

COWORKER EXCHANGE, LEADER- MEMBER EXCHANGE, AND WORK ATTITUDES

A Study of Coworker Dyads

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The purpose of this study is to examine how leader-member exchange (LMX) similarity might affect exchange quality between coworkers. This research also investigates the relationships of LMX and CWX (coworker exchange) to employees' organizational commitment and job satisfaction. Each respondent from 76 nurses at three hospitals in Semarang were asked to rate the quality of the relationship he/she had with his/her supervisor, resulting in 76 LMX ratings. They were also asked to rate the quality of their relationships with each of their coworkers. A dyad was created where we had complete information on two employees rating one another. Once paired, a total of 146 dyads with complete LMX, CWX, and work attitude data were acquired. The results of this research indicate that the interaction between two coworkers' LMX scores predicts CWX quality for the coworker dyad. After controlling for CWX, LMX quality is positively related to job satisfaction, but not to organizational commitment. Furthermore, after controlling for LMX, a greater diversity in a worker's CWX relationship is negatively associated to his/her organizational commitment, but not to his/her job satisfaction. The interaction of CWX quality and CWX diversity, however, does not predict work attitude.

Keywords: coworker exchange; CWX diversity; CWX quality; dyad; leader-member exchange; work attitude

Introduction

The increasing dynamics of working environment as well as the need for retaining key people in an organization leads the organization to rethink of psychological contracts that it has with its employees. This is very pivotal as contract failures and fulfillment perceived by employees affect their attitudes and working behavior in the organization. Within the organizational context, social exchange theory is used as the basis for understanding the roles of organizational leaders in forming the obliged feeling and pro-organizational subordinates. This theory develops the relationship of leader-member exchange (LMX), in which LMX focuses on the quality of leader-member exchange based on the level of emotional support and valuable resources exchange provided. The key to the theoretical component with respect to LMX is the norm of reciprocity, revealing that individuals who are treated nicely by other people or parties feel obliged to respond positively in the same way (Wayne et al. 2002). On a level where the leaders and members apply the norm of reciprocity in their relationship, the treatments received by both parties will lead to outcomes in favor of them. The better the quality of exchange with the leaders, the more the sense of reciprocity felt by the members.

In contrast to ALS (Average Leadership Style) which considers leader behaviors as equally rational and consistent to all members, LMX theory

proposes that leaders treat members differently, where there are members who become 'in-group' and others who become 'out-group'. In line with Graen, Liden, and Haul's ideas, theoretically, the LMX-VDL approach puts its basis of analysis not on work group but on the vertical dyad. Therefore, within-group relationship is necessary (Schriesheim et al. 1992). Graen and Cashman in Sparrowe and Liden (1997) along with Graen et al. (1982) in Liden et al. (1993) also find that leaders categorize members within work unit, and develop different types of exchanges with each member.

Recent research on LMX is focused more on the characteristics of leader-follower relationships (Gerstner and Day 1997). However, Graen and Uhl-Bien (1995) think that the relationship of exchanges among coworkers is important in order to understand the leadership process. LMX may affect and be affected by coworker exchange (Graen and Uhl-Bien 1995). However, this exchange relationship is virtually ignored by empirical research. This argument is based on the fact that there is limited research on the subject. Research on the topic was conducted by Sherony and Green (2002), suggesting that the quality of coworker exchange and the one of LMX will affect one another.

Katz (1964) suggests that working attitude through organizational commitment and satisfaction are two factors supporting organizational effectiveness. A low level of commitment as well as dissatisfaction of mem-

bers with their organizations may result in a high turnover and absenteeism, low working quality, and disloyalty. The two factors are related, as indicated by Dienesch and Liden (Wayne et al. 1997). The relationship between leaders and members positively affects the work attitude.

Seers (1989) in Sherony and Green (2002) suggests that the quality of coworker exchange may alternatively affect working attitude and members' performance. A number of research findings concludes that strong interpersonal relationships tend to be characterized as reciprocal, mutual, and interdependent [Fletcher 1996, Jordan et al. 1991, and Miller 1996 in Higgins and Kram (2001)]. Reciprocal, mutual, and interdependent relationships are characterized as strong, and members in the group are encouraged to help and assist each other. This condition potentially leads to group cohesiveness, group satisfaction, and finally higher satisfaction of members with the job.

This research is aimed at broadening the understanding of CWX roles in leadership by examining whether the quality of LMX affects coworkers' CWX. The effects of LMX and CWX on employees' working attitude are also examined. The topic remains worthwhile to be investigated due to the small amount of research available and the increasing importance of improving group work effectiveness in corporations. Reciprocal relationships among coworkers and the feeling of interdependence will improve the per-

formance process, which effectively leads to the achievement of organizational objectives.

Theories and Hypotheses

Leader-Member Exchange and Coworker Exchange

The research of Dansereau et al. (1975) observing 60 dyads of leader-member for more than 9 months finds that there are two groups of different exchanges. The first is in-group exchange, described as a partnership characterized by the effects of reciprocity, extra-contractual behavior, mutual trust, respect, affection, as well as solidarity. In the second group, which is out-group exchange, the leader acts as a supervisor and LMX is characterized as a one-way top-down effect and task-based relationship.

Each member of the group provides social support, and in the case of a cohesive, stable, and effective group, all members develop an exchange towards loyalty and trust. If CWX is related to LMX, the clearest effect may be seen if the assessment is done by using similar exchange dimensions. The aspects of respect, trust, and loyalty in relation to CWX may also be linked to similar issues of LMX. The research on LMX describes a leadership relationship as part of a wider relationship network, and suggests that the exchange on one side of the network may affect the relationship on the other side in the network (Graen and Uhl-Bien 1995). By adopting Sparrowe

and Liden (1997) suggesting that LMX quality affects the relationship development among subordinates, it is believed that LMX quality between leaders and members is related to the relationship among the members themselves. This provides the basis for the development of research on coworker exchange/CWX to determine how the quality of exchange occurring among members in the same group is affected by the quality of the exchange with the leaders (Sherony and Green 2002).

