

*Full Length Research Paper*

# **Study on the effects of transformational leadership by managers and organizational justice consciousness on organizational citizenship behaviour of high-tech electronics industry in Taiwan**

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**The high-tech electronics industry can make an important contribution to the enhancement of Taiwan's technological standards and international competitive advantage. Under the pressures of business production performance and operations, it cannot ignore an important task for managers in Taiwan's high-tech electronics industry that they should adopt appropriate leadership patterns, fair mechanism of construction organization, and inspire organizational citizenship behaviours in employees. On the basis of this assumption, this research is used by means of a questionnaire and to study on the effects of transformational leadership by managers and organizational justice consciousness on organizational citizenship behaviour in Taiwan's high-tech electronics industry. Generally speaking, the research results showed that managers run transformational leadership which is unnoticeable and have low-level of organizational justice, then the organizational citizenship behaviour of their organizations' members will be low, causing negative behaviours, such as a decrease in the centripetal force toward the company, job involvement and productivity and an increase in the turnover rate. On the contrary, managers run transformational leadership which is noticeable and have high-level of organizational justice, then the organizational citizenship behaviour of their organizations' members will be strong, thereby having a strong centripetal force toward the company, which is also beneficial to a company's operational performance and enhancement of productivity performance.**

**Key words:** Transformational leadership, organizational justice consciousness, organizational citizenship behaviour.

## **INTRODUCTION**

Global information-based economic trade trends and competition faced by industries have created great conflict in their operations management practices.

Therefore, high-tech electronics companies that require abundant capital, intensive technology and knowledge economics must be careful consideration to their research, production and marketing processes. In an environment, managers of Taiwan's high-tech electronics industry have to hold remarkable leadership patterns and characteristics to lead the intellectual workers in the high-technology world and to inspire their productivity, so as to

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take responsibility for the success and failure of the operations of the industry. The empirical studies of domestic and international scholars showed that factors such as transformational leadership by managers, organizational justice and organizational citizenship behaviour are critical influences on the development of businesses. Robbins (1998) pointed out that not only can transformational leaders inspire their subordinates to sacrifice their personal pros and cons for the company, but they also can have a deep and special influence on their subordinates. The research of Podsakoff and Mackenzie (1997) indicated that organizational citizenship behaviour can promote cooperative behaviours in business employees, enhance their group morale, increase productivity performance, decrease conflicts in management, and strengthen their ability to adjust to organizational changes. The research of Chen et al. (1998) found that when employees show organizational citizenship behaviour, the turnover rate will be decreased. Therefore, when managers of the high-tech electronics industry establish the human resources management strategies of the business, they must be actively interested in setting up organizational justice mechanisms that can prevent injustice inside the organization, which will help to prevent lower employee job involvement, avoid a high turnover rate and influence organizational citizenship behaviour performance of the employees. The research findings of Masterson et al. (2000) showed that when there is an increase in employees' recognition of organizational justice and of employees being treated justly by their leaders, in addition to their duties the employees will perform their distinguishing characteristics. High job performance is a type of feedback to the organization.

This study examines the literatures of related theories of transformational leadership by managers, organizational justice consciousness and organizational citizenship behaviour and uses the related empirical studies of scholars as its theoretical basis. Secondly, the study generalizes the factors of the related theories to design questionnaire items and uses the questionnaire investigation method to carry out an empirical study on the effects of transformational leadership by managers and organizational justice by Taiwan's high-tech electronics manufacturers on organizational citizenship behaviour. Finally, the study analyzes the following questions through statistical methods:

1. What are the effects of the mutual influences between the transformational leadership by managers and organizational justice consciousness of Taiwan's high-tech electronics industry on organizational citizenship behavior?
2. What are the effects of the transformational leadership by managers or organizational justice consciousness of Taiwan's high-tech electronics industry on the organizational citizenship behaviour?

## LITERATURE REVIEW

Based on the research needs, this chapter aims to analyze and examine the related theories of transformational leadership, organizational justice consciousness and organizational citizenship behaviour and uses the related empirical studies of scholars as the theoretical basis of this study.

### Transformational leadership

Based on Maslow's "hierarchy of needs theory," Burns (1978) explained transformational leadership as "the process in which there is a mutual enhancement of ethics and motivations to a higher level amongst the leaders and followers". Sergiovanni (1990) considered that transformational leadership is a type of mutual relationship of enhancement and motivation between the leaders and members of the organization. During the leading process, leaders assist in the growth of the members, allowing the members to transform into leaders and because of this growth, the leaders also grow themselves imperceptibly, thereby becoming the promoters of ethics. Yukl (1994) considered that transformational leadership is the change in the attitude of leaders who influence the organizational members and that it establishes a commitment to the mission and objectives of the organization. Robbins (1998) also pointed out that transformational leaders are people who motivate their subordinates to sacrifice their personal benefits for the organization and have a deep and special influence on their subordinates.

After several amendments, the "Multifactor leadership questionnaire (MLQ)" developed by Bass and Avolio (1990; 1997) formally developed the transformational leadership model as follows:

1. Charisma or idealized influence: This means that leaders have vision, enthusiasm and a characteristic or behaviour that causes the members to have a heartfelt admiration for them. They can influence members' emotions or have high self-confidence and become the ideal targets for the subordinates to adore and learn from. They also motivate members to be loyal to the organization and to participate.
2. Inspirational motivation: This means that the leaders have high hopes for the members and uses their charisma to effectively convey the beneficial future of the organization. They may use symbolizing notation and convincing emotions to encourage members to view their future development optimistically and with hope, thereby producing strong job motivation and centripetal force toward the organization.
3. Intellectual stimulation: These leaders encourage their subordinates to increase their knowledge. They can foster greater, more innovative capabilities in their

subordinates by encouraging them to use already proficient skills to handle old problems and by emphasizing reasonable problem solving.

4. Individualized concern: These leaders give individual concern to every subordinate based on their individual needs, causing the subordinates to deeply feel the importance given to them by the leaders and, as a result, to work hard. The leaders also take ample opportunity to motivate and create learning experiences for the members and to respect every member.

