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Effective Internal Marketing Based on Cooperation Perception and Relational Diversity

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Abstract

Purpose: The purpose of this study is to examine under what conditions suggestion programs conducted by organizations actually increase individual perception of their work effectiveness. Specifically, this study looks into the effects of cooperation perception and relational demography of employee on work effectiveness of suggestion programs. It does this by focusing on the interaction effect of organizational commitment. **Research design, data and methodology:** Data was collected from 1,872 participants who took part in the suggestion program of HCCP 6th DATA. This data was subjected to multiple regression analysis. **Results:** a) higher employee cooperation perception enhances work effectiveness of suggestion program, but relational difference of knowledge diversity between team members has no effect on work efficiency; b) Positive effect of cooperation perception, and difference in education level on work effectiveness become greater as commitment increases. However, organizational commitment decreases the positive effect of difference in organizational tenure on work effectiveness by suggestion program. **Conclusion:** The results point to the importance of broadening the current conceptual models of employee work effectiveness of suggestion program to include relational demography, as well as the utility of conducting additional cross-level research on suggestion programs.

Keywords : Cooperation perception, Relational Demography, Suggestion program, Organizational commitment, Work effectiveness

JEL Classification Code: M30, M31, M10, M12, O15

1. Introduction

In order to survive a highly competitive environment, it is very important to conduct internal marketing for employees as well as external marketing to target customers.

In particular, in the manufacturing industry, increasing the work effectiveness of individual employees who are internal customers is very important because it is directly related to improving the effectiveness of the organization.

Employee participation systems such as suggestion program hypothesizes that employees can make suggestions to improve quality and effectiveness of work process as they have better understanding of their jobs than others (Lee, 2018). The suggestion program plays a critical role in internal marketing by increasing the participation of employees and eventually improving employee's work performance. suggestion program is a type of employee involvement and participation system which aims to improve corporate as well as employee's performance. Prior studies on the outcomes of suggestion program, one strategy of employee participation system, have usually focused on studying firm performance. However, as employees can participate in suggestion program at an individual level, its effect on individual's work performance improvement needs to be studied. Despite of this, there have not been many studies on the effect of suggestion program on individual's work-related capabilities. Even

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scarcer are the studies that examine how the effects of suggestion program on individual's work-related capabilities vary in different group contexts.

Therefore, the purpose of this study is to examine as a dependent variable whether suggestion programs conducted by organization actually increase individual's work effectiveness perception, focusing more specifically on the impact of suggestion program on individuals. As suggestion programs are conducted at organization level, we need to take step-by-step approach to understand perception at individual level. To explain whether suggestion program at organization level improves work efficiency, which is a perception at individual level, it is important to understand the cognitive and structural factors; 1) cognitive as employee's cooperation perception and 2) structural as employee's relational difference of task related diversity in work group.

Cooperation is a process through which individuals interact with their group members to complete their tasks more effectively (Gilson & Vetsuypens, 1994), and it is where individuals voluntarily participate in a group task or mission, putting aside their personal interests. In this sense, we need to understand the characteristics of the group that the individual belongs in to provide explanation that considers both organizational level and individual level. Cooperation with the group members is essential in raising work effectiveness through suggestion program. Thus, this study aims to explore work effectiveness of an individual who participated in the suggestion program through individual's cooperation perception and relational dissimilarity between the individual and other group members. Moreover, to explain whether suggestion program at organization level improves work efficiency, which is a perception at individual level, it is important to understand the individual's perception on work team through both cognitive and structural perspectives. In cognitive perspective, cooperation within a group significantly affects individual's productivity (Sparrowe, Liden, Wayne, & Kraimer, 2001). Therefore, this study aims to find out how individuals define cooperation perception. Also, this study looks into how an individual is different from other members in structural perspective. However, most diversity studies only show the results by simply summing the diversity variables at an individual level and comparing it to a group level. Simply adding each employee's perception at a group level has limitations in clearly explaining the relationship between the individual and the team context surrounding oneself.

This study uses relational demography to demonstrate relational difference between individuals and their team members. Relational diversity serves as an indicator that helps understand relative situation of an individual within a

group. Task related diversity from relational difference improves work related creativity and productivity (De Dreu, 2007; Jehn, Northcraft, & Neale, 1999; Joon-Pyo & Kye-Hong, 2019). This study examines how, among other factors of task-related diversity such as organizational tenure and educational level affect employee work effectiveness. Moreover, individual's organizational commitment significantly affects an individual who analyzes organizational systems and results of programs. Therefore, this study will study how organizational commitment moderates impact of cooperation perception of an individual who participated in the suggestion program and relational demography within a group on work effectiveness

Data was collected from 1,872 employees who have responded that they have taken part in the suggestion program from data of the 6th (2015) Human Capital Corporate Panel (HCCP) by Korea Research Institute for Vocational Education & Training. The survey sample consists of 173 firms in manufacturing industry. HCCP can capture the quantitative and qualitative level of human resources of Korean companies.