The Exchange Process

Sahlins (in Sparrowe and Liden 1997) develops the types of exchanges based on three main reciprocal dimensions: the immediacy of returns, the equivalence of returns, and the interest of returns. The immediacy of returns

involves time dimensions ranging from immediate to unlimited, concerning when a receiver has to perform her role to return resources she has received. The equivalence of returns involves the level on which the exchange partner returns are based to overcome the differences. Low equivalence leads to the reciprocity of resources with higher or lower values; so it is difficult to compare. On the contrary, high equivalence involves a mutual commodity exchange or an exchange in which the value is comparable. Finally, interest of returns reflects the partner's involvement in the exchange process, which covers self-interest, mutuality, and other parties' interests. As Figure 1 show, those types of dimensions form a positional continuum which describes reciprocity forms, namely, generalized

Figure 1. The Reciprocity Continuum

	Negative	Balanced	Generalized
Equivalence	High	High	Low
Immediacy	High	High	Low
Interest	Self-interest	Mutuality	Concern for others
Flow of Relations		Social relations follow material flows	Material flows follow social relations
Examples	Haggling, cunning, guile violence	Trade, buy-sell agreements	Hospitality, the pure gift, altruism

Adopted from Sahlin in Sparrowe and Liden (1997)

reciprocity, balanced reciprocity, and negative reciprocity (Sparrowe and Liden 1997).

Sahlins' theory allows the development of LMX discussion by integrating reciprocal continuum and social network analysis. Greater leader-member exchange covers a wider relationship system around the dyads of leader-member, for example a horizontal relationship among subordinates. Sahlins' theory is discussed because this research does not discuss dyads but triads between leaders and members.

The Network Structure

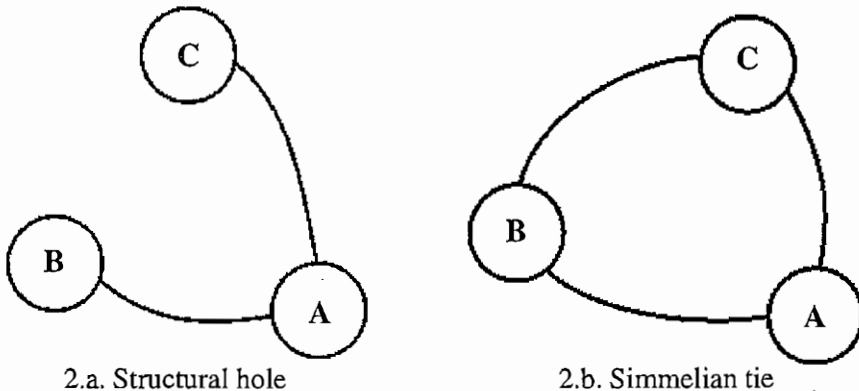
If LMX research explains members' outcomes concerning the relationship quality between members and leaders, the social network analysis emphasizes the relational structure in explaining outcomes. According to Sparrowe and Liden (1997), the network structure associated with the three types of exchanges of Sahlins are struc-

tural hole and Simmelian tie which become a strong network structure (Burt 1992; Krackhardt 1995).

Burt states that structural hole is a social network structure consisting of three individuals in which two of them do not interact. As Figure 2a displays, both B and C are related to A, but B does not have any relation with C. This kind of structure is competition conducive, but not conducive for developing trust and cooperation. However, Higgins and Kram (2001) postulate that the individuals involved in the structural hole uniquely function as mediators of unconnected parties. Therefore, A, who has a relationship with B and C, will become the mediator for B and C. In this way, B and C can establish their relationship.

Structural Simmelian Tie (Krackhardt 1995) is a strong social structure between 2 dyads or 3 interacting individuals (triad). As Figure 2a shows, A, B, and C are interrelated and interact with each other. Compared to

Figure 2. Network Structures



Source: Burt (1992), and Krackhardt (1995)

individuals in a strong dyad, triads are limited by group norms. Nevertheless, compared to structural hole, this structure has a better advantage in the efforts to build trust and cooperation, although it is not conducive for a competitive climate.

LMX emphasizes the quality of relationship while social structure analysis focuses on structural relationship. However, both are considered complementary (Cook and Whitmeyer 1992). Structure is the focus for social net analysis since the ties which relate individuals in social nets are the exchange relationship. Thus, the relationships between exchange processes and social net structures are dynamic and reciprocal (Sparrowe and Liden 1997).

Triad Relations

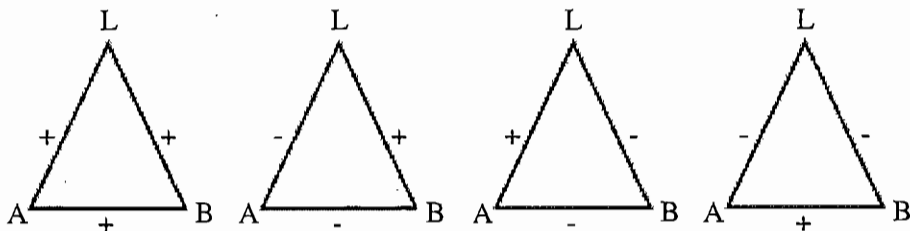
The process of relationship development between leaders and members is explained by Heider's theory of balance (Sparrowe and Liden 1997). If A has a positive relationship with an out-group member, the group will perceive a smaller within-group conflict than will it otherwise. The implication is the 'associative' members tend to see everything as being equal (Krackhard and Kilduffd 1990), and will show major behavioral similarities (Kandel 1978 in Labianca et al. 1998).

Balance theory (Heider 1958 in Sherony and Green 2002) demonstrates the effect of reciprocal relations occurring in the relationship of leaders and members and other members in the group (referred to as third party). If the

relationship of the leaders with the third party and the relationship between the members and the third party are balanced (both reflect a negative or generalized reciprocity), LMX may develop the generalized relationship. On the contrary, if the relationship is not balanced (the leader has a positive relation with the third party, while the member has a negative one), there would not be any development in the generalized reciprocity. An exchange between the leaders and the members may stay on the level of balanced reciprocity. If the relationship of the leaders or the members with the third party lies on the positive extreme (the generalized reciprocity), while the other lies on the negative extreme, the different relationship of both third parties will lead to conflicts and negative reciprocity.