Leithwood (1994) developed the special scale for transformational leadership and studied the consciousness of teachers on their principal's transformational leadership practices. There are six dimensions to the scale, which includes:

1. Provide vision.
2. Enhance the degree of acceptance of group objectives.
3. Provide individual support.
4. Intellectual stimulation.
5. Establish appropriate examples.
6. High expectations for success.

Parry (2000) considered that transformational leadership is effective leadership style that can transfer the soul of the subordinates to a higher level of motivation and satisfaction. Piccolo and Colquitt (2006) considered that transformational leadership is when leaders use charisma, challenge hypotheses, and risk-bearing methods to guide the knowledge of their subordinates. The leaders can provide intelligence through the needs of the subordinates and guide them to transform from their individual benefit to seek for a higher ideal of the organization's vision. Integrating this, the Transformational Leadership Scale (TLS) of this study uses the four factor scale of Bass and Avolio (1990; 1997) as its basis. Moreover, the transformational leadership scale developed by Leithwood (1994) was referred to and added to the shared vision factor. The contents include five factors, including shared vision, charisma or idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration.

### **Organizational justice**

Greenberg (1990) defined organizational justice as the justice received by employees in their workplace. It is the just cognition of organizational employees. The examination of the connotations of organizational justice is based on two concepts: distributive justice and procedural justice, according to Folger and Greenberg (1985), Leventhal (1980), Niehoff and Moorman (1993), Kreitner and Kinicki (2001). However, Bies and Moag (1986), Greenberg (1990), Niehoff and Moorman (1993) viewed organizational justice as being divided into three

dimensions: distributive justice, procedural justice and interactional justice, which will also be discussed.

Firstly, distributive justice can be explained based on Folger and Greenberg's (1985) work. When organizational resources are distributed, they should conform to standards of justice, and the reactions of employees to the distributed results must mainly emphasize the results and contents. In other words, distributive justice includes the fairness of salary distribution and reward distribution. Secondly, procedural justice emphasizes procedures and processes and points at whether the members are conscious of and recognize the justice in the decision-making procedures or processes of the organization. Kreitner and Kinicki (2001) pointed out that procedural justice is the key justice related to distributive decision-making processes and procedures. However, Bies and Moag (1986) considered that the concept of procedural justice has neglected the feeling of interpersonal interaction quality received by the employees during the execution of organizational procedures, such as respect given to employees, provision of explanations to decisions, performance empathy, etc. However, Kreitner and Kinicki (2001) also pointed out that the so-called interactional justice points at the fairness in the behaviour of decision makers during the decision-making processes. Folger and Cropanzano (1998) asserted that interactional justice includes interpersonal sensitivity and explanations.

Integrating this, organizational justice (OJ) consciousness examines whether employees are conscious of justice in the exchanges and relationships between themselves and their organization. In other words, when the organization distributes the resources or decides affairs related to the employees, it examines whether or not the self-consciousness of the employees is a type of relational process. The examination of the "organizational justice" questionnaires related to this study is formed by amending the questionnaires of Niehoff and Moorman (1993). The factors are divided as distributive justice, procedural justice and interactional justice.

### **Organizational citizenship behaviour**

Bateman and Organ (1983) defined "citizenship behaviour" as the spontaneity of the employees and the formal organizational scope that are not related to, and beneficial for, social behaviour. Organ (1990) defined organizational citizenship behaviour as "the pay system of the organization is not formally recognized, but is overall beneficial to the operations performance of the spontaneous behaviour of the various employees of the organization". This kind of behaviour is not listed in the employees' manual. Smith et al. (1983) considered that organizational citizenship behaviour as the formal rules of non-organizations that do not use formal rewards and punishment systems to judge employee behaviour. DiPaola

and Tschannen-Moran (2001) considered that organizational citizenship behaviour can form an organizational and social context that is beneficial for the effective performance of the organization. Even though these behaviours do not possess job functions, they make a big contribution and have value to the organization. Organ (1997) considered that organizational citizenship behaviour is not regarded as behaviours of “extra-role”, “beyond the job”, “unrewarded by the formal system”. There is still discussion about the in-role behaviours or extra-role behaviours of organizational citizenship behaviours (Vey and Campbell, 2004; Li and Wan, 2007). The research findings of Li and Wan (2007) showed that the older the employees in the businesses in China, the higher are their rankings and the more deviated they are to the in-role behaviours of the organizational citizenship behaviour.

Scholars have different views on the methods for distinguishing the dimensions of organizational citizenship behaviour along with the passage of time. However, without destroying the connotations and meanings, the main dimensions are as follows:

1. Netemeyer et al. (1997) distinguished the four dimensions as: sportsmanship, civic virtue, conscientiousness, altruism.
2. Organ (1988) differentiated organizational citizenship behaviour into five dimensions: altruism, conscientiousness, sportsmanship, courtesy and civic virtue. These five dimensions set off an upsurge in the organizational behaviour research and many scholars are studying on these five dimensions (Konovsky and Pugh, 1994; Moorman, 1993; Niehoff and Moorman, 1993; Podsakoff et al. 1990; Schnake et al. 1995).
3. Based on Chinese organizations, Farh et al. (1997) have developed five dimensions of organizational citizenship behaviour:

1. Identification with the company: This means that the organizational members are willing to initiatively tell the outside world concerning the positive news of the company, so as to protect the company's image and also initiatively suggest constructive improvement cases.
2. Altruism toward colleagues: This means that the organizational members are willing to assist colleagues to handle job problems.
3. Conscientiousness: This means that the spontaneous behavior of the organizational members are over the behaviour required by the organization and also follows organizational rules as well as work hard.
4. Interpersonal harmony: This means that organizational members will not engage in various political behaviors which will damage the organizational harmony for their own personal benefits, example: gossiping about other people behind their backs.
5. Protecting company resources: This means that the organizational members will not use working hours or use company resources to handle other private affairs.

