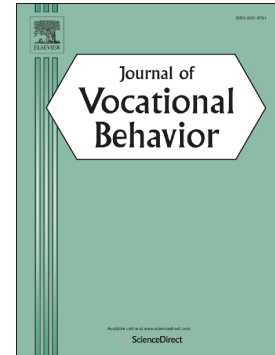


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**CLIMATE FOR INNOVATION AND ORGANIZATIONAL PERFORMANCE: THE MEDIATING EFFECT OF INNOVATIVE WORK BEHAVIOR**

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**Organizational climate for innovation and organizational performance: The mediating effect of innovative work behavior****Abstract**

Despite a plethora of literature on organizational climate for innovation and the persuasive arguments establishing its link to organizational performance, few studies hitherto have explored innovative work behavior of managers. Specifically, limited attention has been paid to explaining how organizations perceive the importance of stimulating innovative work environments. Drawing from organizational climate theory, this study investigates the mediating effects of innovative work behavior on the relationship between organizational climate for innovation and organizational performance. Our findings from a survey of 202 managers working in Malaysian companies demonstrate that innovative work behavior plays a mediating role in the relationship between organizational climate for innovation and organizational performance. Implications of these findings and avenues for future research are discussed.

*Key words:* Organizational climate for innovation, innovative work behavior, organizational performance

## 1. Introduction

Employee knowledge is crucial if organizations are to innovate and develop a competitive advantage. It is therefore essential to know how to create an organizational climate that cultivates innovation among employees (Deshpande and Farley, 2004; Nybakk and Jenssen, 2012; Patterson, Warr, and West, 2004). Isaksen and Ekvall (2010) noted that the deliberate management of organizational climates supportive of innovation is a key challenge, for those who lead and manage organizations. More specifically, France, Mott, and Wagner (2007) assert that failing to innovate can place organizations at risk and thus potentially diminish their ability to sustain or gain a competitive advantage. They argue that the challenge of being competitive can be met if organizations recognize that their ability to innovate is inextricably linked to the manner in which their leaders, people, climate, culture as well as structures support innovation and creativity.

The internal environment supportive of innovation is referred to as '*organizational climate for innovation*' (OCI) and is crucial for organizations leveraging on innovativeness in order to create a competitive advantage and to enhance performance (Kissi, Dainty, and Liu, 2012). Isaksen and Ekvall (2010) supported this position arguing that an OCI is one where creativity and change are encouraged; asserting that a key aspect of managing for innovation is creating the appropriate climate so that employees can share and build upon each other's ideas and suggestions.

On the other hand, according to Janssen (2000) '*innovative work behavior*' (IWB) consists of three interrelated behavioral tasks: (i) idea generation; (ii) idea promotion; and (iii) idea realization. Janssen's (2000) theoretical framework supports the ideas surrounding the concept of 'ideation leadership' that Johnson (2005, p. 613) relates to the creative process associated with generating, developing and communicating new ideas. Graham and Buchanan

(2004, p. 54) concur with this view, describing 'ideation' as all stages of the thought cycle associated with innovation, development and actualization.

Janssen (2000) noted that IWBs are 'discretionary behaviors' and as a rule are not included in employees' prescribed job description or explicitly defined roles (see also Organ, 1988). Therefore, their application cannot be assured. In the same vein, Ramamoorthy, Flood, Slattery, and Sardesai (2005) supported this view and reported that these discretionary behaviors are not recognized by an organization's formal reward and recognition systems. Importantly though, Ramamoorthy et al. (2005) concluded that tendencies to engage in these extra-role behaviors can lead to enhanced team and organizational effectiveness and superior performance.

Driven by the assumption that employees' innovative work behavior contributes positively to work outcomes, researchers such as Janssen (2000), Janssen, Van de Vliert and West (2004), and Mumford, Scott, Gaddis, and Strange (2002) have devoted increasing attention to organizational and individual factors that potentially promote innovative work behavior. However, the relationship between OCI and IWB is still largely unexplored.

The impact of OCI that are strategically linked to *organizational performance* (OP) have been identified by researchers such as Crespell and Hansen (2009), and Nybakk and Jenssen (2012). Other scholars have pointed to how innovative work behavior can assist organizations to gain competitive advantage and to enhance organizational performance (e.g., Janssen et al., 2004; Kanter; 1988; Oldham and Cummings, 1996; Scott and Bruce, 1994; Yuan and Woodman, 2010; Shih and Susanto, 2011). However, their approaches lack an underlying conceptual framework; and focus heavily on research examining the relationship between OCI and OP.

Our study makes a number of worthwhile contributions to theory and practice in organization climate research. First, only a handful of studies have looked into the relationship between OCI and IWB in general, our study will provide a new perspective of the relationship between the constructs. De Jong and Den Hartog (2010) assert that although a positive correlation between innovative climate and innovative work behaviour has strong face validity, most empirical work explored climate's effects on organisational and team level innovations. Many studies (West & Anderson, 1996; Amabile et al., 1996; Nijhof, Krabbendam & Looise, 2002) at the organisational and team level have shown a positive effect of climate on innovation. However, empirical study of climate's effects on individual innovative behaviour has been limited. It is also important to note that the current theoretical understanding of the consequences of organisational climate is based largely on studies conducted in western settings, with little evidence from an Asian perspective (Sellgren, Ekvall & Thomas 2008). Managers who understand how to positively impact the climate of innovation and work behaviour supportive of innovativeness will create the most opportunities for innovation in their organisations which, in turn, may enhance the performance of organisations.

