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# Team-member exchange, voice behavior, and creative work involvement

Creative work  
involvement

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## Abstract

**Purpose** – The purpose of this paper is to conceptualize the links among team-member exchange (TMX), voice behavior, and creative work involvement.

**Design/methodology/approach** – A total of 260 employees were participants in this study. All were alumni of a Business School in Indonesia. Data were gathered at two time points four months apart. Hierarchical regression and bootstrapping analyses were conducted to find the effects of TMX on voice behavior and creative work involvement.

**Findings** – Results from the analyses showed positive effects of TMX on both voice behavior and creative work involvement. A positive effect of voice behavior on creative work involvement was found. The results also exhibited a partial mediating effect of voice behavior on the relationship between TMX and creative work involvement.

**Practical implications** – The findings point to the importance of maintaining TMX quality in work teams for enhancing employee voice and creativity. Organizations may need to develop members' reciprocal relationship skill in teams and maintain the roles of team leaders to develop the quality of TMX. It is also suggested that the practice of self-management teams may enhance the quality of TMX and voice behavior of employees.

**Originality/value** – This paper offers new insight on how levels of TMX may impact on members' voice behavior and creative work involvement. Longitudinal data may provide a more accurate prediction of the links among TMX, voice behavior, and creative work involvement.

**Keywords** Voice behaviour, Team-member exchange, Social exchange theory, Creative work involvement, Social penetration theory

**Paper type** Research paper

## Introduction

Employee involvement in creative tasks has been an interesting topic in scholarly literature for some time (Atwater and Carmeli, 2009; Carmeli and Schaubroeck, 2007). Scholars have defined creative work involvement as an employee's engagement in creative processes associated with work (Carmeli and Schaubroeck, 2007). Creative work involvement is therefore a specific type of engagement that directly corresponds to creative outcomes that include novel ideas, products, services, procedures, or processes (Woodman *et al.*, 1993), which in turn, support organizational creative performance (Volmer *et al.*, 2012). Scholars have investigated factors influencing creative work involvement. Most of them have emphasized the influences of personal factors such as psychological safety, vitality, and commitment (e.g. Kark and Carmeli, 2009; Vinarski-Peretz *et al.*, 2011). Others have investigated the effects of leadership attributes (Carmeli *et al.*, 2010) and relationship quality (Atwater and Carmeli, 2009; Vinarski-Peretz *et al.*, 2011; Volmer *et al.*, 2012).

To extend the prior findings, we proposed a different perspective. This study is aimed at examining the effects of team-member exchange (TMX) on creative work involvement both



directly and indirectly via voice behavior. In this study, TMX (hereafter “TMX”) is defined as the social exchange of an employee with his/her team members in terms of reciprocal contributions of ideas, feedback, and assistance (Seers *et al.*, 1995). Meanwhile, voice behavior is defined as non-required behavior that emphasizes expression of constructive challenges at the group level with the intent to improve rather than merely criticize (LePine and Van Dyne, 1998).

The study model relied on two basic ideas. First, prior research has implied the importance of social exchange quality as it is related to employees’ perceptions of opportunities to speak up (Botero and Van Dyne, 2009; Rees *et al.*, 2013) and to creative work involvement (Atwater and Carmeli, 2009). We suggest that TMX may offer a potential contribution to the enhancement of the voice behavior and creative work involvement in employees. Second, it has also been argued that a high opportunity to reveal ideas or concerns may strengthen employee engagement (Rees *et al.*, 2013). Because creative work involvement is a specific type of engagement (Carmeli and Schaubroeck, 2007), we see an opportunity to test the relationship between voice behavior and creative work involvement. Extant literature, however, has remained unclear about the relationships among TMX, voice behavior, and creative work involvement. In addition, although the relationship between voice behavior (as a response to workplace stress) and creativity has been assessed by other authors (Ng and Feldman, 2012), this study applies a different perspective of voice behavior, namely, constructive or positive voice (Van Dyne and LePine, 1998).

In connecting the variables, we implemented social exchange theory and social penetration theory. Social exchange theory places an emphasis on the importance of reciprocity among people in a social context (Gouldner, 1960). In this study, social exchange theory explains how TMX may contribute to voice behavior and creative work involvement of employees. Social penetration theory suggests that the deeper the relationship, the more people are urged to express themselves, including through both their verbal and behavioral expressions (Altman and Taylor, 1973). Social penetration theory describes how close relationships among team members encourage employees to express more voice behavior and engage in more creative tasks.

