Full Length Research Paper

A study on the relationship between transformational leadership and organizational climate: Using HLM to Analyze Context effects of Police Organization

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The main purpose of this research was to examine the police's organization behavior and context effects of international harbor police organization in Taiwan with Hierarchical Linear Modeling (HLM). An organizational context of the international harbor police be explored, then tested using data collected from a survey of 704 police officers of 34 international harbor police stations in Taiwan. The findings not only show that transformational leadership (TL) and organizational commitment (OC) will positively influence the police's organizational citizenship behavior (OCB) but also the organizational climate (OCL) possesses a context effect on OC, as well as OCB. Furthermore, the results also show that aggregated TL (ATL) has an interactive influence on the OCB. According to the research we have done. In order to reach successful leadership effectiveness, the leadership structure of the police organization must greatly reduce its authoritativeness and eliminate the unnecessary chain of command.

Keywords: HLM, Transformational leadership, Organizational context, International harbor police, Police organization

INTRODUCTION

In any society, police is an important organization responsible for maintaining law and order and protecting the life and properties of the public. In Taiwan, public security, traffic management and service for the people are the three major functions of policing. Therefore, how to elevate police's service quality is critical for police organization (Hsieh et al., 2012). In the past, police organization can be regarded as a paramilitary agency in a bureaucratic political system, and traditionally, this type of agency responds slowly to change (Jones, 2008). As a result, leadership effectiveness is always the emphasis of police administrative reformation in Taiwan.

Moreover, the policing in Taiwan has gradually become "customer-orientation" Police officers try to blend into communities, using public services to arouse their attention and responsibilities to community safety, and creating a tight social network by set up the companionship with the communities. Therefore, how to encourage customer-oriented behaviors within police officers, such as performing OCB outside job duties, meeting citizens' expectations and resolving the problems what the citizens most care about, becomes one of the most important goal for Taiwan's police organizations (Vivian Chen and Kao, 2012).

But the crux is that how to boost the OCB of police officers? According to the social exchange theory, when employees realize that their organization respects their contributions and well-being, they may develop the sense of obligation of helping the organization to reach its goals (Eisenberger et al., 1986); when driven by this affect, employees not only demonstrate intra-role behaviors but may also manifest the extra-role OCB (Settoon et al. 1996). OCB are difficult to be regulated by organizations with the official system, yet employees' behaviors that meet organizational objectives can be induced with indirect, unofficial methods as well as positive and negative reinforcement in their environment (Vivian Chen and Kao, 2012, p. 150). Thus, the police organizations should build up police officers' unity and loyalty to the organization, and their willingness to work hard for the organization's goal.

For this purpose, the organization needs a competent leader who can use his/her leadership to unify the members' conceptions, giving the organization positivity. He/she must care for each worker and stimulate the workers' intelligence by clearly articulating the organization's vision, making the organization one solid body. This way, he/she encourages the workers to work toward the organization's goal and be loyal to the organization. The workers then have more pro-organization OCB under the principle of reciprocal exchange (Vivian Chen and Kao, 2012).Thus, the policing not only has to teach their managers all kinds of management knowledge but also develop their suitable leadership in order to accomplish the aforementioned objectives. For years, characteristics and styles of leadership and nurture of leadership have been extensively discussed (Brazier, 2005). TL theory, for example, has been a highly interested topic over the past two decades (Barlin et al., 2008).

In the study, the investigators view TL as an individual-level as well as a group-level variable (referred to as aggregated TL). Because TL is tightly related to the result desired by individual and group, it is most often used in leadership related researches today. However, until these days, there are still not enough investigations of TL's influence on workers' organizational attitude or behaviors on both group and individual levels at the same

time (Braun et al., 2013). That is to say, beside its influence on the individual level, TL is also posited to have an influence on group-level analyses. This statement is based on TL's theoretical implication. (e.g. Podsakoff and MacKenzie, 1996; Tse and Chui, 2014), and this assertion is based on a direct consensus model, which employs consensus among lower level units to specify another form of a construct at a higher level (Braun et al., 2013, p. 271). In other words, except for the multi-level concept, the formation of TL's group-level variables has TL's theoretical ground. For example, group-level leadership helps unify the group into one body by having a shared values and goal. The group members have a common values, thinking highly of the group's interest, wellbeing and goal (Tse and Chiu, 2014). Therefore, the members' shared perception can be collected and form the group's TL. (Podsakoff and MacKenzie, 1996; Tse and Chiu, 2014) In addition, the "group-level variables" in this article mean the common perception formed by the members' collective opinions about their leader's leadership. Statistically, this is the average taken from the sum of all the members' perception scores. The average score is the members' shared perception level. In other words, assemble the perception of the individual member to their leader to the shared perception formed by the members' collective perceptions about their leader is called "aggregated TL" (ATL). This statistical method used in investigations of leaderships' multi-level implications is also used in many researches. For instance, Gentry and Martineau (2010) used "hierarchical linear modeling (HLM)" to investigate leaderships' influences on group and individual levels, and Braun et al. (2013) used "multi-level mediation model" to investigate TL's influence and mediate effect on group and individual levels. Therefore, aside from evaluating the types of leadership perceived by individuals, the study also paid attention on

the behavior of the leaders display to their groups, and this research method was similar to the one used by previous studies (e.g. Podsakoff and MacKenzie, 1996; Gentry and Martineau, 2010; Tse and Chiu, 2014).

In addition, our research regarded OCL as a variable on group level. This means that there are different cultural traiats and work conditions in different organizations. Therefore, OCL is not only a social cognitive response of an individual toward his or her organizational environment but also can vary significant differences among organizations. Therefore, how OCL is perceived by employees is pluralistic and can lead to different types of employee behavior or organizational outcomes (Montes, Moreno and Fernandez, 2003). Last but not least, OCL has a strong contextual effect (Chiou and Wen 2007).

Taken together, our research not only explains that TL and OCL lie on the group level but also applies contextual variables and cross-level moderating effect into the research, using the multi-level concept. This study approach allows group-level impacts to be taken into consideration (Hsieh et al., 2012), making the method especially suitable for the multi-level police organization where manager's leadership and group OCL determine police officers' high OCB and OCB expression. With organizational contextual effect of ATL and OCL, OC can be improved and eventually affect OCB of individuals.

To sum up, we will use the theoretical structure built by TL and OCL's group-level theoretical implication and multi-level concept, to examine the relationship between TL and OCL on group level, and the study used hierarchical linear modeling (HLM) to verify the contextual effect of individual-level variables and the cross-level moderating effect. The study also explored the relationship among TL, OC and OCB and used structural equation modeling (SEM) to analyze their various features at the individual-level.

Theoretical Background, Literature and Hypotheses

The Relationship among Transformational Leadership, Organizational Climate, Organizational Commitment and Organizational Citizenship Behavior

Brazier (2005) defined leadership as a process of an individual influencing a group of people to approach a common goal. Researches (e.g. Podsakoff and MacKenzie, 1996) show that leaders' influence on their subordinates is probably more powerful than what is initially assumed, since they may have directly influenced their subordinates not only with their behaviors, but also by shaping the context in which the subordinates work. Furthermore, Podsakoff, MacKenzie, Moorman and Fetter's (1990) research shows that most transformational leaders share a common point of view with their subordinates through articulating a group's vision, providing a model that is consistent with the vision, fostering the members' acceptance of the group's goal and offering individualized support for each member. This way, a leader share a common point of view with his/her subordinates and change their values, faith and attitude, an effective leader is able to make his/her subordinates be willing to outperform the organization's minimal requirement.

TL stresses a long-term and motivation-based vision (Bass and Avolio, 1997). Over the past two decades, this area has been widely explored by researchers. Bass (1990) suggested that TL encourages subordinates to view problems from a new perspective (e.g. intellectual stimulation), provides subordinates with support and encouragement (e.g. individualized consideration), promotes a vision (e.g. inspirational motivation), and

generates affection and recognition (e.g. charisma). By listening attentively, TL provides employees with individualized care and acts like a supervisor or coach who closely observes subordinates' achievements and development. TL also encourages employees to take more responsibilities to maximize their potential (Avolio, 1999; Kark and Shamir, 2002). What makes TL unique is that it inspires people with a vision based on the interest of the group (Barling et al., 2008).

Besides what is mentioned above, TL has variables on both group and individual levels at the same time, while looking at the content of TL's theory, leaders not only care for individual members and stimulate their intelligence but also form, within members, a values that is identical with their groups, encouraging members to work toward group goals. As the research by Podsakoff et al. (1990) shows, TL's 6 key behaviors include identifying and articulating a vision, providing an appropriate model, fostering the acceptance of group goals, high performance expectations, providing individualized support, and intellectual stimulation. In "identifying and articulating a vision," a leader's intentions are purposes to identify his/her company/department/unit's new opportunities and to inspire others with his/her vision of the future. In "providing an appropriate model," a leader's intention is to set up a role model so the workers follow the same values as the leader. In "fostering the acceptance of group goals," a leader's intention is to promote cooperation among workers so they work toward the same goals. In "high performance expectations," a leader's intention is to show that he/she expects outstanding and high-quality performance from some of the followers. In "providing individualized supports," a leader's intention is to show that he/she respects the followers and care about their

feelings and needs. In "intellectual stimulation," the leader's intention is to challenge his/her followers so they can examine the assumptions of their work and think about how it can be executed. Moreover, Bass and Avolio's (1997) research also raises points out the 4 key behaviors. They are idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, these 4 key behaviors show that a leader's behaviors include each member's work or behavior and the accomplishment of the group's goal. Moreover, "in line with Wu et al. (2010), the study conceptualizes TL components (e.g. individualized consideration and intellectual stimulation) as individual- focused leadership which aims to influence individual followers within a workgroup" (Tse and Chiu, 2014, p. 2827). Tse and Chiu's (2014) study also "conceptualizes the other two leadership components (e.g. identifying and articulating a vision and fostering the acceptance of group goals) as group-focused leadership which aims to influence the group as a whole" (Tse and Chiu, 2014, p. 2827-2828). Individual-focused leadership, the purpose of individual-focused leadership is to influence every worker by considering the individuality of each one of them, whereas the purpose of group-focused leadership is to affect the group as a whole by building a shared values and seeking a common ground.

From what is said above, we know that many researches see TL as a variable on individual and group levels because TL not only focuses on individual enlightenments but also emphasizes on articulating the organization's vision and encouraging members to work toward the goal. Climate represents a cognitive model or theme experienced by employees; it is the outcome which organization members conceptualize their whole experiences from workplace (Schneider and White, 2004).

Litwin and Stringer (1974) defined OCL as a set of assessable work environment features, which individual directly or indirectly perceived to work and life at the workplace. Furthermore, it has been assumed to have an effect on employees' motivation and behavior. Once all employees cognize their workplace environment similarly at a unique work unit, this common perception would aggregate and become a shared OCL (Jones and James, 1979; Glission and James, 2002). Therefore, climate constructs shared common contents, implications and construct validity among various levels of information aggregation (Kozlowski and Klein, 2000; Ostroff et al., 2003). This feature makes OCL theory valuable for researching organizations with multiple levels (Jia et al., 2008).