As employee innovative behavior is seen as a strategic foundation, this research fills the void by testing a model that delineates the relationship between OCI and OP in the context of IWB. Therefore, the objective of this study is to examine the mediating effects of IWB, on the relationship between OCI and OP. We aim to investigate the indirect relationship IWB has on OCI and OP. The paper is set out as follows: first, we provide the review of literature on OCI, IWB and OP to develop our hypotheses. Secondly, we present the research methods followed by the results. Finally, we conclude the paper with a discussion of the findings, implications, limitations and directions for future research.

## 2. Literature review and hypotheses development

### 2.1 *Organizational climate for innovation and organizational performance*

Innovation has been shown to be crucial to the success of an organization and individual creativity and innovativeness to be key to organizational level innovation (DiLiello and Houghton, 2006). Importantly, organizational climate can have a positive effect on creativity and innovation in organizations (Amabile, Conti, Coon, Lazenby and Herron, 1996; Cooper, Edgett, and Kleinschmidt 2004; Nybakk, Crespell, and Hansen, 2011). Management needs to ensure that the organizational climate encourages, nurtures, and enhances individual creativity (DiLiello and Houghton, 2006; Hunter, Bedell, and Mumford, 2007; Isaksen and Lauer, 2002). . Employees who have innovative and creative potential are most likely to practice innovation when they perceive strong organizational support (DiLiello and Houghton, 2006). Furthermore, if organizations are able to develop an organizational climate perceived as positive by individuals, this is more likely to result in higher levels of motivation, commitment, and employee engagement, leading to improved OP.

Macey and Schneider (2008) posited that high states of employee engagement in innovation led to discretionary effort of employees which, in turn, led to better OP. Further, an organizational climate that motivates and involves employees has a positive impact on performance (Brown and Leigh, (1996). Analogously, Harter, Schmidt, and Keyes (2002) concluded from a meta-analysis of over 7,000 business units in 36 organizations that building an environment that increases and supports employee innovation can significantly increase the possibility of business success. Consistently these studies and several other exploratory studies (e.g., Crespell and Hansen, 2009; Deshpande and Farley, 1999; King, De Chermont, West, Dawson, and Hebl, 2007; Nybakk et al., 2011; Nybakk and Jenssen, 2012) have suggested that climate for innovation exerts both direct and indirect effects, through

innovative work behaviors, on organizational performance. Therefore, the following hypothesis is tested:

*Hypothesis 1: Organizational climate for innovation is positively related to organizational performance.*

## *2.2 Organizational climate for innovation and innovative work behavior*

De Jong (2006), who carried out in-depth interviews with leaders in knowledge-intensive service firms, suggested that innovation climate is an antecedent of IWB. West and Rickards (1999) supported this notion in their research and reported that creative and innovative behavior is promoted by a combination of both personal qualities and work environment factors. Autonomy to act is another key issue in this regard, encompassing personal control over how time is allocated and how work is carried out (Parzefall, Seeck, and Leppanen, 2008). Importantly, Huhtala and Parzefall (2007), argues that in comparison to routine work, non-routine tasks and jobs are more challenging, and thus require more thought providing opportunities for learning and personal growth which, in turn, promotes innovativeness.

Although a positive relationship between innovative climate and innovative work behavior has strong face validity, most empirical work, completed thus far, has explored organizational climate's effects on organizational and team level innovations (De Jong and Den Hartog, 2010). Studies at the organizational and team levels have shown a positive effect of organizational climate on innovation (e.g., Amabile, et al., 1996; Nijhof, Krabbendam, and Looise, 2002; West and Anderson, 1996). However, empirical studies of the effects of organizational climate on individual innovative behavior have been scarce. Scott and Bruce (1994) hypothesized that perceptions of organizational climate affected employee innovative behavior, and found a positive yet rather weak relationship.



Organizational climate dimensions such as autonomy and freedom, as well as the introduction of specialized knowledge and information, appear to have a positive effect on innovative behavior (Krause, 2007). Specifically, when individuals work in an environment where freedom is perceived to exist, they may experience greater free-will and take greater control of their own ideas and work processes, enhancing their innovativeness (Amabile et al., 1996; Si and Wei, 2012). However, De Jong and Den Hartog (2007) did not find any evidence to support a correlation between supportive innovation climate and IWB.

