



Absorptive Capacity and Innovative Behavior among Engineers in Malaysia

Fakhrorazi Ahmad¹, Osman Mohamad² and Hazril Izwar Ibrahim¹

¹School of Management, Universiti Sains Malaysia, Malaysia.

²Graduate School of Business, Universiti Sains Malaysia, Malaysia.

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ABSTRACT

The objective of this paper is to investigate the relationship between individual's absorptive capacity and innovative behavior among engineers in the electrical and electronic (E&E) sector in Malaysia. The study utilized survey method to collect the data. There were 305 responses for the survey. Partial least square (PLS) properties of structural equation modeling (SEM) were used to measure the relationships between the variables. The study found only partial support in absorptive capacity ability to influence innovative behavior.

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Introduction

The existence of global business organization requires a pool of talented people from various nationality backgrounds to work together in a specific organizational setting to achieve specific goals. Prior to any goal achievement in any organization, learning activities will take place as a first step to strengthen the foundation of performing specific tasks. Learning activities that involves interaction between individual personal factors and organizational environment that produce changes in individual behavior can be explained by social cognitive theory (SCT). This theory views the organization as a collective social system made of individual members of that organization who process information and develop knowledge within a specific organizational setting (Albino, Garavelli, & Schiuma, 1999). The theory also explains that the influence of environmental factors in stimulating a person's personal factors such as attitude, learning capability and individual abilities will result in behavioral changes of a person such as the behavior of being innovative and acquiring useful knowledge (Bandura, 1986).

In Malaysia, the organizational culture of MNCs is different from one to another since they originate from different countries and thus, they are strongly influenced by the home country culture. Therefore, local workers who are employed within these organizations are indirectly exposed to the new cultural setting that will affect their capability to absorb knowledge or also known as personal absorptive capacity (Kwantes & Boglarsky, 2007) that will also affect their behavior of acquiring knowledge and level of innovativeness. This chain of events reflects the learning process of local workers or host-country national (HCN) workers in MNCs. The learning process in MNCs is perceived as one of the most important factors that contribute towards the human capital development in Malaysia since MNCs are well-known for providing the technological imprint that introduces recent technology to the HCNs. In addition to the learning activities, MNCs also contribute to significant FDI inflow into this country and has been recognized as one of the

important drivers to accelerate the economic growth in Malaysia (Bank Negara Malaysia, 2011).

The involvement of MNCs in world's economic development especially among developing nations is obviously important as the recent fact shows that there are 82,000 MNCs worldwide, with 810,000 affiliates and actively operates globally with more than 77 million workers (UNCTAD, 2009). The recent MNCs' global FDI has reached USD 1.7 trillion and projected to swing higher in 2011 after the economic recovery in the US and Europe (UNCTAD, 2009). The projected amount is expected to hit for at least USD 1.8 trillion by 2011 (UNCTAD, 2009). Majority of MNCs expand business overseas to gain the localization of economies and expanding the product market (Hill, 2008). Of all the approaches undertaken in international penetration, foreign direct investment (FDI) is the most preferred method due to the cost utilization benefits and strategic market development purposes. The acceleration of FDI in host country will also benefit the receiving countries by providing more jobs to locals, increase opportunities to local vendor, increase the currency exchange value, and stimulates the GDP increase of the host country (Bank Negara Malaysia, 2011). The FDI activities in host country also help to accelerate the human capital development and nation's economic growth (Rasiah, 2002).

The cost that the government spends to attract the investment from foreign firms is expected to give something in return to the nation. It is expected to contribute to the human capital development that benefits local workers in the long run. The investment made by MNCs is also expected to make locals to have better access to recent technologies, good managerial expertise, and to improve their skills to a higher level, in addition to enhance their capabilities and competencies to perform better tasks in their daily professions besides fostering the country's human capital development. Owing to that reason, MNCs have been determined as a short-cut for national human capital development (Ranis & Stewart, 2000). This opportunity

should be utilized by locals to gain the respected knowledge comprehensively (Noorbakhsh, Polani, & Youssef, 2001).

In this context, in-house training and development in private sectors especially from MNCs is perceived to have significant contribution in assisting the acceleration of human capital development in Malaysia. The MNCs are identified as important channel to assist the development of human capital intensity to the nation due to the capability of MNCs to provide recent technological training and up to date techniques to local workforces. Local workforces are normally sent for training by MNCs with the intention to increase their skills and competencies that afterwards will contribute back to the organizations. Once local workforces receive sufficient training provided by MNCs in certain area, they will be more competent in performing specific tasks. This situation is expected to accelerate the increase of skilled workers in Malaysia.