As mentioned above regarding TL's group-level effect on OCL, group-focused leadership unites members into one body by building shared values within team members. Thus, their shared perceptions can be collected and become shared TL (Podsakoff and MacKenzie, 1996; Tse and Chiu 2014). Simultaneously, by articulating the organization's vision, a leader makes his/her members accept the group's goal, and, by showing individualized supports, he/she shares a common concept with the subordinates. Therefore, TL can form a consensus in a group, making each member work toward the organization's goal.

Besides what is said above, researches has fully proved (e.g. Avolio et al., 2004; Chiou and Wen, 2007) the relationship between TL and organizational result on group level. For instance, because the shared benefit causes each individual to develop a keen interest to qualify him/herself to become a member of the group, the committed members attach a positive values to the group and emphasize the importance of group benefit and

values (van Knippenberg, 2000; Tse and Chiu, 2014).

A few studies have also focused on interpreting the role of leaders in a managerial climate, and that is related to organizational outcomes such as innovative OCL (Bass and Avolio, 1997; Haakonsson et al., 2008). For example, Bass and Avolio (1997) measured TL style and innovation supporting climate, finding that TL is significantly associated with a supportive innovation climate. Zohar and Tenne-Gazit's (2008) research also discovers that TL is one of the significant influences on OCL. Haakonsson et al. (2008) pointed out that leadership style should be combined with climate so that leadership style can sufficiently support climate and smooth organization operation.

Taken together, if mangers and their subordinates can establish a work relationship, and reach a common understanding, then they can lead to a potent OCL (McMurray et al., 2004). Based on these arguments, we propose our first set of hypothesis:

H1：ATL have a positive effect on OCL.

OC is a type of attitude that represents the psychological relationship between an organization and its employees (Akdogan and Cingoz, 2009). It is a kind of mental force that employees act on their organizations (Mulki et al., 2008). Meyer and Allen's (1991) research goes beyond the difference between attitude and behavioral commitment and claims that consent is a psychological state. It reflects at least 3 separable elements, which are (a) a desire (affective commitment), (b) a need (continuance commitment), and (c) an obligation (normative commitment) to maintain employment in an organization. Following Meyer and Allen's (1991) point of view Bryant, Moshavi and Nguyen (2007) illustrated OC as affective, normative, and continuing commitments, representing employees identifying themselves with the organizations, being willing to

dedicate themselves and staying loyal to their organizations.

As for the definition of OC, scholars have various opinions because of the different perspectives. For the past few years, Meyer et al. (2001) have come up with a more complete definition and analytical structure with their long-term studies and compilations on OC related topics. They believe that OC means an individual's emotional attachment, identification and indulgence to his/her group with the awareness of cost and consequence of resignation and obligation to the organization. Therefore, OC is a demonstration of a worker's loyalty to his/her organization, an incentive for reaching the group's goal and developing infrastructure (Lee et al., 1999). The definition of OC by Meyer et al. (2001) has a hint of sentiment, encouraging members to do their best to accomplish their company's goal. Hence, OC includes a member's sense of belonging, loyalty to the organization, willing to strive for success, positivity in care and attitude, external behaviors and so on (Chen, 2007).

According to the above-mentioned discussion, the study viewed OC as organization members accepting their organizations' goals and values and being willing to work hard for their organizations and stay in their organizations. Although OC includes affective, continuous and normative commitment factors with different implications, all 3 factors must be present simultaneously. If a worker does not agree with his/her organization, he/she is bound to have difficulties working toward the group's goal, and he/she might even decide to work in another organization. Therefore, in this research, we regard OC as a comprehensive concept.

Many studies have explored few organizational behavior variables that related to OC, such as leadership styles, OCL, work or employee satisfaction and organization performance, etc. Comparing to an

employee with a lower level of commitment, an employee with high commitment is more capable of giving the organization positive contribute (Aven et al., 1993, p. 63). Therefore, high OC, an advantage for organizations and work environment, can be viewed as a value-added factor (Marchiori and Henkin, 2004).

On the other hand, there are few studies investigating police OC. Van Maanen (1975), the first scholar exploring the trend of police OC development, pointed out that police OC decreases with an increase in experiences and seniority because of the power features of police socialization. (Van Maanen, 1975, p. 227). Some Australian empirical studies, including the New South Wales Police Service, have shown that compared to the international standard, police OC is low (see, for example, Van Maanen, 1975; Beck and Wilson, 1995; Beck, 1996). Therefore, police studies have already recognized the importance of managerial factors in the development of OC levels (Metcalfe and Dick, 2002).

For research on organizational behavior (OCB), the idea of OCB was first proposed in the early 1980s (Bateman and Organ, 1983; Smith, Organ and Near, 1983). OCB is generally defined as a part of individual's unconditional work behavior (Bateman and Organ, 1983) and altruistic behavior of employees (Dimitriades, 2007). In recent years, OCB related studies have defined it as a type of individual unconditional behavior that cannot be directly or specifically identify by using a formal reward system and the effectiveness of organization operation cannot be elevated by it, either (Koster and Sanders, 2006). Moreover, OCB mainly concerns the confirmation of the employee behavior. Although these employee behaviors are not be defined in the work direction, it still upgrades the efficiency of organization. Taken together, OCB has the following characteristics: 1) the expression of unrequested behavior, 2) the behavior is initiated by an individual automatically and can affect customer satisfaction, and 3) the behavior can maximize the profit of an organization.

In addition, several OCB studies have found organizational contribution from OCB, especially in terms of service quality (Bettencourt and Brown, 1997; Kelley and Hoffman, 1997; Bell and Menguc, 2002). Therefore, with OCB, employees provide better quality services that exceed what is expected formally by their organizations (Binnewies et al., 2009). In Taiwan, security, traffic and public services are three axes of police work. Therefore, establishing a highly effective and efficient police service is important for ensuring thorough law implementation (Rothmann, 2006). In addition, Snaders (2008) pointed out that cynical work attitudes and work performance evaluation are negatively correlated. Therefore, researchers on police should put attention on police OCB.

Taken together, on individual level, transformational leader can emphasize, to his/her subordinates, pro-organization goals and purposes, which are beneficial raise and compile their values and aspirations activity, thus building subordinates' vision for the organization and encouraging them to put in more effort for group benefits (Elkins and Keller, 2003; Barling et al., 2008). Furthermore, when a leader put the group's greatest benefit before his/her own, it will strongly influence the workers' morality and standards (Kark et al., 2003). Therefore, TL will form a mental bond between workers and their organization (Mulki et al., 2008), making them believe in the organization and accept the goal and values set by the organization. At the same time, it also encourages workers to work harder toward achieving the organization's goal and to keep staying in the organization to complete its vision. Thus, TL is tightly related to OC. The positive link between these two has also been proved in many researches (e.g. House et al., 1988; McMurra et

al., 2004; Givens, 2008).

On the other hand, according to social exchange theory, when workers learn about their organization's awareness of their effort and benefits, they might have a sense of duty in helping their organization achieve its goal (Eisenberger et al., 1986). Under this sense of duty, not only will the workers do what their jobs require, they might present OCB (Settoon et al., 1996; Chen and Kao, 2012). Overall, we know that if an organization can emotionally connect with its workers, strengthen the workers' identity, loyalty and willingness to work hard for the organization's benefit, the workers will do not only what their jobs require them to do but also do what is outside their job requirements. Therefore, OC can be infer to be an important predictor variable for OCB (e.g. McKenzie et al., 1988; Dimitriades, 2007). For instance, Lin et al.'s (2008) research discovers that OC has a prominent positive influence on OCB.

Besides the relationship between OC and OCB, research has pointed that TL affect organizational outcomes such as OC and OCB (Nguni et al., 2006). Based on the aforementioned relationship between TL and OC, and between OC and OCB, this research further claims that TL builds the workers' confidence about their leader by the leader's showing respect to them. Transformational leaders can form a coherent force and loyalty among their workers, reinforce the workers' OC and, encourage them activity to put in extra effort outside their job requirements in return to their leaders' care and awareness of the organization based on the principle of reciprocal exchange.

As a result, the study considered that at the individual level; TL will affect OC and OCB. In addition, OC may mediate the relationship between TL and OCB, while OC can positively affect police OCB. Therefore, the investigators formulated Hypothesis 2 below:

H2: TL has a positive effect on individuals' OC (H2a), while OC has a positive effect on individuals' OCB (H2b), and TL mediates the relationship between OC and OCB.

Cross-level Effect from TL and Organizational Climate

In this research, based on the theoretical implication and multi-level analytical principle of ATL and OCL, we assume that ATL and OCL on group level have a direct cross-level effect on both OC and OCB on individual level. Theoretically, unlike the previous researches, we believe that individual worker not only will improve his/her OC and OCB by direct interaction with a transformational leader but also force the group to become one body through group-focused leadership behaviors. In other words, transformational leaders tailor their behaviors according not only to individual followers but also to the entire team. For example, in order to encourage followers, transformational leaders will develop and deliver a vision of the group's future accomplishments (Wang and Howell, 2010; Braun et al., 2013). Furthermore, when conflicts among group members rise, a transformational leader will provide individualized support to his/her subordinates, seeking the cooperation among members, so as to make sure the group is working toward the common goal. Therefore, the aforementioned leadership behaviors are not directly for each member but for the group, and it will influence on every individual team member (Wang and Howell, 2010).

Besides what is stated above, TL also has theoretical implications of individual and group variables. As what is previously mentioned, Tse and Chio (2014) conceptualize the idea of "identifying and articulating a vision and fostering the acceptance of group goals" as group-focused leadership, and that is to influence the

individual members in the team and make them become one body by creating a common values and seeking a common goal. Thus, TL will influence organizational result on different levels. For instance, the OCL that raises the group's level (Zohar and Tenneg-Gazit, 2008) increases each member's emotional attachment and identification to the organization (Kark et al., 2003) and directs the members' attentions to OCB (Tse and Chiu, 2014).

Besides TL have theoretical implications on group level, In a multi-level organization framework, group-level variables affect the individual-level outcome variables (Raudenbush and Bryk, 2002). In other words, aggregated TL not only influences OCL but also individual-level OC and OCB. Therefore, studies in the leadership area have to be aware of the relationships between variables of different levels. For example, the study of Elgamal (2004) revealed that TL can affect outcome variables, such as turn over tendency and OCB. Furthermore, TL can also influence contextual variables of organizations. Avolio et al. (2004) is a cross-level study that aggregated an individual's perceptions to the leader to the group level and tested ATL relationship with individual-level OC.

In this study, TL was defined as a group- as well as an individual-level variable rather than just a conventional individual-level variable. As a result, the property of TL makes it a contextual variable, i.e., forming high-level explanatory variables from individual-level explanatory variables through within-group aggregation (Duncan et al., 1966). Statistically speaking, the effect of contextual variables is the average from aggregating low-level variables to the high level, which test the impact on the intercept or the slope (Duncan et al., 1966).

