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### The characteristic of Leader-member Exchange (LMX) relationship between leader and follower: A case in construction industry

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#### ABSTRACT

*The objective of this research is to understand the characteristic of the LMX relationship between leader and follower in the construction industry (in the context of a project-based organization) with followers as the provider of ideas and knowledge. This research is conducted in a construction state-owned enterprise (SOE) in Indonesia, selected due to tight competition and the consequential need for innovation within short timescales. This study involves all 121 projects that existed at the time of data collection, and the unit of analysis is a dyadic relationship between general managers (as leader) and project managers (as a follower). Of these dyads, only 118 dyads can be analyzed (97.52 percent participation rate) and the analysis method used in this study is descriptive statistical analysis. The findings indicate the presence of statistic similarity between leaders and followers in case: the man's gender 98,3%, regional origin match 42,4%, similarity level of education 39,8%, the similarity of ownership of construction certification 71,2%, the duration of the current working relationship with the leader for 13 to 24 months (49,2%), the duration of knowing current leader in the company for above 5 years (60%). Therefore, the demographic similarity is an important characteristic of high-quality LMX.*

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### Introduction

Research on the characteristics of Leader-member exchange (LMX) is important because the resulting innovations are a manifestation of the exchange between leaders and followers. If the exchange between leaders and followers is of high quality, it is hoped that the innovation created will be of high quality. So that with high-quality innovation a successful performance will be achieved. Further, according to research, demographic similarity is an important issue in LMX (Berneth et al., 2008). Furthermore, research on LMX characteristics in the construction industry has never been carried out. Therefore, this research will be carried out in the construction industry by taking samples from an SOE in Indonesia. It is important to understand the characteristics of the LMX in the construction industry, because this industry plays a major role in obtaining a country's GDP.

The context of this research is in Indonesia construction industry, and the work unit examined in this research is projects. The followers are project managers and the leaders are general managers who oversee several projects. So, the knowledge is coming from the project resulted in an innovation at the general managers' level and the innovation resulted is applied back in the project. In Indonesian construction projects, most innovation aim to overcome geographical challenges. Each project experiences different geographical factors, situations and conditions, which trigger different innovations on each project. In addition, innovation must be developed within a limited time span, that is, during work preparation or execution.

This research will be conducted in a state-owned company (SOE) that happens to be the leader in the Indonesian construction industry. As a market leader, this particular SOE is at the front row in terms of innovation initiatives. Its projects are all over the country and hence can represent a typical construction company in Indonesia. This study involves all 121 projects existed at the time of data collection, and the unit of analysis is dyadic relationship between general managers (as leader) and project managers (as follower).

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Of these dyads, only 118 dyads can be analyzed (97.52 percent participation rate) and the analysis method used in this study is descriptive statistical analysis.

From previous researchs, it is proven that innovation positively affects performance (Bierly & Cakrabarti, 1996; Brown & Eisenhard, 1995; Caves & Ghemawat, 1992; Damanpour, 1991). In the era of tight competition, companies realize the importance of innovation to stay ahead in the market. More specifically, innovation in the construction industry is important to support effectiveness and efficiency of method/work process, means of competition, growth, and to shorten project cycles (Ribeiro, 2008). Furthermore, innovation in the construction industry is vital, as this industry contributes 10 percent to Gross Domestic Product (GDP) in many countries including Indonesia (Morales, Llorens-Montes, & Jover, 2007; BPS, 2013), and the contribution increases by a multiplier effect, through development of infrastructures, such as roads, bridges, building, irrigation, ports and so on. Consequently, Porter (1990) and Thesmar and Thoenig (2000) stated firms, particularly in construction industry, must continuously innovate to win in the market, and being able to do that, according to Teece, Pisano and Shuen (1997), firms must remain in a dynamic capability-building mode, i.e. an organization's latent ability to continuously renew, extend, and adapt its core competence. Therefore, maintaining continuous innovation requires dynamic capability as an important strategic resource.