Creative work involvement and voice behavior are both pertinent to constructive ideas (Kark and Carmeli, 2009; Morrison and Milliken, 2003); however, both have different focuses. Creative work involvement places more emphasis on employees’ real actions in regard to creative tasks (e.g. use of such words as demonstrate, take, solve, etc.; see Carmeli and Schaubroeck, 2007), whereas voice behavior refers to the expression of ideas and opinions (e.g. and uses such words as speak, communicate, etc. see Van Dyne and LePine, 1998). Moreover, TMX may differ from voice behavior. TMX discusses reciprocal relationships among counterparts in teams (Seers *et al.*, 1995) and places importance on mutual help, support, and attention among team members (Seers, 1989). The convergent and discriminant validity of the study variables were examined and are discussed later in this paper.

## Literature review

### *TMX and voice behavior*

Voice behavior can be expressed with purposes such as responding appropriately to dynamic business conditions, making good decisions, giving information to top managers, or even providing input for co-workers (Morrison, 2011). As a part of extra-role behavior (Van Dyne and LePine, 1998), voice expression can play an important role in efforts to seek improvements in work organization, quality, and productivity (Dundon *et al.*, 2004).

Social exchange theory emphasizes the importance of social reciprocity among people, which expects individuals to help others who help them and to reciprocate good things with good things (Gouldner, 1960). Social exchange relationships within organizations influence their members’ willingness to be involved in in-role and extra-role duties (Albrecht, 2012).

TMX, a type of social exchange relationship within organizations, measures the reciprocity between a member of a team and the peer group involved (e.g. giving assistance and sharing ideas or feedback) that indicate the effectiveness of a team's working relationship (Seers *et al.*, 1995). A high quality of TMX is characterized by mutual trust, respect, and by cooperation and collaboration between a focal employee and teammates (Seers, 1989). Such conditions increase employee satisfaction (Banks *et al.*, 2014) and in turn, elicit the willingness of employees to invest the time and effort needed to formulate ideas and suggestions for change (LePine and Van Dyne, 1998).

The social penetration theory also suggests that the depth of relationships influences the levels of interpersonal disclosure (Altman and Taylor, 1973; Greene *et al.*, 2006). Self-disclosure can be in the form of verbal (e.g. ideas, opinions), nonverbal (emotional cues), and behavioral expressions (actions). In a high quality TMX relationship where a sense of strong emotional attachment exists (Liao *et al.*, 2010; Scott and Bruce, 1994), employees are more likely to be motivated to deliver voice because they feel that their opinions will be valued even when the opinions are divergent (Morrison and Milliken, 2003). Similar to this notion, it has been said that in an expressive social network characterized by quality friendships and social support, knowledge sharing within a work team will be improved (Henttonen *et al.*, 2013). Moreover, compared with other organizational citizenship behaviors, voice behavior is a challenging behavior and may involve personal risk (Ng and Feldman, 2012). It is likely that employee voice behavior will be improved when employees enjoy close relationships with teammates. Contrarily, when the relationship is less deep, disclosure of ideas and opinions may be hampered. Expressing ideas in this situation becomes more risky because employees can perceive a high possibility of being denied, receiving poor evaluations, or receiving negative responses from others. Such unexpected responses cause discomfort when the relationship is less than intimate (Lepper *et al.*, 1973).

In conclusion, expressing voice might become less comfortable when employees perceive a lack of social protection and intimate relationships than it would otherwise. In contrast, an environment conducive to social exchanges within teams may increase employees' perceptions of social support for voice behavior. It was expected in this study that employees' perceptions of the quality of TMX would contribute to their voice behavior. That is, the higher the quality of TMX, the more employees will be encouraged to express voice behavior. Thus:

*H1.* TMX will be positively related to voice behavior.

#### *TMX and creative work involvement*

Creativity theorists suggest that group characteristics (i.e. cohesiveness, interaction) may influence the creative behavior of employees (Amabile, 2013; Woodman *et al.*, 1993). Heaphy and Dutton (2008, p. 151) theorized that "the psychological resourcefulness generated in positive social interactions contribute to higher levels of psychological resources for engaging in a work role." Social penetration theory also suggests that the deeper the relationship, the more people are willing to express specific behavior (Greene *et al.*, 2006). In line with the above notions, it has been argued that satisfying social interaction may become a key driver of involvement because it may elicit a sense of belonging to a group (Kular *et al.*, 2008).