The study of Vivian Chen and Kao (2012) "work characteristics and police officers' performance: exploring the moderating effect of social work characteristics and

collective efficacy in multilevel analysis" demonstrated that group-level variables can be used to test individual-level outcome variables by using a multi-level model. Therefore, the study proposed the following two hypotheses on cross-level direct effects:

H3a: ATL has a positive effect on individuals' OC.

H3b: ATL has a positive effect on individuals' OCB.

As stated above, OCL represents the team members' conceptualizing experiences at work (Schneider and White, 2004). When workers, in a special department, reach common perceptions about the work environment that influences them, their shared perceptions can be collected and become shared OCL (Jones and James, 1979; Glission and James, 2002).

Therefore, OCL has theoretical implications on group level, and it shares the same content, implication and construct validity because the climate construct is in different levels of data aggregation (such as individual, group, organization) (Kozlowski and Klein, 2002; Ostroff et al., 2003), making OCL influence its members on different levels. Therefore, we can deduce that OCL can have a cross-level influence on each worker's attitude, such as OC and OCB.

Similar to H3, because of multi-level analytical fundamental, in a multi-level organization framework, OCL also influences individual-level OC and OCB. In this study, OCL was treated as a group-level variable. Therefore, because of using multi-level analysis, hypotheses that group-level effects on individual-level outcome variables can be drawn.

According to relevant research, OCL can affect various organizational outcomes, such as OC and OCB (e.g. McMurray et al., 2004; Jia et al., 2008). Therefore, two hypotheses on cross-level direct effects were drawn:

H4a: OCL has a positive effect on individuals' OC.

H4b: OCL has a positive effect on individuals' OCB.

Cross-level Moderating Effect of TL and OCL

In theoretical implications, we deduce that there is a positive relationship among individuals' perceptions of their superior's TL, OC and OCB. According to social cognitive theory, an individual's understanding and reasoning of his/her personal experience is one of the primary reasons behind individual behaviors (Bandura, 1986). Yet the researches of organizational behaviors also show that managers are the primary information coordinators and elaborators in organizations (Daft and Weick, 1984). Therefore, in organizational division, the workers' perception of their superior's leadership behaviors will be influenced by the manager's behaviors themselves (Griffin and Mathieu, 1997). Moreover, from the literature review earlier, this research also points out that a manager's TL, varying from group or individual focuses, can have a moderating influence on individual members, such as individual OC and OCB, and it can also have a shared organizational influence on members, such as shared goal and values (Wu et al., 2010; Braun et al., 2013; Tse and Chiu, 2014). Thus, we deduce that group-level TL not only has a direct cross-level influence on members' OC and OCB ,but also has a cross level influence on the relationship between individual OC and OCB. In other words, group-level TL has a cross-level moderating effect on individual-level OC and OCB.

As stated above, OCL is one's direct or indirect perception of life and work in his/her working environment. Litwin and Stringer (1974) discover that it will influence workers' motivations and behaviors such as OC and OCB (e.g. Buchanan, 1974; Wallace et al., 1996). Moreover, research results show that workers' perceptions of OCL has a great effect on both individual and group results such as work attitude and satisfaction, service quality and customer satisfaction (Carson and Bedeian, 1994; Schneider, White and Paul, 1998; Schneider et al., 1996),

and it has a prominent positive effect on individual workers' OCB (Miao, 2011). Based on what is previously stated, when workers have a consistent perception about the influence of their working environment in a special department, their shared perception can become their shared OCL (Jones and James, 1979; Glission and James, 2002). Therefore, based on members' shared perception and the strengths they demonstrate, such as cohesion, OCL can still have an effect on workers' individual behaviors (Jia et al., 2008).

We have already deduced that, on group level, OCL will have a direct cross-level influence on individual-level OC and OCB (H4a.b), and research results also show that OC has a positive effect on OCB. Therefore, in this research, we deduce that group-level OCL will also have a cross-level influence on the relationship between OC and OCB on individual level. In other words, group-level OCL has a cross-level moderating effect on the relationship between OC and OCB on individual level.

Besides what is stated above, there is one important assumption in the multi-level model. Aside from influencing individual-level variables, group-level variables may also affect how individual-level variables explain the outcome variables. This is also known as cross-level interaction. Statistically, group-level variables are acting like a moderator that influences the explanatory power of individual-level explanatory variables on outcome variables (slope effects) (Raudenbush and Bryk, 2002).

On the basis of these arguments, the hypotheses 5 and 6 are proposed as follows:

H5: ATL moderates the relationship between individuals' OC and OCB.

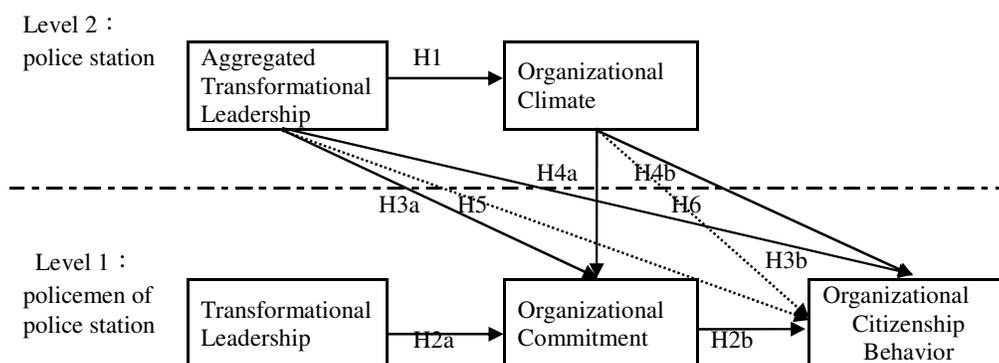H6: OCL moderates the relationship between individuals' OC and OCB.

Figure 1. Observed model

METHODS

Framework of this research

According to the literature review and the hypotheses, this model has 2 levels. Level 1 is individual level. It investigates each branch officer's perception of TL, OC and OCB, and examines the relationship among these 3 variables. Level 2 is group level. Its purpose is to collect each branch's perceptions of TL and OCL. It investigates group-level variables' (ATL and OCL) direct and indirect cross-level influence on individual-level variables (OC, OCB and the relationship between OC and OCB). Therefore, the present study includes the following 4 sections: 1) individual-level causes and effects and mediating effects; 2) group-level effects (ATL→OCL); 3) cross-level effects; and 4) cross-level moderating effects. The research framework is presented in Figure 1.

Analysis Strategies and the Sample

Analysis Strategies

While handling multi-level data, such as individuals

nested in a work group, HLM is a potent and forceful method (Bryk and Raudenbush, 1992). In the research of leadership, the emphasis is often on analyzing the relationship among variables across various levels (Gavin and Hofmann, 2002).

Taken together, the analysis strategies adopted in the study are as follows: First, the objective of the study is to demonstrate with confirmatory analysis, that individual-level variables, such as TL, OC and OCB, can be used for assessing evidence from different aspects (Byrne, 1998). Secondly, SEM was used to estimate whether OC has a mediating effect on the relationship between TL and OCB. (3) The objectives of the study are important because the use of a combination model for evaluating organizational level characteristics (leadership and organizational climates) require within-organization consistency and significant inter-organization differences of police stations in order to validate discrepancies of various organization-level characteristics (Klein and Kozlowski, 2000). The investigators used r_{wg} to assess with-group consistency, and eta-squared of ANOVA and ICC index of HLM for inter-group variation (Vivian Chen and Kao, 2011). Therefore, HLM analysis was used to evaluate cross-level relationships.

Organizational Context of Harbor Police

Because the subjects of international harbor police service most are foreign vessel crews, tourists, and harbor work staffs. Therefore, effective leadership is critical in encouraging police services. The objective of this paper is to effectively test the relationship among TL, OCL, follower commitment, and OCB in police.

Aside from offering external factors as a fundamental reason for selecting international harbor police work conditions, the investigators also felt that the structure of police stations is suitable for examining a close vs. distant relationship with the leaders. Therefore, the hierarchical structure of police stations provides a very natural setup for exploring possible effects of distance on how leaders are perceived by their subordinates. The investigators also examined the effect of leaders on OCL, OC, and OCB.

Based on what is said about "organizational context of harbor police" in this article, in the police organization in Taiwan, local police stations are the front-line police departments. The station chief is the top manager. Every station may have officers from 3 ranks. They are police officers, sergeant, and squad leader (team leader). Squad leader is the highest of all three; sergeant ranks second, and police officers the third. Although they belong to 3 different ranks, they are all the first-line policemen within Taiwan's police organization. These three ranks of policemen are the interviewees of this research. Their perception scores of ATL and OCL are collected and turned into scores of group-level variables.

Concretely speaking, the chief of a police station in Taiwan has duties including internal administration (giving life, behavior and conduct appraisal), human resource management (e.g., guidance of pre-duty, task assignment, performance management,

and police dispatching) and confirming the training needs of subordinates. In addition, polices' duties include patrolling, rummage, guarding, incident handling, on call, and offering public service.

Sample

To reduce the variations of police work characteristics, Taiwan's international harbor organizations were selected as research objects for this study, namely the police officers from 34 police stations of four international harbor police offices of Taiwan. To ensure data quality and reliability in group level, certain restrictions were imposed in the selection of police stations. Each station must consist of at least 10 police officers, who must have served more than 3 months at the station. Police officers at every police station in Taiwan are responsible for their own districts. Three months are considered as an adequate time span by their supervisors for getting familiar with the nature of their tasks and clients. As such, those police officers taking on the positions for more than three months were viewed as having sufficient understanding of the organizational context, which ensured the quality and reliability of data collected from participants (Vivian Chen and Kao, 2011, p. 372).

Participants in the present study included 820 police officers from 34 police stations in Taiwan's international harbor offices. The participating police station ranged from 15 to 60 officers (M = 24 officers) and every member was a sample of this study. To enhance the response rate, questionnaires were distributed to and collected immediately from the officers who took part in the monthly training sessions. In total, 798 copies of questionnaire were collected from first-line police officers. We discarded returned questionnaires with excessive missing data.

After the deletion of invalid response, we obtained 720 valid questionnaires, yielding a response rate of 90.23%. The majority of the respondents was male (96.3%) and first-line police officers (92%, the rest are either sergeant or squad leader). Education level, college and above, 84.71%; married, 91.25%. On average, the respondents aged 40.11 years old and worked for nearly 15 years.

Measures of Research Variables

Transformational Leadership

Transformational leadership was measured by using 19 items which be modified from Multifactor Leadership Questionnaire (MLQ) developed by Bass and Avolio (1997), including idealized influence (6 items), inspirational motivation (5 items), intellectual stimulation (4 items), and individualized consideration (4 items). The MLQ has been extensively used and is considered a well-validated measure of TL (Avolio et al., 1999). Its construct validity has been demonstrated using CFA (e.g. Avolio et al., 2004).