We find that the higher employee cooperation perception enhances work effectiveness of suggestion program. However, relational demography such as difference in organization tenure and educational level between group members does not have any effect on work effectiveness of suggestion program. Our results also indicate that the positive effect of cooperation perception and difference in education level on work effectiveness becomes greater as commitment increases. However, organizational commitment decreases the positive effect of difference in organizational tenure on work effectiveness by suggestion program.

This study provided implications into the internal marketing and HR practice research. The results highlighted the importance of broadening our conceptual models of employee work effectiveness of suggestion program to include relational demography and employee cooperation perception. Also this study showed that the importance of conducting additional cross-level research on suggestion program. Moreover, this study did not simply sum up environmental factors in group level, but developed a hypothesis by calculating both individual's perceived cooperation for cognitive aspect and relational demography of knowledge diversity as structural aspect.

According to the results, managers who want to increase employee work effectiveness of suggestion programs should manage their work team environment by building cooperation perception, enhancing internal communication, and improving the quality of interaction between employees.

2. Theoretical Background and Hypotheses

2.1. Employee Perceived Work Effectiveness of a Suggestion program

2.1.1. Suggestion program

Gronroos (2007) established employee involvement in training and education, management support, reward systems, and internal and external communication activities as important variables that constitute internal marketing. The Suggestion program is a one of employee participating program that enhances employee internal communication. Suggestion program encourages employees to voluntarily participate to suggest constructive ideas (Reuter, 1977), seeks for continuous improvement, and rather than having few specialists, it promotes everyone within the organization to come up with ideas (Carrier, 1998; Fairbank, Spangler, & Williams, 2003; Lee, 2018). Prior studies mostly focused on how the suggestion program affects organization level consequences. However, as groups as well as individuals can take part in a suggestion program, there need to be studies on the individual level outcomes. Therefore, this study examines how individual work capabilities are perceived within organizations that are conducting suggestion programs. Also, in order to understand how a suggestion program affects individuals, the individual's workplace environment (or their work team) needs to be examined. This study aims to discover the effectiveness of suggestion programs through examining employee perception.

In particular, the belief in the work team as a contextual element has an immediate effect on enabling suggestion actions. Team environment is especially important for the individuals who are participating in a suggestion program to speak up. Morrison (2011) studied the work group climate which allows employee suggest in two dimensions with a belief in group as a physiological safety and voice efficiency. Van Dyne and LePine (1998) stated that group-level factors that directly interact with coworkers in workgroup have a greater impact on individual behavior, rather than organizational trends. Further, if an individual is satisfied with their group, this interaction effect would be stronger. However, because these studies have separated the two factors, it is not sufficient to clarify how an individual views a group and what situations an individual is in. Contextual factors within a group such as social relationship, diversity composition, and group norms in work group affect individual behavior (Kozlowski & Klein, 2000). The individual suggestion and voice also depends on the contextual structure of the group, because the risks and social costs associated with making suggestions could change (Morrison, 2011). An interaction between the

suggestion giver and the receiver needs to be considered at the same time as the environmental factors facing the individual and the individual's perception of whether the individual can express opinions in work group.

2.1.2. Relational demography and work effectiveness perception

Diversity is difference in qualities among individuals which leads one to perceive themselves to be different from others, and this is a broad concept that includes gender, age, ethnicity (nationality), career, educational level, and functional background (Van Knippenberg, De Dreu, & Homan, 2004; Williams & O'Reilly, 1998). Pelled (1996) explained diversity in two aspects. The first is 'visibility' which demonstrates how 'visible' the diversity is to its members, and the second aspect is 'job-relatedness' which shows how much diversity affects task-related skills. For example, age, gender and ethnicity are highly visible factors but have low job-relatedness, whereas work experience, educational background, educational level, and functional background are less visible and highly related to task at work.

Research on diversity usually focused on studying employee diversity and performance (Hambrick, Cho, & Chen, 1996; Milliken & Martins, 1996), and diversity and team process (Ely & Thomas, 2001; Shapcott, Carron, Burke, Bradshaw, & Estabrooks, 2006). However, studies on the direct effect of diversity on performance receive criticism for overlooking interaction among team members while working. Some studies demonstrate positive effect of diversity on performance (Homan, Van Knippenberg, Van Kleef, & De Dreu, 2007), whereas others show negative results (Hobman & Bordia, 2006; Randel & Jaussi, 2008). As there are such mixed results on the effect of diversity, this study aims to understand the roles of the team environment factors of an individual's group.

To cope with the changing business environment, the organization has a team structure. Teams are characterized by high interdependence and sharing responsibility, team effectiveness depends on members' shared information and gives opinions (Kim & Park, 2017; Mesmer-Magnus & DeChurch, 2009; Nemeth, Connell, Rogers, & Brown, 2001; Sim & Park, 2018). Based on these team characteristics, team members are likely to compare differences in each other's characteristics. Research on diversity has conventionally focused on demographic factors such as race/ethnicity, gender, age, tenure, and education (Van Knippenberg et al., 2004). However, concept of diversity encompasses differences among individuals at personal level that lead individuals to perceive themselves to be different from others (Ragins & Gonzalez, 2003).

