step predictive relationships with multiple mediators while simultaneously considering their measurement error (Bentler, 2006).

Hypothesized and alternative models

The hypothesized model as shown in Figure 1 produced an acceptable fit to the data: χ^2 (df = 31) = 59.03, p = .002; CFI = .95; RMSEA = .060. Following the common SEM practice, we verified that theoretically plausible alternative models could provide a better explanation of the observed patterns in the data (Price, Choi, & Vinokur, 2002). First, although we hypothesized the full mediation, the mediated relationships could be partial rather than full. Thus, the possibility of partial mediation was tested by adding eight indirect-effect paths from the four diversity dimensions to two organizational performance measures. This model produced a model fit (χ^2 (df = 23) = 41.36, p = .011; CFI = .97; RMSEA = .056) that was significantly better than that of the hypothesized model ($\Delta\chi^2$ (df = 8) = 17.67, $p < .05$). This result suggested that the diversity–performance relationship can be explained by other mediating mechanisms that were unexamined in this study. Thus, this partial mediation model was adopted.

Second, although innovative climate was expected to predict only innovative performance and employee satisfaction would affect only operational performance, these two variables may affect both innovative and operational performances. Hence, such a possibility was tested by adding two paths from innovative climate to operational performance, and from employee satisfaction to innovative performance to the partial mediation model. This model produced a good fit to the observed data (χ^2 (df = 21) = 35.46, p = .025; CFI = .98; RMSEA = .052);

Table 1. Means, standard deviations and correlations among study variables.

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Market demand	2.37	.96	–										
2. Organization size	1.84	.94	−.01	–									
3. Gender diversity	.38	.13	.01	−.12*	–								
4. Age diversity	8.34	1.40	−.02	.04	.17**	–							
5. Education diversity	.87	.14	.06	.19**	− .04	.12	–						
6. Hierarchical position diversity	1.47	.23	−.01	−.42**	.26**	−.06	.13*	–					
7. Innovative climate	3.33	.31	.15*	.23**	.07	.16*	−.06	−.09	–				
8. Employee competence	2.96	.54	.09	.24**	−.04	.20*	−.02	−.10	.26**	–			
9. Employee job satisfaction	3.50	.26	.05	.41**	−.05	.27**	−.01	−.20**	.55**	.26**	–		
10. Innovative performance	2.60	.72	.27**	.19**	.04	.26**	−.09	−.09	.38**	.15*	.32**	–	
11. Operational performance	3.63	.50	.05	.21**	.01	.16*	.06	−.04	.25**	.19**	.26**	.23**	–

Note. Unit of analysis is organization ($N = 256$).
$^{*}p < .05$; $^{**}p < .01$.

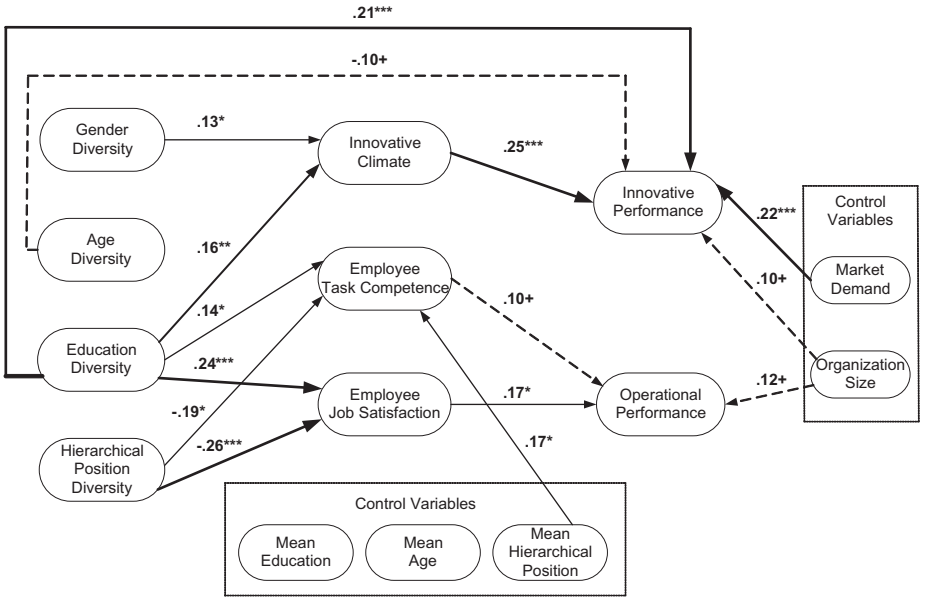

Figure 2. Distinct effects of workforce diversity on organizational outcomes.
Note. Solid lines represent statistically significant results. Insignificant paths are not depicted in the diagram. $^{+}p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