A sample item measuring the leader's position as role model (idealized influence) was "My superior goes beyond self-interest for the good of the group". The transformational leader's inspirational motivation role was gauged with items like "My superior talks optimistically". An item relating to the intellectual stimulation role was "My superior gets me to look at problems from many different angles". Finally, the individualized consideration aspect of TL was gauged with items like "My superior helps us to develop their strengths". The alpha reliabilities for these dimensions were 0.88 (idealized influence), 0.83 (inspirational motivation), 0.78 (intellectual stimulation), and 0.83 (individualized consideration) with this sample. These items were averaged to form a single index of TL.

Organizational Climate

Organizational climate was measured with scales by modifying Mao and Lo (2007) which was based on Litwin and Stringer's (1974) Organizational Climate Questionnaire (LSOCQ). There are 9 items are contained in the scale.

The concept of OCL that Mao and Lo (2007) have revised includes 4 dimensions— structure, responsibility, interpersonal relationship, and management type. Each of them explains an individual's feeling of constraint in an organization, an individual's elaboration on execution in an assignment, an individual's feeling of harmony with other colleagues and, a manager's leadership. In other words, a leader requires his/her workers to follow the laws and procedures, informs them of their duty and execution methods. Then and, entrusts them with their jobs through his/her leadership. At the same time, the leader creates a friendly, interactive and caring work environment, letting the workers have a shared idea, goal and values of their organization (Ostroff et al., 2003), and thus forming consciousness within the group and a consistent OCL. Based on what is said above, after combining all the perspectives, this scale can fully measure an organization's structure, workers' responsibilities and the OCL formed by members' interaction. Compare with the aforementioned definition of OCL, this scale can measure OCL's meaning. This is why it is used in this research.

Since some of management types and TL's implications are similar, they are not used in this scale. Therefore, the OCL scale includes interpersonal relationship (4 items), structure climate (3 items), and responsibility climate (2 items). The scales were selected on the basis of our preliminary studies and understanding of the police's OCL as described previously. OCL was measured by scales that assess interpersonal relationship (e.g., "friendly

atmosphere''), structure climate (e.g., ''set very high standards for performance''), and responsibility climate (e.g., ''individuals won't take responsibility''). The alpha reliabilities for these scales were 0.75 (interpersonal relationship), 0.76 (structure climate), and 0.88 (responsibility climate) for this sample. These items were averaged to form a single index of OCL.

Organizational Commitment

Organizational commitment was assessed using a fourteen-item which be modified by Porter, Mowday and Steer (1979). This scale measures three basic components of OC: value commitment (5 items), effort commitment (5 items), and retention commitment (4 items). To asses the validity of three commitments constructs we conducted a CFA. Sample items: "I am proud of to tell others that I am part of this organization.'' (value), ''I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful.'' (effort), "I really care about the fate of this organization'' (retention). The alpha reliabilities for these dimensions were 0.74 (value commitment), 0.64 (effort commitment), and 0.70 (retention commitment) with this sample. These items were averaged to form a single index of OC.

Organizational Citizenship Behavior

Organizational Citizenship Behavior was measured with the 12 items scale developed by MacKenzie, Podsakoff and Richard (1993) which was based on Organ's (1988) dimensions of OCB. The four dimensions of OCB includes the sportsmanship (3 items), civic virtue (3 items),

conscientiousness (3 items), and altruism (3 items) scales. We confirmed the validity of our OCB constructs through CFA. The police's sportsmanship was gauged with items like "Consume a lot of time complaining about trivial matters''. An item relating to the police's civic virtue was "Keep up with developments in the organization''. The police's conscientiousness aspect was gauged with items like ''Conscientiously follow company regulations and procedures''. Finally, the police's altruism was gauged with items like "Willingly give of my time to others''. The alpha reliabilities for these dimensions were 0.85 (sportsmanship), 0.73 (civic virtue), 0.77 (conscientiousness), and 0.79 (altruism) with this sample. These items were averaged to form a single index of OCB.

Control Variables

Based on past research (eg., Vivian Chen and Kao, 2011; Hsieh et al., 2012), in our study we included demographic variables such as age, education, and work tenure. Because most research subjects are male (96.3%), sex is not included in the control variables. The purpose of doing so is to verify the aforementioned relationship between an individual's demographic variables and research variables.

Participants rated items on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). A higher score suggests that the respondent more agreed with the research variable.

Analyses

Aggregation is a common procedure for studying TL (e.g. Bono and Judge, 2003; Dvir and Shamir, 2003), whereas climate construct has similar contents, implications and

Table 1. Descriptive statistics and intercorrelation, and alpha reliabilities

Variable	M	SD	α coefficient	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) TL	3.91	.58	.95	1						
(2) OC	3.69	.46	.83	.51***	1					
(3) OCB	3.55	.49	.84	.60***	.69***	1				
(4) ATL	3.91	.33	.97	-.03	.10	.04	1			
(5) OCL (group-level)	3.32	.27	.87	-.03	.09	-.09	.48**	1		
(6) Age (years)	40.11	1.66		.01	.03	.05	.03	.01	1	
(7) Education (years)	14.27	2.03		.02	.06	.09	.09	.07	-.24*	1
(8) Work tenure (years)	14.95	3.21		.06	.02	.07	.07	.01	.27*	.05	1

Note. TL = Transformational leadership; OC = Organizational commitment; OCB = Organizational Citizenship Behavior; OCL = Organizational climate (group-level) $^*p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Table 2. Goodness of fit statistics of the individual-level variables

Research Variable	χ2/df Observed Value	Ideal Value	GFI Observed Value	Ideal Value	NNFI Observed Value	Ideal Value	PGFI Observed Value	Ideal Value	RMSEA Observed Value	Ideal Value
TL	1.73		0.97		0.98		0.64		0.061	
OC	2.22	1.00~5.00	0.95	> 0.9	0.93	> 0.9	0.60	≥ 0.5	0.066	≤ 0.08
OCB	3.43		0.92		0.91		0.56		0.079	
References	Schumacker & Lomax(1996)				Bagozzi & Yi(1988)				Baumgartner & Homburg(1996)	

construct validity at the various levels of data aggregation (Ostroff et al., 2003). For aggregating variables to the group level, two theoretical and statistical supports are required (Bliese, 2000). Therefore, according to the hypotheses proposed by this study, the following analysis procedure was adopted: 1) TL is a group-level as well as an individual-level variable, 2) organizational climate is a group-level variable, 3) aggregated TL explains organizational climate, 4) TL explains organizational commitment and OCB, 5) aggregated TL and organizational climate explain organization commitment and OCB contextual effect, and 6) aggregated TL, organizational climate and OC explain OCB's cross-level moderating effect.

Therefore, the investigators first examined factor validity of TL, OC and OCB questionnaires and used confirmatory analysis to test whether respondents can identify potential individual-level constructs. Secondly, for within-group consistency analysis, r_{wg} was used to test each participant at the 34 police stations and examine whether their answers for the TL and OCL questionnaire were consistent with their organizations'. With-group consistency is a preliminary condition for an individual-level concept to echo the concept of a higher-level (e.g., police stations). Aside from with-group consistency, between-group analysis was used to test whether between-group difference existed between police station and each concept using ANOVA coefficients (η^2, eta squared) and ICC index of HLM. It is important to have consistency when echoing a larger organization unit, the

Table 3. Simple regression analysis

Variable	Beta	ΔR^2	R^2 Change	F	Sig	D-W
aggregated TL ⟶ OCL	.48	.21	.23	9.77	.004	1.61

Note. D-W = Durbin-Watson

entire sample, or the focused work unit (e.g. a police station) because with-group consistency may not be accompanied by between-group differences. Within-group consistency and between-group variation results implied that the study had chosen an appropriate level of work unit (e.g. police stations). Taken together, HLM uses a randomized intercept model for evaluating the cross-level relationship between group-level variables and individual-level perception and behavior.

RESULT

Basic Analysis

Table 1 gives the mean, SD, α coefficient, and between-variable correlation coefficient of the research variables. Through correlation analyses, we discover, in this research, that demographic variables and other research variables are not related; therefore, they are not included in the research model. To test whether TL, OC and OCB are different potential constructs, the study conducted CFA and used LISREL estimates (maximum likelihood) to compare three potential constructs, TL, OC and OCB. CFA results are presented in Table 2, which shows evidence that TL, OC and OCB were different.

Aggregated Data Testing

In more recent studies, TL and OCL were treated as

group-level variables (Walumbwa et al., 2008). Walumbwa et al. (2008, p. 258) pointed out that in general, within-group correlation (ICC 1 and ICC 2) was used statistically for determining aggregation.

Test result revealed that ICC(1) coefficient of TL was 0.25, and OCL coefficient was 0.17. For ICC(2) coefficient of TL, it was 0.86, and OCL coefficient was 0.63. According to Bliese (2000), the criteria for ICC(1) coefficient should be between 0.05 and 0.30, while for ICC(2) coefficient, Glick (1985) proposed 0.60 as the critical value. Therefore, ICC(1) and ICC(2) of this study were significant. In addition, the results from testing the group effect of TL and OCL suggested a significant F-value ($\eta^2 = 0.262$, F=7.25, $p<$ .001 for TL; $\eta^2 = 0.198$, F=5.056, $p<$ .001 for OCL). To further verify the appropriateness of aggregation, the investigators also calculated r_{wg} of TL and OCL (James, Demaree, and Wolf, 1984). The average r_{wg} of TL and OCL were 0.94 and 0.92 respectively. These two values qualified the 0.70 critical value proposed by James et al. (1984). Therefore, the investigators considered the aggregation to be fully acceptable.