Xu, Chen, Xie, Liu, Zheng and Wang (2007) in Total Innovation Management stated that leaders cannot create innovation by themselves, they need support from followers as subordinates. According to Dienesch and Liden (1986) and Liden, Sparrowe and Wayne (1997), leaders and followers engage in interactions by exchanging tangible and intangible resources. Further, within a project based organization context, the leader (general manager) has high status and comprehensive capability, whilst the follower (project manager) has operational ideas and knowledge as intangible resources (Hobday, 2000). Hence, we believe positive LMX will result in innovation created from exchanges between leader and follower, with strategic role of follower as a provider of knowledge. Therefore, this study aims to examine the characteristics of the LMX between leaders and followers that produce high quality relationships. This is important because if the LMX exchange is of high quality, it shows a high exchange between the leader and the follower, resulting in quality innovation to achieve successful performance.

A positive LMX was positively associated with job satisfaction, job performance, commitment to organizational change, trust between leader and follower, work climate, willingness to help coworker, and satisfaction with leadership (Furst, 2008; Dyne et al., 2008; Henderson et al., 2008; Ozer, 2008). LMX support effective communication (Fairhurst et al., 1987). Leader member exchange positively related with the feeling of energy for employees, which later related to the involvement in high level inovatif work (Atwater & Carmeli, 2009), and also innovative behaviour (Basu & Green, 1997; Scott & Bruce, 1998). Furthermore, LMX was related to personality similarity and demographic similarity (Berneth et al., 2008). Therefore, this study not only examines the quality of the LMX relationship, but also examines the demographic similarity between leaders and followers. This is done because based on previous research demographic similarity produces high quality LMX. Further Referring to the beginning of the paragraph above, we understand that a high quality LMX will produce high quality innovation, so that successful performance will be achieved.

## **Literature Review**

### **Conceptual Background and Hypothesis Development**

Most empirical studies indicate a positive relationship between innovation and performance (Bierly & Cakrabarti, 1996; Brown & Eisenhard, 1995; Caves & Ghemawat, 1992; Damanpour, 1991). It is because innovation helps the company to deal with the turbulence of external environments and, therefore it is one of the key drivers of long-term success in business, particularly in dynamic markets (Baker & Sinkula, 2002; Utterback, 1994; Wolfe, 1994). More specifically, innovation in the construction industry is important to support effectiveness and efficiency of method/work process, means of competition, growth, and to shorten project cycles (Ribeiro, 2008). Furthermore, innovation in the construction industry is vital, as this industry contributes 10 percent to Gross Domestic Product (GDP) in many countries including Indonesia (Morales, Llorens-Montes, & Jover, 2007; BPS, 2013), and the contribution increases by a multiplier effect, through development of infrastructures, such as roads, bridges, building, irrigation, ports and so on. It can be concluded that according to previous research, innovation especially in the construction industry, will result in successful performance.

Leadership can be defined as a process which a leader affecting a group of individu to achieve the target (Northouse, 2007). Bass & Bass (2008) states that follower has important role in leadership process. Evidence shows that leaders and followers hold different expectations of each other. Leader expect followers to be capable and competent (Day & Crain, 1992; Dockery & Steiner, 1990; Kim & Organ, 1982), whereas followers are more concerned about their interpersonal interactions with the leaders (Dockery & Steiner, 1990; Maslyn & Uhl-Bien, 2001). While the productivity of the group is the primary concerns of leaders, followers are more likely to place importance on the interpersonal aspects of their relationships with the leader and how they can achieve their personal goal in the group (Huang, Wright, Chiu, Wang, 2008).

LMX is a theory of leadership based on dyadic exchanges between leaders and followers. The central premise behind LMX is that within work groups, different types of relationship develop between leaders and followers. (Atwater & Carmeli, 2009). LMX theory describes the occurrence of effective leadership processes when leaders and followers develop high quality dyadic relationships, which enable followers to gain access to many benefits (e.g. Graen & Cashman, 1975; Graen & Scandura, 1987; Graen & Uhl-Bien, 1995). One basic proposition of the theory suggests that leaders tend to develop different exchange relationships with different members

(e.g. Graen & Cashman, 1975; Graen & Scandura, 1987). In the process of developing such dyadic relationship, leaders and followers tend to test one another based on certain role expectations. The extent to which these mutual expectations are met would affect whether or not they will proceed to higher quality exchanges (Bauer & Green, 1996, Dienesch & Liden, 1986, Graen & Cashman, 1975, Maslyn & Uhl-Bien, 2001).