This study divides organizational citizenship behaviour (OCB) into six main factors:

1. Identification with the organization
2. Altruism toward colleagues
3. No quarrels or pursuit of fame
4. Scrupulous in separating the public affairs from the private ones
5. Professional dedication
6. Obeying of rules, self-fulfillment.

Among these, altruism toward colleagues, professional dedication and altruism toward colleagues are similar to general obedience. However, identification with the organization, no quarrels or pursuit of fame is similar to the sportsmanship and citizenship ethics of Podsakoff et al. (1990). Moreover, self-fulfillment uses the “using private time to train participation and forced participation” factor of the organizational citizenship behaviour scale of Pearce and Gregersen (1991) as its basis. Scrupulous in separating public affairs from private ones uses the “wastage or damage of company capital” item in the questionnaires of Bateman and Organ (1983).

#### **Related studies on the effects of transformational leadership by managers on organizational citizenship behavior**

The research results of Podsakoff et al. (1990) showed that transformational leadership indirectly influences the organizational citizenship behavior of subordinates through trust.

The research of Podsakoff et al. (1990) on the relationship between transformational leadership and organizational citizenship behaviour showed that there was a positive influence on individual considerations of altruism, diligence, sportsmanship, manners and citizenship ethical behaviour. Transformational leadership can cause employee performance to be better than expected (Bass, 1985; Yukl, 1989).

The research results of MacKenzie et al. (2001) showed that transformational relationship not only influences the sales employees to perform more better than expected, but it also easily leads the sales performance, and there is a stronger direct and indirect relationship among the organizational citizenship behaviours. Farh et al. (1990) viewed that fair behaviour (including rewarding employee efficiency, sympathy and support) has an apparent influence on the “altruism” of organizational citizenship behaviour.

Bogler (2001) showed that teachers like to work with principals who possess transformational leadership qualities and dislike working with principals who use transactional leadership. The reason is employees lack independence and professional dignity under a transactional leadership work environment, in which employees are monitored all the time, thereby showing a

low performance in organizational citizenship behaviour. MacKenzie et al. (2001) studied the influence of transformational leadership and transactional leadership styles on the sales performance of insurance company brokers and found that transformational leadership brokers are more able to create sales performance over job regulations and show stronger organizational citizenship behaviour than transactional leadership brokers. This means there is a weaker relationship between transactional leadership and organizational citizenship behaviour.

Purvanova et al. (2006) studied transformational leadership and the employee organizational citizenship performance of American business managers and found that there was a positive relationship between transformational leadership and organizational citizenship behaviour. The research findings of Piccolo and Colquitt (2006) also showed a positive relationship between transformational leadership and organizational citizenship behaviour.

### **Related studies on the effects of organizational justice consciousness on organizational citizenship behaviour**

Some researchers have pointed out that on the organizational dimension, procedural justice influences trust in managers more than distributional justice (Alexander and Ruderman, 1987). However, procedural justice influences the organizational commitment to, and trust in, managers, whereas distributional justice does not influence the organizational citizenship behaviour (Folger and Konovsky, 1989). The findings of Moorman (1991) and of Niehoff and Moorman (1993) showed that the influences of procedural justice on the organizational citizenship behaviour are more important than those of distributional justice.

Moorman's view was that job satisfaction plays an intermediary role between employee consciousness of distributional justice, procedural justice, interactional justice and organizational citizenship behaviour and found that interactional justice is the only one among the three dimensions of organizational justice that influences organizational citizenship behaviour. The research findings of Viswesvaran and Ones (2002) showed that the relations between procedural justice and organizational citizenship behaviour are greater than those between distributional justice and organizational citizenship behaviour.

Konovsky and Pugh's (1994) research tested organizational citizenship behaviour from the perspective of social exchanges and found that procedural justice in the organizational justice system will directly influence the establishment of trust in the managers, which can influence organizational citizenship behaviour. In view of the research process of organizational citizenship behaviour, many researchers found that organizational

justice will influence the organizational citizenship behaviour and also has the ability to predict (Moorman, 1991; Niehoff and Moorman, 1993; Schnake, 1990), that is, when employees feel that organizational justice is higher, their performance of organizational citizenship behaviour will be higher. Organizational justice and organizational citizenship behaviour reveal the important factors for the enhancement and development of business performances. If employees feel that they receive fair practical remuneration and promotions, then they will have high job involvement and high organizational commitment to repay the organization. On the contrary, if employees feel they receive unfair treatment or managers turn a blind eye to injustices in the internal organization, then they will show business threats such as low involvement, low morale, low productivity, high turnover rates and low organizational citizenship behaviour (Cropanzano and Greenberg, 1997; Folger and Cropanzano, 1998).

Integrating the aforementioned research findings shows that transformational leadership is the most common and effective of the leadership styles in the business world. Transformational leadership by managers has a considerable degree of influence on organizational citizenship behaviour. At the same time, employees produce different degrees of organizational citizenship behaviour through the interactional influences between transformational leadership by managers and organizational justice consciousness.

Therefore, the business world must pay attention to the setting and executing processes of organizational justice principles, allowing employees to have a high commitment and trust in the organization or its managers, indirectly increasing their organizational citizenship behaviour performance, so as to maintain the competitive advantage of the businesses.

### **RESEARCH METHODS**

This study mainly examines the effects of the five factors of transformational leadership by managers ( $B_b$ ,  $b = 1, \dots, 5$ ) and the three factors of organizational justice consciousness ( $C_c$ ,  $c = 1, \dots, 3$ ) on the six factors of organizational citizenship behaviour ( $A_a$ ,  $a = 1, \dots, 6$ ). In fact, transformational leadership by managers can be viewed as a factor that influences organizational citizenship behaviour, and the strength or weakness of this transformational leadership can be viewed as the two standards. Similarly, organizational justice consciousness can be viewed as another factor that influences organizational citizenship behaviour, and the strength or weakness of the justice can be viewed as the two standards.