Diversity itself has been operationalized in different ways relying upon different levels of analysis. If individuals

within a team hold different experiences and capabilities, they can complement one another, and this increases work capability as a team (Gladstein, 1984). When team members are coming from different job-related backgrounds, they are more likely to come up with more creative results by approaching and understanding the given task in new and unique ways, and more actively interacting with one another than those with similar functional and intellectual background. Relational demography reflects relational perspective which focuses on the relative difference between one individual and their teammate when looking at basic demographic factors such as age, ethnicity, educational level, and tenure. Therefore, the core of relational demography is not the demographic factors themselves, but the relative difference between an individual and their teammates (Pfeffer, 1983; Tsui & O'reilly III, 1989).

According to research on creativity and innovation, diverse knowledge promotes exchange of job-related information such as receipt of task, know-how, and feedback. If they have dissimilar knowledge backgrounds, they share other's experiences and expertise with each other, thereby strengthening work-related improvement (Yang & Cho, 2015). Groups with members representing different functions give individual change to enlarge work related perspective. Knowledge dissimilarities among individuals strengthen new ideas and insights coming from diverse sources of knowledge (Ancona & Caldwell, 1992; Hansen, 1999).

On the other hand, dissimilarity can weaken the frequent member interaction. According to social category theory, members in the same characteristic category share the same social identity to frequently communicate, build trust in each other, and contribute to group performance (Roberge & Van Dick, 2010; Zenger & Lawrence, 1989). In other words, the lower similarity in a workgroup results in a lack of positive attitudes toward each other, which prevents animated communication (John, Northcraft, & Neale, 1999; Riordan & Shore, 1997). This is because the social category to which an individual belongs is an essential basis for intragroup communication. Diversity can have both positive and negative effects on group process (Van Knippenberg et al., 2004). Especially, knowledge diversity has pros and cons to individual work consequences. Therefore, it is meaningful to explore the effects of relational demography in the aspect of implementation participation system.

2.2. Perception of Employee Cooperation and Work Effectiveness of Suggestion program

Members of a cooperative organization voluntarily participate in tasks that put collective interests before individual interests and demonstrate their abilities.

Cooperation is a process where individuals, groups, and organizations interact and develop relationships in order to gain mutual benefit, and it is a combination of individuals to solve problems as a unity (Roschelle & Teasley, 1995).

When an individual is perceived to be capable of performing tasks in various situations, he believes that he can overcome fear and achieve it (Kish-Gephart, Detert, Treviño, & Edmondson, 2009). Also, members with high group collectivism have a strong sense of belonging and pride. In addition, they are interested in the welfare and well-being of their groups and strive to meet the group's goals (Singh & Winkel, 2012). Moreover, individuals with a high identity for a group feel united with other members, embrace the group's goals, and strive to achieve this goal (Singh & Winkel, 2012; Sleebos, Ellemers, & de Gilder, 2006). Showing positive attitude towards one's group in individual's cooperation perception will lead to positive relation with the satisfaction level of the programs run by the organization. Cooperation perception, which is a positive attitude toward the affiliated group, will have a positive relation with the satisfaction level of the programs run by the organization.

Participating in suggestion program will stimulate learning between an individual and their group in terms of work effectiveness. As such, individual's cooperation perception is an important explanatory variable that recognizes the context of suggestion. In particular, suggestion involves the interaction between an actor and a receiver that exists. Thus, the efficacy and self-esteem gained from the employee cooperation perception have a kin relationship with the contextual factors that promote speaking up to coworkers. Conversely, member with low cooperation perception can be highly aware of the potential risks of suggest new idea and opinion. Therefore, individuals with high cooperative perception will look work more effectively by participating suggestion program.

Hypothesis1: Employee's high cooperation perception will have a positive effect on employee work effectiveness of suggestion program.

2.3. Relational Demography and Employee Work Effectiveness of Suggestion program

Suggestion program stimulates idea sharing that may be helpful to work improvement, which may lead to improvement in productivity. New and effective high-quality suggestions which may help improve individual's work performance can provide actual help to one's work. As such, when the quality of suggestion is high, individuals may perceive that their task capability has been improved due to suggestion program. However, such positive effect may vary within an organization depending on the situation

the individual is in. For example, being suggested information that an individual already has will actually be perceived as waste of time. That is, only when the task-related suggestion is new and efficient, individual's capability can be improved. New ideas and suggestions can be developed when functional background is diverse, and this could lead to improvement in work performance.

As such, high job-related diversity within group members has a positive impact on creative and innovative decision making. Prior studies of knowledge diversity have focused mainly on organizational performance. However, few studies directly reveal the impact of knowledge diversity on expressing creative opinions which improving functioning and performance. Therefore, this study tries to find out whether the relational diversity within group members actually affects the employee work effectiveness on suggestion program.