Creativity should be an indicator of employee's psychological and physical well-being in the workplace (Albrecht, 2012). Specifically, good psychological and socio-emotional resources provided by a high quality of social exchange improve the physical aspects that may lead to involvement in creative tasks (Heaphy and Dutton, 2008). When provided with a sense of social support, mutual respect, and trust (Atwater and Carmeli, 2009), employees may acquire more energy (a sense of being eager to act and capable of action) and vitality

(a sense of being energetic, alive, and fully functioning) (Atwater and Carmeli, 2009; Kark and Carmeli, 2009; Vinarski-Peretz *et al.*, 2011). Prior literature states that both energy and vitality are necessary for optimal creative behavior (Atwater and Carmeli, 2009). Similarly, it has been suggested that when people are embedded in a positive relational context, they are more likely to personally engage in their work, particularly in complicated tasks like generating novel ideas (Vinarski-Peretz *et al.*, 2011). Therefore, consistent with the social penetration perspective, it was expected that a high quality of TMX will lead people in the group to be more willing to demonstrate creative behavior.

A high quality of TMX may also enhance levels of individual autonomy, namely, a feeling of having greater control over task performance (Unsworth and Clegg, 2010) and a sense of being empowered (Liden *et al.*, 2006). Scholars have suggested that these factors may promote creativity (Ohly *et al.*, 2006; Zhang and Bartol, 2010). Given good exchange relationships with others in groups, employee cognition that is essential for effective creative tasks may be improved (May *et al.*, 2004), namely, employees may develop applicable knowledge acquired from idea sharing and feedback (Scott and Bruce, 1994). In conclusion, it was expected that the closer the TMX relationship, the more employees will be willing to engage in creative work involvement. Thus:

*H2.* TMX will be positively related to creative work involvement.

#### *TMX, voice behavior, and creative work involvement*

Creative work involvement is pertinent to an engagement-related creative process. We expected a positive impact of voice behavior on creative work involvement. Prior research has demonstrated that employee voice may lead to positive self-attitude and, in turn, may increase the motivation to engage in positive actions in the workplace (Burriss *et al.*, 2013) and that it may also improve other aspects of performance (Ng and Feldman, 2012; Rees *et al.*, 2013). The more effective employees perceive the voice mechanism to be, the more likely they are to advance their opinions or concerns about actions in work-related situations (Rees *et al.*, 2013). In line with this argument, Blanchard *et al.* (1996) argued that by sharing information, people are encouraged to act in the best possible way. For example, a meta-analytic study conducted by Ng and Feldman (2012) examined the impact of voice (i.e. voice as a response to workplace stress) on some performance measures including creativity. They found that voice behavior was positively related to both self-rated and other-rated creativity. The finding thus failed to support their competing hypothesis stating the negative effect of voice on creativity.

Social exchange theory has suggested that a feeling of being either excluded or included is very essential and has an influence on people's attitudes and behavior (Scott *et al.*, 2013). Particularly, prior research has established the benefits of a high quality of social exchange relationship on creativity (Atwater and Carmeli, 2009; Gong *et al.*, 2012). The central reason why employees with more voice are willing to engage in creative work involvement is because they have a strong feeling of being valued and involved in organizational communication (Schraeder and Jordan, 2011). Moreover, Gong *et al.* (2012) suggested that an environment conducive to social relationship facilitates information exchange among members in a network. By delivering voice, employees may contribute to constructive inputs for the groups and at the same time receive feedback with regards to their inputs from others in the group. Employee voice therefore may also facilitate group learning and knowledge acquisition (Henttonen *et al.*, 2013; Morrison, 2011), because it encourages information sharing when decisions are being made (LePine and Van Dyne, 1998). This suggests that in a situation where voice behavior is facilitated, knowledge sharing in the groups is developed, and self-perception of having relevant knowledge related to creativity is also developed (see Gong *et al.*, 2012 for a review).

According to the social penetration theory, this study suggests that comfortable experiences with voice behavior and improvements that reflect employee's sense of being appreciated (Robinson *et al.*, 2004) will encourage them to continue to further related actions (LePine and Van Dyne, 1998). According to this theory, the more they feel that others value their voice, the more employees will initiate creative work involvement as the initiation is a way for them to be able to maintain and develop the relationship (Greene *et al.*, 2006). In addition, the deeper the relationship, the more the employees will feel that placing their attention on the development of their society is necessary. From the employees' perspective, demonstrating creative work involvement in such a situation may be a better choice for the betterment of the society as a whole (Premeaux and Bedeian, 2003). Consistent with the social penetration tenet, it was expected that the more employees experience being heard or getting respected for their opinions (Blanchard *et al.*, 1996; Burris *et al.*, 2013), the more they may be willing to manifest their constructive voice in specific creative tasks (Ng and Feldman, 2012). Taken together, although voice behavior may not be always related to expressing novel ideas, it is believed that employees with more voice are also inclined to be willing to communicate novel ideas and continue with efforts to put the ideas into practice. In conclusion, the extent to which employees have perceptions of opportunities to express voice behavior will affect the degree of their creative work involvement.