however, it failed to significantly improve the model fit ($\Delta\chi^2$ (df = 2) = 5.90, $p > .05$). Finally, we checked whether diversity and intervening processes (innovative climate, employee competence and satisfaction) could induce parallel or independent effects on organizational performance instead of having mediated relationships. This alternative model produced a model fit (χ^2 (df = 35) = 83.57, $p = .000$; CFI = .92; RMSEA = .074) that was considerably worse than that of the partial mediation model.

Hypothesis testing

Figure 2 presents the results of the best-fitting, partial mediation model. Market demand was a significant positive predictor of innovative performance ($\beta = .22$, $p < .001$). Organization size was related to both innovative and operational performances ($\beta = .10$ and .12, respectively, both, $p < .10$). Among the three mean values of demographic characteristics included as controls for the three intervening processes, only the mean value of hierarchical position demonstrated a significant positive effect on employee task competence ($\beta = .17$, $p < .05$).

Main effects of workforce diversity

With regard to the relationship between diversity and performance, age and education diversities were directly related to innovative performance. When direct effects were examined, hierarchical position diversity was not significantly related

to organizational performance, rejecting Hypothesis 1. Contrary to our expectation, age diversity exhibited a negative effect on innovative performance ($\beta = -.10$, $p < .10$). Education diversity revealed a significant positive effect on innovative performance ($\beta = .21$, $p < .001$), partially supporting Hypothesis 2.

Mediation effects of internal processes

The mediating roles of the three intervening internal processes were proposed in Hypotheses 3, 4 and 5. The structural relations reported in Figure 2 provided empirical patterns to support such mediation processes. For example, hierarchical position diversity exhibited negative effects on employee competence and satisfaction ($\beta = -.19$, $p < .05$ and $\beta = -.26$, $p < .001$, respectively). Gender diversity exerted a significant positive effect on innovative climate ($\beta = .13$, $p < .05$), whereas education diversity was a significant predictor of innovative climate, employee competence and satisfaction ($\beta = .16$, $p < .01$; $\beta = .14$, $p < .05$; $\beta = .24$, $p < .001$, respectively). In addition, the internal processes significantly predicted organizational performance in two years. A positive predictive relationship existed for over two years between innovative climate and innovative performance ($\beta = .25$, $p < .001$). Employee satisfaction and competence were significantly related to operational performance ($\beta = .17$, $p < .05$ and $\beta = .10$, $p < .10$, respectively).

To validate the significance of the mediated, indirect effects of workforce diversity on organizational performance, the product-of-coefficients approach was employed and their significance was tested by applying the bootstrapping procedure (MacKinnon, Fairchild, & Fritz, 2007). Three indirect effects were statistically significant. Education diversity exhibited a meaningful indirect effect on innovative performance through innovative climate (point estimate = .28, $p < .05$, confidence intervals (CI) of .05 and .57). Employee satisfaction was the major route through which workforce diversity affected operational performance. Education diversity exhibited a significant and positive indirect effect on operational performance through satisfaction (point estimate = .23, $p < .01$, CI of .09 and .45), whereas such an indirect effect was negative for hierarchical position or status diversity (point estimate = –.12, $p < .01$, CI of –.22 and –.05). However, none of the indirect effects of diversity on organizational performance through employee competence was significant. This pattern indicated that workforce diversity affected organizational performance through innovative climate and employee satisfaction, partially confirming Hypotheses 3 and 5.

