Journal of the Asian Academy of Applied Business
Vol. 4 (Dec, 2017), 109 – 117
ISSN 1675-9869

AN EMPIRICAL EVIDENCE OF THE RELATIONSHIP BETWEEN GRADUATE INTERNS' CAPABILITIES ON THE SUCCESSFUL OF KNOWLEDGE TRANSFER PROGRAMME IN MALAYSIA

Rosle Mohidin[1*]
Roselina Ahmad Saufi[2]
Roslinah Mahmud[1]
Zatul Karamah A.B.U.[3]
Mariam Firdhaus Mad Nordin[2]

[1]Faculty of Business, Economics and Accountancy,
Universiti Malaysia Sabah, Kota Kinabalu, Sabah
[2]Universiti Teknologi Malaysia, Skudai, Johor
[3]Universiti Sultan Azlan Shah
(Received date: 14/12/2017; Accepted date: 22/12/2017)

ABSTRACT

A spirit of collaborative partnership among universities, industries, and communities is a prerequisite for a success of knowledge transfer programme initiatives. The effort provides a platform for exchange of ideas either tangible or intangible, expertise, explicit or implicit knowledge and skills among parties involved. Companies are now beginning to recognize the fundamental value of knowledge transfer mechanism on how it is acquired, used and shared which contribute to their core competencies and in making sound strategic decisions to maintain the competitive advantage in today's business environment. As to promote the ideas of knowledge transfer, the Ministry of Education (MOE) Malaysia has underlined the graduate interns' capability as one of the areas under the critical agenda which need to be addressed in portraying the success of the knowledge transfer programme (KTP). Therefore, in order to obtain deeper insights of the issue, this project attempts to examine the contribution of graduate intern capabilities towards the success of KTP project in Malaysia. This study has employed a questionnaire that has been distributed to academics in the public universities in Malaysia who have obtained KTP grants from the government. The study has revealed that graduate interns' capabilities contribute significantly to the implementation of knowledge transfer projects. Thus, higher education institutions must then address and review its present teaching and learning delivery to enhance students' capabilities in dealing with the industry as well as with community.

Keywords: knowledge transfer, graduate interns' capability, tacit knowledge, implicit knowledge, explicit knowledge, knowledge transfer mechanism

[*]Corresponding author's e-mail: awgdin@ums.edu.my

INTRODUCTION

In today's business environment, knowledge is recognized as one of the most essential components in strategic resource, and the capacity of individual or organization to create and apply knowledge is one of the key factors to establish a sustainable competitive advantage. Thus, the process of creating, acquiring and managing knowledge resources required a wide range of issues, intellectual property rights policy, dissemination of research output, technology transfer, and the form and scope of private controls on information and knowledge. Tension arises from the fact that governments, universities, and industries operate in different ways and under different rules, yet there are pushed factors to encourage rapid movement of knowledge across sector and institutional borders.

The university mission is not simply being an education and research centre but rather than as an institution that serves the industries and community through knowledge transfer mechanism. Knowledge transfer covers a wide range of activities which include from product commercialization, sharing expertise through industry-university or university-community partnership and internship, and to some extend getting the involvement of industry and community in designing the curriculum broader influence in to enhance the capabilities of graduates (Tichá & Havlícek, 2008).

As to promote the ideas of knowledge transfer in Malaysia, the Economic Planning Unit (EPU) has funded the Knowledge Transfer Programme (KTP) which is in jurisdiction of MOE. The KTP provides a platform for the working collaboration between academia-industry and academia-community. Furthermore, KTP provides avenue for an interaction between industries, communities and the universities which include education, training, research consultancy, graduate interns placement and including sharing of university's physical lab and facilities to smoothen the knowledge transfer process. This Critical Agenda Project (CAP) is one of the National Higher Education Strategic Planning (NHESP) for the 10th Malaysian Plan (2011 – 2015).

Ideas either tangible or intangible, expertise, explicit or implicit knowledge gathered within the 20 public universities are transferred to the targeted industry or community based on their specific needs. On top of that, collaborated industries are allowed to maximize the resources or facilities available in the university partner to enhance their business capability with regards to product or service quality improvement and development. On the other hand, community partners can benefit from university-based knowledge to improve quality of life. This can only be achieve with the involvement of graduate intern that act a medium to link between university-industry or university-community. The KTP basic model applied is based on the strategic innovations partnerships among those stakeholders (academia, graduate interns and industry or community).

The importance of graduate interns' capabilities has grown attention among academia-industry and academia-community relationship. Their knowledge contribution benefited

all parties besides the graduate interns themselves. In order to get most of an internship, it is important that knowledge required by the companies, which is related to job assignments, is efficiently transferred from the university to companies through graduate interns. Hence, the transfer of required knowledge must fulfill 2: stages (1) graduate interns must have access to already existing document (rather explicit knowledge) (2) graduate interns acquire knowledge through permanent transfer of knowledge from those who are highly experienced like from the principal (research supervisor) or workmates (rather tacit knowledge) (Nonaka & Takeuchi, 1995).