Although current literature provides little empirical evidence, there are reasons to anticipate a positive relationship between perceptions of organizational climate and IWB. For example, Albrecht and Hall (1991) observed that suggesting new ideas was perceived to be risky because it represented change to an established order. New ideas invite evaluation by other organizational members and may lead to debate or, even, to conflict. Thus where failure is tolerated and fear of submitting an absurd idea does not exist, creativity is encouraged. Similarly, Mikdashi (1999) argued that to find original solutions to problems requires employees to have the freedom to break the rules. If synthesized, the themes linked to risk taking, debate, freedom and trust which are all seen to impact on IWB, interestingly overlap with the determinants of OCI strengthening the expectation that OCI is likely to have a positive effect on IWB. It is, therefore, posited that:

*Hypothesis 2: Organizational climate for innovation is positively related to innovative work behavior.*

### *2.3 Innovative work behavior and organizational performance*

Organizations need to increase their flexibility, responsiveness and efficiency due to the volatile nature of global business environment and the strong need to respond to challenges faced by local and international competition (Dorenbosch, Van Engen, and Verhagen, 2005; Reuvers, Van Engen, Vinkenbunrg, and Wilson-Evered (2008). This, by necessity, translates

to a greater need for continuous innovation of products and services as well as internal processes and behaviors. In addressing this concern, the prior research has shifted from views of efficiency towards innovation. A need for more knowledge about how individual effort can be coordinated, to affect innovativeness and performance at organizational levels has been identified (Bilton and Cummings, 2010; Edwards, Delbridge, and Munday, 2005; Isaksen and Tidd, 2006; Jung, Chow and Wu, 2003). In addition, Davila, Epstein and Shelton (2006) argued that identifying gaps in implementing innovation should contribute to improve OP, whilst Rubera and Kirca (2012) indicated that employees' innovativeness indirectly affects organizational value through its effects on market and financial positions. Nevertheless, according to Morales et al. (2008), innovation is essential for improved OP and they show that organizations which focus on prolific employees' innovation are more successful at securing a larger market share which can lead to high income and profitability. The theory of resources and capabilities also claims that organizations need capabilities, resources and technologies to implement a new innovation strategy that will be a challenge for competitors to mimic, and that allows organizations to have sustainable competitive advantages and to gain greater organizational performance (Bommer and Jalajas, 2004; Calantone, Cavusgil, and Zhao, 2002; Lengnick-Hall, 1992). Therefore, we hypothesize

*Hypothesis 3: Innovative work behavior is positively related to organizational performance.*

#### *2.4 The mediating effects of innovative work behavior*

The relationship of organizational climate to OP is mediated by individual employees' work attitudes as demonstrated by a meta-analysis reported by (Parker, Baltes, Young, Huff, Altmann, Lacost, and Roberts, 2003). Importantly, innovation derives from the efforts and interaction of people within an organization, all employees must be involved in the innovation process for it to succeed (Hartman, Tower, and Sebor, 1994). This view is supported by De Jong and Den Hartog (2010) who argued that employees play an important

part in the innovation process because their thoughts and actions are crucial for continuous innovation and improvement in attaining better organizational profitability, growth, and market value. Employees' behavior then is likely to influence an organization's operating performance through the effective application of their knowledge and technological skills in order to trigger innovative initiatives with the goal of enhancing their competitiveness. In keeping with this line of thinking, we argue that there is indirect effect of IWB on the relationship between OCI and OP. Therefore, it can be hypothesized that:

*Hypothesis 4: The relationship between organizational climate for innovation and organizational performance is mediated by innovative work behavior.*

### **3. Method**

#### *3.1 Sample and procedures*

Data for this study were collected from managers working in public listed Malaysian Companies. The population of this research consisted of those graded as managers in their respective organisations (leaders with subordinates). Prior to the distribution of the questionnaires, the Head of Human Resources (HR) of each company was approached and notified of the aim of the study. Instructions were given to the respective HR Heads on the targeted population. English is the lingua franca in educational institutions and companies in Malaysia. Therefore the language used in the questionnaire was English and a condition for participation in the survey was an ability to communicate in English. A pilot test was first carried out among 12 managers to ensure questions were understood and to account for any cross-cultural invariance. The participants indicated that the items included in the survey were lucid and easy to understand.

Of 530 surveys distributed, 218 responses were received, of which 202 were useable, (16 surveys were incomplete and therefore discarded) yielding a response rate of 38%. A number

of reasons are attributed to the low response rate. First, the researchers' inability to make additional contact with units selected in a survey can be a significant main contributor to nonresponse. Secondly, cultural background of the respondents and finally the company policy and legal issues relating to disclosing information to the public. Nevertheless, Kline (2005) recommended that a sample size in excess of 200 is suitable to effectively employ Structural Equation Modelling (SEM). The gender of respondents was relatively even, with 56.4% being female ( $n = 114$ ) and 43.6% being male ( $n = 88$ ). Most respondents were between the ages of 30 and 40 years (48.5%), followed by the 20 to 30 years age group (28.2%), respondents between the ages of 40 and 50 accounted for 16.8% and those above the age of 50, for 6.4%. The education level attained for the majority of respondents was a bachelor degree: 66.3% ( $n = 134$ ), followed by diploma holders: 17.8% ( $n = 36$ ) and those with post-graduate qualifications: 15.8% ( $n = 32$ ). Finally, the respondents' position in their organisations showed that all were manager grade staff. In terms of years in service with their organisations 34.6% ( $n = 70$ ) had served for 10 to 20 years, 31.7% ( $n = 64$ ) for 5 years or less, 28.7% ( $n = 58$ ) for 5 to 10 years and 5% ( $n = 10$ ) had given 20 years of service. The sample included six business sectors: 38.1% in the financial services/banking sector ( $n = 77$ ), 19.3% in the manufacturing/industrial/engineering sector ( $n = 39$ ), 18.3% in the energy/utilities sector ( $n = 37$ ), 11.9% in the construction sector ( $n = 24$ ), 9.4% in the agricultural sector ( $n = 19$ ) and 3% in the service sector ( $n = 6$ ).