Discussion

The concept of diversity in terms of status has received increasing attention in recent years to provide explanations for different performance implications of diversity (Choi, 2007a; Van der Vegt et al., 2005). Nevertheless, research on the role of status in diversity is scarce, and attention to the status issue as a complementary theoretical foundation should be increased to understand the diversity effects

(Harrison & Klein, 2007; Van Knippenberg & Schippers, 2007). Thus, the present study theorized the role of the status-relatedness of different diversity dimensions in relation to subsequent internal processes and organizational performance. This study further tested the widely assumed, but rarely validated, presumption that diversity affects organizational outcomes by shaping intermediate processes, such as the collective contextual perceptions, KSAs and morale of employees. Empirically, this study provides unique contributions to the diversity literature by examining the phenomena at the firm level using a large-scale, multi-source data-set collected over a two-year period. We highlight the important findings and implications of this study in the subsequent paragraphs. We also discuss the limitations and directions for future research.

Organization-level implications of more status-related diversity

The basic premise of this study was that the process and performance implications of workforce diversity could shift depending on the level of the status-relatedness of the diversity in question. The analysis of 256 organizations in various manufacturing industries indicated that status diversity negatively affects internal processes and organizational performance. Indeed, hierarchical position is the formal and clearest indicator of status and prestige that can generate disharmony, engender interpersonal undermining and reduce communication among employees (Choi, 2007a). Such negative interactive dynamics driven by status differentiation may limit social support and interpersonal learning, thus impeding the satisfaction and task competence of employees (Bowers et al., 2000).

Although these negative effects of status diversity may be caused by dysfunctional interpersonal behaviors and negative consequences of status differential as observed in dyads or groups, they may also reflect the structural properties of the organization and the resulting workplace environment for employees (Finlay, Marin, Roman, & Blum, 1995; Oldham & Hackman, 1981). The differentiation based on formal organizational positions constitutes the bases of organizational structure, such as span of control and centralization. When organizational members are widely spread to various hierarchical positions (i.e. high-position diversity), the organization tends to employ a centralized, tall structure that introduces explicit lines, separating employees into different organizational echelons (Carpenter, Bauer, & Erdogan, 2009). Hierarchical and tall organizational structures tend to decrease employee satisfaction because of the numerous layers of bureaucracy and rigid rules. In this context, lower level employees have fewer opportunities to take on responsibility, engendering an 'us vs. them' attitude that generates social chasm among members (Carpenter et al., 2009). This condition further creates an environmental context for employees, which signifies the legitimacy of hierarchy, unfair allocation of resources and exclusion of lower class members from decision-making processes (Findler et al., 2007).

Previous studies indicated that organizational structure is typically assessed by managers' report of the number of hierarchies (e.g. Oldham & Hackman, 1981). By contrast, the current study examined the effect of the organizational structure by focusing on the actual segregation of organizational workforce into different hierarchical ranks. The analysis clearly demonstrated that creating status differential among organizational members based on their formal hierarchical position was detrimental to employee competence and satisfaction, as well as to operational performance. To avoid such unfavorable consequences, a company may develop a horizontal structure that endorses operational values, such as a wide span of control and empowerment (Finlay et al., 1995). This effort toward a reduced status differential should facilitate social integration, interpersonal learning and social support among employees (Carpenter et al., 2009).

Organization-level implications of demographic diversity

The present study proposed the positive effects of less status-related, demographic diversity dimensions because of their complementary informational values that are less likely depreciated by social chasm among employees. The data supported this expectation for both gender and education diversities. Moreover, the data suggested that gender diversity contributes to the openness and flexibility of the organization by visibly diversifying the composition of its workforce. Such a visible heterogeneity of members tends to reduce uniformity pressure that suppresses dissenting opinions, which typify homogeneous groups (Phillips & Loyd, 2006). Data in the present research indicated that gender diversity is positively related to the innovative climate of the organization, thus increasing its innovative performance. Despite the potential risk of gender-based division, gender diversity tends to improve social interactions and the commitment of members toward the work unit because of the complementarity between males and females (Ali et al., 2011; Wood, 1987).