Based on the aforementioned, the influencing model and experimental design model of the processing of the industrial application of transformational leadership by managers and organizational justice consciousness on organizational citizenship behaviour are similar. This study uses the general linear mode (Montgomery, 2009) to establish an analysis full model first, as follows:

$$A_{aj} = \alpha_{cj} + \beta_{bi} + (\alpha_b \beta_c)_{ij} + \varepsilon_{ij} \text{ -----} \quad (1)$$

**Table 1.** Analysis of variance table of organizational citizenship behaviour.

Models	Sources of influence	Degree of influence index (I)
$M_{bc}$	$B_b$	$I^B$ **
	$C_c$	$I^C$ *
	$B_b * C_c$	$I^{BC}$

\* represents P value < 0.05; \*\* represents P value < 0.01.

where

$i : i = 1$  represents that transformational leadership by managers is strong and when  $i = 0$ , it represents that the transformational leadership by managers is weak.

$j : j = 1$  represents that organizational justice consciousness is strong and when  $j = 0$ , it represents that organizational justice consciousness is weak.

$A_{aij}$  : represents the effects of the  $i^{th}$  factor of transformational leadership and the  $j^{th}$  factor of organizational justice consciousness on the  $a^{th}$  factor of organizational citizenship behaviour.

$\alpha_{cj}$ : represents the  $j^{th}$  degree in the  $c^{th}$  factor of organizational justice consciousness.

$\beta_{bi}$ : represents the  $i^{th}$  degree in the  $b^{th}$  factor of transformational leadership by managers.

$(\alpha_b \beta_c)_{ij}$ : represents the interaction between the  $i^{th}$  degree of the  $b^{th}$  factor of transformational leadership by managers and the  $j^{th}$  degree of the  $c^{th}$  factor of organizational justice consciousness.

$\mathcal{E}_{ij}$  : represents the error item.

Secondly, this study redefines the degree of influence index of transformational leadership by managers ( $I_B$ ), the degree of influence index of organizational justice consciousness ( $I_C$ ), and the degree of influence index of the interaction of transformational leadership and organizational justice consciousness ( $I_{BC}$ ). Based on these indices, the analysis of variance (ANOVA) scale is established to be used as the analysis tool.

In reality, the variation of organizational citizenship behaviour (SST) is equal to the sum of the variation of transformational leadership by managers (SSB), the variation of organizational justice consciousness (SSC) and the interaction of the variation of (SSBC) and error (SSE), which is shown as:

$$SST = SSB + SSC + SSBC + SSE$$

Based on this relationship, the definitions of the aforementioned three definitions are as follows:

$$I_B = \frac{MSB}{T} \text{ (degree of influence index of transformational leadership by managers)}$$

$$I_C = \frac{MSC}{T} \text{ (degree of influence index of organizational justice consciousness)}$$

$$I_{BC} = \frac{MSBC}{T} \text{ (degree of influence index of interaction)}$$

Among these,  $T = MSB + MSC + MSBC + MSE$  and  $MSI = SSI / \text{degrees of freedom, } I = B, C, BC, E$ . From this, it can be shown that

when  $MSI$  is higher, it shows that the degree of influence of this influencing factor is higher. Moreover, the establishment of the ANOVA scale of the organizational citizenship behaviour is shown in Table 1, as follows: Model  $M_{bc}$  represents the  $b^{th}$  factor ( $B_b$ ) of the transformational leadership by managers and the  $c^{th}$  factor ( $C_c$ ) of organizational justice of the input research factor. If the degree of influence index value of  $B_b$  factor is higher, then it represents that the degree of influence of factor  $B_b$  on organizational citizenship behaviour is higher. Similarly, if the degree of influence index of  $C_c$  factor is higher, then it shows that the influence of  $C_c$  on organizational citizenship behaviour is higher. Moreover, when the interaction item ( $B_b * C_c$ ) is not apparent, then the inter-relationship between the transformational leadership by managers and organizational justice consciousness is lower, that is, the influence of the factor  $B_b$  on organizational citizenship behaviour is not interfered with by factor  $C_c$ . Similarly, the influence of factor  $C_c$  on organizational citizenship behaviour is not interfered with by factor  $B_b$  and the individual influences of transformational leadership by managers ( $B$ ), organizational justice consciousness ( $C$ ) on organizational citizenship behaviour is re-examined. Therefore, this study follows the general linear model to establish a simple analysis model and uses this model to analyze the aforementioned problems. The model structures are shown as follows:

$$A_\alpha = \mu_h + \mathcal{E} \text{ ----- (2)}$$

In Equation 3.2,  $h = 1, 2, 3, 4, 5$ . This represents the five factors ( $B1$ - $B5$ ) of the transformational leadership by managers, whereas  $h = 6, 7, 8$  represents the three factors ( $C1$ - $C3$ ) of organizational justice consciousness;  $\mathcal{E}$  represents error item.

It can be known from Table 2 that the statistical  $F$  weight and  $P$  value are used as the analysis tools, and the analysis principles are as follows:

1. When  $P$  value < 0.05, then the statistical  $F$  weight is noted as “\*”. This means that the influencing factors have apparent influences on the organizational justice behaviour.
2. When  $P$  value < 0.01, then the statistical  $F$  weight is noted as “\*\*”. This means that the influencing factors have a level of significance on the organizational justice behaviour.

### EMPIRICAL RESEARCH

The formal questionnaires for this study use employees of Taiwan's high-tech electronics industry as the surveying targets and carry out the research on the influences of transformational leadership by managers and organizational justice consciousness on organizational citizenship behaviour. The research targets are based on the 1000 large Taiwanese businesses with the highest operational pro-

**Table 2.** Analysis of the individual influence of the transformational leadership by managers (*B*) and organizational justice consciousness (*C*) on organizational citizenship behavior (*A*).