### 3.2 Measures

OCI was measured by employing the English version of the Isaksen, Lauer and Ekvall (1999) 'Situational Outlook Questionnaire' (SOQ). It was based on the organizational climate model developed by Ekvall (1983) and consisted of the following sub-scales: (i) challenge (8 items); (ii) freedom (6 items); (iii) trust (3 items); (iv) idea time (6 items); (v) playfulness (6 items); (vi) conflict (6 items); (vii) idea support (5 items); (viii) debate (6 items); and (ix) risk taking

(4 items). In total, there were fifty questions covering the nine dimensions of the SOQ. Managers were asked to indicate the perceived climate for innovation in their organization on a four-point Likert scale. Each item is scored from 'not at all applicable' (0) to 'applicable to a high degree' (3). The Cronbach  $\alpha$  score for this scale was 0.92. IWB was measured by employing Janssen's (2000) scale that encompasses the three stages of innovation: (i) idea generation (3 items), (ii) idea promotion (3 items) and (iii) idea realization (3 items). All items were scored using a seven-point rating scale ranging from 'never' (1) to 'always' (7). The Cronbach  $\alpha$  score for this scale was 0.95.

Perceptions of OP were measured using an eleven-item scale of perceived operational and market performance developed by Delaney and Huselid (1996). The dimension of operational performance was composed of seven items covering product as well as people (relationship) performance. The dimension of market performance was composed of four items covering economic indicators. The measures were rated by asking the managers to assess their organization's performance relative to that of their key competitors. The examples of the scale items were "satisfaction of customers or clients" (operational performance) and "market share" (market performance). Items were assessed on a four-point Likert-type scale ranging from 'much worse than the competitors' (1) to 'much better than the competitors' (4). The Cronbach  $\alpha$  score for this scale was 0.87. We controlled for participants' age, gender, education, years in service, position and the type of business considering their probable associations with OCI, IWB and OP.

### *3.3 Common Method Variance*

As our study primarily looked at perceptions of employees in Malaysian organisations and responses were self-reported, there might be an issue of the Common Method Variance (CMV) (Lindell and Whitney, 2001). Podsakoff, MacKenzie, Jeong-Yeon, and Podsakoff (2012) recommend that to reduce this potential bias some procedural and statistical remedies

can be employed. In this study, the assurance of anonymity and confidentiality was provided. Konrad and Linnehan (1995) support this process arguing that anonymity can help reduce such bias even when responses relate to sensitive matter where personal characteristics are assessed. Doty and Glick (1998) assert that validated scales are less sensitive to CMV. Nevertheless, to address the CMV issue a number of statistical testes were employed following the recommendation of Chang, van Witteloostuijn, and Eden (2010), First, using Harman's one-factor test (Podsakoff and Organ, 1986), all items associated with OCI, IWB, and OP that were subjected to an EFA clearly revealed that common method bias was not a major issue. Secondly, we employed CFA to further test the effect of CMV (Stam and Elfring, 2008). The three-factor model involving OCI, IWB and OP demonstrated fairly good fit to the data. Thirdly, a sequential  $\chi^2$  difference test indicated that the one factor model was significantly inferior to the three factor model showing CMV was not a potential problem in this study.

### *3.4 Data Analytic Strategies*

This research adopted the procedures proposed by Baron and Kenny (1986) for the test of mediation; and a series of statistical analyses to test the hypotheses were employed. LISREL 9.1 was used to run a set of CFA models. To test hypotheses 1-3, a hierarchical regression analysis on which we regressed IWB on OCI and OP was conducted. Importantly, to justify the mediation effect in hypothesis 4, PROCESS macro developed by Hayes (2013) which involves bootstrapping procedures and Sobel test (Sobel, 1982) was used.

## **4. Results**

### *4.1 Descriptive statistics*

Table 1 summarizes the means, standard deviations as well as the correlation matrices for all of the variables. After establishing the factor structure for all variables, Confirmatory Factor

Analysis (CFA) was employed to establish a valid measurement model prior to testing the structural model and to confirm its validity. Hair, Black, Babin, Anderson and Tatham (2006) suggested that to be considered as having an adequate fit, all the indices must be measured against the following criteria:  $\chi^2/df < 3.00$ ; GFI, CFI, and NFI  $> 0.90$ ; and RMSEA  $< 0.08$ . The result of the variance inflation factor (VIF) tests indicated that the largest VIF was less than 2.72, which is below the accepted threshold of 5 (Neter, Kutner, and Nachtsheim, 1996). Therefore, no significant multicollinearity found. To identify the outliers dfbetas were examined and we found no standardized dfbetas greater than an absolute value of .72. Further the leverage statistic (hat-value) found no leverage scores greater than .2 (Neter et al., 1996). These results showed no outliers.