Therefore, it was also expected that voice behavior might play a role as a mediator between TMX and creative work involvement. Social penetration theory is connected to social exchange theory in the sense that if a high quality of TMX encourages the voice behavior of employees where their verbal disclosure gets positive reciprocal responses, the deeper the relationship will become, and the more the employees may be eager to engage in voice behavior in the future (Greene *et al.*, 2006) because they feel a greater opportunity to disclose voice and a higher possibility that their ideas and opinions will be appreciated. Such situations will elicit positive emotions in employees (Atwater and Carmeli, 2009) that correspond with disclosing specific engagement related to their ideas (Rees *et al.*, 2013). In conclusion, in a high quality of TMX, enhancing an effective mechanism for delivering voice as perceived by employees may provide a stronger experience of having intimate counterparts that in turn encourages them to expand their disclosures in the area of creative work involvement. We therefore suggest that TMX will also contribute to creative work involvement via voice behavior. Thus:

*H3.* Voice behavior (a) will be positively related to creative work involvement and (b) will mediate the relationship between TMX and creative work involvement.

## Method

### *Sample and procedure*

All participants in this study were the alumni of a college of business in Indonesia. To avoid survey bias due to the language barrier, we administrated our questionnaire in Indonesian. We conducted a translation-retranslation procedure. First, an Indonesian native author translated all scales into Indonesian. Second, we involved Indonesian PhD and master's students who were currently studying in Taiwan to check our Indonesian translation. We made the first revisions on the Indonesian version. Third, we hired a professional translator to back translate the Indonesian version into English (note that we did not provide the original English version to the translator at this stage). Fourth, we then compared both English versions (i.e. the original and the one from the back translation). Lastly, if there were any significant differences between the two English versions, we discussed them with the translator and made final revisions to our Indonesian version.

We conducted two waves of online questionnaire surveys four months apart. First, at time 1, we distributed the survey to 920 selected alumni of the college. We selected alumni who were working in organizations. At time 1, they completed the TMX and voice behavior scales.

They also completed all control variables at this time. We got 383 responses from time 1 (representing a 42 percent response rate). Second, at time 2, participants who responded at time 1 were asked to participate in the second survey. At time 2, they completed the creative work involvement scale. A short message service reminder was sent one week after the second survey was sent to remind each participant to complete the second survey. We used the participants' names and initials to match the data from both surveys. Eventually, we got 260 responses from time 2 that could be matched with the data from time 1. All matched data were usable. In total, 55 percent of the participants were male. The average age was 31 years. Our participants were well-educated since all of them had received an undergraduate degree, and 26 percent of them also held a master's degree. The average organizational and team tenures were 4.65 and 3.21 years, respectively. In total, 32 percent of the participants were working as clerical staff members, 46 percent as professional staff members, and 22 percent as managerial staff members. Most of the participants were working in organizations operating in tertiary industries (88 percent).

### *Measures*

*Measuring TMX.* A ten-item scale from Seers *et al.* (1995) was used to measure TMX. Two items were dropped (see details in the next section). A sample item is "How well do other members of your team recognize your potential?" Response options ranged from (1) to a very little extent to (5) to a very great extent. The Cronbach's  $\alpha$  for this scale with eight items was 0.75.

*Measuring voice behavior.* A six-item scale from Van Dyne and LePine (1998) was used to measure voice behavior. A sample item is "I develop and make recommendations concerning issues that affect this work group." Response options ranged from strongly disagree (1) to strongly agree (5). The Cronbach's  $\alpha$  for this scale was 0.79.

*Measuring creative work involvement.* A nine-item scale from Carmeli and Schaubroeck (2007) was used to measure creative work involvement. A sample question is "I demonstrated originality at my work." Response options ranged from strongly disagree (1) to strongly agree (5). The Cronbach's  $\alpha$  for this scale was 0.89.