<i>B<sub>b</sub> or C<sub>c</sub></i> factor		OCB value		
		Organizational citizenship behaviour factor		
<i>B<sub>b</sub> or C<sub>c</sub></i>		Mean value	<i>F</i>	<i>P</i> -value
	1 (Strong)	MEAN 1	MSB/MSE	<i>p<sub>v</sub></i>
	0 (Weak)	MEAN 0		

\* represents *P* value < 0.05; \*\* represents *p*-value < 0.01

factories and IC semiconductor design and manufacturing (including packaging testing and wafer foundry), and a total of related factories of computer system software and hardware equipments, communication networks, flat panel displays, and photoelectric high-tech electronics industries. Ten of the related factory's samples were chosen randomly for this research.

### Questionnaire design

The questionnaires use the Likert five point scale assessment, distinguished as "strongly disagree", "disagree", "no opinion", "agree" and "strongly agree", with positive scores such as 1, 2, 3, 4, and 5. The higher score is represented to the higher degree.

### Reliability analysis of the questionnaires

On the aspect of the reliability of the questionnaires, the questionnaire scales of this study used the employees of the high-tech electronics industry as the research targets and used the simple random sampling method to send out 100 questionnaires to carry out investigation. Eighty-two questionnaires were retrieved, with a retrieval rate of 82%, among which 79 questionnaires were usable, for a usable rate of 96.34%. From the reliability analysis, it can be seen that the internal consistency, Cronbach's  $\alpha$ , of the total scales of the questionnaires is 0.96. The reliability of the various scales is as follows: the questionnaire reliability of "transformational leadership by managers", "organizational justice consciousness" and "organizational citizenship behaviour" is 0.95, 0.92, and 0.86, respectively. This shows that the internal consistency of this scale is stable and possesses a considerably high reliability.

### Effects of transformational leadership by managers, organizational justice consciousness and mutual interference on organizational citizenship behaviour

The three indices of transformational leadership by managers (influencing indices of transformational leadership, organizational justice consciousness and interaction) established in the research method of chapter three are used in the analysis of the relationship between transformational leadership by managers and organizational citizenship behaviour. When the index value is higher, this means that the influencing factors have a higher influence on the organizational citizenship behaviour. Moreover, the *P* value can be used as the analysis tool and the analyzed principles are as follows:

1. When *P* value < 0.05, the index value is noted as "\*\*". This means that the influencing factors have an apparent level of significance on the organizational citizenship behavior.
2. When *P* value < 0.01, the index value is noted as "\*\*\*". This

means that the influencing factors have a very apparent level of significance.

Apparently, it can be seen from Table 3 that the overall interactive relationship (*B*\**C*) between the transformational leadership by leaders and organizational factors is not apparent. Therefore, this study re-uses the simple model to examine the effects of transformational leadership (*B*) or organizational justice (*C*) on organizational citizenship behaviour (*A*).

## EMPIRICAL RESULT ANALYSIS OF THE MODEL

The test of the effects of transformational leadership, organizational justice consciousness and the mutual interference (mutual interaction) on organizational citizenship behaviour found that there was no mutual interference. Therefore, based on the general linear model and empirical data from analyzed questionnaires (Table 4) mentioned in the third section of this study, B1, B2, B3, B4, and B5 of transformational leadership by managers are separately distinguished as shared vision, charisma, idealized influence, inspirational motivation, intellectual stimulation and individualized consideration. C1, C2 and C3 represent distributional justice, procedural justice and interactional justice of the questionnaire factors of the organizational justice factor. A1, A2, A3, A4, A5, and A6 represent organizational citizenship behaviour, separately represented as identification with the organization, altruism toward colleagues, no producing quarrels or pursuit of fame, scrupulous in separating public affairs from private ones, professional dedication and obedience of the rules, self-fulfillment.

From the aforementioned empirical research results, it can be seen that there is a high influence of the transformational leadership by manager's factor and of the organizational justice consciousness factor on organizational citizenship behaviour. In other words, while there is an apparent influence of the transformational leadership by managers factor and organizational justice consciousness factor on the organizational citizenship behavior factor, only the two organizational citizenship behaviour factors, "no producing quarrels and pursuit of fame" and "scrupulous in separating public affairs from private ones," show no apparent influence of the transformational leadership by managers and organizational justice consciousness factors. However, there can be a

reasonable explanation for the empirical results of the two factors, that is, whether or not the transformational



**Table 3.** Effects of transformational leadership by managers, organizational justice and the mutual interference between the two on the organizational citizenship behaviour.