As recommended by Brown (2006) we employed exploratory factor analysis and confirmatory factor analysis frameworks to examine the underlying factor structures and internal consistency for the OCI, IWB and OP constructs. Exploratory factor analysis (EFA) was employed to initially identify the number of underlying factors, including the pattern of loadings. For the 'OCI construct, 44 items from the original 50-items scale were retained. The subsequent results in the pattern matrix showed nine clear factors and the total cumulative variance was 74.7%. The factor loadings ranged from 0.403 to 0.987. These factors were labeled as: (i) Trust; (ii) Freedom; (iii) Idea support; (iv) Risk Taking; (v) Challenge; (vi) Conflict; (vii) Playfulness; (viii) Idea Time; and (ix) Debate. All factor loadings (except for 2 items from the Challenge factor, 1 from the Ideas Support factor, 2 from the Freedom Factor; and 1 from the Trust factor) were above the acceptable threshold of 0.4. The latter items were dropped. All labels and items were consistent with that of the original dimensions proposed by Isaksen et al. (1999). There were no factor correlations above 0.7, hence, discriminant validity was deemed to be good. The overall scale indicated an  $\alpha = 0.92$ , which was above the acceptable threshold of 0.7 (Nunnally, 1978).

The factor analytic results for IWB showed the KMO to be 0.902 with  $< 0.000$  significance. The Bartlett test of sphericity,  $\chi^2 = 1879.02$ , was significant at  $p < 0.000$ . The subsequent results in the pattern matrix showed two clear factors and the total cumulative variance was 81.7%. All factor loadings were above the acceptable threshold of 0.4. Thus, no items were deleted and judgment was then made to retain two factors. The two factors which were labeled as '*Idea Actualization*' and '*Idea Generation*'. The results show good internal consistency, with the overall scale  $\alpha = 0.95$ .

Finally, for OP, the factor analytic results showed three factor loadings ranging from 0.462 to 0.978 and the total cumulative variance was 70.19%. All factor loadings except one (OP 5, Customer satisfaction) were above the acceptable threshold of 0.4. This item was subsequently dropped. As the factors differed from the original model proposed by Delaney and Huselid (1996) each factor was re-labeled. The factor loadings and the three factors which were labeled, (i) 'Operational Performance: Product and Service'; (ii) 'Market Performance'; and (iii) 'Operational Performance: People'. The results show good internal consistency with  $\alpha = 0.87$  for the overall scale.

Prior to testing the identified hypotheses, Confirmatory Factor Analysis (CFA) was conducted to establish convergent and discriminant validity of variables in our study, which follow the recommendations advanced by Fornell and Larcker, (1981). The results in Table 2 show that the measurement model fitted the data better ( $\chi^2 [341] = 627.43$ ,  $p < .01$ ; CFI = .93, NNFI = .92, SRMR = .07, RMSEA = .06) than the other three models, thus exhibiting good psychometric properties. Furthermore, the factor loadings of the indicators in each of the three variables were statistically significant ( $p < .05$ ), a representation of a satisfactory convergent validity (Anderson and Gerbing, 1988). Therefore, the three-factor model was justified. The chi-square difference test indicated a significant difference (see Table 2) which provided evidence for the satisfactory discriminant validity (Anderson and Gerbing, 1998).



Based on the results; this research concludes that the measurement model demonstrated satisfactory psychometric soundness.

#### 4.2 Tests of hypotheses

To test hypotheses 1-4, hierarchical multiple regression analysis as recommended by Baron and Kenny (1986) was employed. In general, four conditions must be fulfilled to evidence a mediating effect. First, the independent variable must predict the dependent variable. Second, the independent variable must have a significant relationship with the mediator. Third, the mediator must have a significant influence on the dependent variable. Finally, the effect of the independent variable on the dependent variable must be purged or significantly reduced after the effect of the mediator has been taken into consideration.

Table 3 shows that controlling for demographic variables, OCI has a positive significant relationship with OP ( $\beta = 0.62$   $p < 0.05$ ) lending support to H<sub>1</sub> which fulfils the first condition. The results reveal that OCI is positively related to IWB ( $\beta = 0.54$ ;  $p < 0.05$ ) which provide support for H<sub>2</sub>; and thus meets the second condition. The results also indicate that IWB has a positive significant ( $\beta = 0.39$ ;  $p < 0.05$ ) relationship with OP supporting H<sub>3</sub> and thus fulfilling the third condition. Further, the results reveal that when OCI and IWB were entered into the regression together, OCI no longer significantly influenced OP ( $\beta = 0.29$ ;  $n.s$ ), while IWB had significant influence on OP indicating that IWB is fully mediating the relationship between OCI and OP. Thus Hypothesis 4 was accepted and this result fulfils the fourth condition.