Problem Statement

Besides utilizing the benefit from the presence of MNCs, another important concern is about the ability of talented people in Malaysia to increase their skills into highly-skilled labor and be able to be innovative and creative. This concern is much related to learning capabilities of local workers to absorb knowledge and apply it. Since MNCs are always involve in knowledge transfer activities from headquarters to subsidiaries (Gupta & Govindarajan, 2000), local workers must have sufficient level learning capabilities in order to absorb the transferred knowledge. However, the empirical investigation on the intensity of locals' absorptive capacity in Malaysia who serves with MNCs has rarely been conducted.

Therefore, investigating the level of absorptive capacity among local workforces in MNCs is a crucial issue as it has been identified as benefitting to the nation's human capital development. This study is expected to empirically reveal the level of learning ability of local workforces in MNCs to absorb foreign knowledge or technologies through their employment in MNCs.

Currently, there is a growing interest in MNCs' administration and management of the knowledge flow process within organization, besides their daily routine such as production, innovation, and marketing activities (Gupta & Govindarajan, 2000). Their operations are 'no longer seen as repositories of their national imprint but rather as instrument whereby knowledge is transferred subsidiaries, thereby contributing to further knowledge development' (Minbaeva, Pedersen, Bjorkman, Fey, & Park, 2003, p. 587). Hence, there is a need to investigate the above phenomena by concentrating on the level of absorptive capacity of HCN workers who work with MNCs. Even though Cohen and Levinthal (1990) have clearly claimed that firm's absorptive capacity is built on individual absorptive capacity, that capacity actually is not equally possessed by all individuals inside the firm (Hamel, 1991). By having enough ability to absorb knowledge, HCN workers can take the opportunity from the intra-MNC knowledge transfer process to enhance their skills through knowledge acquisition activities.

From a different perspective, the existence of individual absorptive capacity will also provide empirical evidence on its relationship with the capabilities of individuals to acquire knowledge in MNCs. The empirical evidence from the study will help researchers to identify inter-relationship between both variables which is very crucial in learning activities. The evidence regarding the intensity of absorptive capacity among

HCN workers who serves with MNCs is also needed in order to provide enough information for the policy makers to gather information on the skill shortage scenario that is occurring in Malaysia.

Thus, examines the linkages between individual absorptive capacity and individual innovative behavior in MNCs will assist the researchers to contribute in establishing the relationship between these variables. Even though many studies were done in absorptive capacity area, the empirical studies that specifically focusing on the impact of individual absorptive capacity and individual innovative behavior are still very rare.

Literature Review

Absorptive Capacity

Since it was introduced by Cohen and Levinthal (1989; 1990), the definition of the construct has evolved according to different context and scope of studies. Cohen and Levinthal (1990) define absorptive capacity as the capability to value, assimilate, and apply the knowledge from external sources. However, during the process of developing the absorptive capacity construct, the individual cognitive structures and knowledge acquisition capabilities are applied, mainly referring to a part of the organizational learning process in an organization. Cohen and Levinthal (1990) have also claimed that absorptive capacity of a firm is basically derived from individual absorptive capacity because organization will never learn but individual will. Even though organizational absorptive capacity is a not a cumulative of individual absorptive capacity in a firm, but individual absorptive capacity still plays a dominant role in overall firm's absorptive capacity.

Zahra and George (2002) had re-conceptualized the definition of the construct into a new dimension of absorptive capacity, stating that absorptive capacity is a set of capabilities to acquire, assimilate, transform, and exploit knowledge. Tu et al., (2006) relate the refinement of absorptive capacity by Zahra and George (2002) as the organizational mechanism that facilitates the process to identify, communicate, and assimilate the relevant external and internal knowledge.

Absorptive capacity is unique as it is applicable in multiple-level construct, either at individual, organization, or intra-firm level. However, initially, absorptive capacity started at the individual level that emerged with the prior related knowledge of individuals and the diversity of their background (Cohen and Levinthal, 1990). They argued that the firm's ability to absorb knowledge will strongly depend on the ability of the individuals in organization to absorb knowledge, in addition to the characteristics of individual members in that organization.

Cohen and Levinthal (1990) clearly stressed that the organization's absorptive capacity always rely on the individual absorptive capacity of their employees. In brief, the individual absorptive capacity can provide significant impact to the firm's learning process especially when that particular firm is involved in knowledge transfer activities (Tang, Mu, & MacLachlan, 2010). So, it is important to extend the concept of absorptive capacity to the individual level especially in cognitive domain because it can reflect the organizational competitive advantage and performance. Due to the importance of individual absorptive capacity to the organization, prior investment to develop the individual absorptive capacity is necessary in order to improve the firm's performance and competitive advantage.