*Control variables.* We included gender (male = 1, female = 0), age (years), education (undergraduate = 1, master's = 2, doctorate = 3), organizational tenure (years) (Kark and Carmeli, 2009), team tenure (years) (Tse and Dasborough, 2008), and job type (Scott and Bruce, 1994). We classified job type into three categories, namely, clerical, professional, and managerial. We coded these responses as (0, 0) (1, 0), and (0, 1), respectively, for clerical, professional, and managerial staff members. For job type, we therefore had two dummy variables, namely, professional (1 = professional, 0 = otherwise) and managerial (1 = managerial, 0 = otherwise). We presumed that clerical tasks were more structured and routine than the tasks assumed by professional and managerial staff members. We also considered that members of managerial staffs had more complex tasks as compared to those clerical and professional staff members, and they were also presumed to have more personal discretion and autonomy in their work (see Scott and Bruce, 1994 for further review). Finally, we also added type of industry as a control variable (Atwater and Carmeli, 2009). We asked participants to provide the type of industry into their organizations were categorized. There were three groups of industries: primary industry (e.g. farming, fishing, oil and mining, coded as 1), secondary industry (i.e. all manufacturing companies, coded as 2), and tertiary industry (e.g. banking, education, insurance, coded as 3).

### **Data analysis**

#### *Preliminary assessment of primary variables*

We conducted an exploratory factor analysis to evaluate whether all items were loaded in the respective factors. A varimax rotation method was used for the analysis. The results

demonstrated that all voice behavior and creative work involvement items were well loaded in their related factors. However, two TMX items were found to be cross-loaded in the voice behavior variable and were removed. Eventually, a total of 23 items were included in further analyses. The loadings of the items ranged from 0.48 to 0.83 and were in the acceptable range (Hair *et al.*, 2010).

Further, using a confirmatory factor analysis procedure, we reconfirmed the convergent and discriminant validity of the primary variables. We tested the baseline model (all variables were separated). As shown in Table I, the baseline model exhibited satisfactory goodness-of-fit. The model demonstrated that each item explained its respective factor at a significant level  $p < 0.001$ . We also tested two alternative measurement models, namely, a two-factor model (TMX and voice behavior were merged; creative work involvement was independent) and a one-factor model (all factors were combined). The two-factor model also exhibited acceptable goodness-of-fit. However, the baseline model was significantly better than the two-factor model, and much better than the one-factor model. The choice of the baseline model was supported. In addition, the correlation coefficients among the variables were only mediocre; namely, no indication of extremely high correlations was found (see Table II). Thus, evidence of convergent and discriminant validity was demonstrated.

### Results

The means, standard deviations, reliabilities, and correlations among the research variables are presented in Table II. As shown, creative work involvement was correlated with gender ( $r = 0.12$ ,  $p < 0.05$ ), age ( $0.22$ ,  $p < 0.01$ ), and managerial ( $0.13$ ,  $p < 0.05$ ). Creative work involvement was also correlated with TMX ( $r = 0.34$ ,  $p < 0.01$ ) and voice behavior ( $r = 0.47$ ,  $p < 0.01$ ). TMX was correlated with voice behavior ( $r = 0.34$ ,  $p < 0.01$ ). Hence, positive correlations existed among the study variables.

In order to find support for our hypotheses, we used a hierarchical regression analysis to examine the effects of a group of variables on a dependent variable in a step-by-step manner. More specifically, we followed the four conditions established by Baron and Kenny (1986) for testing mediating effects. In the context of our study, the first condition is that TMX must relate to creative work involvement. The second is that TMX must relate to voice behavior. The third is that voice behavior must also relate to creative work involvement. The fourth is intended to check whether the mediation relationship is partial or full. If TMX fails to explain creative work involvement after voice behavior is controlled for, this evidence then indicates full mediation. Otherwise, only partial mediation exists if the effect of TMX on creative work involvement remains significant, but the strength of the effect decreases in magnitude.

Table III represents the results of the hierarchical regression analysis. In this study, positive links between TMX and voice behavior (*H1*), TMX and creative work involvement (*H2*), and voice behavior and creative work involvement (*H3a*) were proposed. In addition, in this study, the mediating effect of voice behavior on TMX and creative work involvement (*H3b*) was also proposed. In Model 1, we regressed the effects of all control variables on

Measurement model	$\chi^2$	df	$\chi^2/df$	Fit index					$\chi^2$ difference test		
				CFI	IFI	NFI	TLI	RMSEA	$\Delta\chi^2$	$\Delta df$	Sig.
Baseline	280.10***	198	1.41	0.96	0.96	0.87	0.95	0.04	–	–	–
Two-factor	371.63***	199	1.87	0.91	0.92	0.83	0.89	0.06	91.53	1	$p < 0.001$
One-factor	522.64***	200	2.61	0.84	0.84	0.77	0.79	0.08	242.54	2	$p < 0.001$

**Notes:**  $n = 260$ .  $\Delta\chi^2 = \chi^2$  difference against to the baseline model;  $\Delta df$  = degree of freedom difference(s); Sig. = significance level of differences in  $\chi^2$ . \*\*\* $p < 0.001$