Furthermore, we conducted Sobel test (Sobel, 1982) to find out whether the mediating effect is significantly different from zero. The results of the Sobel test confirmed that the association between OCI and OP is significantly mediated by IWB ( $z=1.98$ ,  $p \leq .05$ ). Following Preacher and Hayes (2008), a bootstrap analysis was conducted to examine the indirect

effects of OCI on OP through IWB, with 5000 resamples. The results are presented in Table 4. Linear regression with maximum likelihood estimates and 95% bias corrected confidence intervals (CI) to assess the indirect relationship between OCI on OP through IWB was also employed. Controlling for gender, age, education and years of service the result indicate that (coeff = 0.33, CI = [0.3721, 0.0121] excluding zero showed a significant indirect effect of OCI on OP through IWB. When expressed as a proportion in which indirect effect/total effect \* 100%, these results suggest that IWB mediates 53 % of the total effect of OCI on OP. (Freedman, 2001; Sobel, 1982). Therefore, these results provide support for Hypothesis 4.

## 5. Discussion

The study examined the influence of '*organizational climate for innovation*' on *organizational performance* mediated by '*innovative work behavior*'. We tested a model delineating the relationship between OCI and OP mediated by IWB which yielded a number of worthwhile results. The findings confirm that the relationship between OCI and OP was significant. The results have revealed that OCI had a significant and positive impact on IWB. This shows that the existence of an innovative culture plays a contributing role in enhancing the IWB. Our findings support previous studies that have linked innovative behavior (e.g., Kissi et al., 2012; Krause, 2007). Krause (2007) maintains that employees are more likely to engage in IWB when granted freedom and autonomy because it fosters the perception that they are able to improve and control their work circumstances. Similarly, there is evidence that important relationships exist between individual innovation and organizational climate dimensions related to autonomy, freedom, feedback and challenging work (Amabile and Gryskiewicz, 1989; Jaskyte and Audrone, 2006; Oldham and Cummings, 1996). Prior studies reported little research relating to the influence of demographics factors on innovative work behaviour and organisational climate for innovation. However, these variables were examined separately. The findings of this study indicated that years in service and age influence climate for innovation and innovative behaviour of the managers.

Our findings are also in line with Isaksen and Ekvall (2010) who argue that the OCI is related to how new ideas are treated or managed and *'ideation leadership'* (Graham and Buchanan 2004; Johnson, 2005). Leadership that provides OCI, encourages idea generation where ideas are treated in a receptive way and appraised on their feasibility in a fair and supportive way. This can potentially lead to individuals having greater willingness to try out new ideas and practices. Mumford et al. (2002) also notes that such circumstances may create the necessary time, as well as encourage calculated risks and slack which may translate to an improved perception of idea support.

In addition, Odoardi, Battistelli and Montani (2010) note that if employees perceive their work environment to be where their creative and innovative efforts are valued and where their ideas are sincerely appreciated and accepted, they will be more willing or open to accept goals related to innovation and thus engage in innovative behavior. Whilst Mumford et al. (2002) further emphasizes that intellectual stimulation serves as a direct trigger in generating ideas. Apart from such behavior; De Jong and Den Hartog (2007) indicate that this also seems to stimulate reflection among employees. This outcome can enhance individual innovativeness and also suggest that support for new ideas requires leaders who listen and support such behavior as critical for the further development and implementation of these ideas.

Another interesting finding of this study is that employees who exhibit IWB play a contributing role in enhancing OP. This is in line with Amabile, (1988) and Woodman, Sawyer, and Griffin, (1993) who argue that individual willingness is essential to organizational innovation, which according to Kanter (1983) and Tushman and O'Reilly (1996) leads to sustainable organizational success. The findings also accord with those who assert that IWB is significant in facilitating competitive advantage (e.g., Janssen et al., 2004;

Kanter, 1988; Oldham and Cummings, 1996; Scott and Bruce, 1994; Shih and Susanto 2011; Yuan and Woodman, 2010).

Our findings are also consistent with the recent research in different cultural contexts. For example; Rahnama, Mousavian, Alaei and Maghvan (2011) have found a statistically significant relationship between employee innovation and organizational effectiveness. Whilst Vincent, Bharadwaj, and Challagalla (2004) assert that innovation is positively related to superior employee performance and that it is a significant driver of OP. This findings support De Jong and Den Hartog's (2010) notion that behaviors involved in the implementation of ideas and to achieve improvements in addition to idea generation are important for enhancing personal and business performance. Our findings also extend the work of Parker et al. (2003) that indicated the relationship of OCI with OP is mediated by employees' work attitudes.

Our results also corroborate the findings of Tidd and Bessant (2009), who highlighted that support for ideas, is one of the major factors critical for an organizational climate that fosters innovation. Finally, our findings suggest that support and space for ideas relates to the amount of time employees are given be innovative. That is; when ideas support and intellectual stimulation exists, the climate for innovation will be strong and provide dynamic opportunities for employees to challenge prior assumptions, reframe problem areas and pursue new ways of doing things, which can pave avenues for improving overall organizational performance.