Hypotheses Testing

Regression Analyses

The study used regression analysis to test group-level hypotheses. In the analysis, the investigators used simple regression to test the relationship between aggregated TL
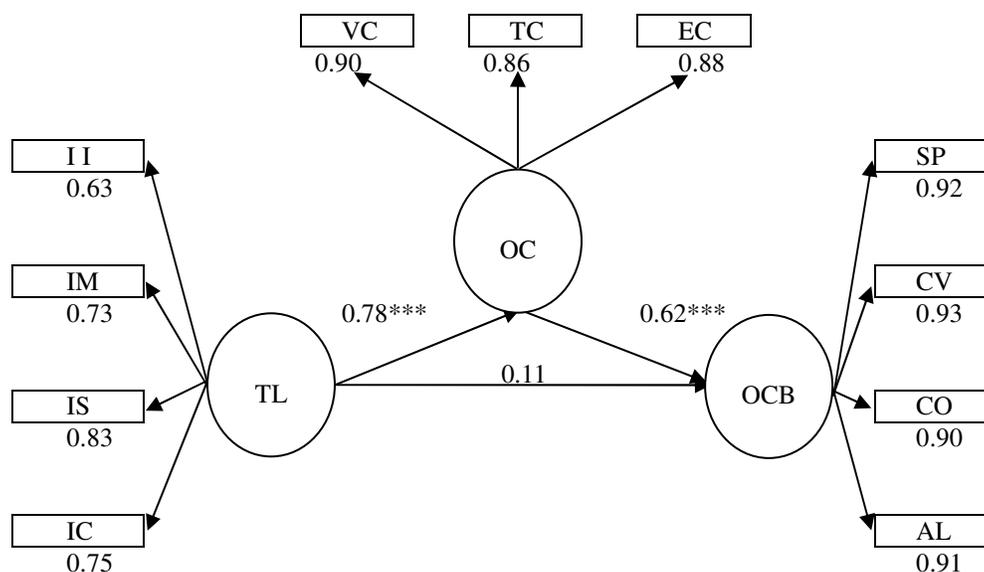
χ2 = 152.03, df = 41, p-value = 0.00000, RMSEA = 0.074

Figure 2. The structure of the whole model

Note. TL = Transformational Leadership; OC = Organizational Commitment;
OCB = Organizational Citizenship Behavior; I I = idealized influence;
IM = inspirational motivation; IS = intellectual stimulation;
IC = individualized consideration; VC = value commitment;
EC = effort commitment; RC = retention commitment; SP = sportsmanship;
CV = civic virtue; CO = conscientiousness; AL = altruism;
t-value > 3.29 = ***; *** = *p*<.001

and OCL. The results are presented in Table 3, which suggest a significantly positive effect from aggregated TL on OCL. Therefore, Hypothesis 1 was accepted. This result was consistent with results from Bass and Avolio (1997) and Dimitriades (2007), in which the researchers found that a stronger relationship between aggregated TL and OCL indicates that employees perceive the TL and OCL relationship more strongly

This result shows that TL fosters members' common goal for the organization through providing an organizational vision, forcing the members to become one body under a common values (Podsakoff and MacKenzie, 1996; Tse and Chiu, 2014). It boosts a group's positive OCL, such as the climate of working for the group's common benefit, the group's wellbeing and shared goal.

Structural Equation Modeling Results

The study used statistic software LISREL 8.51 for testing the overall fitness of individual-level hypotheses. As shown in Figure 2, each construct in the evaluation model was tested by at least three variables. The overall goodness of fit of individual-level hypothesis was good ((χ2/df = 152.03/41, GFI = 0.93, NNFI = 0.91, PGFI = 0.58, RMSEA = 0.074). Results shown in Figure 2 suggested that the relationship between TL and OC (γ = 0.78; t= 5.59, *p*< .001) and between TL and OCB (γ = 0.62; t= 9.58, *p*< .001) were both significant. Therefore, TL had a positive impact on OC while OC had a positive impact on OCB. In other words, Hypotheses 2a and 2b were both accepted. In addition, the product of the pathway

Table 4. The results of hierarchical linear models

	γ_{00}	γ_{01}	γ_{10}	γ_{11}	τ_{00}	τ_{11}	σ^2	deviance
1. Null model L1: Y(OCB)=β_{0j}+r_{ij} L2: β_{0j}=γ00+U_{0j}	**3.72*** (0.034)**				**0.03***		0.185	866.612
2. Intercepts-as-outcomes models								
(1) aggregated TL−OCB L1: Y(OCB)=β_{0j}+r_{ij} L2:β_{0j}=γ00+γ01(aggregated TL)+U_{0j}	**3.01*** (0.432)**	**0.20 (0.110)**			0.03***		0.158	741.789
(2) aggregated TL−OC−OCB L1: Y(OCB)=β_{0j}+β_1(*OC*)+r_{ij} L2: β_{0j}=γ00+γ01(aggregated TL)+U_{0j} β_{1i}=γ10+U_{1i}	**1.05*** (0.215)**	**0.10 (0.058)**	0.63** * (0.028)		0.003**	**0.0008***	0.105	441.520
(3) OCL−OCB L1: Y(OCB)=β_{0j}+r_{ij} L2: β_{0j}=γ00+γ01(*OCL*)+U_{0j}	**2.33*** (0.331)**	**0.42** (0.099)**			0.02***		0.185	857.678
(4) OCL−OC−OCB L1: Y(OCB)=β_{0j}+β_1(*OC*)+r_{ij} L2: β_{0j}=γ00+γ01(*OCL*)+U_{0j} β_{1i}=γ10+U_{1i}	**3.71*** (0.028)**	**0.43** (0.106)**	0.63** * (0.034)		0.023***	**0.0090***	0.103	478.779
3. slopes-as-outcomes model								
(1) aggregated TL−OC−OCB L1: Y(OCB)=β_{0j}+β_1(*OC*)+ β2 (*TL*)+r_{ij} L2: β_{0j}=γ00+γ01(aggregated TL)+U_{0j} β_{1i}=γ10+γ11(aggregated TL)+ U_{1i}	3.39** (0.331)	-0.55* (0.259)	-0.02 (0.289)	**0.15* (0.071)**	0.15**	0.006**	0.311	413.929
(2) OCL−OC−OCB L1: Y(OCB)=β_{0j}+β_1(*OC*)+ β2 (*TL*)+r_{ij} L2: β_{0j}=γ00+γ01(*OCL*)+U_{0j} β_{1i}=γ10+γ11(*OCL*)+U_{1i}	0.15 (1.311)	0.30 (0.391)	0.871* (0.361)	**-0.090 (0.107)**	0.25***	0.004**	0.311	414.937

Note. L1 = level 1; L2 = level 2; γ_{00}= organizational mean of OCB means; γ_{10}= intercept of OC (β_{1j}); γ_{01} = β_{0j} slope of aggregated TL or OCL; γ_{11} = β_{1j} slope of aggregated TL or OCL; τ_{00}= group level (U_{0j}) variance (between-group variance); τ_{11} = group level (U_{1j}) variance (between-group variance); σ^2 (Sigma squared) = individual-level variance; standard error is the number in the brackets; ; *p< .05; **p< .01; ***p< .001; bold font for hypothesis testing index.

coefficients of OC and OCB was 0.48 (0.78 × 0.62), and therefore, the relationship between TL and OCB mediated by OC was significant. Nevertheless, the relationship between TL and OCB was insignificant (γ = 0.11; t= 1.70, *p*> .05).

To sum up, according to Kenny, Kashy and Bolger's (1998) mediation effect examination procedure, it can be found from Table 1 and Figure 2 that OC had a complete intermediating effect, and therefore, Hypothesis 2C was accepted. This finding was consistent with the previous finding showing TL's significantly positive effect on OC, OC's significantly positive effect on OCB, and OC's significant intermediating effect on the relationship between TL and OCB (e.g. Low et al., 2001; Dimitriades, 2007; Talaga, 2008). When a leader put the group's greatest interest before his/her own, he/she will greatly influence workers' moral values and standards (Kark et al, 2003). This makes the workers form a psychological bond

with their organization and accept the goal and values set by the organization. Simultaneously, it encourages workers to stay in the organization and show more OCB based on social exchange theory (Settoon et al., 1996; Chen and Kao, 2012).

Hierarchical Linear Modeling Tests

The Null Model To test if individual variables, group variables and police OCB were significant, a HLM null model without explanatory variables was established to concretely describe the regression equation of level 1 and level 2. This approach was used to confirm if there is any significant difference among police stations. As shown in Table 4, the significance level of between-group variance suggested that it was significantly greater than zero (τ00= 0.030, df= 33, x^2= 138.52, *p*< 0.001). Therefore, it can be
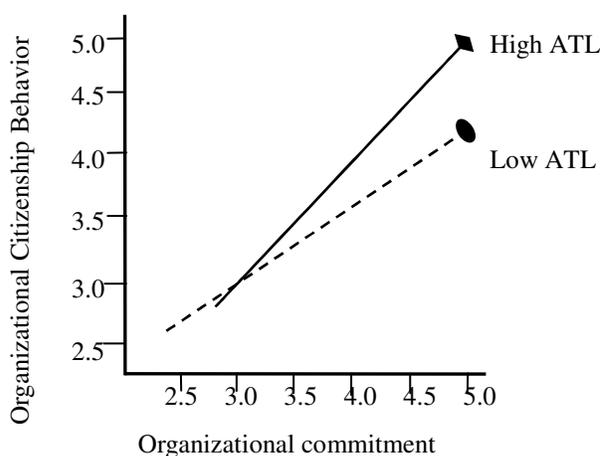
Figure 3. The cross-level moderating effect of aggregated TL

used as a basic approach for testing group-level explanatory variables as well as within-group, individual-level explanatory variables of OCB.

Intercepts-as-outcomes Models

To understand the intercept variance of level 1, the study estimated a HLM model for OC and OCB respectively, which were expressed in level 1 equations. The aggregated TL and OCL were used as the explanatory variables of level 2 equations. Hypotheses 3 and 4 tested whether TL and OCB can positively affect OC and OCB. If the estimated parameter of γ_{01} is significant, the contextual effect of group level on individual level will be supported. It can be found from Table 4 that aggregated TL did not have a cross-level main effect on police OC and OCB (aggregated TL-OC: γ_{01} = .101, SE = .058, t = 1.728, p> .05; aggregated TL-OCB: γ_{01} = .205, SE = .110, t = 1.860, p> .05). Therefore, Hypotheses 3a and 3b were rejected. Nonetheless, OCL had a positive and significant impact on OC and organizational citizenship behavior (OCL-OC: γ_{01} = .350, SE= .062, t = 5.603, p< .001; OCL-OC: γ_{01} = .417, SE = .099, t = 4.219, p< .001), and therefore, Hypotheses 4a and 4b were accepted.

Contextual effects suggest that when individuals of a group perceive higher OCL, more OC and OCB will be displayed. Between-group OC differences also affect the experience of OC and OCB. Nonetheless, the study also showed that between-group differences of TL cannot affect the perceived level of organizational commitment or organizational citizenship behavior.

The research result above is the same as the research discoveries of McMurray et al. (2004) and Jia et al. (2008), that is when a group's individual members have the same perception of their work environment and form a group OCL, it can influence its member's attitudes and behaviors, such as OC and OCB, on individual level.

Moderating effects: slopes-as-outcomes model

In Hypotheses 5 and 6, the investigators assumed that group-level variables can moderate the relationship between OC and OCB of individual-level. The prerequisite of the modulation is a significant random variance of OC in the intercept-as-outcomes model (Walumbwa et al., 2008). The random variance of aggregated TL and OCL on OC were 0.0008 (p< 0.05) and 0.009 (p< 0.05), respectively. This finding suggested that at level 1,
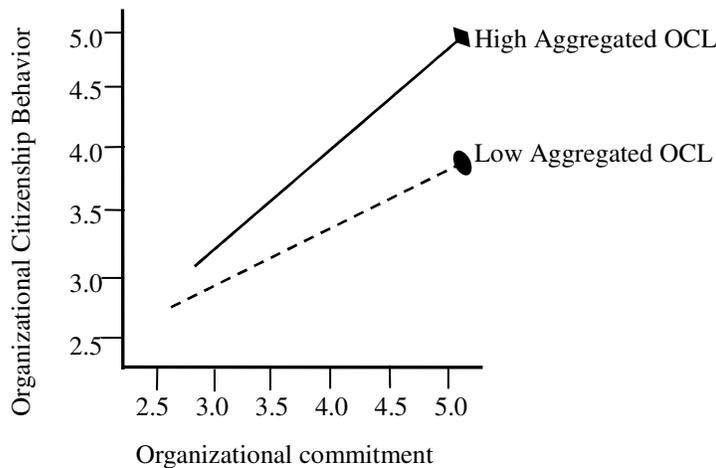
Figure 4. The cross-level moderating effect of OCL

aggregated TL and OCL were significantly different in the relationship between OC and OCB of each police station. After verifying the prerequisite, the investigators used group-level explanatory variables to test the explanatory power of variance. As shown in Table 4, the aggregated TL predicted a significant slope for the relationship between OC and OCB (γ_{11}= 0.15; t= 2.06, $p<$ 0.05). Therefore, Hypothesis 5 was accepted.