A positive (high quality) LMX was positively associated with job satisfaction, job performance, commitment to organizational change, trust between leader and follower, work climate, willingness to help coworker, and satisfaction with leadership (Furst, 2008; Dyne et al., 2008; Henderson et al., 2008; Ozer, 2008). LMX support effective communication (Fairhurst et al., 1987). Leader member exchange positively related with the feeling of energy for employees, which later related to the involvement in high level inovatif work (Atwater & Carmeli, 2009). LMX positively related to organizational performance (Dunegan, Duchon & Uhl-Bien, 1992, Graen & Ginsburgh, 1997; Judge & Ferris, 1993; Keller & Dansereau, 1995; Liden & Graen, 1980; Liden & Maslyn, 1995; Wayne, Shore & Liden, 1997). LMX also positively related to citizenship behaviors (Illies, Nahrgang & Morgeson, 2007) and show low level of retaliatory behavior from followers (Townsend, Philips, Elkins, 2000). Positive LMX also proven help to predict not only turnover but also career achievements, e.g. promotion, salary and bonus (Graen, Liden & Hoel, 1982), and predict turnover above seven (7) years period (Wakabayashi & Graen, 1984). Four (4) of Five (5) relation-oriented behaviors (supporting, recognizing, consulting, and delegating) powerfully corelated with LMX (Yukl, O'Donnell & Taber, 2008). Result study on full time employee at Turkey's Company proven relationship between LMX and delegation & job satisfaction (Pellgrini & Scandura, 2006). Attitude and demographic similarity between leader and follower is very useful to understand interpersonal and dyadic relationships (Berscheid & Walster, 1969; Byrne, 1971; Harrison, 1976), showing existence strong relationship between similarity and relationships of influencing each other. Research in cognitive psychology proven that similarity is an important construct (Medin, 1993), which bring about positive influence (Busch & Wilson, 1976; Schurr & Ozanne, 1985). According to Scheider (1987), examine similarity between leader and follower is important to undestand behaviour at working place. It can be concluded that previous research in LMX, shows that high quality LMX will produce good performance. Meanwhile, several studies have shown that high quality LMX is derived from similar demographic characteristics.

### **Hypothesis Development**

In this research in the construction industry, we predict leaders and followers develop high quality (In Group Exchange) LMX and this easier to materialized due to demographic similarity between leader and follower. Followers have quality intangible resources to be exchanged with their leaders. Followers need the exchange to expose themselves for such personal goals as career advancement, opportunity for training and higher salary (e.g. Graen & Cashman, 1975; Graen & Scandura, 1987; Graen & Uhl-Bien, 1995; Huang, Wright, Chiu & Wang, 2008). Leaders, on the other hand, are attracted to that kind of followers because these followers may have resources leaders need to carry out their job (e.g. Dockery & Steiner, 1990; Huang, Wright, Chiu & Wang, 2008). Hence, both leaders and followers are interested to engage in high quality exchange. Hereinafter, knowledge acquired from followers is combined with leaders' own knowledge to generate innovation (knowledge use). This innovation is then passed on by leaders back to followers to be implemented in projects the followers manage to improve project performance. The process is made easier because of the demographic similarity like: gender, origin (language and culture). As we know many people within construction industry (project-based organization) will move from one project to another at many different areas within the country, so there is no much time to become familiar each other between leader and follower. They are only united by obligation to achieve performance of the project, and this much easier performed by similarity of both. Accordingly, we can hypothesize that:

*H1. LMX between Leader and follower is in high quality and there are demographic similarities between leader and follower*

## **Research and Methodology**

### **Methods of Data Collection**

The study is conducted at an Indonesian construction state own enterprise (SOE). The construction company is a typical project-based organization, where flows of ideas and knowledge follows middle-up down: from followers to leaders and back to followers for the implementation. This company is chosen because it has projects spread throughout the country, hence it is expected to represent construction industry in Indonesia. In addition, this company is known for leading innovation that has been implemented in various construction works, particularly toll roads, ring roads and elevated roads. This company has won numerous awards because its innovation leads to faster work completion than the target. Currently, this company employs 849 people, consist of 584 technical employees and 265 non-technical employees. Among them, 28 employees at general manager level, 138 employees at senior manager (project manager) level, and 5 directors.