Diversity can be categorized into levels of visibility and job-relatedness (Horwitz & Horwitz, 2007). Job-relatedness reflects experience, skills, or perspectives relevant to performing tasks. This job-relatedness diversity includes educational background, task, function, and organizational tenure, which are closely related to occupation and task performance. This study concentrates on functional diversity which is closely related to work effectiveness. To understand employee's work environment, this study focuses on 'organization tenure' and 'educational level' which are factors of relational difference from work-related diversity as independent variables. Relational difference of organizational tenure is the relative difference between an individual's organizational tenure and those of others in the group. Relational difference in education level indicates that there is difference in education level between the individual and its team members. Differences in organizational tenure and educational level mean that there are job-related differences. This diverse group of individuals pose different ideas and approaches while engaging in mutual communication (De Dreu & West, 2001). When employee with large job-related differences with coworkers, one could provide functional resources such as new perspective and expertise into tasks. This shows that work performance of team members can be promoted by stimulating diverse information sharing (Van Knippenberg & Schippers, 2007). Job-related diversity has positive effect on task improvement through information sharing by suggestion. As such, when an individual's relative diversity is high within a team, employee who participated in the suggestion program will perceive their work efficiency to be higher than before.

Hypothesis2_a: Greater relational demography in organizational tenure among team members will lead the participant in the suggestion program to demonstrate higher

level of employee work effectiveness of suggestion program.

Hypothesis2_b: Greater relational demography in educational level among team members will lead the participant in the suggestion program to demonstrate higher level of employee work effectiveness of suggestion program.

2.4. Moderation Effect of Organizational Commitment

Characteristics of organizational commitment include emotional attachment to an organization, identification with an organization, and engagement in an organization. Organizational commitment is positively related with firm's practices and program have been considered to be valuable and effective tools for encouraging employees to identify with the goals of organization and to exert effort to achieve them (Ulrich, 1998). Organizational performance and organizational commitment show positive relation with the outcome variables such as organizational citizenship behaviors, work performance, and productivity (Finegan, 2000; S, Moh, Andhi, Siti, Nury Ariani, & Udin, 2020). The implementation of effective human resource practice has positively related with organizational commitment. Providing participation opportunities such as making suggestions in organizational decision making has positive relation to employee's organizational commitment. Also, organizational commitment leads the employee to have positive view on the organization (Finegan, 2000). Meyer and Allen (1991) stated that employees with high organizational commitment follow the values and goals of the organization and that they identify themselves and proud member the organization. In this sense, organizational commitment also enhance knowledge and idea sharing (Ghassemzadeh, Hojabri, Eftekhar, & Sharifi, 2013; Kirkman & Shapiro, 2001; McKeen & Smith, 2002). Organizational tenure, which is one of the variables related to task and work experience, has positive relation with emotional commitment (Finegan, 2000).

2.4.1. Employee Cooperation Perception and Organizational Commitment

Employees with psychological attachment to organizations tend to strive to conform to the organization's goal and value, and even make contributions beyond their scope of own job (O'Reilly & Chatman, 1986). Employees who put their identity into groups and have a commitment to the organization to establish self-image, which can eventually confirm their behaviors. In particular, employee commitment to the organization is an emotional-driven behavior, will enhance identification to own groups and organizations as a criterion of action.

Organizational commitment and identification correlate with organizational behaviors that affect organizational performance such as absenteeism, turnover, and social interaction (Dutton, Dukerich, & Harquail, 1994). Thus, high level of organizational commitment of team members will intensify the positive effects of individual's group identification and unification with work group (Boine & ByoungGoo, 2020; Chun, Jyung, Joo, Choi, & Jeong, 2016; Yang & Tasnuva, 2013). That is, cooperation perception makes an individual feel sense of belonging and emotional bond to the group, and the effects of such perception are intensified through organizational commitment (Meyer, Bartunek, & Lacey, 2002). This will lead individuals to make efforts for the organization and to engage in the extra-role, thereby facilitating participation in the suggestion program for the group and organization. This will also help individuals to develop positive perception on the results of the program. In other words, organizational immersion will further enhance individuals' awareness of cooperativeness at work, which will lead members to participate in and embrace the program. Therefore, strong employee cooperation perception and higher organizational commitment due to the similarity among individuals within the group will enhance the individual's positive behavior. As described above, identification will have a positive effect on increasing effort and engaging in extra-role activities for the organization (O'Reilly & Chatman, 1986). If individuals identify themselves with the organization as well as with the teammates through commitment, they will try to help achieve the goals of the group as well as the organization. Therefore, high level of organizational commitment in group members will intensify the positive effects of high level of employee's cooperation perception. Below hypotheses were developed based on such discussion:

Hypothesis3_a: Organizational commitment will strengthen the positive relationship between employee cooperation perception and work effectiveness of suggestion program

2.4.2. Relational Demography and Organizational Commitment

Sharing ideas and constructive criticism with individuals coming from different backgrounds increases productivity of the employee and their group members, but may create conflicts during work or decision-making process. In such cases, high level of group immersion will facilitate communication. Tsui, Porter, and Egan, (2002) demonstrated in their research that dissimilarity in ethnicity, gender, and age has negative relation to individual's level of attachment, but dissimilarity in tenure and education has positive relation to individual's attachment to the group.