### *5.1 Theoretical contributions*

Our study extends organizational innovation climate research and furthers understanding of employees' IWB and OP. Our study provides empirical support for previously inconsistently tested assumptions that OCI affects OP mediated by IWB. This study contributes to the

emergent debate on understanding why in the face of the common agreement on the relationship between OCI and OP the mediating role of IWB was understated in the extant research. This research raised an important issue, drawing from the domain of industrial and organizational psychology and building on organizational climate theory; our findings support the notion that an innovative climate is an important influence on employees' innovative behavior. Our study also proposed a theoretical framework that identified OCI as a positive predictor of individual IWB. From a theoretical perspective, the results shed light on the inconsistent findings of De Jong and Den Hartog (2005) and Krause (2007) in regard to the relationship between OCI and IWB. Additionally, the findings also align with those of Kheng and Mahmood (2013) whose research identified a positive relationship between an OCI and employees IWB but failed to consider the interaction with OP. Furthermore, we make a significant contribution to the organizational climate literature (Joyce and Slocum, 1984; Senge, 1990; Gelade and Ivery, 2003; Kuenzi and Schminke, 2009) by demonstrating that managers who have the necessary capabilities to effectively utilize the climate dimensions such as 'idea support'; should be able to promote behaviors that are pro-innovation. According to Odoardi, et al. (2010) the perception of ample support for idea development and implementation as well as for the improvement of skills related to innovation may enhance an individual's confidence in their capability to stimulate and maintain innovative work behaviors. To support IWB among employees, it is necessary to focus on the OCI dimensions. In this context, our study contributes new knowledge to the literature on organizational innovation by illustrating how various aspects of an OCI can be operationalized and assessed, while showing how individual work behavior can be influenced, potentially making climate and innovative behavior more explicit and easier to attribute.

### *5.2 Implications for practice*

This research has important implications for managers who desire to strengthen or develop a strong work climate for innovation to attain improved organizational performance. As for those managers earmarked for more senior roles, they must be aware of issues that need to be taken into consideration when there is a need to revitalize creativity and innovation in their workplace. Potosky and Ramakrishna (2002) note the need to understand that at the individual level, an individual's workplace behavior is often influenced by their perceived support from the immediate work environment. It is important for employees; as West and Farr (1989) also point out, to feel safe in groups and at work so that they will not be reluctant to derive and share new ideas.

Our findings have some interesting implications for practitioners who aim to build the most effective organizational climate for enhancing individual innovativeness. The organization's human resources policies should be aligned with organizational goals for innovation considering the perpetual outcomes. This could include introducing new structures and systems where there is increased autonomy and developing recognition programs that places importance on proactive behaviors linked to innovativeness. To create a suitable environment for innovativeness to burgeon, organizations might look to coaching managers to be more encouraging and supportive, and who will in turn, seek to strengthen team dynamics where dimensions such as 'idea sharing' are inculcated and facilitated. Notably, our results have laid an essential foundation through building on an organizational climate and innovation framework by providing valuable insights into employee innovative behavior and its role on organizational performance.

### *5.3 Limitations and Future Research*

Though our research contributes to the growing literature on organization climate for innovation, the findings should be viewed with caution as they are subject to a number of limitations. First, the study is cross-sectional in nature. Without an experimental design and

longitudinal data, conclusions regarding causality cannot be drawn. Secondly, responses on IWB were obtained from the same source at the same time. Thirdly, the questionnaire measured respondents' perceptions of their organization's performance relative to that of their competitors. Organizational performance was conceptualized as perception based, rather than economic data based. This was undertaken primarily because the economic indicators may not have been consistent sources of information, as some employees may not have had direct access to financial records or other numerical performance indicators. Although it is practical, and there is empirical support for the use of subjective perception of employees as a basis of evaluating organizational performance (Boga and Ensari, 2009) and previous studies have shown strong links between subjective and objective measures of operational performance (Dess and Robinson, 1984), this dependence is still one area for potential improvement. The use of additional measures, objective in nature, also has the potential to add credence to the reported findings. Additional limitation arise as organizational climate is assessed on the basis of the perceptions of one person which may not be an accurate reflection.

This study focused on government companies in a Malaysian setting. To improve the generalizability, especially in a broader Asian context, studies could be replicated in other geographical area and countries in the region. Similarly, studies carried out in private entities, as well as the public sector, may also provide richer and comparative data for analysis. Thus, it would be beneficial to replicate this study in varied industries and across a wider population to reaffirm the conclusions made in this study. In addition; qualitative research using open-ended interviews may be an appropriate approach to use for further exploration. Research that employs mixed methods whereby both qualitative and quantitative methodologies associated with constructivism and positivism are applied, has the potential to offer richer analysis. Finally, future studies should be based on larger sample sizes, this can

permit more powerful analysis. It may also prove interesting to study similar characteristics with data provided by lower levels of management and employees in the organization.