The most potent effects were observed in education diversity that exhibited significant positive relationships with all three internal processes and exerted a strong direct effect on innovative performance. Although these findings were consistent with the hypothesis, the level of prevalence and strength observed in the effects of education diversity was rather surprising. In group-level examinations, the findings were mixed for education diversity. According to Van Knippenberg and Shippers (2007), educational level can be a source of prestige. Educational level not only drives negative interpersonal dynamics (Knight et al., 1999; Van der Vegt et al., 2003), but also generates positive outcomes (Talke et al., 2010; Wu et al., 2010). Indeed, educational level is a meaningful point of comparison that can engender dysfunctional status-driven interpersonal dynamics in small, interactive groups. At the organization level, however, such potential negative interpersonal dynamics seem to be overwhelmed by the structural advantage of educational diversity that benefits the entire organization. This result signifies that the dynamics involving

diversity at the organizational level are more complicated than those at lower levels based on actual interactions and experiences. Organization-level diversity may operate through employees' summary perception of the organization with regard to the overall workforce composition. This perception effectively generates the organizational internal process in which macro organizational factors shape employee attitudes and behaviors through symbolic processes.

Workforce diversity in education should facilitate the division of labor among employees with different levels of educational attainment because they have diverse skills and abilities, as well as distinct career aspirations and task motivations (Peri & Sparber, 2009). For instance, highly educated employees possess high professionalism based on intensive training and pursue complicated problems and challenges, whereas less educated employees may want to work in a more predictable, structured situation with clearly established extrinsic rewards (Anderson & Taylor, 2006). This efficient division of labor based on education diversity prompts task specialization that maximizes employee proficiency and expertise in the given task domain, which is a condition for efficiently leveraging manpower within the organization. Moreover, the increased task-relevant information, specialized knowledge and distinct perspectives due to education diversity may provide a fertile ground for the creative thinking and high-quality decision-making of members, which enhance organizational innovation (Bantel & Jackson, 1989; Talke et al., 2010). The benefit of education diversity is particularly more plausible in manufacturing organizations in the present research sample because these organizations include a considerably wider range of functions and tasks compared with professional (e.g. consulting firms) or service organizations (e.g. call centers).

Contrary to the positive effects of gender and education diversities on internal processes and operational performance, age diversity exhibited a weak negative effect on innovative performance. Although somewhat less significant at the organization level, age diversity can establish an informal hierarchy based on seniority and encourage young members to conform to elder employees, effectively stifling debates and challenges among members (Kee, 2008). As a significant indicator of status, organization-level age diversity can impede the organization's overall creative potential (Bunderson, 2003). This finding was consistent with that of Choi (2007a). Both individual-level relational demography and group-level diversity in age negatively affect the creative behavior of Korean employees.

Mediating processes between workforce diversity and organizational performance

Researchers have contended that workforce diversity may improve organizational performance that requires innovative ideas and high-quality problem-solving (Van Knippenberg et al., 2004; Wu et al., 2010). Empirical findings also indicate the value of diversity for complex and non-routine information processing and

creative endeavors (Choi, 2007a; Talke et al., 2010). However, previous studies have rarely examined the effects of diversity on both qualitative (e.g. flexibility, problem-solving, creativity) and quantitative outcomes (e.g. operational efficiency and sales volume) (Horwitz & Horwitz, 2007). The present study included both types of outcome measures and demonstrated that both outcomes are affected by different dimensions of diversity through distinct mediating processes.

Drawing on the input–process–output model (Chatman & Flynn, 2001; Harrison et al., 2002), we explained why a given diversity dimension is more strongly related to one type of outcome than to another type by investigating intermediate processes. The three intervening processes we identified provided reasonable explanations for the diversity–performance link, although the significant direct effects of diversity variables on innovative performance suggested the presence of alternative intervening processes. Consistent with previous research (Choi, 2007b; West & Richer, 2008), the innovative climate of an organization was a meaningful predictor of organizational innovative performance, mediating the positive effects of gender and education diversities. By contrast, employee satisfaction was a direct predictor of operational performance, mediating the negative effects of education and hierarchical position diversities. Thus, innovative performance was related to the overall flexible and supportive climate, whereas operational performance was better explained by employee morale than other internal processes.