Bercheid and Walster (1978) and Byrne (1971) in Higgins and Kram's (2001) article state that if people have a strong tie with an individual, those people tend to affiliate. In the leadership context, that statement can be explained by saying that a strong tie of a leader and subordinate A and subordinate B will encourage high LMX relationship between the leader and A. On the contrary, if the relationship between the leader and B is weak, while the relationship between A and B is strong, there will be a low LMX between the leader and A. This finding was validated by Sherony and Green (2002) on coworker exchange. The results of their research demonstrate that a subordinate A who has a strong

Figure 3. Triad LMX-CWX



L= Leader; A and B are two different coworkers; (+) shows positive relationship, while (-) shows negative relationship

Source: Sherony and Green (2002)

relationship with the leader as well as with the subordinate B will possibly convince and encourage the leader to form a better LMX with B. This idea is conceptually described by the balance theory of Heider. An imbalanced situation is a situation in which the relationship among the elements is harmonious with no pressure for situational changing (Heider 1858 in Sherony and Green 2002). If the relationship of the elements is not balanced, there will be a force leading to balance. If a leader has a high quality LMX with a subordinate—just say A and B, balance theory of Heider suggests that A will develop a high quality CWX relationship with B. The same case happens to a leader with a low quality LMX with two subordinates, A and B, who would probably develop a high quality CWX. If the high quality LMX is experienced by the leader with only a selected subordinate, then the balance dynamics predicts a weak CWX between A and B. This is displayed in Figure 3.

In a triad relationship, a positive CWX relationship between A and B

can be predicted if they have a similar LMX relationship. Therefore, the hypothesis is:

H1: The similarity of a LMX relationship positively influences the CWX relationship. The more similar the LMX relationship between two coworkers, the higher the CWX relationship between them.

LMX and Work Attitude

According to Graen and Cashman (in Sparrowe and Liden 1997) quoted by Rosse and Kraut (1988), LMX involves transactions between two parties in which a leader provides more satisfying and conducive working environment as input and extrawork from members/subordinates. A subordinate with a high quality of exchange receives and offers a variety of beneficial outcomes, including attention from their leader, more ideas to contribute, fewer problems, and more job satisfaction (Rosse and Kraut 1988). Related to the explanation above, leaders develop different relationship quality with their subordinates. These differences

in exchange in both CWX and LMX raise questions on how the differences influence employees' working attitudes.

Previous research was focused on the relationship between exchange quality and work attitude, and the supervisors' behavior and their subordinates. The research of Liden and Graen (1980), Rosse and Kraut (1983), Scandura et al. (1986), Vecchio and Gobdel (1984) show that compared to a relationship with a low quality of exchange, a high quality of exchange is related to greater guidance and supports from supervisors, lower subordinate turnover, as well as higher performance and satisfaction of the subordinates (Wayne and Ferris 1990).

Crouch and Yetton (1988), Graen and Cashman (1975) in Sparrow and Liden (1997); Graen and Schiemann (1978) in Cogliser and Schriesheim (2000, and Kozlowski and Doherty (1989) show that LMX is associated with the time spent, the efforts applied in the work, and the work attitude (Wayne and Ferris 1990). All the research was explained by within-group variance.

In particular, leaders treat their subordinates differently based on their abilities and performance (Dansereau et al. 1975; Graen and Scandura 1987). However, according to Duarte et al. (1994), leaders value members' performance with high LMX positively without considering their objective performance. The research of Vecchio and Gobdel (1984) demonstrates that the quality of exchange is related to

supervisors' judgment over their subordinates, but this is not an objective performance (Wayne and Ferris 1990). This indicates that the quality exchange results in leaders' consideration towards unfair judgment of their subordinates working performance. Fair treatment perceived by the subordinates will increase their satisfaction towards the leaders, which finally encourages the subordinates to maintain their membership in the organization and feel obliged to reciprocate the services given by the leaders. This reciprocation reinforces the exchange relationship, which finally leads to commitment towards team and organization (Eisenberger et al. 1990).

The key statement in the LMX theory is, in the work unit, supervisors may develop different types of relationships with their subordinates. The quality of the relationship determines both physical and mental efforts, material resources, information, and or social support exchanges between the supervisors and the group members (Liden et al. 1997). High quality of LMX involves exchanges of efforts, resources, and more assistance from both parties, while low quality of LMX is characterized by minimum exchanges. The research on LMX consistently suggests that leader-member exchange positively affects job satisfaction and organizational commitment (Gerstner and Day 1997). Eight studies consistently supporting the positive relationship of LMX and organizational commitment are found, and seven of them discover that LMX and

job satisfaction are positively interrelated (Sherony and Green 2002). From the findings, two hypotheses are proposed:

H2a: LMX will positively affect organizational commitment.

H2b: LMX will positively affect job satisfaction.

CWX and Work Attitude

Some researchers [Cummings et al. 1993, Jackson et al. 1995, Maznevski, 1994, Tsui et al. 1992 in Milliken and Martins (1996)] proposed two categories of diversities, namely: observable diversities, such as race, ethnic, age, and gender; and non-observable diversities, such as personality, values, education, and socio-economic status.

Research on heterogeneity in groups indicates that the more diverse the organization, the more the opportunity of the organization to provide solutions. However, on the other side, the more diverse the organization, the more likely it will be less integrated (O'Reilly et al. 1989), and the higher the level of dissatisfaction (Jackson et al. 1991).

Observable diversities are consistently found to negatively affect affective outcomes such as job satisfaction and commitment at both individual and group levels. The more similar the members' background, such as similarities in demographic condition, the more interested the members in the group to form a relationship [Kanter 1997, Pfeffer 1983 in Milliken and

Martins (1996)]. One of the reasons is that people with similar backgrounds usually have similar values and experiences, and therefore they can interact with each other positively. Heterogeneity in a group may negatively affect individual perceptions on working satisfaction realized in the decrease of identification or social integration within the group (Ancona and Caldwell 1992; O'Reilly et al. 1989; Smith et al. 1994).