As previously mentioned, this study focuses on projects which is the core of construction businesses and where ideas and knowledge are generally accumulated at the operational level as a result of geographical challenges. General managers are interested in such ideas and knowledge because ideas and knowledge can help improve project performance which in turn improve their own and company performance. This is the main reason why exchange of ideas and knowledge between project managers and general manager are encouraged. Complementing project managers' supply of ideas and knowledge, general managers supply back to project managers in terms of innovativeness to be implemented in projects orchestrated by project managers. General manager is the main

provider of innovativeness as they have authority to implement innovation in projects. So, project managers are the chief executors of innovation.

This study involves all 121 projects existed at the time of data collection, and the unit of analysis is dyadic relationship between general managers (as leaders) and project managers (as followers). Thus, the sample is 121 dyads where each general manager is related to 10-15 project managers. Of these dyads, only 118 dyads can be analyzed (97.52 percent participation rate). This rate is considered far above the average of 20-25 percent for research in management involving senior executives of a company (Morgan and Strong, 2003; O'Regan and Ghobadian, 2004).

Measurement for variable LMX can be seen in Table 1, while data collection scheme can be seen in Table 2:

**Table 1:** Measure of Variables

Variable	Dimension	Measure	References
LMX Quality	Affect, Loyalty, Contribution and Professional Respect.	LMX-MDM, consist of 12 items using six-Likert scale	Lyden & Maslyn (1998); Dienesch & Liden (1986)

**Table 2:** Data Collection Scheme

No.	Variable	Respondent	Asked about
1.	Leader-Member Exchange	Project Managers (Followers)	General Managers (Leaders)

**Methods of Data Analysis**

To perform the analysis, we use *Descriptive Statistics Analysis*

**Findings**

**Respondent Profile and Descriptive Statistics Analysis**

Of the total respondents, there are 9 general managers and 121 project managers. Among the general managers, all are males. Among project managers, 119 are males (98.35 percent), and 2 are females (1.65 percent). Only 3 male project managers has not replied the questionnaires.

**Table 3:** Frequency and Profile's Percentage of Respondents Project Manager

Gender		
Male	116	98,3%
Female	2	1,7%
Age		
30 - 35 years old	7	5,9%
> 35 - 40 years old	23	19,5%
> 40 - 45 years old	45	38,1%
> 45 - 50 years old	30	25,4%
> 40 - 45 years old	45	38,1%
> 45 - 50 years old	30	25,4%
> 50 years old	13	11,1%
Duration of current working relationship with the Leader		
< 13 months	45	38,1%
13 - 24 months	58	49,2%
25 - 36 months	8	6,8%
> 36 months	7	5,9%
Duration of knowing current leader in the company		
< 13 months	13	11%
13 - 24 months	16	13,6%
25 - 36 months	7	5,9%
37 - 48 months	11	9,3%
49 - 60 months	19	16,1%
> 60 months	52	44,1%
Similarity Gender with Leader ( <i>Dyadic Reallionship</i> )		
Similar	116	98,3%
Non Similar	2	1,7%

**Table 3:** (continued)

Origin		
<b>Batak, Tapanuli, Medan, Deli Serdang (North Sumatra)</b>	10	8,5%
<b>Padang, Pekanbaru, Melayu (Central Sumatra)</b>	6	5,1%
<b>Palembang dan Sumatra Selatan (South Sumatra)</b>	2	1,7%
<b>Jakarta, Betawi</b>	8	6,8%
<b>West Java</b>	3	2,5%
<b>Central Java, East Java</b>	73	61,9%
<b>Madura</b>	1	0,9%
Similarity of regional origin with Leader ( <i>Dyadic Relationship</i> )		
<b>Come from same area</b>	50	42,4%
<b>Not coming from same area</b>	68	57,6%
Project Manager's educational level		
<b>Not a Bachelor Degree</b>	2	1,7%
<b>Bachelor Degree</b>	94	79,7%
<b>Master Degree</b>	22	18,6%
General Manager's educational level		
<b>Bachelor Degree</b>	3	33,3%
<b>Master Degree</b>	6	66,7%
Similarity of educational level		
<b>Same level of education</b>	47	39,8%
<b>Different levels of education</b>	71	60,2%
Ownership of Construction Certificate at the Project Manager		
<b>Has</b>	84	71,2%
<b>Do not have</b>	34	28,8%
Ownership of Construction Certificate at the General Manager		
<b>Has</b>	9	100%
<b>Do not have</b>	0	0
Similarity Ownership of Construction Certificate		
<b>Has</b>	84	71,2%
<b>Do not have</b>	34	28,8%

