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The Effect of Organisational Climate on Employees' Creative Performance through Knowledge Sharing Behaviour

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Abstract: Malaysia has achieved significant industrial growth over the years due to the enterprising intervention of multinational companies (MNCs). The organisational climate in terms of its collaborative nature and innovative efforts has led to the enhancement of creativity among MNCs. The extent of knowledge sharing behaviour within MNCs, particularly in the Malaysian context, has not been thoroughly researched. A huge primary survey involving 20 MNCs with 155 respondents from both manufacturing and service sectors was included in this study. The findings of the study reveal that knowledge donating and knowledge collecting highly and positively influence creative performance. Interestingly, knowledge collecting mediates the relationship between an innovative climate and creative performance while a collaborative climate was found to highly and positively influence MNCs' creative performance through knowledge donating. Thus, knowledge sharing behaviour is pivotal for the success of MNCs in terms of generating new ideas, promoting best practices, continuously improving and reducing the redundancy cost of learning to facilitate organisational effectiveness.

Keywords: Collaborative climate; Innovative climate; Knowledge donating; Knowledge collecting; MNCs; Creative performance

1. Introduction

In recent years, the ideology of knowledge sharing has drawn the attention of researchers and practitioners in the arena of knowledge management. This phenomenon occurs when organisations shift their focus from conventional resources and recognise intellectual assets or knowledge as resources (Drucker, 1992). Prior research has indicated that knowledge sharing can improve team work, enhance decision making, and increase the overall performance of an organisation (Prahalad and Hamel, 1990; Smith, Locke and Barry, 1990). As organisations and individuals seek to maximise the value of knowledge and knowledge sharing behaviour (KSB), this eventually leads to certain performance outcomes such as creativity (Goh and Lim, 2014). As such, a firm that can manage the sharing process can anticipate better performance from its employees. This sharing process requires collaboration at both individual and social levels.

This paper will adopt social learning theory as the main foundation for the research. Social learning theory is described as individuals learning from each other through various modes to form new behaviour (Bandura, 1977). Meanwhile, Lave (1988) posited that social interaction is the key ingredient in learning and advocated for the formation of 'communities of practice'. Similarly, Vygotsky (1978) has argued that social learning derives from the learning of peers or experts and that this helps individuals to develop their cognitive ability in performing complex tasks as compared to when working alone. Social learning theory is chosen because it helps to describe the interaction of people's behaviour from the standpoint of cognitive, behavioural and situational domains (Cheung et al., 2015). In line with social learning theory, we assert that knowledge sharing behaviour enables employees in a firm to seek and share their knowledge within the organisation. Based on the views of Bandura (1977), Lave (1988) and Vygotsky (1978) on social learning theories, we seek to examine whether, with proper facilitation, the promotion of a climate of knowledge sharing among peers in an organisation would improve the cognitive performance of individuals (more specifically their creative performance). As such, the primary objective of this study is to determine the role played by organisational climate through employees' knowledge sharing behaviour on the enhancement of the creative performance of employees in MNCs.

Organisational climate has been discussed widely since Litwin and Stringer (1968) proposed the concept of psychological climate, and it is described as referring to the nature of employees' perceptions of their

experiences within an organisation (Koys and DeCotiis, 1991). A positive climate would encourage employees to be more productive in the workplace. A supporting climate which encourages collaboration and innovativeness can play a vital role in developing skills, information and ideas. MNCs operate across a wider scope and require more coordination as they have to face the global and local business environment and co-ordinate within the context of such operations. Employees working in an MNC need to deal with a complex business environment across multiple countries. As such, adopting best practices will help them to be more efficient and subsequently lead to positive firm performance (Park et al., 2003). Continuous improvement is difficult in the absence of creativity at the workplace (Yang et al., 2016). Furthermore, the ability to share experiences and knowledge could reduce redundant processes. Meanwhile, a facilitating climate which promotes collaboration and innovativeness are said to enhance the ability of the individual to share knowledge with other members of an organisation (Sveiby and Simons, 2002). Despite much research having been conducted on KSB, little has been undertaken to examine the influence of organisational climate (collaboration and innovativeness) on creative performance in MNCs. In fact, the causal relationship between organisational climate and MNC creativity has not yet been established.

This study makes two contributions to the literature. First, the research will help to provide a clearer understanding of how Social Learning Theory leads to better creative performance by taking into consideration environmental determinants (such as a collaborative and innovative climate). Second, this research provides a richer explanation of which processes within knowledge sharing behaviour help to facilitate better creative performance. The concept of KSB involves processes whereby employees in the organisation mutually exchange and create knowledge. When the processes involved in knowledge sharing require both supply and demand, it is important to consider the two dimensions of knowledge sharing: knowledge donating and knowledge collecting (Van den Hoff and Ridder 2004 and Lin 2007) for greater depth and better clarity on the activities of KSB. These contributions will shed light on the ways in which practitioners craft effective strategies to achieve the desired output (i.e. creative performance).