The diversity variable hypothesized in the research is not the one mentioned previously. The diversity concept employed in the research is neither non-observable nor observable among group members. Diversity in this research is network diversity which emphasizes the characteristics of relationships occurring among group members, in which the relationship quality among them is affected by the differences in the two characteristics. Higgins and Kram (2001) and Krackhardt (1992) suggest that network diversity be defined as the level at which people in the network or group are familiar and relate to each other. They did not focus their attention on individual attributes in the group; rather, they emphasized the relationship characteristics among the group members. The diversity of relationship quality among the members in a group is the concept of CWX relationship diversity employed in this research.

With respect to the relationship diversity, Sherony and Green (2002) suggest that the existence of in-group and out-group in a team produces dif-

ferent quality of relations such that diversity may negatively affect work attitude. Smith et al. (1994) find that diversity might decrease communications and social integration in the group and generate pressure in the team. Sherony and Green also report that some research on teams previously conducted shows that the relationship among team members is affected by how the members feel involved in the team and their work. It is possible that CWX also affects work attitude (organizational commitment and job satisfaction) as does LMX. Therefore, the hypothesis is:

H3a: The diversity of CWX relationship will negatively affect organizational commitment.

H3b: The diversity of CWX relationship will negatively affect job satisfaction.

Diversity Interaction and CWX Quality

According to Hackman (1990), individuals in a group are affected by diversity of experiences as well as the overall relationship quality experienced by the group regardless of whether it is good or bad. It is possible that a high average level of CWX would result in a positive work attitude. However, the average level of CWX should simultaneously consider variations in its scoring. As an illustration, an employee with two high quality CWX relationships and two low quality CWX relationships will have the average score of CWX equal to that of an

employee with four moderate quality CWX relationships.

Sherony and Green (2002) suggest that employees with high average scores of CWX and small relational variances acquire a better group experience as a whole. This kind of experience predicts higher level of satisfaction and commitment. Previous research on coworker exchange conducted by Sherony and Green (2002) hypothesized a positive relationship between the average relationship quality of CWX and work attitude, and a negative relationship between diversity of CWX relationship with work attitude. The results of the research do not substantiate the hypothesis. This shows that the interaction between the two variables affects neither job satisfaction nor organizational commitment significantly. With different settings in this research, these hypotheses are examined. The hypotheses are presented as follows:

H4a: LMX relational diversity and CWX relational quality interactively affect organizational commitment. Organizational commitment will be positive if the CWX relational diversity is low while the relational quality is high.

H4b: CWX relational diversity and CWX relational quality interactively affect job satisfaction. Job satisfaction will be positive if the CWX relational diversity is low while the relational quality is high.

Method

Population and Sample

The population of this research consists of all nurses working in hospitals in Semarang, Central Java. The nurses were chosen to be subjects since the profession requires mutual interactions and resource exchanges among members in the organizations to maintain and improve services for patients. On the other hand, nurses are morally under pressure because of their work characteristics that involve people's lives; hence, supports both from coworkers and their direct supervisors are necessary.

Ninety questionnaires were distributed to nurses previously determined by their Room Heads. As many as 78 questionnaires (86.7%) were returned by the respondents, but there were two incomplete questionnaires; so there were only 76 in total. Based on the work group, there were 146 dyads for further analysis.

Measurements

LMX. LMX variables were measured by LMX7 developed by Graen and Uhl-Bien (1995), comprising seven items of questions with five-point Likert scale, from strongly disagree to strongly agree. Respondents were asked to answer the seven items related to their appraisal on their working relationships with supervisors (Room Heads).

CWX. CWX variables were measured by CWX7 on five-point Likert scale,

except for one item of "How well does your leader recognize your potential?" This item was dropped since it was not able to appropriately measure coworker relationship. The respondents were asked to answer the six items evaluating their working relationships with each of their coworkers under the same supervisor.

Job Satisfaction. Job satisfaction was measured by 20 questions from the Minnesota Satisfaction Questionnaire (MSQ) developed by Weiss, Dawis, England, and Lofquist (1976), covering the dimensions of salary, supervisors, coworkers, promotion, and the job itself on five-point Likert scale from very unsatisfied to very satisfied.

Organizational Commitment. This variable was measured by nine items of questions developed by Mowday, Steers, and Porter (1979) with five-point scale, from strongly disagree to strongly agree.

CWX Diversity. CWX Diversity was measured by calculating variances from CWX scores provided by each coworker. The higher variances indicated the higher diversity in scoring of CWX relationship.

CWX Quality. CWX Quality was measured by averaging CWX scores provided by each respondent.

Control Variable. Control variables in this research are age, sex, organizational tenure, and the length of relationship with the supervisor (supervisor tenure). The use of these variables as control variables is based on previous research. The research on coworker exchange by Sherony and Green (2002)

controlled the variable of organizational tenure and supervisor tenure. Some research also indicates that age and sex are significantly related to organizational commitment and job satisfaction (Chay and Aryee 1999; Maslyn and Fedor 1998; Ferris and Kacma 1992; Cohen and Vigoda 1999).

Type and Method of Data Collection

The type of data necessary for this research is primary data. The primary data were obtained from respondents, including their characteristics (sex, age, company tenure, the length of the relationship with the supervisor), LMX relationship, CWX relationship, and work attitude. The primary data were analyzed to find the data of CWX quality and CWX diversity.

The data collection method applied in this research was a survey method through questionnaires. Questionnaires were delivered personally so that any unclearness concerning the questionnaires could be responded immediately. Respondents were asked to rate their relational quality with their supervisors as well as with their coworkers. LMX and CWX ratings were obtained from each pair of coworkers. Only dyads with complete information were used in this research.

Data collection was conducted in four stages. *Firstly*, the researcher asked permission to do research from the heads of hospitals where the research was conducted. *Secondly*, the researcher contacted the heads of nurses

(supervisors) whose subordinates were going to be the respondents. From the interviews with the Nurse Heads, the researcher obtained nurses' names who could be the respondents. Thirdly, questionnaires were distributed where the names of respondents as well as the names of coworkers whom they were supposed to rate had been written previously. Finally, the completed questionnaires were collected on the day of appointment.

The researcher distributed and collected questionnaires herself by making an appointment one day before and asked the respondents about their working shift. This method was rather difficult and time consuming. The advantage of this method was, however, any unclearness concerning the questionnaires could be responded immediately. Besides, a high return of questionnaires was guaranteed because direct delivery tended to increase respondents' cooperations. The other advantage was that the items of the questionnaires were not only related to the assessment of the respondents themselves, but also to the direct supervisors and a number of coworkers with the case that everyone knew "who assessed whom." This would improve the confidentiality of their responses and encourage respondents to provide unbiased answers to real conditions.