With regard to the concept of individual absorptive capacity, Hamel (1991) argues that in an organization, the individual capacity to absorb knowledge is not equally

distributed. Everybody has different capability to absorb knowledge because individual capabilities rely on prior related knowledge such as prior educational background and exposure to that particular field, and the motivation of the individual workers. Under certain condition, the compulsory skill to observe, interpret, apply, and improve the knowledge only belong to certain employees, while others might not possess those skills (Hamel, 1991). When this occurs, the effectiveness of knowledge transfer activities in either inter or intra-firm knowledge transfer will be lower in view of the fact that individual employees in a firm play a vital role in overall knowledge transfer process (Tang et al., 2010). This statement is supported by Kwok and Gao (2006) stating that individuals who possess better absorptive capacity will be more competent in learning, assimilating, and utilizing knowledge. Hence, the initiative to strengthen the individual absorptive capacity in organization is important in order to stimulate the organizational absorptive capacity that results in better outcome for the organization such as better organizational performance and the state-of-the-art of innovation (Park, Suh & Yang, 2007; Lichtenthaler, 2009; Vinding, 2006; Arbussa & Coenders, 2007).

Innovative Behavior

Innovation in organization is defined as “the development and implementation of new ideas by people who over time engage in transactions with others within an institutional order” (Van De Ven, 1986, p. 590). During that process, innovation in organization is derived from many aspects such as inventiveness, adaptation, experimentation, readjustment, and cognitive and socio-political effort from individual employees (Stone, 1981; Scott & Bruce, 1994). Creative ideas that comes from individual employees is a foundation of all organizational innovation since individual employees are the one who develop the idea, discuss, modify it, and finally implement and transform the ideas into action (Van de Ven, 1986). Even though innovation is basically known as an organizational level constructs, innovation itself requires a specific behavior that begins with the individuals in organization to perform at a higher level (Scott & Bruce, 1994). In other words, organizational innovation starts with individual innovativeness. In this context, innovativeness is defined as “the degree to which an individual is relatively earlier in adopting an innovation than other members” (Rogers & Shoemaker, 1971, p. 27).

Typically, individual innovation starts with generating a novel and useful ideas in any field and then followed by promoting those ideas before finally producing a prototype or a model of one's innovation before it is applied across the firms (Scott & Bruce, 1994; Amabile, Conti, Coon, Lazenby & Heron, 1996). In the innovation process, the initial innovation always starts with the individual employees, before it transforms into a more complex and sophisticated process at the organizational innovation stage. At this level, it requires at least an integration of team work based on specialized knowledge, competence, and specific roles to achieve a complete set of organizational innovation (Janssen, 2000). For this very reason, the individual innovation that begins with individual innovative behavior obviously acts as a strong foundation for organizational innovation activities. Innovative behavior that comprises of idea generations, idea promotions, and idea realizations refer to the creation, introduction, and application of new ideas in order to give better performance for group or organization (Scott & Bruce, 1994). In addition, innovative behavior also involves the

invention of something new that can bring benefit to firms (Spreitzer, 1995).

However, until recently studies in innovative behavior in international business cluster is seriously lacking. Most of innovation studies focused on organizational level but the attention paid on innovation at individual level is still lacking. In this study, the integration between independent stream of research in innovation and absorptive capacity will help to develop and test a theoretical model of individual innovative behavior under the perspective of social cognitive and organizational learning aspects (Kotabe, Dunlap-Hinkler, Parente, & Mishra, 2007; Marz, Friedrich-Nishio, & Grupp, 2006; Yamin & Otto, 2004; Cavusgil et al., 2003).

Relationship between Individual Absorptive Capacity and Innovative Behavior

Past literatures have established that the individual absorptive capacity is correlated with innovation activities. Empirical evidence provided by Tsai (2001), Vinding (2006), Arbussa & Coenders (2007), Gao et al. (2008), Murovec & Prodan (2009), Escribano, Fosfuri & Tribo (2009), Lichtenthaler (2009), Nooteboom, Haverbeke, Duysters, Gilsing & Oord (2007), Roxas (2007), Fosfuri & Tribo (2008) and Hui & Khairuddin (2009) proved this from the organizational innovation perspective. In the organizational context, innovation always starts with creativity that is rooted in individual workers in an organization. Briefly, creativity can be defined as the production of novel and useful ideas in any domain, while innovation is referring to the successful implementation of creative ideas within an organization (Amabile et al., 1996, p. 1155). Therefore, the successful product innovation, or new program development, or services rely on a person or a group of people that begins with good ideas and implementing that idea into something tangible beyond its initial stage (Amabile et al., 1996). It can be summarized that the creativity and innovation in any organization will begin with individuals.