According to Gault, Leach and Duey (2010), internship incorporate work-related experience into graduate education which beneficial to universities and industries at large. Internships can contribute to the development of the absorptive capacity of industries through the use of students' skills. This encourage employability and knowledge transfer goal from the university to businesses. Weible (2009) cited that most researches on internships focused on the benefits to students and employers rather than to the universities.

Despite extensive research on knowledge transfer issues, there is a dearth of research that has explicitly focused on the extend of graduate interns contribution to KTP success. Therefore, in order to obtain deeper insights of the issue, this project attempts to examine the contribution of graduate interns' capabilities towards the success of KTP project in Malaysia.

DATA AND METHODOLOGY

The methodology of research employed was through survey questionnaires. A survey instrument with 1 – 5 Likert scale is used. Items used to measure latent constructs are adopted from previous studies (Schofield, 2013), (Ken & Cheah, 2012; Shah & Nair, 2011). A total of 254 questionnaires were distributed to academics in the public universities in Malaysia who have obtained KTP grants from the government. As of 1st August a total of 154 questionnaires were returned which indicate 61 per cent respond rate and only 152 (59 per cent) questionnaires were used in this study. The data collected was reviewed and entered in SPSS version 23 for cleaning and descriptive analysis and this research used SmartPLS 3.0 for inferential statistical analysis.

RESULT AND ANALYSIS

Table 1 shows the total number of respondents responding to the questionnaires sent. A total of 154 responded and out of that only 152 questionnaires are used for the analysis which comprises 94 project (61 per cent) under the flagship of industry and 60 projects (49 per cent) under the community. The result shows the highest number of KTP project granted to Universiti Putra Malaysia (UPM) which is nearly 30 per cent of the total

projects and followed by Universiti Malaysia Sabah (UMS) 12.34 per cent, Universiti Teknologi MARA (UiTM) 11.04 per cent, Universiti Sains Malaysia (USM) 10.38 per cent and the lowest Universiti Pertahanan Nasional Malaysia (UPNM) 0.65 per cent.

Table 1 Total number of respondents segregated by university and categories of KTP partners

	Categories of KTP partners			
Universities	**Industry**	**Community**	**Total**	**Percentage (%)**
USM	9	7	16	10.38
UKM	9	5	14	9.10
UPM	32	14	46	29.87
UM	7	5	12	7.79
UMK	4	2	6	3.90
UUM	4	7	11	7.14
UMS	9	10	19	12.34
IIUM	5	3	8	5.19
UMP	3	1	4	2.60
UiTM	12	5	17	11.04
UPNM	0	1	1	0.65
	94	60	154	100.00

Simultaneously, equation modelling using SmartPLS 3.0 software was used in order to conduct an inferential statistical analysis. Table 2 represents a measurement model that used to test the reliability and validity of items which represent latent constructs based on the data collected. Reliability is a quality criterion of a construct; it requires a high level of correlation among the indicators of a particular construct (Kline, 2011). According to Hair, Black, Babin and Anderson (2010), reliability analysis extends to which a variable or set of variables is consistent in what it is intended to measure and a measurement index used for construct reliability are Cronbach alpha and composite reliability. As we are aware that coefficient alpha is more conservative measure of items and it estimates the multiple item scale's reliability. The internal reliability of a construct is achieved when the value of Cronbach's Alpha reaches 0.7 or higher (Nunnally & Beinstein, 1994; Pallant, 2013).

Composite reliability measure is more on individual reliability referring to different outer-loadings of the indicator variables (Hair, Hult, Ringle & Sarstedt, 2017). The cut-off point for composite reliability score for a good indicator of construct should be in between 0.6 and 0.7 (Henseler & Sarstedt, 2013). Convergent validity test on the other hand will determine the average variance estracted (AVE) through all factor loadings. According to Hair et al. (2017), loadings value of minimum 0.60 as well as AVE of 0.50 and above are acceptable. As for this study, all loadings shows a range within acceptable rate and all AVEs were above 0.50.