Nonetheless, organizational climate cannot significantly predict the slope between OC and OCB (γ_{11}= -0.090; t= -0.845, $p>$ 0.05). Therefore, Hypothesis 6 was rejected. The study analyzed the interaction slope to evaluate the form of interaction to further explain the effect of interaction. The X axis in Figure 3 and Figure 4 showed the degree of change of OC, while the Y axis showed the degree of change of police OCB. An interaction phenomenon can be found in Figure 3, which showed the interactive effect of aggregated TL and individual OC on OCB changes. It can be found that the aggregated TL was a potent moderator. The figure showing interaction also provided all OC levels and suggested that policemen are more likely to display OCB if they perceive a potent

and forceful aggregated TL. Nonetheless, there was no evidence suggesting an interaction between organizational climate/OC and OCB. Figure 4 shows the interactive effect of a perceived organizational climate and OC on OCB changes. This finding suggested that perceived OCL had no moderating effect.

The result above shows that, in organizational division, workers' perceptions of their superior's leadership are influenced by the superior's actions (Griffin and Mathieu, 1997). And because of TL's different effects on a group or individuals, the manager's leadership on group level will not only influence OCL on group level but also have a moderating effect on individual members like OC or OCB (Podsakoff and MacKenzie, 1996; Braun et al., 2013; Tse and Chiu, 2014).

DISCUSSION

CONCLUSION

The objective of this study was to explore the nature of

OCL and OC, test the relationship between TL an OCB, and use HLM to analyze the context and moderating effect of aggregated TL and OCL. The study found the following four points. First, from the SEM analysis, TL, OC, and OCB had a significant and positive relationship, and moreover, OC had a complete mediating effect. This finding is consistent with findings of other studies (e.g., Dimitriades, 2007; Talaga, 2008). In addition, results from the regression analysis suggested a positively significant effect of aggregated TL on OCL. From HLM analysis, the investigators also revealed a contextual effect of OCL and a cross-level moderating effect of aggregated leadership.

Nonetheless, HLM analysis revealed that the aggregated TL contextual effect and OCL cross-level moderating effect were not significant. This finding was unexpected. The finding showed that TL and OC affected police OCB, while OCL had a contextual effect on OC and OCB. Furthermore, the study results also suggested that aggregated TL moderated the relationship between OC and OCB, and moreover, OC was usually the antecedent (e.g. OCB) and consequence (e.g. TL) of certain variables.

Therefore, a police leader should develop an idea to be shared by people of the organization and make the subordinates believe and accept the goals and values of the organization. That will make the subordinates more willing to act for the interest of the organization (Chen, 2007). The study also showed that contextual variables (e.g. OCL) and cross-level variables (e.g. aggregated TL) are very important, especially since police organization is regarded as a bureaucratic paramilitary institution. To improve the level of commitment and OCB exhibition in policemen, the head of policemen should provide them with a clear and vivid vision and develop a positive and vigorous OCL to encourage policemen at all levels to take their duties

seriously and to correctly identify the goals of their organization.

Secondly, the study results suggest that by exploring how police collectively recognize the leadership style of their supervisors and different organizational climates, one can explain, to a certain degree, the different levels of police-perceived OC and OCB. Therefore, the results of the study supported some previous findings (e.g. Dumdum et al., 2002; Talaga, 2008). That is, employees perceiving TL are more likely to display greater commitment and OCB for their organizations.

The study also found that aggregated TL can moderate the relationship between OC and OCB, while OCL cannot moderate the relationship between organizational commitment and OCB. Because of OCL's lack of moderating effect, the original hypothesis of the study was rejected. Meanwhile, the results also opposed the basic multi-level analysis principle, which suggests group-level variables' cross-level interaction (Chiou and Wen, 2007). However, the study showed that aggregated TL had a moderating effect, and therefore, at the group level, aggregated TL had a cross-level moderating effect on the relationship between OC and OCB. This finding supported the findings of Raudenbush and Bryk (2002), which showed that group-level variables can act as a moderating variable. Therefore, aggregated TL can strengthen the relationship between OC and OCB. In other words, aggregated TL and OC can have an interactive effect on police OCB.

Lastly, the results of this study showed a special phenomenon. Even though TL had a cross-level moderating effect on OC and OCB relationship, it had no contextual effect. The reasons, as suggested by the investigators, are as follows. Firstly, transformational leaders use attentive listening to show that they care about each individual, and they act like a supervisor or

coach paying attention on their subordinates' development and achievement (Kark and Shamir, 2002; Avolio et al., 2004). Therefore, as compared to the whole group effect, impacts from leaders on individual subordinate were more direct and concrete. Secondly, police organizational structure can also be the cause of such a phenomenon because police organization is regarded as a bureaucratic paramilitary institution (Jones, 2008) as well as a discipline-oriented group. Therefore, compared to other organization leaders, police leaders can more directly and easily transfer their ideas or introduce the to-be implemented projects to their subordinates. As a result, impacts from TL on OC and OCB can be greater at the individual level than at the group level.

Taken together, our study results are consistency with what Raudenbush and Bryk (2002) suggested. That is, under a multi-layer organization structure, individual-level outcome variables would be affected by group-level variables. Therefore, we tested the effect of TL and aggregated TL on OC and OCB to clarify how leadership style is recognized by police officers and to understand how group-level and individual-level would affect police officers' OC and OCB. In addition, the investigators also explored impacts from organizational climates on OC and OCB, and such influence may explain how identical contents and implications of organizational climate are shared by police officers in aggregated data of different levels. Overall, the study results about the multi-level police organization can provide abundant theories and managerial implications.

Theoretical and Practical Implications

This research is theoretically different from the literature in the past. We look at TL as a variable on both group and individual levels, and we see OCL as a group-level variable. We not only explain that TL and OCL are group-level theoretical implications but also use multi-level concept to articulate group-level variables' direct and indirect cross-level effects on individual-level variables. In addition, we examine our hypotheses with HLM and receive a good result. These research methods and theory constructions that are different from the past can demonstrate group-level variables' contextual influences on individual-level variables in an organization. It further clarifies the relationship among variables, and shows workers' organizational behaviors more completely. Moreover, the application of HLM's statistical technique can provide the research staff an operation method using multiple independent variables when encountering multi-level topics (Gavin and Hofmann, 2002). This is the theoretical implication and one of the primary contributions of this research.

Aside from theoretical implications, the study also found the following practical implications. Firstly, one can use the new approach for encouraging employees to solve problems or to take challenges. It is also important to verify the needs of policemen. Transformational leaders of police encourage policemen to pay more attention on their work, which can lead to higher OC. Therefore, we suggest that the leaders of police stations should give up achieving objectives by giving orders or through chain of command. Instead, they should listen to their police officers, paying more attention to them. Helping the officers grow through teaching and training, encourage them to take more responsibilities so to bring out their higher potentials, and thus bringing up their awareness of the group's benefits and showing more OCB.

Secondly, the moderating effect and contextual effect of aggregated TL and OCL on individual-level outcome variables require further investigation, especially in terms

of leaders in police organization with high authority. The result of this research shows that a leader's influence to individual followers is more direct and specific compare with group influence. Moreover, in Taiwan, because the organizational hierarchy of harbor police is becoming flat (dual-rank, police office→police station), and because police works are more dangerous and erratic than other jobs, the officers need to strictly observe the discipline. Therefore, leaders of police stations can more easily deliver the intended concepts and programs to their followers. Thus, the leaders should show individualized care through listening to the workers and being a supervisor and trainer, and they should pay attention to the subordinates' needs, and their abilities to finish jobs and to observe discipline.

Thirdly, to evoke higher OC, heads of police stations should develop a powerful vision and encourage organizational commitment in the subordinates at all levels to take good responsibilities. Therefore, a leader should encourage his/her subordinates to look for solutions and face challenges and verify the leading method the officers need. Thus, he/she encourages them to take work responsibilities in the organization on group and individual levels, guiding them to have higher level ofFourth, by giving the organization a vigorous and pleasant atmosphere and encouraging subordinates to be committed to their organizations, transformational leaders will have more confidence in the competence of their subordinates. Therefore, creating a pleasant atmosphere for policemen and making them highly committed to their organizations can significantly affect their work and eventually introduce a greater OCB.

Fifth, due to OCB's significance to harbor police work, the manager should clearly articulate the organization's goal and the officers' roles. He/she should establish a formal reward system and clearly describe relative commands so he/she can, in a more direct management

level (such as police station), encourage his/her subordinates to show OCB more activity. Moreover, recruiment and interview can acctract talents for the organization and help select workers who are prone to have OCB the most. Therefore, police organizations should be mindful of personnel selection procedure. They should develop an effective recruit and selection strategy so they can attract and select officers who have the tendency to serve people.

Lastly, the study found that TL behavior can strongly affect participants' OC and OCB, and therefore, police management in Taiwan should adopt this type of leadership for the organization to successfully achieve leadership efficacy. For example, police organizations should have the capacity to let police officers make decisions so they can quickly make the best decision in actual situations. Furthermore, police organizations should schedule leadership seminars for managers in all levels, and it should reinforce the importance and skills of TL .Then improve the friendship between leaders and their team members. Therefore, in order to reach leadership effectiveness successfully, the leadership structure of police organizations has to reduce its authoritativeness and eliminate unnecessary level control so to raise officers' OC and encourage them to show more OCB at the same time.

REFERENCES

Adebayo DO (2005). Perceived workplace fairness, transformational leadership and motivation in the Nigeria police: Implications for change. *International Journal of Police Science & Manageme*nt, *7*(2), 110–122.

Akdogan A, and Cingoz A (2009). The effects of organizational downsizing and layoffs on organizational commitment: A field research. *The Journal of American Academy of Busines*s, *14*(2), 337–343.

Armstrong A (2003). Corporate governance: Can governance standard change corporate behavior"? *Australian Journal of Professional and Applied Ethics*, *5*(2), 1–14.

Aven FF, Parker B, and McEvoy GM (1993). Gender and attitudinal commitment to organizations: A meta analysis. *Journal of Business Research, 26*(1), 63–73.