In organizations, innovation that occurs at individual level is known as individual innovation. Individual innovation is an activity or behavior that begins with recognizing problems and then followed by generating ideas or solutions to overcome those problems, either by a novel idea or by imitating others (Scott & Bruce, 1994). After individuals introduced their innovative ideas, they will try to seek the party that is able to translate their ideas, which will finally be implemented or ignored by the management (Ong, Wan, & Chng, 2003).

Individual innovativeness that originated from creative behavior of an individual is perceived to have a close relationship with cognitive and non-cognitive abilities of an individual (Woodman, Sawyer, & Griffin, 1993). From there, the influence of cognitive and non-cognitive capabilities suggests a point of integration between individual absorptive capacity and individual innovation (Woodman, Sawyer, & Griffin, 1993). Individual absorptive capacity that refers to the capability to acquire, assimilate, transform, and exploit is a combination of cognitive and non-cognitive capabilities (Zahra & George, 2002). The ability to acquire and assimilate knowledge can be grouped under cognitive capabilities since it involves internal capabilities of a person while the ability to transform and exploit depend on the external environment of oneself such as management approval and organizational policy of a company. In this situation, the combination of all cognitive and non-cognitive capabilities will symbolize the concept of individual absorptive capacity in organizational context that can

provide some implication on individual innovativeness (Cohen & Levinthal, 1990; Zahra & George, 2002). Currently, when individual innovativeness is transformed into innovative activities, it is labeled as an individual innovative behavior.

Based on the discussion above, this study tries to address the role of individual absorptive capacity in stimulating the individual innovative behavior of oneself at their workplace. Individuals normally tend to perform more innovative behavior when their absorptive capacity is higher. The explanation behind this is related to the capability to innovate requires enough information and knowledge in any particular area. To obtain that knowledge, individuals must have the ability to absorb knowledge before they can manipulate it into something more substantial. Without that capability, it is difficult for a person to innovate because innovation requires creative ideas and that creative idea is generated from the knowledge that they acquire. In order to gain that knowledge, they need to have the capability to absorb that knowledge. Therefore these hypotheses are generated:

H1: Individual absorptive capacity will significantly influence the behavior of opportunity exploration.

H1a: The ability to identify knowledge will significantly influence the behavior of opportunity exploration.

H1b: The ability to assimilate knowledge will significantly influence the behavior of opportunity exploration.

H1c: The ability to apply knowledge will significantly influence the behavior of opportunity exploration.

H2: Individual absorptive capacity will significantly influence the behavior of generativity.

H2a: The ability to identify knowledge will significantly influence the behavior of generativity.

H2b: The ability to assimilate knowledge will significantly influence the behavior of generativity.

H2c: The ability to apply knowledge will significantly influence the behavior of generativity.

H3: Individual absorptive capacity will significantly influence the behavior of formative investigation.

H3a: The ability to identify knowledge will significantly influence the behavior of formative investigation.

H3b: The ability to assimilate knowledge will significantly influence the behavior of formative investigation.

H3c: The ability to apply knowledge will significantly influence the behavior of formative investigation.

H4: Individual absorptive capacity will significantly influence the behavior of championing.

H4a: The ability to identify knowledge will significantly influence the behavior of championing.

H4b: The ability to assimilate knowledge will significantly influence the behavior of championing.

H4c: There is positive and significant relationship between the ability to apply knowledge and the behavior of championing.

H5: Individual absorptive capacity will significantly influence the behavior of application.

H5a: The ability to identify knowledge will significantly influence the behavior of application.

H5b: The ability to assimilate knowledge will significantly influence the behavior of application.

H5c: The ability to apply knowledge will significantly influence the behavior of application.

Methodology

Data Collection Method

In the sample selection process, the researcher begins with identifying the MNCs that operate in electrical and electronic (E&E) sector. A master list that contained 334 MNC companies that actively operate in E&E sector was obtained from Malaysian Investment Development Authority (MIDA). Out of 334 MNCs, the sample companies are randomly chosen based on systematic sampling technique. All odd numbered firms from the list were chosen as sample companies for data collection process. Out of 334 companies from MIDA directory, 169 companies were chosen. For each company, five questionnaires were distributed to the engineers via the human resource manager, which involves a total of 845 set of questionnaires distributed.