The rest of the paper is structured as follows. The second section discusses the literature review and the theoretical integration in relation to the development of the hypotheses. The third section highlights the conceptual model and research methodology used for this study. Section four represents the significant results and findings; and the last section discusses the theoretical contribution, suggests implications, and provides deeper insights for future research.

2. Literature Review

2.1 Knowledge Sharing Behaviour

Knowledge sharing behaviour is essential for the success of MNCs. Sharing of knowledge between peers and skilled workers provides opportunities for new ideas, promotes best practices, facilitates new creations, and reduces the redundancy cost of learning at both the individual and organisational levels to facilitate organisational effectiveness (Vries, Hooff and Ridder, 2006; Markus, 2001; Reyhav and Weisberg, 2009). Despite concerted efforts, the continuous practices of organisational knowledge sharing behavior are somehow questionable (Davenport and Prusak, 1998; O'Dell, Grayson and Essaiades, 1998). Therefore, the process of knowledge sharing could place either one to one or one to many personnel in an organisation (Argote, Ingram, Levine and Moreland, 2000). Knowledge sharing not only increases the confidence among employees to handle complex situations but also enhances their capability to adopt best practices. Hence, organisations with the fewest practices of knowledge sharing often expend pointless effort on reinventing similar and existing ideas (Christensen, 2007). In addition, when employee turnover increases in an organisation, there is an increase in knowledge depreciation in the firm as an inadvertent consequence (Casal and Fontela, 2007; Yang, 2007). Such depreciation of knowledge not only costs the organisation a lot but also has long term effects on its performance.

Knowledge sharing behaviour involves both the person who donates the knowledge and the person who receives it (Hooff and Ridder, 2004; Vithessonthi, 2008), and requires a positive relationship between the demand for new knowledge and its supply (Ardichvili, Page and Wentling, 2003). This research assumes the notion of knowledge sharing proposed by Van den Hooff and de Ridder (2004, p. 118), whereby knowledge sharing behaviour is separated into "knowledge donating – giving away to others what one's personal intellectual capital is; and knowledge collecting – consulting colleagues in order to get them to share their intellectual capital". Knowledge sharing is beneficial if both donator and receiver interact unconditionally. Such

practices lead the firm to achieve competitive advantage and enhance its capability to perform error-free technical competence as well as to create new ideas or knowledge, take strategic decisions, enter new markets, and internationalise the business venture. Evidence has shown that the impact of technology on knowledge management and sharing persists (Alavi and Leidner, 1999; Hall, 2001). Previous studies have identified that knowledge sharing is a key antecedent to the valuation of a firm's technological innovation since it captures valuable and new resources to improve the products/services that the firm is offering (Im, Montoya and Workman, 2013; USoro and Kuffie, 2006); additionally, it creates value from existing resources (Estrada, Faems and de Faria, 2016). Knowledge sharing complements the provision of professional knowledge and technical skills by updating old knowledge through hands-on and special training (Wang and Kwek, 2018).

However, other factors have a significant impact on knowledge sharing behaviours (Lee and Choi, 2003; Smith and McKeen, 2002); in addition to technology, factors such as individual interaction or having a people-driven culture (Hong, Suh and Koo, 2011) impact KSB. The social dynamic of a workplace also affects employees and the practices of knowledge sharing within an organisation (Cross and Baird, 2000; Davenport and Prusak, 1998; Goh and Sandhu, 2014; Radaelli, Lettieri, Mura and Spiller, 2014). The role of knowledge sharing is not only indispensable (Hooff and Ridder, 2004) but also a source of valuable information which can allow an organisation to achieve competitive advantage (Coakes, Coakes and Rosenberg, 2008).

2.2 Creative Performance

Mednick (1962) defines creativity in terms of the formation of new combinations of cognitive elements alongside the condition of its usefulness. A rather interesting definition closely related to the present research is one by Amabile (1983). The author termed creativity to be the convergence of three elements: intrinsic motivation, domain-relevant knowledge and abilities. Such memories of factual knowledge cultivate an individual's network of possible wanderings in the exercise of creativity (Cheung, Chau and Au, 2008). Creativity involves the integration of existing knowledge which is reflected in certain meaningful output (Amabile, 1996; Davila, Epstein, and Shelton, 2006; River, Rosa, Qualls and Fuentes, 2008). Meanwhile creative performance in the context of the workplace is defined as the ability of one person to recognise problems and opportunities to solve workplace issues and challenges (Baer and Oldham, 2006). More specifically, it refers to a situation in which employees engage in behaviour that demonstrates risk taking, the generation and promotion of new ideas, and problem solving (Alge et al., 2004; Baer and Oldham 2006). As a result, employees who demonstrate creative performance help organisations to achieve competitive edge, such as new product development or initiating valuable processes within the firm (Alge et al., 2004). An employee that demonstrates creative performance capability is generally recognised as also possessing personal characteristics such as being knowledgeable (Sethia, 1989). Sternberg and Lubart (1993) have also categorised knowledge as one of the six resources for creativity. Knowledge itself has been recognised as being closely relevant to the capability of an individual to be creative (Cohen and Levinthal, 1990; Vicari and Troila, 2000). For these reasons, knowledge is undoubtedly a precondition of creative functioning.