Avolio B, Bass B, and Jung D (1999). Re-examining the components of transformational and transactional using Multi-factor Leadership Questionnaire. *Journal of Occupational and Organizational Psychology*, *72*(4), 441–462.

Avolio BJ, Zhu W, Koh W, and Bhatia P (2004). Transformational leadership and organizational commitment: Mediating role of psychological empowerment and moderating role of structural distance. *Journal of Organizational Behavior*, 25(8), 951–968.

Bagozzi RP, and Yi Y (1988). On the use of structural equation model in experimental designs. Journal of Marketing Research, 72(4), 271–284.

Bandura A (1986). *Social foundations of though and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.

Barling J, Christie A, and Turner N (2008). Pseudo-transformational leadership: Towards the development and test of a mode. *Journal of Business Ethics*, *81*(4), 851–861.

Bass BM, and Avolio BJ (1990). Developing transformational leadership: 1992 and Beyond. *Journal of European Industrial Training*, *14*(5), 21–27.

Bass BM, and Avolio BJ (1993). Transformational leadership: A response to critiques. In M. M. Chemers and R. Ayman (Eds.), *Leadership theory and research: Perspectives and directions* (pp. 49–80). New York, CA: Academic Press.

Bass BM, and Avolio BJ (1997). *Full range of leadership: Manual for the Multi-factor Leadership Questionnaire*. Palto Alto, CA: Mind Garden.

Bashaw RE, and Grant ES (1994). Exploring the distinctive nature of work commitments: The relationships with personal characteristics, job performance, and propensity to leave. *Journal of Personal Selling and Sales Management*, *14*(2), 41–56.

Bateman TS, and Organ DW (1983). Job satisfaction and the good soldier: The relationship between affect and citizenship. *Academy of Management Journal*, *26*(4), 587–595.

Baumgartner H, and Homburg C (1996). Applications of structural equation modeling in marketing and consumer research: a review. *International Journal of Research in Marketing*, *13*(2), 139–161.

Bell S, and Menguc B (2002). The employee-organization relationship, organizational citizenship behaviors, and superior service quality. *Journal of Retailing*, *78*(2), 131–146.

Binnewies C, Sonnentag S, and Mojza E (2009). Daily performance at work: Feeling recovered in the morning as a predictor of day-level job performance. *Journal of Organizational Behavior*, *30*(1), 67–93.

Bliese PD (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In K. J. Klein and S. W. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions and new directions* (pp. 349–381). San Francisco, CA: Jossey-Bass.

Bono J, and Judge T (2003). Self-concordance at work: Toward understanding the motivational effects of transformational leadership. *Academy of Management Journal*, *46*(5), 554–571.

Braun S, Peus C, Weisweiler S, and Frey D (2013). Transformational leadership, job satisfaction, and team performance: A multilevel mediation model of trust. *The Leadership Quarterly, 24*, 270–283.

Brazier DK (2005). Influence of contextual factors on health-care leadership. *Leadership and Organization Development Journal*, *26*(1/2), 128–140.

Brunetto Y, and Farr-Wharton R (2003). The commitment and satisfaction of lower-ranked police officers. *Policing: An International Journal of Police Strategies and Management*, *26*(1), 43–63.

Bryk AS, and Raudenbush SW (1992). *Hierarchical linear models*. Newbury Park, CA: SAGE Publications.

Byrne BM (1998). *Structural equation modeling with LISREL, PRELIS, and SIMPLIS: Basic concepts, applications, and programming*. Mahway, NJ: Lawrence Erlbaum Associates.

Bryant SE, Moshavi D, and Nguyen TV (2007). A field study on organizational commitment,

professional commitment and peer mentoring. *Database for Advances in Information Systems, 38*(2), 61–74.

Buchanan B (1974). Building organizational commitment: the socialization of managers in work organizations. *Administrative Science Quarterly, 19*(4), 533–546.

Carr JZ, Schmidt AM, Ford JK, and DeShon RP (2003). Climate perceptions matter: A meta-analytic path analysis relating molar climate, cognitive and affective states, and individual level work outcomes. *Journal of Applied Psychology*, *88*(4), 605–619.

Chen YJ (2007). Relationships among service orientation, job satisfaction, and organizational commitment in the international tourist hotel industry. *Journal of American Academy of Business*, *11*(2), 71–82.

Chiou H, Wen FH (2007). Hierarchical Linear Modeling of contextual effects: An example of organizational climate of creativity at schools and teacher's creative performance. *Journal of Education and Psychology*, *30*(1), 1–35.

Currie P, and Dollery B (2006). Organizational commitment and perceived organizational support in the NSW Police. *Policing: An International Journal of Police Strategies & Management*, *29*(4), 741–756.

Daft RL, and weick KE (1984). Toward a model of organizations as interpretation Systems. *Academy of Management Review, 9*(2), 284–295.

Davison ML., Kwak N, Seo YS, and Choi J (2002). Using hierarchical linear models to examine moderator effects: Person-by-organization interactions. *Policing: An International Journal of Police Strategies and Organizational Research Methods*, *5*(3), 231–254.

Dimitriades ZS (2007). The influence of service climate and job involvement on customer- oriented organizational citizenship behavior in Greek service organizations: A survey Practical implications. *Employee Relations*, *29*(5), 469–491.

Dnison DR (1996). What is the difference between organizational culture and organizational climate? A native's point of view on a decade of paradigm wars. *Academy of Management Review*, *21*(3), 619–665.

De Silva M (2005). *Context and composition? Social capital and maternal mental health in low income countries* (Ph.D. Thesis, Department of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, UK).

Dumdum UR, Lowe KB, and Avolio B (2002). A meta-analysis of transformational and transactional leadership correlates of effectiveness and satisfaction: an update and extension. In B. J. Avolio and F. J. Yammarino (Eds.), *Transformational and charismatic leadership: The road ahead* (Vol. 2, pp. 35–66). Oxford, UK: Elsevier Science.

Duncan OD, Curzort RP, and Duncan RP (1966). *Statistical geography: Problems in analyzing areal data*. Glencoe, IL: Free Press.

Dvir T, and Shamir B (2003). Follower developmental characteristics as predictors of predicting transformational leadership: A longitudinal field study. *Leadership Quarterly*, *14*(3), 327–344.

Elgamal MA (2004). The direct and mediating effects of transactional and transformational leadership: A comparative approach. *Journal of Transnational Management Development*, *9*(2/3), 149–171.

Eisenberger R, Huntington R, Hutchison S, and Sowa D (1986). Perceived organizational support. *Journal of Applied Psychology, 71*(3), 500–507.

Elkins T, and Keller RT (2003). Leadership in research and development organizations: a literature review and conceptual framework. *Leadership Quarterly, 14*, 587–606.

Farrell D, and Stamm CL (1988). Meta-analysis of the correlates of employee absence. *Human Relations*, *41*(3), 211–227.

Farh JL, Earley PC, and Lin SC (1997). Impetus for action: A cultural analysis of justice and organizational citizenship behavior in Chinese society. *Administrative Science Quarterly, 42*(3), 421–444.

Farh JL, Zhong CB, and Organ DW (2000). *Organizational citizenship behavior in the People's Republic of China*. Best Papers Proceedings, Academy of Management, Toronto.

Farh JL, Zhong CB, and Organ DW (2004). Organizational citizenship behavior in the People Republic of China. *Organizational Science, 15*, 241–253.

Gavin MB, and Hofmann DA (2002). Using hierarchical linear modeling to investigate the Moderating: Influence of leadership climate. *The Leadership Quarterly*, *13*(1), 15–33.

Gentry WA, and Martineau JW (2010). Hierarchical linear modelling as an example for measuring change over time in a leadership

development evaluation context. *The Leadership Quarterly* , *21*(4): 645–656.

Glission C, and James LR (2002). The cross-level effects of culture and climate in human service teams. *Journal of Organizational Behavior*, *23*(6), 767–794.

Griffinc MA, and Mathieu JE (1997). Modeling organizational processes across hierarchical levels: Climate, leadership, and group process in work groups. Journal of Organizational Behavior, 18(6), 731–744.

Haakonsson DD, Burton RM, Obel B, and Lauridsen J (2008). How failure to align organizational climate and leadership style affects performance. *Management Decision*, *46*(3), 406–432.

Hedeker D, and Gibbons RD (1996). MIXREG: A computer program for mixed-effects regression analysis with autocorrelated errors. *Computer Methods and Programs in Biomedicine, 49*(3), 229–-252.

Hofmann DA (1997). An overview of the logic and rationale of hierarchical linear models. *Journal of Management*, *23*(6), 723–744.

Hofmann DA, and Gavin MB (1998). Centering decisions in hierarchical linear models: Theoretical and methodological implications for organizational science. *Journal of Management*, *24*(5), 623–641.

House RJ, Woycke J, and Fodor EM (1988). Charismatic and non charismatic leaders: Differences inn behavior and effectiveness. In J. A. Conger and R. N. Kanungo (Eds.), *Charismatic leadership: The elusive factor in organizational effectiveness* (pp. 98–121). San Frncisco, CA: Jossey–Bass.

Hsieh WC, Vivian Chen CH, Lee CC, and Kao RH (2012). Work characteristics and police officers' performance: Exploring the moderating effect of social work characteristics and collective efficacy in multilevel analysis. *Policing: An International Journal of Police Strategies & Management*, *35*(3), 615–641.

James LR, and Jones AP (1974). Organizational climate: A review of theory and research. *Psychological Bulletin*, *81*(12), 1096–112.

Jaramillo F, Nixon R, and Sams D (2005). The effect of law enforcement stress on organizational commitment. *Policing: An International Journal of Police Strategies & Management*, *28*(2), 321–336.

Jia R, Reich BH, and Pearson JM (2008). HLM- IT service climate: An extension to IT service quality research. *Journal of the Association for Information Systems*, *9*(5), 294–320.

Jones AP, and James LR (1979). Psychological climate: Dimensions and relationships of individual and aggregated work environment perceptions. *Organizational Behavior and Human Performance*, *23*(2), 201–250.

Jones MA (2008). Complexity science view of modern police administration. *Public Administration Quarterly*, *32*(3), 433–458.

Kark R, and Shamir B (2002). The dual effect of transformational leadership: Priming relational and collective selves and further effects on followers. In B. J. Avolio & F. J. Yammarino (Eds.), *Transformational and charismatic leadership: The road ahead* (Vol. 2, pp. 67–91). Oxford, UK: Elsevier Science.

Kark R, Shamir B, and Chen G (2003). The two faces of transformational leadership:

Empowerment and dependency. *Journal of Applied Psychology*, *88*(2), 246–255.

Kelley SW, and Hoffman DK (1997). An investigation of positive affective and service Quality. *Journal of Retailing*, *73*(3), 407–427.

Kenny DA, Kashy DA, and Bolger N (1998). Data analysis in social psychology. In D. T.

Gilbert ST, Fiske and G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., pp. 233–265). Boston: McGraw-Hill.

Klein KJ, and Kozlowski SWJ (Eds.). (2000). *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions. San Francisco, CA: Jossey-Bass.