In this study, the data was collected via survey method. The survey questionnaires were distributed through mail survey and 'drop and collect' approach. The reason for the selection of these two methods is due to the ability to obtain the data in a wider geographical area with lower costs compared to interview and phone call approaches (Hochstim & Athanasopoulos, 1970), respondents can answer the questionnaire conveniently, the identity of the respondents are kept confidential, and the data is able to portray the population accurately (Zikmund, 2003; Bryman & Bell, 2011).

In this study, a total of 1245 questionnaires were distributed using mail survey and drop-and-collect approach. The reason for applying various techniques in data collection procedure is due to the ability of the combination techniques to gain higher response rate (Parker, 1992; Schaefer & Dillman, 1998). In this study, the questionnaires' distribution was broken-up into 845 questionnaires for mail survey and 400 questionnaires for drop-and-collect approach. Of 400 questionnaires distributed via 'drop-and-collect' approach, there were 111 responses from this method and there were 194 responses from the mail survey method. In total there were 305 (24.5%) responses.

To test the hypotheses of this study, PLS (Partial Least Square)-SEM analysis was utilized as it is the most appropriate method to meet the research objectives and to adapt to the research data conditions. Conceptually, the partial least square (PLS)-SEM is similar to multiple regression analysis because both objectives are to maximize the explained variance in the dependent constructs (Marcoulides et al., 2009).

Measures of Individual Absorptive Capacity

The measurement for individual absorptive capacity in this study was adapted from the genuine work of Wall et al. (2011), Pedrosa and Jasmand (2011), Whangthomkum et al. (2006), Kwok and Gao (2006), and Flatten et al. (2011). The justification behind the selection of the instruments from these authors is due to the inability of the instrument from a single individual author to properly capture the concept of absorptive capacity. The combination of instruments from different authors into specific dimensions is essential in order to match to the central conceptualization of absorptive capacity based on Cohen and Levinthal (1989; 1990). They conceptualized the absorptive capacity as the capability to identify, assimilate, and apply knowledge. In this study, the instrument of individual absorptive capacity is divided into three dimensions, which involve the ability to identify, assimilate, and apply. All of the items apply five-point scale, ranging from very low (1) to very high (5).

Table 1. Descriptive statistics for individual absorptive capacity

Construct	Number N of Items	Minimum Statistic	Maximum Statistic	Mean		Std. Deviation	
				Statistics	Statistic		Statistic
ABS 1	4	305	2.67	5.00	3.88	.02644	.46167
ABS 2	4	305	2.75	5.00	3.89	.02825	.49336
ABS 3	6	305	2.50	5.00	3.87	.02840	.49620

Table 2. Descriptive statistics for innovative behavior

Construct	Number N of Items	Minimum Statistic	Maximum Statistic	Mean		Std. Deviation	
				Statistics	Statistic		Statistic
IB1	3	305	2.67	5.00	3.8383	.03378	.58993
IB2	2	305	2.00	5.00	3.9049	.03609	.63022
IB3	3	305	2.00	5.00	3.6918	.03521	.61498
IB4	3	305	2.00	5.00	3.5694	.03390	.59205
IB5	3	305	2.00	5.00	3.6951	.03367	.58795

Table 3. Relationship between individual absorptive capacity and individual innovative behavior

Hypotheses	Relationship	Full Model			Supported
		β	S.E	T	
H1	ABS→IB1				Partially Supported
H1a	ABS1 → IB1	0.1461	0.0698	2.09*	Yes
H1b	ABS2 → IB1	-0.0780	0.0770	1.01	No
H1c	ABS3 → IB1	0.3138	0.0718	4.37**	Yes
H2	ABS→IB2				Partially Supported
H2a	ABS1 → IB2	0.1823	0.0615	2.96**	Yes
H2b	ABS2 → IB2	0.1199	0.0763	1.57	No
H2c	ABS3 → IB2	0.1263	0.0733	1.72*	Yes
H3	ABS→IB3				Partially Supported
H3a	ABS1 → IB3	0.0640	0.0744	0.86	No
H3b	ABS2 → IB3	-0.0095	0.0851	0.11	No
H3c	ABS3 → IB3	0.2599	0.0702	3.70**	Yes
H4	ABS→IB4				Partially Supported
H4a	ABS1 → IB4	-0.0071	0.0642	0.11	No
H4b	ABS2 → IB4	0.0030	0.0863	0.03	No
H4c	ABS3 → IB4	0.2122	0.0744	2.85**	Yes
H5	ABS→IB5				Partially Supported
H5a	ABS1 → IB5	0.1452	0.0700	2.07*	Yes
H5b	ABS2 → IB5	0.0339	0.0840	0.40	No
H5c	ABS3 → IB5	0.1099	0.0725	1.51	No

Note: (*) Significant at $p < 0.05$, (**) Significant at $p < 0.01$ base on one-tailed t-statistics table, as t-value greater than 1.65, it is significant at $p < 0.05$, while t-value at 2.35 or greater, it is significant at $p < 0.01$.