The link between KSB and creativity can also be explained through the concept of absorptive capacity. Absorptive capacity is defined as a firm's capability to "recognize the value of new knowledge, assimilate it, and apply it to commercial ends" (Cohen and Levinthal 1990, p. 128; Flatten et al., 2011). Absorptive capacity has emerged as an important concept in explaining the processes through which organisations identify and use knowledge to impact performance (Cohen and Levinthal 1990; Lane et al., 2006; Roberts et al., 2012; Volberda et al., 2010). When employees engage in knowledge sharing activities through knowledge donation and collection, knowledge is transferred to and assimilated by other members in the organisation. This helps in the retention of knowledge as well as improving learning. As a whole, organisations with strong absorptive capacity (through knowledge donating and collecting activities) develop capabilities (Gao et al., 2017) that can be used to enhance desirable performance, such as individual creativity (Seo et al., 2015). In a study by Lee and Choi (2003), the authors proposed a positive relationship between two variables: the knowledge creation process and organisational creativity. The result supports the hypothesis and the authors' proposition that "the processes of knowledge creation unleash organizational creativity" (p.194). In addition, Goh and Lim (2014) have found empirical evidence that knowledge sharing serves as an antecedent for perceived creativity. Therefore, this study hypothesises the following:

H1: Knowledge collecting has a positive influence on creative performance in MNCs.

H2: Knowledge donating has a positive influence on creative performance in MNCs.

2.3 Organisational Climate: Innovativeness and Collaboration

It has been argued that organisational factors play a significant role in initiating or discouraging knowledge sharing behaviour (Jones, Cline and Ryan, 2006; Lee and Choi, 2003) and subsequently the performance of an organisation (Yeşil, Büyükbeşe and Koska, 2013). Szulanski (1996) considers these factors as institutional structures. There are two broad classifications of institutional structures: organisational climate and organisational culture (Bock, Zmud, Kim and Lee, 2005). In much scholarly research, organisational climate has been reported to have a strong influence on knowledge management activities, specifically knowledge sharing (Bock et al., 2005; Foss, Pedersen, Reinholt Fosgaard and Stea, 2014; Jain, Sandhu and Goh, 2015).

Organisational climate differs from culture in the sense that climate is rather static and temporal, mainly constrained to those elements which are explicitly noticed by organisational members (Dennison, 1996). Culture, on the other hand, is harder to identify and it is mainly based on the evolution of the social system over a period of time (Dennison, 1996; McMurray, 2003). Climate is known as the outer layer of culture (Naveh and Katz-Navon, 2015; Patterson et al., 2005) and it is easier to identify and describe (Koys and DeCotiis, 1991). According to Isaksen and Lauer (2002), "Climate is an intervening variable that influences organisational and psychological processes which, in turn, influence the overall productivity and well-being of an organisation" (p. 79). They further argue that climate can influence decision-making, ability to learn and communication. A supportive climate is important for enhancing specific productivity or outcome. With regard to creativity, Tesluk, Farr and Klein (1997) have argued that a supportive organisational climate can help to improve individual creativity in an organisation. This is also agreed by several other researchers who link climate to creativity in the workplace (Amabile, Conti, Coon, Lazenby and Herron, 1996; Talbot, Cooper and Barrow, 1992). In order to obtain the perceived organisational factors that influence KSB and creativity, organisational climate has been selected to represent the salient aspects of institutional structure.

In previous studies, authors have argued that there are many dimensions which contribute to organisational climate, for example, dimensions related to rewards, trust and affiliation, in the context of a supportive and participative atmosphere. Among these dimensions, collaborative and innovative climate have been cited as the crucial factors that facilitate knowledge sharing behaviour. For example, Yeo and Gold (2014) found that collaborative climate has the strongest influence on knowledge sharing behaviour. Meanwhile Yu et al. (2013) have identified that a strong organisational climate positively enhances the innovative behaviour of a firm. An innovative and collaborative organisational climate encourages out of the box thinking, open communication of opinions and ideas with peers, and allows for the exploration of non-routine activities to maximise efficiency and formulate new strategies which ultimately enhance creativity. In fact, more recently, Pee and Min (2017) have argued that employees who fit well with an organization's norms of collaborative and innovative climate will develop a more favourable inclination towards knowledge sharing. As such, the present study focuses on the two dimensions of organisational climate identified from prior research that influence KSB and creativity, namely collaboration and innovativeness.