Model	OCB factors											
	Identification with the organization (A <sub>1</sub> )		Altruism toward colleagues (A <sub>2</sub> )		No. producing of quarrels and pursuit of fame (A <sub>3</sub> )		Scrupulous in the separation of public affairs from private ones (A <sub>4</sub> )		Professional dedication and obedience of rules (A <sub>5</sub> )		Self-fulfillment (A <sub>6</sub> )	
	Factors	Indices	Factors	Indices	Factors	Indices	Factors	Indices	Factors	Indices	Factors	Indices
M11	B1	36.84*	B1	31.48*	B1	6.54	B1	39.45	B1	38.04**	B1	86.72**
	C1	57.04**	C1	59.66**	C1	43.40	C1	0.41	C1	52.55**	C1	4.01
	B1*C1	0.25	B1*C1	3.43	B1*C1	9.34	B1*C1	0.22	B1*C1	4.37**	B1*C1	4.85**
M12	B1	54.00*	B1	37.14*	B1	7.90	B1	38.68	B1	45.09**	B1	84.62
	C2	36.77*	C2	41.35*	C2	24.51	C2	28.12	C2	47.94	C2	6.84
	B1*C2	0.00	B1*C2	14.86	B1*C2	18.08	B1*C2	5.02	B1*C2	0.75	B1*C2	4.27
M13	B1	62.54*	B1	64.64*	B1	4.50	B1	20.76	B1	64.61*	B1	86.31**
	C3	25.74	C3	19.37	C3	28.85	C3	16.55	C3	7.45	C3	8.76
	B1*C3	0.82	B1*C3	3.40	B1*C3	39.07	B1*C3	48.19	B1*C3	18.45	B1*C3	0.54
M21	B2	53.39**	B2	45.89	B2	36.31	B2	27.02	B2	35.65**	B2	81.25
	C1	41.21**	C1	49.18	C1	15.95	C1	34.96	C1	51.34**	C1	13.39
	B2*C1	0.72	B2*C1	0.04	B2*C1	16.70	B2*C1	6.83	B2*C1	8.61	B2*C1	0.56
M22	B2	77.24**	B2	59.19	B2	51.25	B2	26.75	B2	47.28**	B2	86.70**
	C2	7.61	C2	21.34	C2	0.01	C2	42.33	C2	45.78**	C2	4.00
	B2*C2	7.78	B2*C2	12.78	B2*C2	4.37	B2*C2	0.05	B2*C2	0.67	B2*C2	4.10
M23	B2	80.39**	B2	74.87	B2	26.85	B2	30.27	B2	78.96*	B2	82.10**
	C3	9.06	C3	7.02	C3	48.10	C3	26.89	C3	8.39	C3	12.40
	B2*C3	2.83	B2*C3	9.29	B2*C3	2.45	B2*C3	7.73	B2*C3	1.26	B2*C3	0.64
M31	B3	28.77*	B3	11.32	B3	0.41	B3	20.42	B3	32.64*	B3	82.74**
	C1	62.35**	C1	82.76**	C1	0.11	C1	38.76	C1	57.07**	C1	11.72
	B3*C1	3.27	B3*C1	0.34	B3*C1	0.19	B3*C1	8.80	B3*C1	5.42	B3*C1	0.40
M32	B3	44.92*	B3	12.16	B3	50.32	B3	23.88	B3	40.19*	B3	82.69
	C2	44.11*	C2	70.59**	C2	0.00	C2	26.33	C2	53.09**	C2	8.04
	B3*C2	1.45	B3*C2	11.15	B3*C2	13.33	B3*C2	12.12	B3*C2	0.41	B3*C2	4.14
M33	B3	45.31	B3	16.48	B3	0.52	B3	21.00	B3	57.88**	B3	68.86**
	C3	40.15	C3	34.95*	C3	0.41	C3	8.47	C3	21.27	C3	25.06**
	B3*C3	4.93	B3*C3	39.83*	B3*C3	0.07	B3*C3	0.65	B3*C3	11.16	B3*C3	2.03

Table 3. Contd.

	Identification with the organization (A <sub>1</sub> )		Altruism toward colleagues (A <sub>2</sub> )		No. producing of quarrels and pursuit of fame (A <sub>3</sub> )		Scrupulous in the separation of public affairs from private ones (A <sub>4</sub> )		Professional dedication and obedience of rules (A <sub>5</sub> )		Self-fulfillment (A <sub>6</sub> )	
	Factors	Indices	Factors	Indices	Factors	Indices	Factors	Indices	Factors	Indices	Factors	Indices
M41	B4	12.71	B4	11.13	B4	52.42	B4	11.05	B4	26.46*	B4	84.45**
	C1	76.47**	C1	77.34**	C1	10.46	C1	52.35	C1	56.56**	C1	9.94
	B4*C1	5.24	B4*C1	6.30	B4*C1	8.29	B4*C1	1.28	B4*C1	12.59	B4*C1	1.49
M42	B4	18.35	B4	9.85	B4	61.24	B4	18.81	B4	0.35	B4	84.61**
	C2	66.76**	C2	51.05**	C2	0.09	C2	17.20	C2	0.58	C2	5.60
	B4*C2	6.23	B4*C2	34.63**	B4*C2	4.76	B4*C2	2.92	B4*C2	0.01	B4*C2	5.67
M43	B4	22.75	B4	24.17	B4	33.56	B4	10.29	B4	57.72*	B4	84.99**
	C3	51.54*	C3	43.21	C3	48.44	C3	13.40	C3	13.35	C3	8.26
	B4*C3	14.67	B4*C3	19.65	B4*C3	0.02	B4*C3	43.51	B4*C3	17.76	B4*C3	2.60
M51	B5	33.04*	B5	38.33**	B5	2.99	B5	20.42	B5	32.64*	B5	70.77**
	C1	57.38**	C1	55.34**	C1	28.95	C1	38.76	C1	57.07**	C1	22.37
	B5*C1	4.13	B5*C1	1.05	B5*C1	42.01	B5*C1	8.80	B5*C1	5.42	B5*C1	0.07
M52	B5	52.76*	B5	53.66*	B5	6.42	B5	23.88	B5	40.19	B5	61.21**
	C2	37.25	C2	37.89	C2	35.13	C2	26.33	C2	53.09*	C2	20.33
	B5*C2	0.50	B5*C2	0.50	B5*C2	1.01	B5*C2	12.12	B5*C2	0.41	B5*C2	12.78
M53	B5	48.43*	B5	53.43*	B5	5.28	B5	23.63	B5	69.10*	B5	58.67**
	C3	26.51	C3	13.65	C3	35.83	C3	16.38	C3	16.48	C3	28.25*
	B5*C3	16.45	B5*C3	25.02	B5*C3	11.92	B5*C3	22.74	B5*C3	2.59	B5*C3	7.69

\* represents P value < 0.05; \*\* represents P-value < 0.01.

leadership example by business organization managers or the establishment of deep roots of organizational justice in the organizational culture exist in the organization, the “no producing quarrels and pursuit of fame” and “scrupulous in

separating public affairs from private ones” factors cannot avoid the conflicts occurring when the employees’ success or benefits are involved during promotional rewards and performance. Further empirical researches are needed to be

presented for this result.

### CONCLUSIONS AND SUGGESTIONS

The research findings showed that when there is

**Table 4.** Analysis of the individual effects of transformational leadership by managers or organizational justice consciousness on organizational citizenship behaviour.