Data Analysis Methods

Hypothesis 1. Hypothesis 1 was examined by calculating r_{WG} (within-group interrater reliability) as an index indicating the degree of LMX scoring simi-

larities from two members of a dyad. The r_{WG} score was regressed with CWX score for every dyad.

Hypothesis 2. Hypothesis 2 was examined by regression analysis, in which the LMX score of every respondent was regressed on organizational commitment and job satisfaction as dependent variables.

Hypothesis 3. This hypothesis was examined by the Ordinary Least Squares (OLS) regression. Variances of CWX scores of each respondent were calculated. Higher variances indicate a higher diversity in the scoring of CWX relationship. Two separate tests were conducted, one for organizational commitment and the other for job satisfaction for the dependent variables. In each case, the control variable was inserted into the formula, and then followed by CWX variance.

Hypothesis 4. Hypothesis 4 was examined using moderated regression analysis. This analysis is utilized to test whether the independent variable affects the dependent one as well as to test whether the relationship of the dependent and independent variables is influenced by other independent variables. This is known as an interaction-effect, which occurs when a moderated variable changes the type of relationship between independent and dependent variables (Hair et al. 1998). This kind of analytical procedure (Cohen and Cohen 1983) can be explained as follows: control variables are inputted into regression formula, followed by the independent variables

(CWX diversity and CWX quality) to test the main effect, and finally the interaction between the two independent variables is inputted. The three steps were conducted for the dependent variables of organizational commitment and job satisfaction. A moderating effect can be seen from the interactive regression coefficient yielded by the next step of the analysis. If the interactive regression coefficient is positive and significant, it means that the two independent variables interactively affect dependent variables.

Results

In this research, the raters were the two members of dyads. If the single target was a leader, the score resulted was the similarity measurement between two members of dyad about LMX relationship with the Room Head. If the single target was a coworker, the score obtained was the similarity measurement between the two members of dyad about the CWX relationship among them. After 146 of the r_{WG} scores were obtained, the median was calculated. The score of >0.7 indicates that two members of dyad perceive their relationship quality as similar to each other. The median of r_{WG} scores for the LMX rating was 0.980, meaning that the analysis could proceed further. The median of r_{WG} scores for the CWX ratings was 0.989. This suggests that the members of dyads think that their relationship quality is similar. The calculation of the average score of CWX for every dyad was conducted so that a

Table 1. Means, Standard Deviations and Correlations for Study Variables

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
1. Sex	1.89	0.31	1.00											
2. Age	29.99	7.47	0.17	1.00										
3. SPV tenure	2.62	1.24	0.05	0.41	1.00									
4. Org tenure	6.53	5.58	0.15	0.79**	0.17	1.00								
5. LMX	3.42	0.53	0.04	-0.12	0.017	-0.14	1.00							
6. LMX similarity	0.97	0.01	0.03	0.15	0.08	0.16	-0.03	1.00						
7. CWX dyad	3.25	0.40	0.10	0.34**	0.25	0.40**	-0.18	0.30**	1.00					
8. CWX quality	3.24	0.43	0.01	0.03	0.04	0.03	0.29*	0.10	-0.02	1.00				
9. CWX diversity	0.006	0.15	0.12	-0.05	0.02	0.04	0.09	0.01	-0.09	-0.09	1.00			
10. Interaction	0.196	0.48	0.19	-0.04	0.03	0.04	0.16	0.02	-0.10	-0.01	0.99**	1.00		
11. Org. Com.	3.78	0.55	0.14	0.19	0.07	0.13	0.24*	-0.16	-0.14	0.19	-0.25*	-0.21	1.00	
12. Job Satis.	3.44	0.53	0.02	0.21	0.14	0.10	0.46**	-0.00	-0.02	0.22	-0.18	-0.12	0.61**	1.00

* $p < .05$; ** $p < .01$

N = 76 cases for all variables except LMX similarity and CWX dyad, which is based on 146 cases.

single CWX score for each dyad was obtained.

Respondents' answers on organizational commitment and job satisfaction resulted in an average score of 3.78 and 3.44, respectively. It can be concluded that respondents have high commitment to the organization, and although the score is slightly lower, their job satisfaction is also relatively high. The average score of exchange relationship quality was 3.24. This shows that the subjects of the research in the three sample hospitals perceive that their relationship quality with their direct supervisors is good. In other words, respondents feel that they have become in-group subordinates of their leaders. The same case applies to LMX similarity resulting from the calculation of r_{WG} of 0.97. The score indicates that each member of the coworker dyads perceive themselves as experiencing similar LMX relationships.

The average score of dyads was 3.25, and the average score of CWX relationship was 3.24. These scores indicate that respondents perceive themselves as having a good quality relationship exchange with both their individual coworkers and group under the same Room Head. Compared to the average score of CWX, the LMX score provided by respondents had a higher mean. This was possibly because the selection of nurses who became respondents was decided by the respondents' direct supervisors, considering high interaction relationships with the supervisors or with coworkers participating in the research. The supervi-

sors' ability to assess the closeness of their relationships with subordinates more accurately than the interaction among members means that the assessment of LMX relationship is higher than the assessment of CWX. The detailed results are presented in Table 1.

There were two steps in the regression analysis to test the effect of LMX relationship quality on the CWX. *Firstly*, the obtained scores of LMX ratings were used as an index to indicate the degree to which LMX ratings from two members of dyad were similar. *Secondly*, the r_{WG} score was regressed by the CWX score for every dyad.

Testing the effect of CWX relationship diversity to organizational commitment and job satisfaction could not be conducted by using CWX rating scores that had already been obtained. Variances in CWX ratings for each coworker had to be firstly calculated. The higher the variances, the higher the diversity in the rating of CWX relationship provided by respondents for all of their coworkers. This could mean that the score of variance indicates the degree of relationship exchange diversity possessed by respondents with their coworkers. The next regression analysis was conducted for each dependent variable.