Tenure showed positive relation to emotional immersion. When diversity was required in conducting a task, individuals were more friendly towards people were more dissimilar to them. In such cases, higher group unification increases mutual interaction and suggestion, and higher organizational commitment also enhances individual's work-related outcome. Therefore, in terms of functional knowledge diversity, if group immersion can be heightened when there is relatively gap between the members, work effectiveness will be intensified. Therefore, an individual with high relational difference of functional knowledge has strong organizational commitment, their perception on work effectiveness will be strengthened.

Hypothesis4_a: Organizational commitment will strengthen positive relationship between relational demography (organizational tenure) and employee work effectiveness of suggestion program

Hypothesis4_b: Organizational commitment will strengthen positive relationship between relational demography (educational level) and employee work effectiveness of suggestion program

3. Research Methods

Based on these hypotheses, this study suggests that employee cooperation perception and relational diversity (differences between group members concerning organizational tenure and education level) affects the employee perception on work effectiveness from suggestion program, and that this may vary depending on the level of organizational commitment. We have constructed the following model (Figure 1).

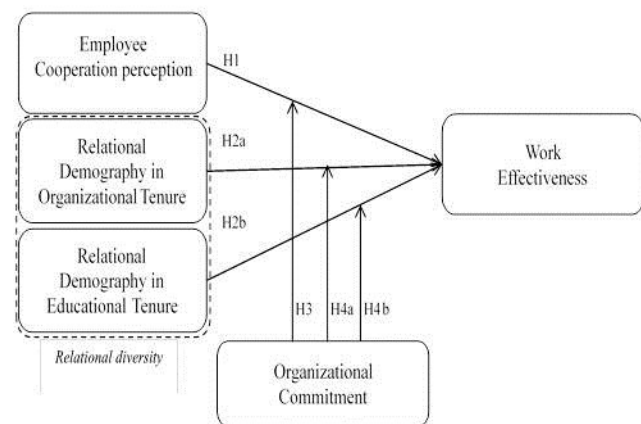


Figure 1: The effect of employee cooperation perception and relational diversity on the employee work effectiveness from suggestion program

3.1. Data Collection and Empirical Method

This study analyzed the data from the 6th (2015) Human Capital Corporate Panel (HCCP) of Korea Research Institute for Vocational Education & Training: KRIVET.

Table 1: Respondents demographic characteristics (N = 1,872)

	Variables	Frequency	Percentage(%)
Team Size (Number of Employees)	Under 10	1617	86.37
	10~19	229	12.21
	20~29	26	1.38
Age	20s	45	20.14
	30s	823	48.12
	40s	696	25.86
	50s	295	5.83
	Over 60s	13	0.05
Tenure	Under 5years	1587	84.78
	6~10	200	10.69
	11~15	60	3.2
	16~20	19	1.01
	21~25	2	0.11
	26~30	2	0.1
	Over 31 years	2	0.11
Education	Middle school graduate and below	0	0
	High school graduate	0	0
	College graduate (2 year)	563	30.07
	College graduate (4 year)	1,151	61.49
	Graduate program completion (Master's)	146	7.8
	Graduate program completion (Doctoral)	12	0.64
Major	Liberal arts	341	18.22
	Social sciences	297	15.87
	Engineering and natural sciences	1,183	63.19
	Medicine	13	0.69
	Arts, sports and others	38	2.03
Employment	Permanent	1,867	99.73
	Contractual	5	0.27

HCCP is a dataset that can capture the quantitative and qualitative level of human resources of Korean companies, and a total of six surveys have been completed since 2005.

It is being conducted as a mid-to-long-term panel survey that includes biannual follow-up surveys on the same company, and is evaluated as very useful data. The survey sample consists of 1,872 employees in 173 firms, only the ones from firms in manufacturing industry who answered they were participating the firm's suggestion program. In this study, diversity variables were measured using only the data from teams with at least 3 responses as final analysis data. Characteristics of the sample are shown in Table 1.

Among the firms which were included in this study, firms with fewer than 10 employees account for 86.4%, firms with 10 to 19 employees take up 12.2%, and firms with more than 20 employees were only 1.4%. Next, by age group, 20.1% were in their 20s, 48.1% 30s, and 25.9% 40s, and only 5.9% in their 50s and 60s. By organizational tenure, 84.8% were under 5 years, 10.7% were 6 to 10 years, and 3.2% were 11 to 15 years. By education level, 91.6% were college graduates (30.1% were two-year college graduates, and the other 61.5% were four-year college graduates), and 8.4% were graduates from the master and doctorate courses. By major, Engineering and natural sciences take up 63.2%, Liberal arts 18.2%, social science 15.9% and art, sports and others account for only 2%. Lastly, 99.7% of all respondents were regular workers. In this study, multiple regression analysis was applied to examine the hypotheses about the influence of cooperation perception and relational diversity on the employee job effectiveness from suggestion program.