TL or OJ factors		OCB factors											
		Identification with the company (A <sub>1</sub> )		Altruism toward colleagues (A <sub>2</sub> )		No producing quarrels or pursuit of fame (A <sub>3</sub> )		Scrupulous in separating public affairs from private ones (A <sub>4</sub> )		Professional dedication and obedience of rules (A <sub>5</sub> )		Self-fulfillment (A <sub>6</sub> )	
		Mean value	FP value	Mean value	FP value	Mean value	FP value	Mean value	F P value	Mean value	FP value	Mean value	FP value
B1	1	3.69	5.70*	3.94	5.15*	3.21	0.16	3.40	1.39	3.54	6.74*	3.57	19.63**
	0	3.27	0.0194	3.57	0.0260	3.11	0.6884	3.11	0.2425	3.11	0.0113	2.77	<.0001
B2	1	3.70	10.47*	3.94	8.51**	3.22	1.18	3.39	0.87	3.54	7.04**	3.55	16.75**
	0	3.06	0.0018	3.41	0.0046	2.94	0.2798	3.13	0.3528	3.03	0.0097	2.69	0.0001
B3	1	3.68	4.55*	3.91	1.74	3.22	1.41	3.38	0.64	3.53	5.87*	3.54	16.05**
	0	3.21	0.0360	3.64	0.1915	2.89	0.2380	3.14	0.4254	3.04	0.0178	2.64	0.0001
B4	1	3.67	1.96	3.91	1.80	3.23	1.85	3.38	0.31	3.53	5.11*	3.56	20.3**
	0	3.38	0.1658	3.66	0.1838	2.88	0.1777	3.22	0.5764	3.09	0.0266	2.63	<.0001
B5	1	3.68	5.41*	3.93	6.52*	3.20	0.11	3.38	0.64	3.53	5.87*	3.53	10.26**
	0	3.18	0.0226	3.43	0.0127	3.11	0.7367	3.14	0.4254	3.04	0.0177	2.79	0.0020
C1	1	3.77	16.2**	4.01	17.02**	3.24	1.20	3.43	1.84	3.61	17.89	3.58	9.18**
	0	3.22	0.0001	3.50	<.0001	3.04	0.2763	3.16	0.1788	3.08	<.0001**	3.11	0.0033
C2	1	3.71	9.57*	3.96	11.64**	3.22	0.65	3.36	0.00	3.57	15.14	3.55	12.9
	0	3.15	0.0028	3.40	0.001	3.03	0.4211	3.38	0.9494	2.93	0.0002**	2.85	0.0006**
C3	1	3.69	6.78*	3.93	5.20*	3.18	0.40	3.35	0.06	3.53	4.53*	3.54	11.95**
	0	3.19	0.0110	3.53	0.0253	3.33	0.5273	3.42	0.8144	3.14	0.0365	2.83	0.0009

\* represents P value < 0.05 \*\* represents P value < 0.01

no mutual influence in the different variables, the “organizational citizenship behaviour” of employees in businesses is influenced by “the transformational leadership by managers” or by “organizational justice consciousness,” and there are no mutual interferences between the two. Therefore, the research results showed that the more apparent the transformational leadership by managers is, and the stronger the degree of organizational justice is, the more positive the effects are on the organizational citizenship behaviour presented by the organizational members, that is, the centripetal force of the employees toward their companies is stronger, which is very beneficial to the operation’s performance and the enhancement of production performance of the companies.

On the contrary, the less apparent the transformational leadership by managers and the weaker the degree of organizational justice, then weaker will be the organizational citizenship behaviour presented by the organizational employees. This is similar to the research reported by Cropanzano and Greenberg (1997) and Folger and Cropanzano (1998), that employees will show low involvement, low morale, low productivity and high turnover rate and low organizational citizenship behaviour in the company.

Therefore, integrating the aforementioned results suggests that the leaders and executives of business organizations should actively create a leadership style, fair mechanisms and an organizational culture beneficial for the organization when they understand that employee organizational citizenship behaviour is helpful for the operations performance and competitive strength of the businesses. When employing talents, the human resources department should also select employees who have transformational leadership characteristics and train them to use those characteristics, so as to improve business performance and continuously improve operations.