2.3.1 Collaborative Climate

Collaboration refers to how employees converse, learn and share knowledge within organisations (DeTienne, Dyer, Hoopes and Harris, 2004; Kogut, 1988). A collaborative climate can strengthen communication between employees to allow them to resolve problems and it can also help in the development of new ideas or products via sharing of knowledge within the organisation (Pashiardis, 2000; Powell, 1998). Isaksen and Lauer (2002) assert that trust, commitment, and collaborative climate are critical in teamwork and they will ultimately help to foster creativity among employees. In this knowledge economy, many tech corporations have started to encourage as many collaborations as possible in order to stimulate creative ideas (Sawyer, 2007). In empirical research conducted by Hung et al. (2014), it was found that in solving a problem, students will work collaboratively to generate new ideas and solutions. Thus, a collaborative climate is critical for creative performance. Therefore, we formulated the following hypothesis:

H3: Collaborative climate has a positive influence on creative performance in MNCs.

A collaborative climate can support the transfer of tacit and explicit knowledge (Hippel, 1994; Sveiby, 2001) although tacit knowledge is difficult to articulate (Zack, 1999). Collaboration offers employees opportunities for interaction (Pashiardis, 2000), which are needed to express their tacit knowledge to others and to observe and experience the tacit knowledge of others (Droege and Hoobler, 2003; Heimana and Nickersonb, 2004).

Many researchers have argued that a collaborative climate improves knowledge sharing (Long and Fahey, 2000; Sveiby and Simons, 2002). Subsequently, the activities of knowledge sharing (knowledge donating and knowledge collecting) could help to enhance creativity at work (Lee and Choi 2003). Thus, this study hypothesises that:

H4: Collaborative climate has a positive influence on knowledge collecting.

H5: Collaborative climate has a positive influence on knowledge donating.

Based on the review and hypotheses above, collaborative climate has a direct effect on creative performance (H3). It is also proposed that collaborative climate has a direct effect on knowledge collecting and donating (H4 and H5), and subsequently, knowledge collecting and donating both have a direct influence on creative performance (H1 and H2). This suggests that KSB – knowledge collecting and donating – plays a mediating role between a collaborative climate and creative performance. Hence, we hypothesise that:

H6: Knowledge donating mediates the relationship between collaborative climate and creative performance in MNCs.

H7: Knowledge collecting mediates the relationship between collaborative climate and creative performance in MNCs.

2.3.2 Innovative Climate

Innovation is regarded as an iterative process that seeks to tap into new opportunities by creating new inventions (Garcia and Calantone, 2002). In order for firms to stay innovative, members of the organisation are encouraged to maintain an open flow of information, be focus-oriented in terms of organisational learning, promote flexibility in work routines, endorse reasonable and calculated risk-taking, and substantiate entrepreneurial values (Bock et al., 2005; Roth, 2003; Slater, 1997). In an innovative climate, employees are often required to anticipate changes, and they should always seek to recognise new and creative ideas (Blank and Naveh, 2014; Jain et al., 2015; Seo, Kim, Chang and Kim, 2016). Meanwhile, some argue that the characteristics of innovative climate, such as freedom, openness and risk-taking are key to promoting creativity in the workplace (Isaksen and Laurer, 2002; Amabile et al., 1996; Isaksenet et al., 2001). As such, members working in an innovative climate will tend to share their ingenious ideas across the organisation and enhance creativity among members (Kim and Lee, 1995; Zhengang, Yunjian and Juanjuan, 2015; Isaksen and Laurer, 2002). Therefore, we proposed the following hypothesis:

H8: Innovative climate has a positive influence on creative performance in MNCs.

In order to initiate KSB in an organisation, managers have to develop an innovative climate that promotes frequent interactions and allows an exchange of ideas to flow freely among the members of the organisation (Bock et al., 2005; Lopez, Peon and Ordas, 2004). When employees perceive that the organisation they work in encourages an exchange of information and freely encourages sharing of ideas, they are more likely to participate in KSB activities. In the study conducted by Chen and Huang (2007) in Taiwan, it was confirmed that innovative climate encourages knowledge sharing. As such, we hypothesise the following:

H9: Innovative climate has a positive influence on knowledge collecting.

H10: Innovative climate has a positive influence on knowledge donating.

Based on the review and hypotheses above, innovative climate has a direct effect on creative performance (H8). It is also proposed that innovative climate has a direct effect on knowledge collecting and donating (H9 and H10) and subsequently knowledge collecting and donating both have a direct influence on creative performance (H1 and H2).

This suggests that KSB – knowledge collecting and donating – plays a mediating role between an innovative climate and creative performance. Hence, we hypothesise that:

H11: Knowledge donating mediates the relationship between innovative climate and creative performance in MNCs.