3.2. Dependent variable: Employee perceived work effectiveness on suggestion program

Employee perceived work effectiveness of suggestion program are the key facet of our research. To discover the suggestion program effectiveness though employee perception, this paper includes only the workers who participated in suggestion program, and examines the individual responses as to the effects of the suggestion system on employee work effectiveness. Individual perception on work effectiveness of suggestion program was asked to employees in HCCP 6th questionnaire. The HCCP asked employees to answer about their perception on firm's suggestion program, especially the question was about firm's suggestion program that improve employee's work effectiveness. This research use questionnaire for suggestion program. "Firm's suggestion program has effects on your job competency". This variable was measured on a five-point scale.

3.3. Independent variable

3.3.1. Employee cooperation perception

This study used ‘employees’ perceived level of cooperation as an independent variable. This independent variable (employees’ perceived level of cooperation) was measured at an individual level. This variable has a very meaningful impact on ‘work-related behavior and productivity’ which is a variable frequently used in organization studies (Ang, Van Dyne, & Begley, 2003; Kirkman & Shapiro, 2001; McFarlin, Sweeney, & Cotton, 1992). Index on employee value on organization culture suggested by Cameron and Quinn (2011) will be used as a variable for cooperation. Within this index, variables related to group culture will be used and analyzed in this study as a variable for measuring the level of cooperation perceived by the employees within an organization. Below survey questions from Human Resources Corporate Panel data were used for employee cooperation. Questions such as “my company values harmony and sense of unity”, and “my company prioritizes teamwork” were used. Cronbach Alpha was at 0.87, demonstrating high level of reliability.

3.3.2. Relational demography

The employee’s relational demography score is the difference between an individual and all other individuals in the group for a particular demographic attribute. An individual with a large relational demography score differs more from others in the group than another individual with a small score. This study focused on organization tenure and education level among diversity of relational demography.

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

* S_i : Value of an individual for a specific demographic variable,
 S_j : Other members’ values for the same attribute, n : Number of individuals in a group.

Following Tsui and O’Reilly III (1989), this study used the Euclidean distance method to measure the difference between individuals and other members in a team to measure diversity of relational demography. This is the sum of squared differences between the value of each individual (S_i) on a specific demographic attribute and the value on the same variable for all other individual (S_j) in the group (sample), then divided by the total number of members in the group (n) and finally taking its square root. In this study, the organization tenure was measured as a continuous

variable in year, and the educational level was categorized into six groups.

In order to measure individual’s level of education, we set educational level to 0 if I graduated under middle school, 1 if I graduated from high school, 2 if I graduated from community college, 3 if I graduated from college, 4 if I received master degree and 5 if I received doctoral degree.

3.3.3. Moderation variable: Organizational Commitment

Employee organizational commitment, which is a control variable, was used as an individual-level variable. Organizational commitment refers to the degree to which members of an organization have psychological attachment to their organization, such as accepting the goals and values of their organization, making voluntary efforts for the group, trying to maintain their affiliation with the group (Mowday, Porter, & Steers, 2013). This study used the questionnaire of employees in the 6th HCCP surveyed in 2015. Employees answer the level of affective commitment. Individual’s level of affective organizational commitment was measured using the following three items. (1) I feel the problem of this company as my problem, (2) If I decide to leave this company, I will lose too much of my life, (3) This company is worthy of loyalty. Each item was measured on a five-point scale and the commitment variable was calculated as the average score of each item. These items are similar to the questions used by Mowday, Porter, and Steers (2013). Cronbach alpha score was 0.76, showing moderate level of reliability.

3.4. Control variable

This study first controlled the variables of organizational tenure and educational level, which were used for relational demonstration. We also controlled team size, employee’s age, college major, and employment terms, which might influence the employee effectiveness of suggestion program (Yang, Sun, & Park, 2015). Team size was measured by the number of employees in each team. Also, individual’s age was calculated by subtracting date of birth from the current year. Moreover, we controlled college major using major dummy (=1 for liberal arts, =2 for social sciences, =3 for engineering and natural sciences, =4 for medicine, =5 for arts, sports and others). To variabilize the type of employment, we set permanent position as 0 and contractual position as 1.

4. Results

Table 2 presents correlations between variables and Table 3 shows estimation results. Model 1 includes only

control variables; Model 2 includes main and control variables; Model 3 includes all interaction terms to test our hypotheses. The average VIF value of Model 2 is 1.34 indicating no evidence of multicollinearity problem in our sample.

Model 2 shows direct effect of employee cooperation perception and relational demography on work effectiveness of suggestion program. The result revealed that higher employee cooperation perception heightened work effectiveness of employees ($\beta = 0.229, p < 0.01$), which is consistent with Hypothesis 1. However, difference in organization tenure between group members did not increase work effectiveness ($\beta = 0.009, n.s.$). Also, difference in education level between group members did not affect employee's work effectiveness ($\beta = 0.001, n.s.$). Thus, Hypothesis 2a and 2b was not supported. Further, organizational commitment increases employee's work effectiveness.