**Table I.**  
Measurement model comparison

**Table II.**  
Means, standard  
deviations, and  
correlations

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Gender	0.55	0.50											
2. Age	31.15	6.16	0.17**										
3. Education	1.27	0.45	0.02	0.07									
4. Organizational tenure	4.65	4.41	0.12	0.62**	0.13*								
5. Team tenure	3.21	2.96	0.04	0.54**	-0.02	0.68**							
6. Professional	0.45	0.50	0.04	0.06	0.13*	0.12	0.10						
7. Managerial	0.22	0.42	0.12	0.25**	-0.07	0.07	0.11	-0.49**					
8. Industry	2.84	0.47	-0.07	-0.07	0.00	-0.01	-0.03	0.08	-0.17**				
9. TMX (T1)	3.82	0.47	-0.01	0.17**	0.04	0.14*	0.11	-0.10	0.16**	0.08	(0.75)		
10. Voice behavior (T1)	3.96	0.46	0.12	0.29**	0.08	0.18**	0.18**	0.01	0.27**	0.07	0.34**	(0.79)	
11. Creative work involvement (T2)	3.95	0.50	0.12*	0.22**	0.03	0.10	0.06	0.12	0.13*	0.05	0.34**	0.47**	(0.89)

Notes:  $n = 260$ . T1, time 1, T2, time 2. Cronbach's  $\alpha$ s are shown in the parentheses. \* $p < .05$ ; \*\* $p < .01$  (two-tailed)

Variable	Voice behavior (T1)		Creative work involvement (T2)			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Gender	0.05	0.06	0.07	0.08	0.05	0.06
Age	0.19*	0.16*	0.22**	0.18*	0.13****	0.12
Education	0.07	0.06	0.00	-0.01	-0.03	-0.04
Organizational tenure	-0.02	-0.04	-0.02	-0.04	-0.01	-0.03
Team tenure	0.05	0.05	-0.08	-0.08	-0.10	-0.10
Professional	0.12****	0.13*	0.20**	0.22**	0.15*	0.17**
Managerial	0.30***	0.26***	0.19*	0.15*	0.06	0.05
Industry	0.13*	0.10****		0.04	0.02	0.01
TMX (T1)		0.27***		0.32***		0.22***
Voice behavior (T1)					0.43***	0.37***
<i>F</i>	6.08***	8.40***	3.54**	6.87***	9.68***	10.71***
<i>R</i> <sup>2</sup>	0.16	0.23	0.10	0.20	0.26	0.30
Adjusted <i>R</i> <sup>2</sup>	0.14	0.21	0.07	0.17	0.23	0.27

**Notes:**  $n = 260$ . T1, time 1, T2, time 2. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ; \*\*\*\* $p < 0.1$

**Table III.**  
Hierarchical  
regression analysis:  
the direct and indirect  
effects of TMX

voice behavior. In Model 2, we added TMX. The results demonstrated that TMX had a positive relationship with voice behavior (0.27,  $p < 0.001$ ). The results supported *H1*. In Model 3, we regressed all control variables on creative work involvement. In Model 4, we added TMX. The results showed that there was a positive relationship between TMX and creative work involvement (0.32,  $p < 0.001$ ). The results supported *H2*. In Model 5, we regressed all controls and voice behavior on creative work involvement. The results indicated that voice behavior had a positive relationship with creative work involvement ( $\beta = 0.43$ ,  $p < 0.001$ ). These results thus supported *H3a*.

The results therefore confirmed the first three mediating effect testing conditions (i.e. the significances of TMX→creative work involvement; TMX→voice behavior; and voice behavior→creative work involvement). For the last condition, we regressed all controls, voice behavior, and TMX on creative work involvement (Model 6). The results indicated that the effect of TMX on creative work involvement remained significant (0.22,  $p < 0.001$ ) but decreased in magnitude (from 0.32,  $p < 0.001$ , Model 4). The fourth condition was confirmed. The results supported *H3b*. The mediating effect of voice behavior on the relationship between TMX and creative work involvement was thus partial.