H12: Knowledge collecting mediates the relationship between innovative climate and creative performance in MNCs.

2.4 MNCs in the context of Malaysia

Malaysia, as a developing country, aspires to transform itself into a knowledge-based economy by 2020 with a strong focus on technology R&D and highly skilled knowledge workers (Ramayah, Kheng and Yeap, 2014). MNCs are playing a crucial role in helping Malaysia to achieve its Vision 2020 by being the catalyst for technological development, and more specifically, by enhancing creativity and innovation in R&D (Fazal et al., 2017). According to Ismail et al. (2019) there 921 MNCs in Malaysia – both locally and international based. Most of the MNCs are concentrated in the area of Klang Valley and Greater Kuala Lumpur (Jain et al., 2015). This research focuses on the MNCs in this region with Klang Valley rated “a mega world city due to its achievement in economic, financial and cultural city of the country” (Ismail et al., 2019, p. 503). A sample of 20 MNCs from Klang Valley were randomly selected for this study.

3. Conceptualised Research Model

The research model was developed with the help of concrete literature reviews, and five constructs were chosen as shown in Figure 1. The concepts of collaborative and innovative climate form the predictors. The two components of KSB, namely knowledge donating and knowledge collecting, form the mediating variables, and creative performance in MNCs form the response variable.

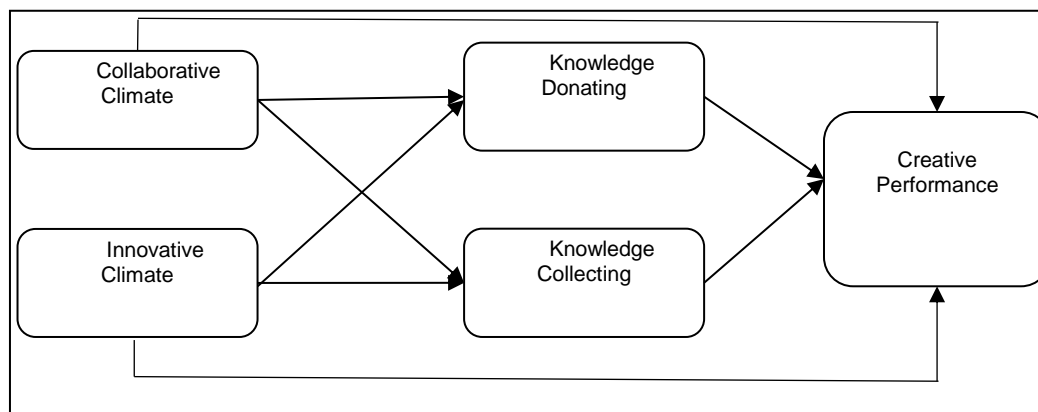


Figure 1: Research Model

The measurement scales for each of the constructs in Figure 1 are provided in Table 1 with the number of question items and the relevant source(s).

Table 1: Constructs and question items with relevant source(s)

Construct	No of items	Source
Innovative Climate (INN)	4	Brock et al. (2005)
Collaborative Climate (COL)	4	Pa Pashiardis (2000)
Knowledge Donating (KD)	3	Hooff and Ridder (2004)
Knowledge Collecting (KC)	4	Hooff and Ridder (2004)
Creative Performance (C)	6	Alge, Ballinger, Tangirala and Oakley (2004); Baer and Oldham (2006)

The items for the constructs were adapted from past studies and measured on a 7-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = neither agree nor disagree, 5 = slightly agree, 6 = agree, and 7 = strongly agree.

3.1 Research Methodology

The population represents the interest group which was chosen in order to generalise the study. The target population of the present study is executives at the senior and middle management level working in MNCs in Malaysia. The present study uses a primary data source which was obtained through the distribution of hard copy questionnaires. The questionnaire was developed based on the objectives of the research model to explain the behaviour of MNC executives towards creating new knowledge. The hard copy of the questionnaire was distributed directly to the targeted respondents and the questionnaires were collected once the

respondents had completed them. The questionnaire was divided into two main sections, namely Section A and Section B. Section A focused on the profile of respondents, and it was used to establish demographic characteristics of the respondents, which are mainly profile variables. Section B consisted of five sub-sections to cover each of the constructs described in Table 1. A non-probability sampling method, namely convenience sampling, was used in this study. The sample size was calculated based on the number of constructs (subjective measurement measured on a Likert scale 1-7) multiplied by a minimum of 10 respondents (Nunnally, 1978). In the present study, there were five constructs, and accordingly, 50 respondents were required to conduct the research. Since the response rate in Malaysia ranges from 20-25%, 450 questionnaires were distributed in 20 MNC companies; 165 completed questionnaires were returned. Out of 165 questionnaires, 10 responses had more than 25% of missing values and, as such, they were omitted from the analysis. Thus, 155 respondents were included in the final analysis, and the response rate was about 34.4%. The direct and indirect relationships of constructs in the hypotheses, as per the research model, were tested using Smart PLS version 3.0.