Testing the interactional diversity and CWX relationship quality to organizational commitment and job satisfaction involved the three-stage analysis. *Firstly*, control variables were in-putted into regression analysis. *Secondly*, diversity and CWX relational

Table 2. Regressions of LMX similarity on CWX quality

Variable	β	t	Sig.
<i>Control Variable:</i>			
Sex	0.047	0.438	0.663
Age	-0.084	-0.432	0.667
SPV tenure	0.214	1.762	0.82
Org. tenure	0.420	2.352	0.021*
R ²	0.198		
F	4.373*		
<i>Independent Variable:</i>			
LMX (r_{wg})	0.378	3.830	0.000*
R ²	0.337		
F	7,106*		

* $p < .05$

quality were inputted, and finally interaction between the two was inputted. This kind of test was conducted for every dependent variable.

Hypothesis 1 states that the similarity of LMX relationship quality positively affects CWX relationship quality. The results of the analysis (see Table 2) indicate that control variables (sex, age, length of the relationship with the direct supervisor, organizational tenure) indicate a CWX relationship quality rating of 19.8 percent, which is significant ($R^2 = 0.198$; $F = 4.373$; $p = 0.003$). By adding LMX similarity as an independent variable, the results show an increase of R^2 of 0.337 ($F = 7.106$; $p = 0.000$). This finding indicates that the hypothesis is proved to be correct. The control variable of organizational tenure significantly affects the CWX relational quality ($p < 0.05$), both before and after the

independent variables were inputted into the regression formula. Therefore, the control variables are appropriately considered the factors affecting the dependent variables.

Hypothesis 2a states that LMX positively affects organizational commitment. The results (see Table 3) produced a determinant coefficient of 0.131. This means that 13.1 percent of variance in organizational commitment variable can be explained by LMX; however, it is not significant ($F = 1.730$; $p = 0.127$). Although it provides further explanations for variance in organizational commitment, LMX does not have a significant direct effect on the dependent variables ($b = 0.222$; $t = 1.858$; $p = 0.068$). Thus, hypothesis 2a is proved to be incorrect.

Hypothesis 2b states that LMX positively affects job satisfaction. Before the LMX variable was inputted

Table 3. Regressions of LMX and CWX Diversity on Organizational Commitment

Variable	β	t	Sig.
<i>Control Variable:</i>			
Sex	0.114	0.981	0.330
Age	0.242	1.162	0.249
SPV tenure	-0.030	-0.232	0.817
Org. tenure	-0.030	-0.232	0.817
CWX	0.191	1.670	0.099
R ²	0.087		
F	1.342		
<i>Independent Variable:</i>			
LMX	0.222	1.853	0.068
R ²	0.131		
F	1,730		
<i>Control Variable:</i>			
Sex	0.096	0.835	0.406
Age	0.276	1.341	0.184
SPV tenure	0-0.057	-0.440	0.662
Org. tenure	-0.058	-0.306	0.760
LMX	0.260	2.273	0.026*
R ²	0.116		
F	1.844		
<i>Independent Variabel:</i>			
CWX	-0.279	-2.516	0.014*
R ²	0.191		
F	2,708*		

* p < .05

into the regression analysis, there were only 10.4 percent of dependent variable variances which could be explained by control variables ($R^2=0.104$; $F= 1.623$; $p= 0.165$). The addition of LMX provided more explanations for variance in job satisfaction, with a rating of 0.297 ($F= 4.851$; $p = 0.000$). From the test results, it can be con-

cluded that LMX positively and significantly affects the job satisfaction variable ($b = 0.469$; $t = 4.349$; $p = 0.000$). Hence, hypothesis 2a is proved to be correct. The detailed results are presented in Table 4.

Hypothesis 3a reveals that CWX diversity negatively affects organizational commitment. Before the CWX

Table 4. Regressions of LMX and CWX Diversity on Job Satisfaction

Variable	β	t	Sig.
<i>Control Variable:</i>			
Sex	-0.113	-0.110	0.913
Age	0.325	1.574	0.120
SPV tenure	0.029	0.225	0.823
Org. tenure	-0.162	-0.850	0.398
CWX	0.215	1.902	0.061
R ²	0.104		
F	1.623		
<i>Independent Variable:</i>			
LMX	0.469	4.349	0.000*
R ²	0.297		
F	4.851*		
<i>Control Variable:</i>			
Sex	-0.047	-0.461	0.646
Age	0.392	2.130	0.037
SPV tenure	-0.028	-0.239	0.812
Org. tenure	-0.216	-0.748	0.457
LMX	0.493	4.803	0.000*
R ²	0.291		
F	5.750*		
<i>Independent Variable:</i>			
CWX	-0.200	-1.979	0.052
Diversity	0.329		
R ²	0.329		
F	5,644*		

* p < .05

diversity variable was inputted into the regression analysis, control variables (sex, age, supervisor tenure, organizational tenure, and LMX) could only explain 11.6 percent of variance in organizational commitment ($R^2 = 0,116$). The addition of CWX diversity provided more explanations for variance in organizational commitment,

with a rating of 0,191 ($F = 2,708$; $p = 0,020$). The detailed results are presented in Table 3. Testing with regression analysis indicates that the hypothesis is proved to be correct ($b = -0,279$; $t = -2,516$; $p = 0,014$).

Regression analysis shows that hypothesis 3b, which states that the diversity of CWX relationship does

not negatively affect job satisfaction, is proved incorrect (see Table 4). Individual CWX diversity is not a significant explanation for job satisfaction ($b = -0.200$; $t = -1.979$; $p = 0.052$). On the contrary, all variables of both CWX diversity and control variables (age, sex, work length under the same supervisor, organizational tenure, and LMX) inputted into the model simultaneously

affect job satisfaction ($F = 5.644$; $p = 0.000$). The control variable of LMX significantly affects job satisfaction ($p = 0.000$), both before and after the independent variables were inputted into the regression formula. Therefore, those control variables are considered to be able to affect the dependent variables.