To validate the findings from our prior testing, we used a bootstrapping method in AMOS to examine the direct and indirect effects of TMX on creative work involvement. All control variables were excluded in this analysis. As shown in Table IV, the paths TMX→creative work involvement, TMX→voice behavior, and voice behavior→creative work involvement estimates were all significant. The indirect effect of TMX on creative work involvement was 0.24 ( $p < 0.01$ , 95 percent CI = [0.10, 0.61]). The results of the goodness-of-fit statistics for the partially mediated model were  $\chi^2 = 289.07[200]$ ;  $\chi^2/df = 1.45$ ;

	Voice behavior	Creative work involvement
Direct effects of TMX	0.53***	0.25*
Direct effect of voice behavior	–	0.45***
Indirect effect of TMX (0.53×0.45)	–	0.24**
Total effect of TMX (0.25 + 0.24)	–	0.49***
95% bootstrapped CI for the indirect effect (2,000 resamples)	–	(0.10, 0.61)

**Notes:**  $n = 260$ . CI, confidence interval. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

**Table IV.**  
Bootstrapping  
analysis: the direct,  
indirect, and total  
effects of TMX

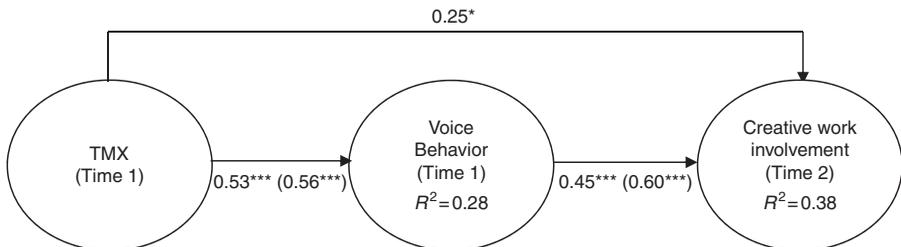
CFI = 0.96; IFI = 0.96; NFI = 0.87; TLI = 0.94; and RMSEA = 0.04. In comparison to the proposed model, we also tested a structural model by eliminating the direct path of TMX and creative work involvement. The paths TMX→voice behavior and voice behavior→creative work involvement estimates were also significant (see Figure 1). The fit indicators for the fully mediated model were  $\chi^2 = 296.51[201]$ ;  $\chi^2/df = 1.48$ ; CFI = 0.95; IFI = 0.95; NFI = 0.87; TLI = 0.94; and RMSEA = 0.04. As expected, the partially mediated model was statistically better than the fully mediated model ( $\Delta\chi^2 = 7.44$ ,  $\Delta df = 1$ ,  $p < 0.01$ ). The bootstrapping analysis then validated support for all of the proposed hypotheses.

### Discussion

The purpose of this study was to examine the links among TMX, voice behavior, and creative work involvement. A total of 260 longitudinal data from two waves of data collection four months apart were used for analyses. We summarized the hypothesized paths with the standardized estimates shown in Figure 1. As predicted, TMX positively influenced both voice behavior and creative work involvement. Voice behavior also positively influenced creative work involvement. Our mediation hypothesis was also found to be supported. The results indicate that the effect of TMX on creative work involvement can be either straightforward or via voice behavior.

This study thus adds a novel understanding of the ability of TMX to increase employee voice behavior and creative work involvement. It has been more than 25 years since TMX was proposed as a new construct by Seers (1989). This construct, however, continues to attract scholars as one type of exchange relationship in organizations that may offer unique implications for employee attitudes and behavior. Prior research has demonstrated the impacts of TMX on numerous work outcomes, for example, performance, job satisfaction, commitment, and engagement (Banks *et al.*, 2014; Liao *et al.*, 2013). Since voice behavior and creative work involvement may offer significant implications for overall organizational performance (Carmeli and Schaubroeck, 2007; Morrison, 2011), we clarify how levels of TMX may impact the voluntary expression of constructive ideas and creative involvement.

This study delivers some implications for theory. The findings contribute to insights related to the links among TMX, voice behavior, and creative work involvement. We found a positive impact of TMX on voice behavior. This finding offers additional evidence of the importance of social exchange relationships on team members' voice behavior (i.e. LMX, Botero and Van Dyne, 2009). The present study established the effect of TMX on employees' creative work involvement. This finding thus validates the importance of social exchange quality on individual creativity (Atwater and Carmeli, 2009; Vinarski-Peretz *et al.*, 2011). Although a previous work was an attempt to investigate the link of TMX and



**Figure 1.** Structural model: standardized parameter estimates of hypothesized paths

**Notes:**  $n = 260$ .  $R^2$  = squared multiple correlations of the partial mediation model. The path coefficients in the parentheses were standardized parameter estimates if the direct path of TMX to creative work involvement was eliminated. \* $p < 0.05$ ; \*\*\* $p < 0.001$

innovativeness (Scott and Bruce, 1994), the research yielded an unsupported result. In addition, we established the importance of employee voice on creative work involvement. This finding may extend prior research that theorized the possibility of the effect of voice behavior on engagement (Rees *et al.*, 2013). We thus augmented insights related to the effects of voice behavior since creative work involvement is a specific type of engagement (Carmeli and Schaubroeck, 2007; Kark and Carmeli, 2009). Taken together, the findings thus enrich the impacts of positive relational experiences on various individual's participation and engagement (Vinarski-Peretz *et al.*, 2011). In addition, we extended the use of social exchange theory and social penetration theory, which was useful to connect the study variables. More specifically, the social penetration perspective puts a strong emphasis on how levels of relationship may influence people's willingness to provide verbal and behavioral disclosures. In this study, we demonstrated how a good quality of TMX representing intimate relationships among group members can promote voice behavior and creative work involvement in a group. Drawing on the both theories, we also explained the ability of voice behavior to mediate the relationship between TMX and creative work involvement.