4. Significant Findings and Results

There was a balanced ratio of male (48%) and female (52%) respondents who participated in the study. The majority of respondents were below the age of 40 years old (about 75%). Most of them (82%) held executive and managerial positions with at least a graduate degree (75%). Table 2 below indicates the mean, standard deviation, correlation matrix and variation inflation factor (VIF) for all model variables. Clearly, there is no multicollinearity issue among the predictors via collaborative climate (COL), innovativeness climate (INN) and mediating variables, namely knowledge donating (KD) and knowledge collecting (KC) since the VIF is below 5 for all variables (Graham, 2003). The highest mean score of 5.586 on a 7-point scale was observed in creative performance (C) and the lowest mean score of 4.952 was observed in knowledge donating (KD). There is a high significant and positive correlation between knowledge donating and creative performance ($r = 0.593$, $p < 0.01$) and the lowest correlation is between knowledge donating and innovativeness ($r = 0.257$, $p < 0.05$). Also, the relationship between knowledge collecting and creative performance is positively and highly statistically significant ($r = 0.540$, $p < 0.01$). Thus, there is a clear-cut indication that KSB does positively influence the perceived creativity of MNCs in Malaysia.

Table 2: Descriptive statistics and correlation matrix (n=155)

Variable	Mean	SD	COL	INN	KD	KC	C	VIF
COL	5.494	0.899	1	0.477**	0.286*	0.295*	0.422**	1.354
INN	4.969	1.096		1	0.257*	0.329**	0.353**	1.365
KD	4.952	1.177			1	0.537**	0.593**	1.443
KC	5.022	0.954				1	0.540**	1.497
C	5.586	0.923					1	--

* $p < 0.05$; ** $p < 0.01$

4.1 Smart PLS Analysis

This study applies partial least squares (PLS) using Smart PLS version 3.0 (Ringle, Wende and Will, 2010). Table 3 provides the results of the Measurement Model in VB-SEM using PLS. The main loadings for all the question items (indicators) should be more than 0.5 as this is the mandatory requirement (Anderson and Gerbing, 1988; Hair, Anderson, Babin and Black, 2010). In the current study, the minimum value of the main loading is 0.775, and the maximum value is 0.949. The average variance extracted (AVE) value needs to be at least 0.5. It is found that all the AVE values are greater than 0.5, ranging from 0.700 to 0.876, which shows that the convergent validity is fully confirmed. Meanwhile, the composite reliability values are shown to be more than 0.7, ranging from 0.903 to 0.955, which indicates a high level of internal consistency among the constructs described in the conceptual framework. The coefficient of determination (R^2) is found to be 0.494 which demonstrates a moderately good fit with the SEM model, according to Hair et al. (2016) and provides the explained variation of the predictors on the response variable. The cross validated (CV) redundancy value (Q^2) of 0.315 fulfills the criterion of being above zero (Hair et al., 2016). Thus, the collected data is suitable for the application of structural equation model fit.

Table 3: Summary of the measurement model results (n=155)

Indicator	Main Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted	R Square
COL1	0.822	0.857	0.903	0.700	
COL2	0.802				
COL3	0.860				
COL4	0.862				
INN1	0.910	0.914	0.940	0.797	
INN2	0.937				
INN3	0.790				
INN4	0.927				
KC1	0.835	0.879	0.917	0.733	0.136
KC2	0.877				
KC3	0.874				
KC4	0.839				
KD1	0.924	0.930	0.955	0.876	0.100
KD2	0.949				
KD3	0.935				
C1	0.874	0.933	0.947	0.751	0.494
C2	0.775				
C3	0.865				
C4	0.887				
C5	0.904				
C6	0.887				

The discriminant validity shows to what extent a specific construct is different from other constructs, the constructs which measure the correlation among dissimilar latent variables (Henseler, Ringle and Sinkovics, 2009) and is provided in Table 4. The latest development in discriminant validity is to use the Heterotrait-Monotrait ratio (HTMT) instead of the Fornell-Larcker criterion because the HTMT correctly detects discriminant validity more frequently than the other criterion (Henseler, Ringle and Sarstedt, 2015). According to HTMT, all the relationships (cause and effect) of the research model should have less than 0.9 (Gold et al., 2001; Tea, Srivastava and Jiang, 2008) as the ratio value. Table 4 reveals that the minimum value of HTMT ratio is 0.279 and the maximum value is 0.639 and the values for this study are well within the limits. In fact, none of the question items were deleted during the measurement model which validates the authentic sources from the literature review and data collection process. Hence, the fitted PLS model is robust and can be used for predictive inference.