This study examined the direct relationship between OCI and IWB. However, the relationship between an innovative working climate and individual level innovativeness might be more multifaceted than suggested in this study. The climate may influence innovative work behavior through individual level mediators. Thus to examine this impact, it would be logical to raise questions on this issue and include potential mediators, such as employee engagement or intrinsic motivation (Amabile et al., 1996; Carmeli and Spreitzer, 2009; Yuan and Woodman, 2010). The findings also provide a theoretical framework that helps to identify IWB as a positive predictor of OP. Further, the results align with recent work (e.g., Janssen et al., 2004; Shih and Susanto, 2011) which concluded that IWB has a positive and significant impact on OP and creates a competitive advantage. The relationship between the two constructs may be more intricate since innovative behavior in individuals may directly affect OP positively, or it may influence other behavioral elements which in turn, influence performance. In the light of the limitations, this study calls attention to researchers to extend the level of our understanding on the climate that foster the acquisition and exploitation of diverse innovation knowledge.

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**Table 1** Means, Standard Deviations and Zero-Order Correlations

<b>Variables</b>	<b>Mean</b>	<b>SD</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
1. Years in service	9.54	5.56						
2. Age	2.03	0.85	.74**					
3. Gender	1.57	0.50	-0.07	-0.06				
4. Education	2.99	0.60	-0.28	-0.09	-0.09			
5. Climate for Innovation	1.51	0.36	.19**	.37**	0.02	-0.05		
6. Innovative Work Behavior	3.66	1.14	.18*	.24**	0.02	-0.10	.52**	
7. Organizational Performance	2.70	0.48	0.04	0.00	0.08	-0.12	.53**	.38**

\*\* . Correlation is significant at the 0.01 level

\* . Correlation is significant at the 0.05 level

Year of Service is a dummy variable (< 10 years =0; >10 years=1)

Age is a dummy variable (<40 years old=0; >40 years old=1)

Gender is a dummy variable (Female=0; Male=1)

Education is a dummy variable (Undergraduate=0; post graduate=1)

**Table 2** Full measurement model comparisons

Models	$\chi^2$	df	$\Delta \chi^2$	<i>df<sub>diff</sub></i>	CFI	NFI	RMSEA	SRMR
Baseline model (Three factors)	2154.13	204			0.93	0.92	0.068	0.073
Model A (two factors combines OCI and OP into one factor) <sup>a</sup>	1279.67	211	199.17	4***	0.89	0.87	0.073	0.088
Model B (two factors combines OCI and IWB into one factor) <sup>b</sup>	1183.61	323	35.71	2***	0.86	0.86	0.075	0.121
Model C (two factors combines IWB and OP into one factor) <sup>b</sup>	726.91	346	56.70	2***	0.86	0.84	0.076	0.122
Model D (Harman's single factor model) <sup>c</sup>	992.46	379	265.55	8***	0.72	0.79	0.098	0.136

Notes:  $N = 202$ , \* $p < 0.5$ ; \*\* $p < 0.01$ , \*\*\* $p < 0.001$ ;  $\chi^2$  = chi-square discrepancy,  $df$  = degrees of freedom; CFI = comparative fit index; NFI = normed fit index; RMSEA = root mean square error of approximation; SRMR = standardised root mean square residual;  $\Delta \chi^2$  = difference in chi-square,  $df$  diff = difference in degrees of freedom.

**Table 3** Hierarchical Regression Results

Variables	IWB	Organizational Performance		
	Model 1	Model 2	Model 3	Model 4
<i>Control Variables</i>				
Position	0.16	0.05	0.01	0.06
Gender	0.02	0.08	0.06	0.05
Age	-0.19	-0.14	-0.34**	-0.33**
Education	0.06	-0.07	-0.05	-0.04
Experience	0.15	0.10	0.20*	0.17
Industry	0.03	0.10	0.03	-0.03
<i>Independent variable</i>				
Organizational Climate for Innovation	0.54**		0.62**	0.29
<i>Mediator</i>				
Innovative work Behavior			0.39**	0.15*
R2	0.32**	0.33**	0.36**	0.37**
Adj R2	0.39**	0.30**	0.34**	0.41**
F value (Sig. Level)	6.11**	2.92**	4.89**	5.45**

\*p&lt; 0.05, \*\*p&lt; 0.01

**Table 4** Simple mediation results

Model	Organisational climate for innovation <sup>a</sup>		
	Point Estimate (SE)	95% CI	
		Upper	Lower
Total effect ( OCI → OP )	<b>0.62**</b> (0.07)		
Direct effect ( OCI → OP )	0.29 (0.09)		
Indirect effect ( OCI → IWB → OP )	0.33 (0.01)	<b>0.3721</b>	<b>0.0121</b>

Note: 5000 Bootstrap samples. Standard errors indicated within parentheses. Estimates in bold have CIs that are excluding the interval of zero for total and indirect effects indicating significant mediation. Bias correlated confidence intervals (CI) and Standard errors (SE) reported.<sup>a</sup> Controlling for, age, gender, position and education

\*p < 0.5; \*\*p < 0.01

**Highlights**

- Climate for innovation was positively associated with innovative work behavior.
- Innovative work behavior was positively associated with organizational performance.
- Climate for innovation was positively associated with organizational performance.
- Findings showed the mediating role of innovative work behavior

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