This study offers several important insights for practice. Organizational creative performance is impossible to achieve without involving members in creative tasks (Woodman and Schoenfeldt, 1990). The question of how to enhance employees' creative work involvement therefore is partially answered by this study. Our study put an emphasis on the importance of TMX and voice behavior. As found in this study, a high quality of TMX is a necessary condition for employees to express their constructive voice and to become involved in creative tasks. Organizations may need to consider some factors related to improving the emergence of opportunities for synergic interactions to occur within teams. For example, the extant literature has suggested the role of team members (Seers *et al.*, 1995) and leadership (Yaping *et al.*, 2013) in promoting team communication and cohesion. Therefore, organizations may need to teach team members how to better develop their reciprocal relationship skills (Seers *et al.*, 1995). Also, organizations can increase the role of team leaders in developing the quality of TMX. Moreover, Seers *et al.* (1995) suggested that the practice of self-management among work teams can stimulate deeper social exchange relationships among members. The authors also suggested when organizations adopt this practice, they must share authority with their teams. Authority is necessary in order to manage activities of teams that lead to achieving the goals of the teams effectively. We suggest that by working in such teams, self-responsibility of the members may be improved because they are a part of the goal achievement, where in turn, a sense of responsibility may encourage them to deliver more constructive voice.

### Limitations and future directions

We wish to note some limitations of this study. First, although we collected data two times, we relied on a single rater for all measures. Our data might still be contaminated with inflated variance because TMX and voice behavior were taken at the same point in time. Future research may cover multiple raters. For example, although previous scholars have used self-reported perceptions of creative work involvement (Kark and Carmeli, 2009), it might give a different perspective if this scale can be measured by peers or intermediate supervisors. Second, the data of our study were taken from only one country. In addition, 88 percent of our participants were working in tertiary industries. Therefore, the data used in the present study may limit the generalizability of the findings. Future research could replicate the findings by using participants from other countries or industries (i.e. primary or secondary). Third, the participants of our study were working in a relatively wide variety of companies and departments. Nevertheless, prior study on creative work involvement has used samples from participants working in diverse organizations and occupations

(Atwater and Carmeli, 2009; Kark and Carmeli, 2009). Atwater and Carmeli (2009, p. 267), for example, sampled individuals from 24 different organizations with approximately 50 job types. We must, however, admit that one organization should differ from another in regard to viewing the importance of members' creativity influencing employees' perceptions of the necessity to develop their creative behavior in the workplace. Future research may collect data from employees working in high-technology firms, creative industries (e.g. advertising, arts, software) or departments (e.g. R&D, marketing). Fourth, we used a one-dimension construct of voice behavior. Meanwhile, extant literature has proposed different types of voice behaviors (e.g. supportive, constructive, defensive, and destructive voice, see Maynes and Podsakoff, 2013). The findings of our study were therefore limited. For example, the effects of TMX on the types of voice behaviors may vary. Future research could expand the findings by using the types of voice behaviors as either predictor or outcome variables in order to offer different nuances of the relationships among the study variables.

To expand our findings, future research may also consider other individual characteristics that might influence creative work involvement, such as the need for achievement and learning orientation. Need for achievement might contribute to creativity because it refers to one's desire to meet or exceed standards. Future researchers also may wish to investigate the influences of some contextual variables such as job attributes (e.g. job autonomy, task variety, echelon, and task significance) and resource availability. Job autonomy, for example, referring the degree of control employees may have over their jobs (Spiegelaere *et al.*, 2014), might impact employees' motivation related to performing creative tasks. Since this study also highlighted voice behavior, future researchers also can consider exploring various team-level variables such as gender composition and team conflict asymmetry that might be related to voice behavior. Team conflict asymmetry refers to the dispersion or differences among group members in regard to how they view group conflicts (Jehn *et al.*, 2010). Team conflict asymmetry might result in various levels of the delivery of constructive voice. Finally, elaborating on some of the mentioned variables may offer a deeper insight into how to enhance creative work involvement.

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