Table 4: Discriminant validity – Heterotrait-Monotrait Ratio (HTMT)

Construct	C	COL	INN	KC	KD
C					
COL	0.480				
INN	0.385	0.542			
KC	0.596	0.336	0.368		
KD	0.639	0.319	0.279	0.595	

The results of the structural equation model (SEM) are assessed to test the hypotheses developed for this research model (Hair, Hult, Ringle and Sarstedt, 2016). The structural model consists of path coefficients and t-statistic values. Bootstrapping is a procedure whereby a large number of sub samples (5000) are considered from the original sample with replacement to give bootstrap standard errors in order to sharpen the standardised regression coefficient (beta) values. The standard error values which are obtained using

bootstrapping determine whether the beta coefficient is significant or non-significant. In this study, to test the direct effects, a one-tailed t-test with a significance level of $p < 0.05$ when $1.65 < t < 2.33$, and $p < 0.01$ when $t > 2.33$ was used. Figure 2 illustrates the standardised beta values and t-values using the bootstrap sample of 5000.

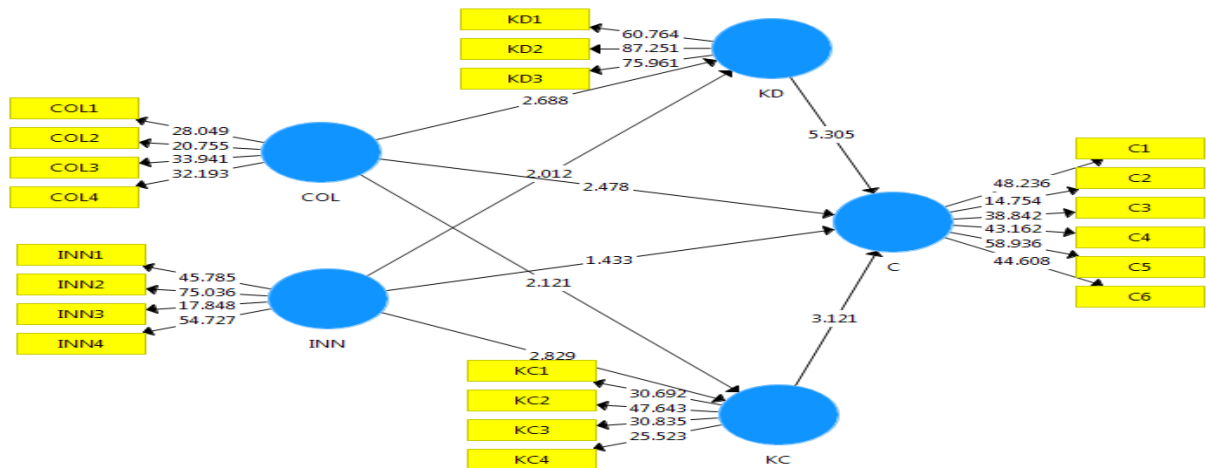


Figure 2: Path diagram showing the direct effect t-values

Table 5 shows the results of hypotheses testing using structural equation modelling with the bootstrap sample of 5000. It can be seen that knowledge donating (KD) has a positive influence on creative performance (C) and is highly statistically significant ($\beta = 0.382$, $t=5.305$, $p<0.01$), followed by knowledge collecting (KC) effects on creative performance ($\beta = 0.253$, $t=3.121$, $p<0.01$). The predictor collaborative climate (COL) positively influences creative performance ($\beta = 0.211$, $t=2.478$, $p<0.05$) while innovative climate (INN) does not influence creative performance. Interestingly, all the hypotheses in relation to direct effects constructed in Section 2 namely H1-H5 and H8-H10 are supported except H8.

Table 5: Results of structural equation modeling – direct effects

Hypothesis	Path	Standardised Beta (Confidence Limits)	t-value	Inference
H1	KC → C	0.253 (0.091, 0.409)	3.121**	Supported
H2	KD → C	0.382 (0.239, 0.523)	5.305**	Supported
H3	COL → C	0.211 (0.042, 0.378)	2.478*	Supported
H4	COL → KC	0.176 (0.019, 0.344)	2.121*	Supported
H5	COL → KD	0.209 (0.058, 0.368)	2.688**	Supported
H8	INN → C	0.088 (0.001, 0.212)	1.433	Not Supported
H9	INN → KC	0.250 (0.073, 0.422)	2.829**	Supported
H10	INN → KD	0.159 (0.005, 0.315)	2.012*	Supported

* $p<0.05$; ** $p < 0.01$

Table 6 provides the mediating effects of knowledge collecting and knowledge donating on the relationship between the organisational climate and creative performance using two-tailed t-tests (Preacher, Rucker and Hayes, 2007). Interestingly, collaborative climate (COL) positively and significantly influences creative performance (C) through knowledge donating ($\beta=0.080$, $t=2.429$, $p<0.05$) while collaborative climate does not influence creative performance through knowledge collecting. Thus, knowledge donating (KD) is partially mediating the relationship between collaborative climate and creative performance and, in turn, supports H6.