We test our Hypothesis 3 and 4 through Model 3 which

includes the terms of organizational commitment at individual level. The positive effect of employee cooperation perception on work effectiveness of suggestion program becomes greater as organizational commitment increases ($\beta = 0.111, p < 0.01$), which is consistent with Hypothesis 3. However, organizational commitment decreases the positive effect of difference in organizational tenure on work effectiveness; H4a was not supported ($\beta = -0.030, p < 0.01$). Yet, we found support for H4b that the positive effect of difference in the level of educational on work effectiveness becomes more positive as organizational commitment increases ($\beta = 0.104, p < 0.1$). Regarding control variables, the results showed that employee's education level decrease work effectiveness ($\beta = -0.102, p < 0.01$). This shows that employees with the higher the educational level perceive that the quality of knowledge gained through the suggestion program is lower. Also, medicine major recognizes that the work efficiency of the suggestion program is lower than that of other majors

Table 2: Correlation table

Constructs	Mean	S.D.	1	2	3	4	5	6	7	8	9
Work effectiveness	2.730	0.830	1.000								
Employee cooperation perception	3.677	0.737	0.285	1.000							
Relational organizational tenure	3.265	2.910	0.078	0.009	1.000						
Relational educational level	0.713	0.491	0.016	-0.059	0.347	1.000					
Organizational commitment	3.494	0.674	0.284	0.527	0.063	-0.003	1.000				
Organizational tenure	3.251	3.472	0.040	-0.036	0.494	0.145	0.039	1.000			
Education	2.790	0.600	-0.054	0.099	-0.218	0.022	0.088	-0.196	1.000		
Team size	6.854	3.701	0.067	0.004	0.378	0.318	0.047	0.189	-0.220	1.000	
Age	41.367	7.606	0.087	0.076	0.271	0.132	0.221	0.393	0.019	0.048	1.000

Table 3: Summary result of multiple regression analysis

VARIABLES	Model 1	Model 2	Model 3
<i>Main variables</i>			
Employee cooperation perception		0.229*** (0.029)	-0.143 (0.104)
Relational Demography in Organizational tenure		0.009 (0.008)	0.116*** (0.035)
Relational Demography in Educational level		0.001 (0.041)	-0.362 (0.221)
Organizational commitment		0.215*** (0.032)	-0.159 (0.123)
Employee cooperation perception X Organizational commitment			0.111*** (0.029)
Relational Organizational tenure X Organizational commitment			-0.030*** (0.009)

Relational Educational level X Organizational commitment			0.104* (0.060)
<i>Control variables</i>			
Organizational tenure	-0.005 (0.006)	-0.003 (0.006)	-0.001 (0.006)
Educational level	-0.056* (0.033)	-0.097*** (0.032)	-0.102*** (0.032)
Team Size	0.011** (0.005)	0.004 (0.006)	0.004 (0.006)
Age	0.010*** (0.003)	0.003 (0.003)	0.002 (0.003)
Major2 (Social Sciences)	-0.088 (0.065)	-0.080 (0.062)	-0.079 (0.062)
Major3 (Engineering and Natural Sciences)	0.044 (0.051)	0.071 (0.049)	0.077 (0.049)
Major4 (Medicine)	-0.400* (0.233)	-0.367* (0.221)	-0.377* (0.215)
Major5 (Arts, Sports, and Others)	-0.003 (0.142)	0.106 (0.135)	0.114 (0.155)
Contractual Employment	-0.072 (0.370)	-0.158 (0.350)	-0.107 (0.254)
Constant	2.416*** (0.152)	1.211*** (0.165)	2.462*** (0.439)
Observations	1,872	1,872	1,872
R-squared	0.018	0.123	0.135
Adjusted R-squared	0.0136	0.117	0.128

Note: Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5. Discussion and Conclusion

5.1. Discussion

5.1.1. Theoretical implication

This study was proceeded to look at employees of manufacturing industry. It examined the effects of cooperation perception and relational demography of employee on work effectiveness of suggestion program, focusing on the interaction effect of organizational commitment. The results highlighted 1) the importance of broadening our conceptual models of employee work effectiveness of suggestion program to include relational demography, and 2) the importance of conducting additional cross-level research on suggestion program.

We provide new insights into the internal marketing and HR practice research of manufacturing organizations. First, this study holds theoretical implication in that rather than studying performance at organizational level, it examines work effectiveness of suggestion program by setting individual's perception on the improvement of productivity as an outcome variable. Despite the fact that suggestion

program can improve employee's task-related performance, prior studies on suggestion program usually dealt with outcomes at organizational level. However, as suggestion program is one of the employment participation programs for individual employees, individual's outcome must be also considered. The purpose of our study is well-aligned with current research trend which focuses on studying effectiveness of organizational systems. The result of this study contributes to theoretical development of research on organizational systems and improvement of individual productivity.