Measures of Innovative Behavior

Individual innovative behavior which originates from individual innovativeness studies, was derived from Goldsmith (1986), Hurt, Joseph, and Cook, (1977), Scott and Bruce (1994), West and Farr (1989). The individual innovative behavior construct was adopted from Kleysen and Street (2001) which consists of five dimensions including 'Opportunity Exploration', 'Generativity', 'Formative Investigation', 'Championing', and 'Application'. All of the items start with "In your current job, how often do you....." and attached with five point Likert scale with (1) for "never", (2) for "almost never", (3) for "sometimes", (4) for "often", (5) for "very often".

Results

Descriptive Analysis of Individual Absorptive Capacity (ABS)

Individual Absorptive Capacity (IAC) consists of three basic components, the ability to identify (ABS1), assimilate (ABS2), and apply (ABS3) knowledge. Basically, individual absorptive capacity scale measures the level of an employee's ability to absorb knowledge at their workplaces. The scale used to measure that construct is based on five scales with different levels, at very low (1), low (2), moderate (3), high (4), and very high (5).

Overall, the mean value for these three components is 3.88, with standard deviation 0.41, implying that the mean score is representative with small differences in the respondents' answer. The individual mean value for these three components is 3.88 for the 'ability to identify knowledge', 3.89 for the 'ability to assimilate knowledge' and 3.87 for the 'ability to apply knowledge'. The mean values of these constructs indicate the level of the capability to absorb knowledge at a fairly high level.

Descriptive Analysis of Innovative Behavior (IB)

Individual innovative behavior construct comprised of five major dimensions, namely opportunity exploration (IB1), generativity (IB2), formative investigation (IB3), championing (IB4), and application (IB5). The composite mean for innovative behavior is 3.72 with standard deviation of 0.48.

In table 2, the mean values and SE mean for each individual construct is 3.83 (mean) and 0.03 (mean SE) for opportunity exploration, 3.90 (mean) and 0.03 (SE mean) for generativity, 3.69 (mean) and 0.03 (SE mean) for formative investigation, 3.56 (mean) and 0.03 (SE mean) for the champion, and 3.69 (mean) and 0.03 (SE mean) for the application. Based on the mean value and standard deviation in the table above, it was found that the local workers in foreign MNCs possess substantial innovative behavior at their workplace, with the mean values approaching 4.0. These situations imply that they are able to innovate well in their current work environment.

To test the influence of individual absorptive capacity on individual innovative behavior, a series of sub-hypotheses were tested. The first element tested in these hypotheses is the influence of individual absorptive capacity on opportunity exploration. In order to identify this influence, five hypotheses are tested.

From the statistical analysis, it demonstrates that the ability to identify knowledge influences the behavior of opportunity exploration at significant level $p < 0.05$. This finding also indicates that one's ability to identify knowledge is highly influenced by the behavior of opportunity exploration. However, the ability to assimilate knowledge does not influence the behavior of opportunity exploration at $p < 0.05$. Meanwhile, the ability to apply knowledge has greatly influenced the opportunity exploration behavior. The effect of opportunity

exploration behavior is predicted by the ability to apply knowledge with positive and significant influence at $p < 0.05$. The result of the hypotheses testing demonstrates that H1a and H1c are supported while H1b is not supported.

The second sub-hypothesis is related to the influence of individual absorptive capacity on the behavior of generativity, which refers to the behavior that involves generating the beneficial change for the purpose of organizational growth (Klyesen and Street, 2001). From the hypothesis testing, it proves that the ability to identify knowledge has positively influenced the behavior of generativity at $p < 0.01$.

On the other hand, the ability to assimilate knowledge is found to have no significant influence on generativity behavior at $p < 0.05$ ($T=1.39$). For the ability to apply knowledge, the result shows that there has significant positive influence on the behavior of generativity at $p < 0.05$. Specifically, hypothesis H2a and H2c are supported whereas hypothesis H2b is not supported.

The next hypothesis testing is concerning the influence of individual absorptive capacity on the behavior of formative investigation. The testing indicates that the ability to identify knowledge and the ability to assimilate knowledge do not influence the behavior of formative investigation at $p < 0.05$. Instead, only the ability to apply knowledge has significantly influenced the behavior of formative investigation at $p < 0.01$. As illustrated in the above table, only hypothesis H3c is supported whereas H3a and H3b are not supported.