Most follower respondents are male (98.3 percent), between 40 - 45 years old (38.1 percent), has current work relationship with leader with duration between 13 – 24 months (49.2 percent), has known their leader in the company for more than 5 years (44.1 percent). Further most follower respondents are originated from East Java and Central Java (61.9 percent), has similarity of origin with leader about

42.4 percent. To be known that people from East Java and Central Java in fact has sama language and culture. Most followers (79.7 percent) have bachelor degree and only 18.6 percent of them have master degree, while the opposite is true for leaders (33.3 percent have bachelor degree and 66.7 percent have master degree), hence educational level similarity between followers and leaders is 39.8 percent. For construction certificate ownership, only 71.2 percent of followers have it and yet all leaders have it.

The findings indicate the presence of statistic similarity between leaders and followers in case: the man's gender 98,3%, regional origin match 42,4%, similarity level of education 39,8%, similarity of ownership of construction certification 71,2%, the duration of the current working relationship with the leader is 13 to 24 months (49,2%), the duration of knowing current leader in the company is above 5 years (60%).

Other information which can be summarized from research, are mean and deviation standard. Descriptive Statistics Analysis, can be seen in Table 4 below, the variable measurement using Likert scale 1 to 6.

**Table 4:** Descriptive Statistics Analysis

<i>Latent Variable</i>	<i>Mean</i>	<i>Deviation Standard</i>	<i>Information</i>
<b>LMX Perception of Follower</b>			Measured by follower
• <i>Affect</i>	4,72	0,87	
• <i>Loyalty</i>	3,84	1,03	
• <i>Contribution</i>	4,34	0,99	
• <i>Professional Respect</i>	4,83	0,91	

Mean	4,44	0,70
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According to descriptive statistics table, it can be seen that for latent variable LMX *perception of follower*, the highest dimension is *Professional Respect* with mean score 4.83, which means followers has much respect to Leader's knowledge, competence and expertise. But for other dimensions i.e. *Affect*, *Loyalty*, and *Contribution*, also has high mean score, with mean average of LMX *perception of follower* score at 4.44. This means quality of LMX between follower and leader is high, and has uniform dimensional characteristics.

Hence, based on mean of questionnaires' response, it can be concluded that *Follower* perceive relationship with his leader has high quality for all dimension of LMX, comprises: *affect*, *loyalty*, *contribution* and *professional respect*. Although deviation standard inserted in analysis, the score of latent variables still high above average.

## Discussion

The objective of this research examine the quality of LMX and similarity between leader and follower. The result shows LMX is in high quality and there are demographic similarity between leaders and followers. The research shows that General Manager and Project Manager develop high quality LMX for both side benefit. General Manager will achieve performance of projects within his control and obligation, whilst Project Manager will achieve performance of his project, and be able to pursue his own such personal goals as career advancement, opportunity for training and higher salary. We mentioned that The LMX *perception of follower* score is high with mean average 4.44 using Likert scale 1 to 6. Also the highest dimension score is *Professional Respect* to leader with mean score 4.83.

Further it happened that the demographic similarity made it easier the process of exchanging idea and knowledge to make innovation between follower and leader. From research we noted the demographic similarity comprises: gender, origin (language and culture), level of education, ownership of construction certificate, and the the tenure of knowing each other between leader and follower. The findings indicate the presence of statistic similarity between leaders and followers in case: the man's gender 98,3%, regional origin match 42,4%, similarity level of education 39,8%, similarity of ownership of construction certification 71,2%, the duration of the current working relationship with the leader is 13 to 24 months (49,2%), the duration of knowing current leader in the company is above 5 years (60%). As we mentioned before people in construction industry (project based organization) will often move from one project to another across within the country, so no much time to become familiar each other between leaders and followers. They are only united by obligation to achieve performance of the project, and this much easier performed by similarity of both. Therefore demographic similarity, such as gender, origin (language and culture), make it easier to happen.