Table 5. Regressions of CWX Diversity and Quality Interactively on Organizational Commitment

Variable	β	t	Sig.
Step 1:			
Sex	0.096	0.835	0.406
Age	0.276	1.341	0.184
SPV tenure	-0.057	-0.440	0.662
Org. tenure	-0.058	-0.306	0.760
LMX	0.260*	2.273	0.026
R ²	0.116		
ΔR^2			
F	1.844		
F Change			
Step 2:			
CWX Diversity	-0.268*	-2.391	0.020
CWX	0.092	0.801	0.426
R ²	0.198		
ΔR^2	0.082		
F	2.401*		
F Change			
Step 3:			
Diversity x Quality	0.735	0.869	0.388
R ²	0.207		
ΔR^2	0.009		
F	2.188*		
F Change	0,755		

* $p < .05$

Hypothesis 4a states that CWX diversity and quality interactively affect organizational commitment. The first stage of the analysis resulted in $R^2 = 0.116$ ($F = 1.844$; $p = 0.116$). This determinant coefficient shows that control variables explain a variance of organizational commitment of 11.6 percent, but this is not significant. During the second stage, by adding the main effects (CWX diversity and quality), the result was $DR^2 = 0.082$ ($R^2 = 0.198$; $F = 2.401$; $p = 0.030$). This means that CWX diversity and quality significantly explain the variance of organizational commitment. Individually, only CWX diversity has a direct and significant effect on the dependent variable ($b = -0.268$; $t = -2.391$; $p = 0.030$). On the third stage, by adding the interaction between CWX diversity and quality, the results showed $DR^2 = 0.009$ ($R^2 = 0.207$; $F = 2.188$; $p = 0.039$). Although the interaction effect between CWX diversity and quality can justify the variance of organizational commitment of 0.009, the interaction effect is not significant ($b = 0.735$; $t = 0.869$; $p = 0.388$). Therefore, hypothesis 4a is proved to be incorrect. The detailed results are presented in Table 5.

Hypothesis 4b states that CWX diversity and CWX quality interactively affect job satisfaction. The hypothesis was examined by a moderated regression analysis. The first stage of the analysis resulted in $R^2 = 0.291$ ($F = 5.570$; $p = 0.000$), indicating that control variables significantly explain the variance of work satisfaction of

29.1 percent. On the second stage, by including the main effects (CWX diversity and CWX quality), the result was $DR^2 = 0.041$ ($R^2 = 0.332$; $F = 4.823$; $p = 0.000$). This means that CWX diversity and CWX quality simultaneously affect job satisfaction, and could provide an additional explanation for the variance of job satisfaction of 4 percent. However, individual analysis finds that none of the variables significantly affects the work satisfaction. During the third stage, by adding interaction between CWX quality and CWX diversity, the result was $DR^2 = 0.016$ ($R^2 = 0.348$; $F = 4.472$; $p = 0.000$). Although the interaction effect of the two variables provides the justification for the variance of work satisfaction, the effect is not significant ($b = 0.994$; $t = 1.296$; $p = 0.200$). With these results, hypothesis 4b is rejected. From the first stage until the last stage, the control variable of LMX significantly affects job satisfaction ($p = 0.000$). It can be said that LMX is relevant to be considered a factor affecting work satisfaction. The detailed results are presented in Table 6.

Discussion

This study shows that the similarity of LMX relationship quality directly and significantly affects the quality of CWX relationship. Previous research conducted by Sherony and Green (2002) also indicates the same result, that the more similar the exchange relationship quality between leaders and members of two cowork-

Table 6. Regressions of CWX Diversity and CWX Quality Interactively on Job Satisfaction

Variable	β	t	Sig.
<i>Step 1:</i>			
Sex	-0.047	-0.461	0.646
Age	0.392*	2.130	0.037
SPV tenure	-0.028	-0.239	0.812
Org. tenure	-0.126	-0.748	0.457
LMX	0.493*	4.803	0.000
R ²	0.291		
ΔR^2			
F	5.750*		
F Change			
<i>Step 2:</i>			
CWX Diversity	-0.193	-1.890	0.063
CWX	0.054	0.512	0.610
R ²	0.332		
ΔR^2	0.041		
F	4.823*		
F Change	2.068		
<i>Step 3:</i>			
Diversity x Quality	0.094	1.296	0.200
R ²	0.348		
ΔR^2	0.016		
F	4.472*		
F Change	1,679		

* $p < .05$

ers, the higher the quality of exchange relationship between them. The findings of this research also support Byrne (1971), who states that two persons perceiving themselves as similar have more opportunities to relate well. Therefore, subordinates whose relationships with the leader are similar tend to interact more because similarity leads to the feeling of content and

interpersonal attraction. The higher the opportunity to interact and the higher the perceived similarity, the higher the expectation to reciprocate. According to Weick (1979) in Klein et al. (2001), interaction occurring among group members will form similarities in perceptions and beliefs among them. This finally leads to better relationship quality.

The rejection of hypothesis 2a in this research supports the research of Wayne et al. (2002) which examined antecedents and consequences of Perceived Organizational Support (POS) and LMX. Commitment tested in this research is organizational commitment, therefore it is hypothesized that responses of the respondents are based more on their perceptions about the organization, rather than that of the leader. They probably perceive that the existing rules and procedures are more organizationally based rather than supervisory based, and are affected by factors beyond the control of their direct supervisor. A high LMX quality does not always affect the degree of organizational commitment. The studies of Wayne et al. published in 1997 suggest that the degree of organizational commitment is best predicted by the perception of organizational support, rather than by the perception of leader support. Since LMX is based on the interaction between a leader and a certain member, if one of the dyads change (i.e., when the leader changes), new exchanges will be formed. This is, of course, different from the relationship between employees and the organization, which is based on overall experiences of the employees and the organization. A low quality leader-member exchange will not always result in low organizational commitment.

Hypothesis 2b is proved to be correct. This supports the research of Wayne and Ferris (1990), in which the quality of relationship exchange may impact various outcomes related to the

subordinates' work. There is a positive impact of LMX on work satisfaction. Even Erdogan et al. (2002), in their article about person-organization fit and work attitude, find that individuals with high LMX quality may experience satisfaction with their work although their P-O fit is low.