Second, this study reveals that the effects of antecedents at organizational level on individual's performance may vary depending on diverse variables. This study designed a research model which uses situational environment of an individual as description components in order to minimize issues that could arise from such cases. More specifically, this study did not simply sum up environmental factors in group level, but developed a hypothesis by calculating both individual's perceived cooperation for cognitive aspect and relational demography of knowledge diversity as structural aspect. To elaborate, employee cooperation perception is

how an individual views their team. It is different from organizational commitment. How an individual perceives team environment plays a significant role in determining individual productivity. Also, relational demography may explain the situation an individual is in within a team, as it demonstrates how an individual is relatively different from others within their team. As such, this research explains how a suggestion program that is implemented at an organizational level actually affects individual's perception by suggesting a cognitively and structurally comprehensive model. The results show that employee cooperation perception as cognitive aspect increases work effectiveness however, relational demography of knowledge diversity as structural aspect does not have any effect on employee's work effectiveness. The results are very interesting in theoretical perspective even they differ than we expected. The organization should gain competitive advantages by enhancing internal communication of the organization. It makes many employees share their knowledge as possible which bring increase of work efficiency and productivity. According to the result of this study, cooperation perception increases work effectiveness through suggestion program. However, too much of relational demography of knowledge diversity show no significant effect of internal communication.

Third, this study examined individual's perceived improvement in work performance through suggestion program, that is, we studied in which environment an individual's positive perception was significantly increased. According to Roschelle and Teasley (1995), individual's positive perception on cooperation at work has a positive effect on the individual's work effectiveness perception coming from the systems conducted by an organization. This study, too, observed not only that employee cooperation perception increases work-efficiency from suggestion program, but also saw that higher commitment creates synergy effect and significantly improves work capability.

On the other hand, the impact of commitment on the relation between relational diversity and work effectiveness was significantly appeared but they were not consistent. Whereas commitment strengthened the positive relation between work effectiveness and relational difference of educational level, it weakened the positive relation with organization tenure. The results demonstrate that organizational commitment serves as a collective mechanism that lowers inefficiency level that comes from deep level diversity such as differences in education level. However, differences in surface-level diversity such as organization tenure are not reduced through organizational commitment. This result is aligned with the current research trend in organizational behavior and human resources management that effect of organization commitment needs

to be revisited. Employees seek for improvement in their work-related environment and their career development, or work itself rather than indulging oneself in the organization. Also, this makes implication in managerial method that the organization needs to focus on the individual's environment and their perception rather than concentrating on the group level before initiating Employee Participation Programs.

5.1.2. Managerial implication

This study emphasizes the need of internal communication of the organization and also help many organizations to adapt internal communication system. We contribute some practical implications. First, organizations should provide the environment of building cooperation perception among the employees to enhance work effectiveness of suggestion program.

Second, it is crucial to provide as many as possible to share the goal of the organization with the employees or organizational commitment opportunities if there are any barriers to see the effectiveness of internal communication. The shared mental model can be effective with relatively large differences in group knowledge to identify the information and knowledge practically needed.

Lastly, in the manufacturing industry, the business processes integrate gradually, the significance of active exchange and recombination among employees of knowledge as an organization's resource be emphasized, so only the participation in suggestions can be focused. However, it should be noted that the suggestion program can be accepted as pressure, time-consuming, and accumulated work, and complaints should be well managed from employees about participating in the program. This study practically provides implications for conditional management, which promotes internal communication among employees as part of internal marketing in the manufacturing industry.

5.2. Future research

Although reasonable tests of the hypotheses are provided in this paper, close examination of the findings is needed before making any generalizations. Firstly, the focus of this study was on explaining the effects of organizational-level suggestion programs on individuals through the environment that the individual is in within the team. However, there are numerous factors affecting how organizational level strategies are displayed through individual's perception. For example, individual characteristics such as personality, preferences, etc. and organizational factors such as group cultures were not taken into consideration. Further studies on individual characteristics and organizational level factors are needed. Future research will need to look into not only positive

perceptions and behaviors of individuals, but also negative perceptions coming from suggestion program.

In addition, since this study used panel data and measured the effect of company level by the perception of employees at the individual level, in the future research, if a questionnaire is constructed and surveyed, more in-depth study results can be obtained.

Third, as suggestion program may cause changes in individual's current work, their workload will be increased. Therefore, participating in suggestion program is an extra role that an individual need to play in the organization. Such factors can lead the individual to build negative feelings toward the program and consequently lead the individual to develop negative perceptions toward the effectiveness of the program. In relation to this, further research on quality or content of suggestions and voice content in the relationship between RD and productivity needs to be conducted. Studies on the individual's perception on efficiency of Suggestion program depending on the level of knowledge can be conducted in the future. This will help organizations to acquire in-depth understanding on how creativity and productivity as a corporation can be improved through suggestion. In this study, we examined the effects of cooperation perception.

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