## Implication

The research implication is that in the construction industry demographic similarity between leaders and followers is an important issue. Because projects in the construction industry are mobile, the assignment of leaders and followers based on demographic similarity is very important for successful performance. Besides that, from the research, the duration of getting to know each other between the leader and the follower looks quite long, so it can be said that it also plays an important role in the relationship between leader and follower. This finding enriches leader member exchange literature that there exists a high quality LMX between leaders and followers in construction industry (project based organization) and the process is made easier by the presence of demographic similarity between leaders and followers.

## Conclusions

The above findings have drawn conclusions to the central question of research, that is the presence of high quality LMX between leader and follower in the context of construction industry (project-based organization). According to descriptive statistics table, it can be seen that for latent variable LMX *perception of follower*, the highest dimension is *Professional Respect* with mean score 4.83, which means followers has much respect to Leader's knowledge, competence and expertise. This is the most important dimension. But for other dimensions i.e. *Affect*, *Loyalty*, and *Contribution*, also has high mean score, with mean average of LMX *perception of follower* score at 4.44. This means quality of LMX between follower and leader is high, and has uniform dimensional characteristics. Hence, based on mean of questionnaires' response, it can be concluded that *Follower* perceive relationship with his leader has high quality for all dimension of LMX, comprises: *affect*, *loyalty*, *contribution* and *professional respect*. Although deviation standard inserted in analysis, the score of latent variables still high above average.

Further answering another central question of research, that is the process of high quality LMX's exchange between leader and follower is made easier by the existence demographic similarity between both leader and follower. The findings indicate the presence of statistic similarity between leaders and followers in case: the man's gender 98,3%, regional origin match 42,4%, similarity level of education 39,8%, similarity of ownership of construction certification 71,2%, the duration of the current working relationship with the leader is 13 to 24 months (49,2%), the duration of knowing current leader in the company is above 5 years (60%). As addition,

from the research, the duration of getting to know each other between the leader and the follower looks quite long, so it can be said that it also plays an important role in the relationship between leader and follower.

It can be concluded that demographic similarity plays an important role in the exchange of high quality LMXs in the construction industry. Further this research also contributes to the theory of leader member exchange, that there exists a high quality LMX between leaders and followers in construction industry (project based organization) and the process is made easier by the presence of demographic similarity between leaders and followers.

### **Recommendation for Future Research**

Despite its findings and contributions to the literature of management, this study has limitations. First, this study employs perceptual measures to gather the data. It means all data are collected based on the perception of respondents. The use of these measures is subject to consistency motive (Podsakoff & Organ, 1986), in which respondents try to maintain consistent perception for all logically related items throughout the questionnaire. In addition, as this research uses dyadic data, where each general manager fill out a questionnaire for each of their 10 followers, they may try to maintain consistency across followers. Another possible consistency biased is related to leniency effect in which followers consistently provide good responses with regard of their leaders out of fear of undervaluing them. However, we have tried to minimize the bias through a careful design of the questionnaire (Huber & Power, 1985) where we separate logically connected items and sections so respondents cannot easily maintain their consistency, and by treating each response confidentially.

The second limitation concerns with construction industry as the context of this study, which questions the applicability of the findings in industries that have different characteristics from such an industry. Consequently, future research may be conducted, for example, in services industry where fast development of technology may be more apparent that will likely underline the importance of continuous innovation as well as encounter companies to short- versus long-term dilemma.

The third limitation is related to variable examined in this study. We measure variable LMX using dimension that not directly related to what actually exchanged between leader and follower. Therefore, future research may be directed to analyze correlation between LMX and knowledge exchange and combination (KEC), to show that KEC can be represented by LMX. Ghohal and Nahapiet (1998) states that new knowledge is created within organization by knowledge exchange and combination between employees. Further research can also examine the effect of the duration of knowing each other between leaders and followers in the LMX relationship regardless of demographic similarity.

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