On the other hand, innovative climate (INN) positively and significantly influences creative performance through knowledge collecting ($\beta= 0.063$, $t=1.970$, $p<0.05$) but not through knowledge donating. Hence, knowledge collecting (KC) is a pure mediator for the relationship between innovative climate and creative performance, and ultimately H12 is supported.

Table 6: Results of structural equation model – mediating effects

Hypothesis	Path	Standardised Beta (Confidence Limits)	t-value	Inference
H6	COL -> KD -> C	0.080 (0.021, 0.149)	2.429*	Supported
H7	COL -> KC -> C	0.045 (0.003, 0.098)	1.839	Not Supported
H11	INN -> KD -> C	0.061 (0.002, 0.128)	1.883	Not Supported
H12	INN -> KC -> C	0.063 (0.011, 0.136)	1.970*	Supported

*p<0.05; **p < 0.01

5. Discussions

The research model adopted in this study highlights the importance of collaborative and innovative climates in MNC organisations as they exert an influence on creative performance. Knowledge sharing behaviour (KSB) acts as the mediating variable which is the real contribution of the present study. The findings suggest that in a positive collaborative and innovative climate, employees would participate in knowledge donating and knowledge collecting activities. These findings are in line with previous research (Abrams, Cross, Lesser and Levin, 2003; Bock et al., 2005; Long and Fahey, 2000; Goh and Lim, 2014). The components of knowledge sharing behaviour, namely knowledge collecting and knowledge donating, highly and positively influence creativity in MNCs. Thus, knowledge sharing behaviour can make a significant contribution to the performance and continuous improvement of MNC organisations in terms of creativity in the workplace. As creativity is important to an organisation's success or even survival (Wang 2016; Yang, Lee and Cheng, 2016), they should regard knowledge as a key organisational resource and important organisational asset, and pay attention to the effective sharing of knowledge to maximise their knowledge assets and enhance the creativity of employees.

With regard to collaborative climate, managers should cultivate a spirit of collaboration among employees with a particular view to fostering a culture of knowledge sharing. They should donate their acquired knowledge to others to improve the creativity of the company. Managers should demonstrate how employees can benefit from collaborating and sharing their knowledge with each other. They should also encourage collaboration, communication and open discussion in order to promote teamwork and to create formal systems for sharing knowledge. Managers should provide opportunities for employees to introduce valuable ideas, techniques, expertise and experience to colleagues.

With regard to innovative climate, employees should play a more proactive role in seeking help from other employees in terms of knowledge collecting as it has been proven to improve MNCs' creativity according to the findings of the present study. Importantly, managers need to nurture a climate of innovativeness.

Managers should support reasonable risk-taking, tolerate failure and endorse flexibility in work routines. These initiatives would aid employees in developing higher intention to share their knowledge as the penalty associated with sharing has been minimised or mitigated. Within such an atmosphere, individuals would be more liberated to share knowledge with others actively because sharing would not bring any disadvantages or harm to anyone and, in fact, most of the time it would result in more business.

6. Conclusions

The present study provides strong evidence that knowledge sharing behaviour supports and improves creativity in the workplace, particularly in MNCs. The integrated effects of knowledge donation and knowledge collection positively influence the creativity of MNCs. In addition, collaborative and innovative climates influence creative performance through knowledge sharing behaviour. The striking result of this study is that knowledge collecting enhances the relationship between innovative climate and creative performance. Such important findings should be communicated to employees in MNCs. Initially, employees will be somewhat hesitant to share knowledge unless they find it motivating to do so. Therefore, it is imperative that multinational companies encourage their employees to engage in knowledge sharing activities. Both collaboration and innovativeness can reduce costs and risks while accelerating the implementation processes for manufacturing products. The development of new products and services requires creativity to generate new ideas and subsequently increase the creativity output of each employee. Encouraging collaborative working conditions and promoting innovativeness would provide a valuable platform for employees to share

their knowledge. Multinational firms must move towards a more collaborative approach as it enhances the ability to promote new ways of thinking within organisations. Innovativeness is the fundamental success factor to ensure every MNC's future viability. Thus, knowledge sharing behaviour among employees within multinational companies is the key to accessing and generating new ideas.

Future research could focus on knowledge sharing behaviour between headquarters and subsidiary firms and its importance for enhancing creativity performance. This might shed light on the effect of global knowledge transfer on subsidiary performance in a host country. Additionally, future research could also look into the type of knowledge shared between the members of a firm (Ismail et al., 2019), with a focus on expatriate and local employee interaction. Lastly, researchers could perform a comparative study by adopting cultural elements of a country as moderating factors to investigate the level of knowledge sharing behaviour and its impact on the creativity of employees in MNCs.

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