Koster F, and Sanders K (2006). Organizational citizens or reciprocal relationships? An empirical comparison. Personnel Review, 35(5), 519–537.

Kozlowski SWJ, and Klein KJ (2000). A multilevel approach to theory and research organizations: Contextual, temporal, and emergent processes. In K. J. Klein & S.W. J. Kozlowski (Eds.), Multilevel Theory, Research, and Methods in Organizations. San Francisco, CA: Jossey-Bass

Lee YK, Park DH, and Yoo D (1999). The Structural relationships between service orientation, mediators, and business performance in Korea hotel firms. Asia Pacific Journal of Tourism Research, 4(1), 59–70.

Lin CP, Hung WT, and Chiu CK (2008). Being good citizens: Understanding a mediating mechanism of organizational commitment and social network ties in OCBs. Journal of Business Ethics, 81(3), 561–578.

Likert R (1967). The human organization: Its management and value. New York: McGrawHill.

Litwin GH, and Stringer RA (1974). Motivation and organizational climate (3nd ed.). Harvard University Press, Boston.

Liu J, Siu OL, and Shi K (2010). Transformational leadership and employee well-being: The mediating role of trust in the leader and self-efficacy. Applied Psychology: An International Review, 59, 454–479.

Lowe KB, Kroeck KG, and Sivasubramaniam N (1996). Effectiveness correlates of transformational and transactional leadership: A meta-analytic review. Leadership Quarterly, 7(3), 385–425.

Low GS, Cravens DW, Grant K, and Moncrief WC (2001). Antecedents and consequences of salesperson burnout. European Journal of Marketing, 35(5/6), 587–611.

MacKenzie SB, Podsakoff PM, and Richard F (1993). The impact of organizational citizenship behavior on evaluations of salesperson performance. Journal of Marketing, 57(1), 57–68.

Mao HY, and Lo CF. (2007). The relationship between incentive system diversity and employees' perception of organizational climate-The moderating effect of companies' nationality. Journal of National Taipei College of Business, 12, 17–29.

Marchiori DM, and Henkin AB (2004). Organizational commitment of a health profession faculty: Dimensions, correlates and conditions. Medical Teacher, 26(4), 353–358.

McKenzie, S. B., Podsakoff, P. M., and Ahearne, M. (1988). Some possible antecedents and sequences of in-role and extra-role salesperson performance. Journal of Marketing. 62, 87–98.

McMurray AJ, Scott DR, and Pace RW (2004). The relationship between organizational commitment and organizational climate in manufacturing. Human Resource Development Quarterly, 15(4), 473–488.

McMurray AJ, Pace RW, and Scott D (2004). Research: A common sense approach. Melbourne, Australia: Thomson.

Metcalfe B, and Dick G (2002). Is the force still with her? Gender and commitment in the police. Women in Management Review, 17(7/8), 392–403.

Meyer JP, and Allen NJ (1991). A three-component conceptualization of organizational commitment. Human Resource Management Review, 1(1), 61–89.

Meyer JP, Stanley DJ, Herscovvith L, and Topolnytsky L (2001). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. Journal of Vocational Behavior. 58 (1), 31–56.

Miao RT (2011). Perceived organizational support, job satisfaction, task performance and organizational citizenship behavior in China. Journal of Behavioral and Applied Management, 12(2), 105–127.

Mowday RT, Porter LW, and Steers R (1982). Employee-organization linkages. San Diego, CA: Academic Press.

Montes FJL, Moreno AR, and Fernandez LMM (2003). Assessing the organizational climate and contractual relationship for perceptions of support for innovation. International Journal of Manpower, 25(2), 167–180.

Mulki JP, Locander UB, Marshall GW, Harris EG., and Hensel J (2008). Workplace isolation, salesperson commitment, and job performance. Jounal of Permnal Selling & Sales Management. XXVIII(1), 67–78.

Nguni S, Sleegers P, and Denessen E (2006). Transformational and transactional leadership effects on teachers' job satisfaction, organizational commitment, and organizational citizenship behavior in primary schools: The Tanzanian case. School Effectiveness and School Improvement, 17, 145–177.

Noordin F, Omar S, Sehan S, and Idrus S (2010). Organizational climate and its influence on organizational commitment. The International Business & Economics Research Journal, 9(2), 1–9.

Ostroff C, Kinicki A, and Tamkins MM (2003). Organizational culture and climate. In W. Borman, D. Ilgen and R. Klimoski (Eds.), Handbook of Psychology, 12(5), 565–594.

Organ DW (1988). Organizational citizenship behavior: The good soldier syndrome. Lexington, MA: Lexington Books.

Podsakoff PM, MacKenzie SB, Moorman RH, and Fetter R (1990). Transformational leader behavior and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. The Leadership Quarterly, 1, 107–142.

Podsakoff PM, and MacKenzie SB (1994). An examination of the psychometric properties and nomological validity of some revised and reduced substitutes for leadership scales. Journal of Applied Psychology, 79(5), 702–713.

Podsakoff PM, MacKenzie SB, and Bommer WH (1996). Transformational leader behaviors and substitutes for leadership as determinants of employee satisfaction, commitment, trust, and organizational citizenship behaviors. Journal of management, 22(2), 259–298.

Porter LW, Mowday RT, and Steer RM (1979). The measure of organizational Commitment. Journal of Vocational Behavior, 14(2), 224–247.

Raudenbush SW, and Bryk AS (2002). Hierarchical linear models: Applications and data analysis methods (2nd ed.). Newbury Park, CA: Sage.

Rentsch JR (1990). Climate and culture: interaction and qualitative differences in organizational meanings. Journal of Applied Psychology, 75(6), 661–68.

Rothmann S (2006). Expectations of, and satisfaction with, the South African police service in the North West Province. Policing: An International Journal of Police Strategies & Management, 29(2), 211–225.

Rowe M (2006). Following the leader: Front-line narratives on police leadership. Policing: An International Journal of Police Strategies & Management, 29(4), 757–767.

Ryan JJ (2002). Work values and organizational citizenship behaviors: Values that work for employees and organizations. Journal of Business and Psychology, 17(1), 123–132.

Sanders BA (2008). Using personality traits to predict police officer performance. Policing: An International Journal of Police Strategies & Management, 31(1), 129–147.

Schafer JA (2008). First-line supervisor's perceptions of police integrity the measurement of police integrity revisited. Policing: An International Journal of Police Strategies & Management, 31(2), 306–323.

Schneider B, Ashworth SD, Higgs C, and Carr L (1996). Design, validity, and use of strategically focused employee attitude surveys. Personnel Psychology, 49(3), 695–705.

Schumacker RE, and Lomax RG (1996). A beginner's guide to structural equation modeling. New Jersey: Lawrence Erlgaum Associates.

Schneider B, White SS, and Paul MC (1998). Linking service climate and customer perceptions of service quality: Test of a causal model. Journal of Applied Psychology, 83(2), 150–163.

Schein EH (2000). Sense and nonsense about culture and climate. In N. M. Ashkanasy, C. P. M. Wilderom and M. F. Peterson (Eds.), Handbook of Organizational Culture & Climate (p. xxiiixxx). CA: Sage.

Schneider B, and White SS (2004). Service quality: Research perspectives. CA: Sage.

Schaubroeck J, Lam SSK, and Peng AC (2011). Cognition-based and affect-based trust as mediators of leader behavior influences on team performance. Journal of Applied Psychology, 96, 863–871.

Settoon RP, Bennett N, and Liden RC (1996). Social exchange in organizations: Perceived organizational support, leader-member exchange, and employee reciprocity. Journal of Applied Psychology, 81(3), 219–227.

Singer MS, and Singer AE (1990). Situational constraints on transformational versus transactional leadership behavior, subordinates' leadership preference, and satisfaction. The Journal of Social Psychology, 130(3), 385–396.

Silvestri M (2007). Doing' police leadership: Enter the 'New Smart Macho'. Policing & Society, 17(1), 38–58.

Simola SK, Barling J, and Turner N (2007). Relationship between transformational leadership and moral problem solving orientation. In D. M. Mayer (Chair). New developments in ethical leadership: Multilevel and international perspectives. Paper Presented at the 67th Annual Meeting of the Academy of Management, Philadelphia, PA.

Smith C, Organ D, and Near J (1983). Organizational citizenship

behavior: Its nature and antecedents. Journal of Applied Psychology, 68(4), 653–663.

Stephenson R (2006). Contextual influences on the use of health facilities for childbirth in Africa. American Journal of Public Health, 96(1), 84–93.

Talaga J   (2008). Pricing police services: Theory and practice. Policing: An International   Journal of Police Strategies & Management, 31(3), 380–394.

Tse HM, and Chiu WK (2014). Transformational leadership and job performance: A social identity perspective. Journal of Business Research, 67(1), 2827–2835.

Timothy Lin CC, and Peng, TK (2010). From organizational citizenship behavior to team performance: The mediation of group cohesion and collective efficacy. Management and Organization Review, 6(1), 55–75.

Van Maanen (1975). Police socialisation: A longitudinal examination of job attitudes in an   urban police department. Administrative Science Quarterly, 20(2), 220–228.

van Knippenberg D (2000). Work motivation and performance: A social identity perspective. Applied Psychology: An International Review, 49, 357–371.

Verbeke W, Volgering M, and Hessels M (1998). Exploring the conceptual expansion within the field of organizational behavior: Organizational climate and organizational culture. Journal of Management Studies, 35(3), 303–329.

Vivian Chen C. H., and Kao, R. H. (2011). A multilevel study on the relationships between work characteristics, self-Efficacy, collective efficacy, and organizational citizenship behavior: The case of Taiwan police duty-executing organizations. The Journal of Psychology, 145(4), 361–390.

Vivian Chen, C. H., and Kao, R. H. (2012). Work values and service-oriented organizational citizenship behaviors: The mediation of psychological contract and professional commitment. Social Indicators Research,107(1), 149-169.

Wallace J, Hunt J, and Richards C (1996). The relationship between organisational culture, organizational climate and managerial values:

A proposed model. Paper presented at the   ANZAM'96 Diversity and Change, University of Wollongong.

Walumbwa FO, Wu C, and Orwa B (2008). Contingent reward transactional leadership,   work attitudes, and organizational citizenship behavior: The role of procedural justice climate perceptions and strength. The Leadership Quarterly, 19(3), 251–265.

Wang X, and Howell JM (2010). Exploring the dual-level effects of transformational leadership on followers. Journal of Applied Psychology, 95, 1134-1144.

Wu FY (2009). The relationship between leadership styles and foreign English teachers job satisfaction in adult English cram schools: Evidences in Taiwan. The Journal of American Academy of Business, 14(2), 75–82.

Wu JB, Tsui AS, and Kinicki AJ (2010). Consequences of differentiated leadership in groups.   Academy of Management Journal, 53, 90–106.

Zohar D, and Tenne-Gazit, Orly (2008). Transformational leadership and group interaction as climate antecedents: A social network analysis. Journal of Applied Psychology, 93(4), 744-753.