The researcher also finds out that both the ability to identify knowledge and the ability to assimilate knowledge do not significantly influence the championing behavior at $p < 0.05$ in the fourth sub-hypothesis testing. Meanwhile, the ability to apply knowledge is positively influencing the championing behavior at significant level $p < 0.01$.

For the fifth sub-hypotheses that predicts the effect of individual absorptive capacity on the application behavior, the result shows that only the ability to identify knowledge has positively influenced the application behavior at significant level $p < 0.05$. On the other hand, the ability to assimilate and apply knowledge are found not to have any significant influence on application behavior at $p < 0.05$.

Conclusions

The hypothesis regarding the influence of individual absorptive capacity on individual innovative behavior shows a partial influence. In another words, the findings suggest that the innovative behavior of the workers is somewhat affected by their capability to absorb knowledge.

Exploration and discussion of the interrelationships between individual dimensions for both constructs is addressed according to the individual hypothesis on each dimension. It starts with the influence of individual absorptive capacity on the behavior of opportunity exploration, and then follows with the behavior of generativity, formative investigation, championing, and finally, application.

As hypothesized, the findings of the study show that individual absorptive capacity had partially influenced the behavior of opportunity exploration. Although it is rational to expect dimensions of individual absorptive capacity to influence the behavior of opportunity exploration, the ability to assimilate knowledge (a sub-dimension of individual absorptive capacity) shows a small explained variance on opportunity exploration that makes the relationship between both variables not significant. However, the ability to identify knowledge and the ability to apply knowledge are supported, which implies that

opportunity exploration is influenced by the ability to identify and assimilate knowledge.

Kleysen and Street (2001) state that the behavior of opportunity exploration basically involves the behavior of paying attention to opportunity sources, looking for opportunities to innovate, recognizing opportunities, and gathering information about opportunities to innovate. Kleysen and Street's (2001) conceptualization help to explain why the ability to identify knowledge has strongly influenced opportunity exploration as the behaviors of paying attention, looking for opportunities, recognizing opportunities, and gathering information are underpinned by the ability to identify knowledge. Without the presence of this ability, it is hard to perform the above mentioned behavior.

In addition, opportunity exploration among MNC workers is very important for further intellectual stimulation, transparent communication processes, effective knowledge sharing and diffusion, and capability to deal with challenging tasks (Jong & Hartog, 2007). This work environment is indirectly affected by the presence of the ability to apply knowledge, without which, it is hard for workers to perform the above related activities. In conclusion, the ability to apply knowledge is shown to be very important for the behavior of opportunity exploration.

To test the influence of individual absorptive capacity on the behavior of generativity, three hypotheses were formed, which involved the influence of ability to identify knowledge on generativity, the influence of ability to assimilate knowledge on generativity, and the influence of ability to apply knowledge on generativity. The findings show that all individual absorptive capacity dimensions significantly influence the behavior of generativity.

In the context of individual innovative behavior, generativity refers to the behavior of generating beneficial changes in the organization for the sake of organizational growth and workers' development (Kleysen & Street, 2001). The study shows that this behavior was influenced by the ability to identify, assimilate, and apply knowledge. Based on the findings, the skills and abilities to identify knowledge is important to generate beneficial changes in the organization since the performers of that behavior need to have recent knowledge related to the products, processes, and people inside the organization. The acquisition of recent knowledge is only applicable if the workers are able to identify, assimilate and apply it to create beneficial changes in their organization.

The statistical results for these hypotheses shown the path coefficient value for ability to identify knowledge is 0.2173, the highest compared to other dimensions of individual absorptive capacity. This confirms that ability to identify knowledge is the most important dimension that influences the behavior of generativity of HCN workers in MNCs. Workers who lack the ability to identify knowledge find it hard to perform the behavior of generativity since they must identify the relevant knowledge before they can absorb knowledge.

In addition to the ability to identify knowledge, the ability to assimilate and apply knowledge also significantly influences the behavior of generativity. Again, workers who lack the capability to assimilate and apply knowledge may find it difficult to make any beneficial changes in the organization.

In conclusion, the absence of any one of the skills, be it, to identify, assimilate, or apply knowledge, will possibly impact the workers' ability to absorb knowledge related to the latest technology, products available or current practices that bring

benefits to other workers (Kleysen & Street, 2001). When this occurs, there is a significant negative impact to workers' behavior of generativity as individual absorptive capacity is seen as an important predictor for generativity behavior among HCN workers.