## REFERENCES

- Alexander S, Ruderman M (1987). The role of procedural and distributive justice in organizational behavior. *Soc. Justice Res.*, 1(2): 177-198.
- Bass BM (1985). *Leadership and Performance Beyond Expectations*. NY: Free Press.
- Bass BM, Avolio BJ (1990). *Transformational leadership development. Manual for the Multifactor Leadership Questionnaire*. Palo Alto, CA: Consulting Psychologist Press.
- Bass BM, Avolio BJ (1997). *Full Range of Leadership Development for the Multifactor Leadership Questionnaire*. Redwood City, CA: Mind Garden.
- Bateman TS, Organ DW (1983). Job satisfaction and the good soldier: The relationship between affect and employee “citizenship.” *Acad. Manag. J.* 26: 587-595.
- Bies RJ, Moag JS (1986). Interactional justice: Communication criteria for fairness. In B. Sheppard (Ed.), *Research in Organizational Behavior*, 9 Greenwich, CT: JAI. pp. 289-319.
- Bogler R (2001). The influence of leadership Style on teacher job Satisfaction. *Educ. Adm. Q.*, 37(5): 662-683.
- Burn JM (1978). *Leadership*. NY, Harper, Row.
- Chen XP, Hui C, Segó DJ (1998). The Role of Organizational Citizenship Behavior in Turnover: Conceptualization and Preliminary Tests of Key Hypotheses. *J. Appl. Psychol.*, 83: 922-931.
- Cropanzano R, Greenberg J (1997). Progress in organizational justice: Tunneling through the maze. In: CL Cooper, IT Robertson (Eds.), *New York: Wiley. Int. Rev. Ind. Organ. Psychol.* 12: 317-372.
- DiPaola M, Tschannen-Moran M (2001). Organizational citizenship behavior: in schools and its relationship to school climate. *J. of School Leadership*, 11(5): 424-447.
- Farh JL, Podsakoff PM, Organ DW (1990). Accounting for organizational Citizenship Behavior: Leader fairness and task scope versus satisfaction. *J. Manage.*, 16(4): 705-721.
- Farh JL, Earley PC, Lin SC (1997). Impetus for action: A cultural analysis of justice and organizational citizenship behavior in Chinese society. *Adm. Sci. Q.*, 42: 421-444.
- Folger R, Cropanzano R (1998). *Organizational justice and human resource management*. Thousand Oaks, CA: Sage.
- Folger R, Greenberg J (1985). Procedural justice: An interpretative analysis of personnel systems. *Res. Person. Hum. Resour. Manag.*, 3: 141-183.
- Folger R, Konovsky MA (1989). Effects of procedural justice and distributive on reactions to pay raise decisions. *Acad. Manag. J.*, 32(1): 115-130.
- Greenberg J (1990). Organizational justice: Yesterday, today and tomorrow. *J. Manag.*, 16: 399-432.
- Konovsky MA, Pugh SD (1994). Citizenship behavior and social exchange. *Acad. Manag. J.*, 37(3): 656-669.
- Kreitner R, Kinicki A (2001). *Organizational Behavior*, 5th ED, New York: McGraw-Hill Companies.
- Leithwood K (1994). Leadership for school restructuring. *Educ. Adm. Q.*, 30(4): 498-518.
- Leventhal GS (1980). What should be done with equity theory? New approach to the study of fairness in school relationships. In: KJ Gergen, MS Greenberg, RH Willis (Eds.), *Social Exchange: Advances in theory and Research*. New York: Plenum, 27-55.
- Li W, Wan W (2007). A demographic study on citizenship behavior as in-role orientation. *Personality Individual Differences*, 42(2): 225-234.
- Mackenzie SB, Podsakoff PM, Rich GA (2001). Transformational and Transactional Leadership and Salesperson Performance. *Acad. Mark. Sci. J.*, 29(2): 115.
- Masterson SS, Lewis-McClearn K, Goldman BM, Tayler SM (2000). Integrating Justice and Social Exchange: the Difference Effects of Fair Procedural and Treatment on Work Relationships. *Acad. Manag. J.*, 43: 738-748.
- Montgomery DC (2009). *Design and analysis of experiments*. 7/E. N.Y.: John Wiley.
- Moorman RH (1991). Relationship between organizational justice and organizational citizenship behaviors: Do fairness perceptions influence employee citizenship? *J. Appl. Psychol.*, 76(6): 845-855.
- Moorman RH (1993). The influence of cognitive and affective based job satisfaction measures on the relationship between satisfaction and organizational citizenship behavior. *Hum. Relations*, 46(6): 759-776.
- Netemeyer RG, Boles JS, McKee DO, McMurrian R (1997). An investigation into the antecedents of organizational citizenship behaviors in a personal selling context. *J. Mark.*, 61(3): 85-98.
- Niehoff BP, Moorman RH (1993). Justice as a mediator of the relationship between methods of monitoring and organizational citizenship behavior. *Acad. Manag. J.*, 36(3): 527-556.
- Organ DW (1988). *Organizational citizenship behavior: The good soldier syndrome*. NLexington, MA: Lexington Books.
- Organ DW (1997). Organizational citizenship behavior: It's construct clean-up time. *Hum. Perform.*, 110(2): 85-97.
- Organ DW (1990). The Motivational Basis of Organizational Citizenship Behavior: in BM Staw, LL Cummings (Eds.), *Research in Organizational Behavior*, Greenwich, CT: JAI Press, 12: 43-72.
- Parry K (2000). Does Leadership help the Bottom Line. *New Zealand Manag.*, 47: 38-41.
- Pearce JL, Gregersen HB (1991). Task Interdependence and Extrarole Behavior: A Test of the Mediating Effects of Felt Responsibility. *J. Appl. Psychol.*, 76: 838-844.
- Piccolo F, Coiquitt A (2006). Transformational leadership and job behavior: The mediating role of core job characteristics. *Acad. Manag. J.*, 49(2): 327-340.

- Podsakoff PM, MacKenzie SB (1997). The Impact of Substitutes for Leadership Within a Level of Analysis Framework. *Leadership Q.*, 289-328.
- Podsakoff PM, MacKenzie S, Moorman RH, Fetter R (1990). Transformational leader behaviors and their effects on trust, satisfaction, and organizational citizenship behavior. *Leadership Q.*, 1: 107-142.
- Purvanova RK, Bono JE, Dzieweczynski J (2006). Transformational Leadership, Job Characteristics, and Organizational Citizenship Performance. *Hum. Perform.*, 19(1): 1-22.
- Robbins SP (1998). *Organizational Behavior: Concepts, Controversies, and Application*, 8th ed., Upper Saddle River, N. J.: PrenticeHall.
- Schnake M (1990). Organizational citizenship: A review, proposed model, and research agenda. *Hum. Relat.*, 44: 735-759.
- Schnake ME, Cochran D, Dumler M (1995). Encouraging organizational citizenship: The effects of job satisfaction, perceived equity and leadership. *J. Manage. Issues*, 7(2); 209-221.
- Sergiovanni TJ (1990). *Value-Added Leadership*. New York: Harcourt Brace Jovanovich.
- Smith CA, Organ DW, Near JP (1983) Organizational citizenship behavior: Its nature and antecedents. *J. Appl. Psychol.*, 68(4): 653-663.
- Vey MA, Campbell JP (2004). In-role or extra-role organizational citizenship behavior: which are we measuring? *Hum. Perform.*, 17(1): 119-135.
- Viswesvaran C, Ones DS (2002). Examining the construct of organizational justice: A meta-analytic evaluation of relations with work attitudes and behavior. *J. Bus. Ethics*, 38: 193-203.
- Yukl GA (1994). *Leadership in organizations* (3<sup>rd</sup> ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Yukl GA (1989). Managerial leadership: A review of theory and research. *Yearly Rev. Manag.*, 15: 251-289.