Interestingly, employee competence exhibited a weak association with operational performance, but not with innovative performance. Organizational innovation was probably less affected by the amount of information and knowledge possessed by employees than by the extent to which they were freely shared and utilized to generate new ideas. This pattern was consistent with the arguments of the knowledge management literature, that is the innovative performance of a group depends on the extent to which knowledge is exchanged and exploited among members instead of the presence of knowledge or knowledge stock within the group (Griffith & Sawyer, 2010). Similarly, innovative performance in organizations is apparently strongly influenced by innovative climate that unleashes the knowledge and information of employees toward creative problem-solving.

Limitations and conclusion

The strengths of the present research design include its use of multiple sources, multiple time points over a two-year period and a large sample size at the firm level. However, the findings should be interpreted cautiously by considering several limitations of the study. First, although organizational performance was assessed after two years following the corporate survey, the assessment was based on the subjective responses of strategy directors and department managers. Future research should employ objective indexes (e.g. number of new products, sales

based on recently introduced products and defect rate) to assess organizational performance.

Second, organizational performance measures were assessed two years after the collection of data on organizational diversity and intervening organizational processes. The two-year duration was adequate to allow complicated organizational processes to unfold and affect organizational outcomes. Nevertheless, whether such a duration provided an optimal temporal gap that was sufficiently sensitive to detect the current organizational phenomena remained unclear. Scholars have asserted that the effects of diversity may change over time (cf. Jackson et al., 2003). For instance, Harrison et al. (2002) revealed that time mitigates the negative effects of surface-level diversity on team social integration, but intensifies the negative effects of deep-level diversity. Similarly, Hobman and Bordia (2006) reported that the effects of visible and professional dissimilarities on conflict diminished over time. Thus, the implications of diversity dimensions examined in the present study may also change over time, perhaps demonstrating the shifting effects on both the intervening organizational processes and performance. Future studies should consider such time-dependent dynamics of organizational diversity.

Third, the present sample included only manufacturing companies due to the practical limitation. Industry-level contingencies often serve as core situational enhancers or suppressors of diversity effects on organizational performance (Joshi & Roth, 2009). Thus, the current findings may not be generalized to other industries such as service industries, or to a different sector such as non-profit organizations. Distinct industry-specific conditions may produce diversity-related dynamics of organizations that are somewhat different from the patterns observed in the present data with manufacturing firms. Thus, the present findings may need to be validated with data from other industrial contexts. Given the potential response bias incurred by the present sample that most participants were male, future studies should also validate the current findings using more gender-balanced samples.

Finally, the current results based on Korean companies could reflect a distinct organizational culture, such as respect for formal authority based on a high power distance value and a relatively high level of centralization (Kee, 2008). This cultural context may explain the strong effect of hierarchical position diversity. Future studies should examine the distinct roles of diversity and intervening processes in organizational performance in other cultural contexts.

Despite these limitations, this study enriched the diversity literature by theoretically elaborating the role of status-relatedness to explain the effects of various diversity dimensions on internal processes and organizational performance. Moreover, this study investigated diversity and its consequences at the organization level, making a distinct empirical contribution to the diversity literature with research analysis conducted mostly at the individual or group level. In this respect, we specified the theoretical underpinnings of diversity at the organization level by highlighting symbolic organizational processes beyond interpersonal

dynamics in small group settings. The large-scale, firm-level field data collected over a two-year period verified our conceptual model and consequently confirmed the status-relatedness propositions of diversity.

The findings regarding organization-level dynamics of workforce diversity should be further validated by considering the industry-related differences, cultural contexts and temporal shifts in diversity effects. Given that the three intervening, internal processes only partially mediated the diversity–performance relationship, future studies should explore alternative mediating mechanisms. Various social processes, such as interpersonal, inter-departmental communication, information exchange, cooperation and conflict (Horwitz & Horwitz, 2007), could be plausible mechanisms that underlie the effects of workforce diversity on organizational performance. In addition, the effect of diversity may emerge and intensify under certain circumstances (Jackson et al., 2003); thus, researchers should identify contingencies and boundary conditions that operate as opportunities or constraints for the activation of diversity effects at the organization level, such as industry characteristics, socialization practices and diversity training programs. The intensive research attention devoted to diversity at the group level of analysis should be extended to the organization level to elaborate the strategic implications of the workforce diversity of organizations.

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