Hypothesis 3a is proved to be correct. This supports the suggestion of Triandis et al. (1990) that diversity sometimes causes a negative effect on communications and interpersonal attraction. A problem with communications may reduce group cohesiveness, and low interpersonal attraction may affect creativity, which eventually affects organizational outcomes through the desire of an individual to retain his membership in the organization. Previous research by Sherony and Green (2002) suggests the same result, which is the diversity of coworker exchange relationship negatively affects organizational commitment. This finding can be explained by the group definition proposed by Hunt (1979), which reveals that a certain number of people who interact with each other psychologically care about other members perceived as members of the group and other members who perceive them as members of the group too. Individuals who cannot interact positively may experience an awkward relationship with their coworkers, and the desire to retain their membership in the organization will be low.

As in other previous research, the negative effect of the diversity of coworker exchange relationship on work

satisfaction examined in this research is proved incorrect. This is probably because of the content factor at work; diverse coworker relationships do not affect an individual's satisfaction with their work. As Sherony and Green (2002) suggest, exchange diversity measuring variation in trust, respect, and duties does not affect the happiness that an employee will experience during their work. This suggestion is also supported by Bateman and Strasser (1984) in Lum, et al. (1998), who studied the same sample, and report that nurses' and their coworkers' satisfaction is a strong measure of commitment but not of satisfaction. It is possible that a nurse who is not satisfied with her exchange relationship with her coworkers decreases her desire to remain in the organization, and tends to move to another organization although the profession is the same.

Individually, CWX diversity significantly affects organizational commitment. Similar to previous research, however, its interaction with CWX diversity and CWX quality is not significant. The same case is apparent with the interaction effect of CWX diversity and CWX quality on job satisfaction. The result is not significant. Therefore, both hypotheses 4a and 4b are rejected. These findings support previous research which finds the same conclusions for these hypotheses. According to Sherony and Green (2002), there is only one interpretation for this result, which is that coworker exchange relationship is not an important thing to an employee's life. CWX

probably becomes a stronger measure for work attitude if it can be identified by an employee's coworker who is dependent upon that employee. For instance, the relationship quality of employee A with his coworkers is good, but there is one person from that group of coworkers who has a bad relationship quality of exchange with A. This may result in a negative work attitude of A, although their average score of CWX is high and CWX variance is low.

The findings of this research are consistent with the argument that in dyadic relationship triads, there is a tendency to balance out. The more similar the quality of leader-member exchange between two coworkers, the higher the quality of CWX between them. The similar relationship quality perceived increases the opportunity for interactions, and interaction among the group members will produce a similarity in perceptions, attitudes, and beliefs among them, which finally leads to an increase in the relationship quality of coworker exchange. For instance, it can be said that subordinates A and B possess high quality LMX relationships with their direct supervisor, or if they both have a low quality LMX relationship, then they will have a high quality CWX relationship. This raises the idea that CWX can act as a LMX multiplier, in which the quality of the CWX relationship between two subordinates will affect the LMX similarity occurring between the two. Reciprocity occurs between the two exchanges.

The quality of leader-member exchange (LMX) positively and significantly affects subordinate job satisfaction, but it cannot become a measure of organizational commitment. LMX quality is based on a subordinate's perception on the support he receives from the leader, while organizational commitment is best measured by the perception of organizational support.

CWX diversity significantly but negatively affects organizational commitment. However, a more diverse relationship of individual-coworker exchange does not always mean a decrease in the job satisfaction of that individual. This is possible because of the working characteristics of the respondents in this research. The respondents' work may increase their interaction not only with other nurses and their Room Head, but also with doctors and patients. Recognition and a feeling of being a person in need and useful to others might increase job satisfaction, despite the relationship quality with his/her coworkers. Individual characteristics also determine satisfaction. Individuals who like to work in a group may feel more satisfied with less diverse CWX relationships. On the other hand, for individuals who need support from their leader, the contentment with their direct supervisor will influence more on their job satisfaction. Although the relationship diversity of coworker exchange may be a significant measure of organizational commitment, its interaction with CWX quality cannot be used to measure neither organizational com-

mitment nor job satisfaction.

The sample in this study was taken only from a single profession, and from only three hospitals in Semarang. To expand the results of the research to be more generalized for different organizations, it is recommended that future research's sample be taken from professions other than nurses, and it is also recommended that the research field be broadened. The selection of subordinates who became respondents was decided by the Room Head based on her observation of interactions occurring among the subordinates. The supervisor's judgment might be inaccurate because of the limitations of the supervisor's ability to monitor observable indicators. A subordinate with high interactions according to the supervisor might not be so according to the subordinates. It is possible that a subordinate might provide an accurate judgment about his/her coworker, but he/she is not willing to provide responses. Future research, therefore, should let respondents choose their own coworkers for whom they wish to judge. Furthermore, all questions in the questionnaires from the degree of exchange to work attitude were judged by the same respondents. This kind of method may have generated common method biases in this research. CWX is not only an individual cognitive construction, but it is also an observable relationship. A number of variables which became predictors were measured based on responses from different individuals in each dyad. Moreover, self-reporting can be very ben-

eficial to obtain knowledge of how people feel and react to their work and the relationship of various feelings and perceptions (Spector 1994 in Bishop and Scott 2000). It is also clearly stated that the reason for using the self-reporting method is crucial to the purpose of the study. The purpose of the study is related to the measurement of individual perceptions on the work, leaders, coworkers, and the organization. Therefore, common method biases are not the focus of this research.

The findings of this study increase leaders' understanding of the importance of forming high quality relationships (in-group). With high LMX quality, it is expected that positive CWX among the subordinates will occur. High quality LMX, characterized by the degree of support, respect, and leaders' obligations to their subordinates, is more effective for the achievement of subordinates' job satisfaction. This means that leaders hold important

roles in the network of exchange, since inter-member exchange quality is not the only factor affecting behavior and attitude. The effect of LMX among members may also affect the increase in organizational commitment, team development, and group cohesiveness.

For research on social exchange theory which uses organizational commitment as one of the aspects to be examined, it is necessary to consider the perceived organizational support variable in the research model, since various research, including this study, shows that LMX is not a significant measure of organizational commitment.

Validity tests conducted in previous research and in this study show that there is no cross-loading on LMX variables with CWX loading. This indicates that CWX as a new concept can be measured by harnessing exchange dimensions similar to LMX, as is done in this study.

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