The next sub-hypotheses discussed are related to the influence of individual absorptive capacity on the behavior of formative investigation. Contrary to the expectations that all dimensions of individual absorptive capacity would influence the behavior of formative investigation, the findings show that individual absorptive capacity only partially influenced formative investigation. Specifically, there are two supported hypotheses and one unsupported hypothesis. The ability to identify knowledge and the ability to apply knowledge have a significant influence on the formative investigation behavior while the ability to assimilate knowledge shows an insignificant influence result on that behavior.

The concept of formative investigation is concerned about forming new ideas and solutions, trying them out, and evaluating the outcomes (Kleysen & Street, 2001). In this context, the ability to identify knowledge among the formative investigation performers is important due to its requirement to form ideas to be tested out. Lacking this ability impedes workers from determining useful knowledge that could be used to develop, test, and evaluate new ideas and solutions. In addition, the workers also need to have the ability to apply knowledge since testing the ideas and evaluating the outcomes requires accurate judgmental decisions that are invigorated by the application of the existing knowledge in their brain. By applying the existing knowledge, the workers also can make better evaluations of the outcome of the tested solutions.

However, the involvement of knowledge assimilation in performing formative investigation is not proven, nor is there any evidence of influence on formative investigation behavior. Rationally, the formative investigation requires more capability to identify and apply knowledge since the ability to assimilate knowledge mainly applies to declarative knowledge, which requires more articulation activities to blend it into tacit knowledge that is useful for workers. Transforming declarative knowledge into tacit knowledge is known as internalization, which consumes a lot of time and effort (Nonaka & Takeuchi, 1995).

In conclusion, the evidence supports that the influence of ability to identify and apply knowledge on the behavior of formative investigation because the behavior requires the capabilities used in identifying and applying knowledge. Even though the ability to assimilate knowledge is also important for formative investigation, the finding shows that the statistical evidence is not enough to prove the relationship. This situation is potentially anticipated by the type of knowledge that the workers deal with during the performance of the formative investigation behavior. If the workers deal with more explicit knowledge, also known as declarative knowledge, the workers require a high ability to assimilate or articulate knowledge. On the other hand, in the situation where the workers deal with tacit knowledge, also known as procedural knowledge, the ability to identify and apply knowledge is found to be very important. Since the ability to assimilate knowledge is not significant, the study anticipates that the behavior of formative investigation requires more tacit knowledge to be applied during the performance of that behavior. In that situation, the ability to identify and the ability to apply knowledge are very significant

to formative investigation since both of these capabilities work very well with tacit knowledge activities.

In these hypotheses, all of the individual absorptive capacity dimensions are expected to influence the behavior of championing. However, out of three hypotheses tested, only one hypothesis was supported. The two unsupported hypotheses relate to the influence of ability to identify and ability to assimilate knowledge on the behavior of championing. Only the third sub-hypothesis, which refers to the influence of the ability to apply knowledge on the behavior of championing, is supported.

The concept of the behavior of championing has been previously explained by Shane et al. (1995) and Walter et al. (2011) as the adoption of innovation activities, including distributing ideas, gaining resources, and pursuing innovative ideas, by a person who is willing to take personal risks to overcome resistance for the implementation of the innovative ideas. This conceptualization has indirectly explained the reason why both ability to identify and assimilate knowledge were not supported, and why the ability to apply knowledge was supported. As the act of distributing and pursuing innovative ideas require the full application of knowledge, the behavior of championing needs the support of the ability to apply knowledge. Lacking of this ability prevent the workers from performing the behavior of championing effectively. Even though the ability to identify and the ability to assimilate knowledge are also very important, these possibly make only a small contribution to the behavior of championing. Both these dimensions are statistically insignificant, whereas the ability to apply knowledge is strongly supported at $p < 0.01$, and establishes that the ability to apply existing knowledge greatly influences championing behavior.

This hypothesis examines the influence of individual absorptive capacity on the behavior of application, and the findings show that individual absorptive capacity has partially influenced the behavior of application, with two supported hypotheses and one unsupported hypothesis. The supported dimensions that have a significant influence on the behavior of application are the ability to identify and the ability to apply knowledge, while the ability to assimilate knowledge does not significantly influence the behavior of application.

This result was unexpected, as it was expected that all dimensions under individual absorptive capacity would be significant. Since, workers only employ an assimilation process when they experience new knowledge, employees who are already experienced or already have enough skills or knowledge in a specific area do not need to perform assimilation. Kleysen and Street (2001) explain the concept of application behavior as the practice of innovation that takes place in the daily routine at the workplace. To adopt the innovation requires the ability to apply knowledge, in addition to identifying the knowledge, since the behavior of application requires the combination of the ability to identify and apply knowledge. In other words, the ability to identify and apply knowledge at the workplace is seen as important elements that affect application behavior, and both capabilities are closely correlated to explain the above situation.

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