Table 2 Result of measurement model

Latent variables	Items	Factor loadings	CA	CR	AVE
GI knowledge	PD12	0.866	0.749	0.852	0.662
	PD13	0.914			
	PD14	0.633			
GI readiness	PD21	0.866	0.841	0.887	0.614
	PD22	0.914			
	PD23	0.633			
	PD24	0.718			
	PD25	0.821			
GI soft-skill acquisition	PD31	0.866	0.912	0.929	0.624
	PD32	0.914			
	PD33	0.633			
	PD34	0.718			
	PD35	0.821			
	PD36	0.867			
	PD37	0.645			
	PD38	0.853			
KT mechanism	PH13	0.642	0.750	0.848	0.655
	PH22	0.887			
	PH33	0.867			
KTP performance	PJ2	0.682	0.923	0.933	0.738
	PJ3	0.688			
	PJ4	0.923			
	PJ5	0.889			
	PJ6	0.876			

Construct validity concerns to the extent of a score truthfully represents a concept (Zikmand, Babin, Carr & Griffin, 2013). Cronbach and Meehl (1955) suggested that construct validity is more relevant to be used in social sciences. Construct validity examines the measurements used in the study fit the theories which is applied in the study (Sekaran & Bougie, 2010). As such, it provides answers whether the instrument used in the test tap the actual concept theorized in the study.

In order to achieve validity analysis, two kinds of validity tests were performed on the measurement scales namely: convergent validity and discriminant validity (Sekaran & Bougie, 2010). Convergent validity measures the association of positive correlation with an alternative measure of the same construct. In examining the convergent validity, the average variance extracted (AVE) and item loadings are assessed (Hair, Ringle & Sarstedt, 2013). AVE is the average variance shared between a construct and its measures. It is defined as the grand mean value of the squared loadings of the indicators associated with a particular construct (the sum of the squared loadings divided by the numbers of indicators) (Hair et al., 2013). The average variance shared between a construct and its measures should be greater than that shared with the other constructs in the same model.

Table 3 Discriminant validity of construct (Fornell and Larcker Method)

Latent variables	1	2	3	4	5
1. GI knowledge	**0.814**				
2. GI readiness	0.719	**0.784**			
3. GI soft-skill acquisition	0.677	0.775	**0.790**		
4. KT mechanism	0.692	0.579	0.674	**0.809**	
5. KTP performance	0.554	0.639	0.804	0.607	**0.859**

Note: Diagonals represent the square root of the AVE while the other entries represent the correlations.

AVE value equal or higher than 0.50 indicates that on the average, the construct explained more than half of the variance of its indicators. Conversely, an AVE of lesser value than 0.50 indicates that more error remains in the items than the average variance explained by the constructs. As such, the rule of thumb is that an AVE value greater or equal to 0.50 is acceptable (Hair et al., 2013). According to Hair et al. (2013) discriminant validity is a test that concerns with the phenomenon captured, was unique and not represented by the other constructs in the model. This test can be evaluated by assessing the cross-loadings among constructs using Fornel-Larcker criterion.

At first, in order to achieve discriminant validity, the loadings of the construct must be high on itself and low on other constructs (Vinzi, Chin, Henseler, & Wang, 2010). The second discriminant validity of a construct can be assessed by comparing the square root of the AVE values with latent variable correlations (Fornell & Larcker, 1981). The square roots of AVE coefficients are presented in the correlation matrix along the diagonal. The squared root of each construct's AVE should be greater than its highest correlation with any other construct to evidence discriminant validity (Hair et al., 2013).

Table 4 Path coefficient and hypothesis testing

Relationship	Coefficient	T-Value	Supported
GI knowledge → KT mechanism	0.467	6.527**	Yes
GI readiness → KT mechanism	−0.085	0.807	No
GI soft-skill acquisition	0.424	3.875**	Yes
KT mechanism → KTP performance	0.607	22.763**	Yes

Note: *p, 0.05; **p, 0.01

Table 4 shows the path coefficient and hypothesis testing of the research. Based on the findings, it is clearly indicated that GI knowledge and GI soft-skill acquisition are positively significant with KT mechanism where the coefficient 0.467 and 0.424,

respectively. Therefore, Hypothesis 1 and hypothesis 3 are supported. On the other hand, the result also reveals that KT mechanism is a positive significant relationship with KTP performance with a coefficients are value of 0.607. The result indicated that GI knowledge and soft-skill acquisition played an important role in the KTP performance through the mediation of KT mechanism. A similar finding is also found in Chamorro-Premuzic, Arteche, Bremner, Greven and Furnham (2010) and Finch, Nadeau and O'Reilly (2012) who suggest that to be competitive, universities must emphasize soft-skills development within all of their programmes so that the graduate interns possess soft-skills that required by the employers.

Figure 1 represents the path analysis of all outer and inner model. As you can see in the model, the value inside the latent constructs represents *r*-square of the model. Based on the finding, it is indicated that 56 per cent of the variation in KT mechanism is explained by GI knowledge, GI readiness and GI soft-skill acquisition. On the other hand, 38.6 per cent of the variation explained by the KT mechanism. The result indicates that GI knowledge and soft-skill acquisition do affect KT performance through the mediation of KT mechanism.

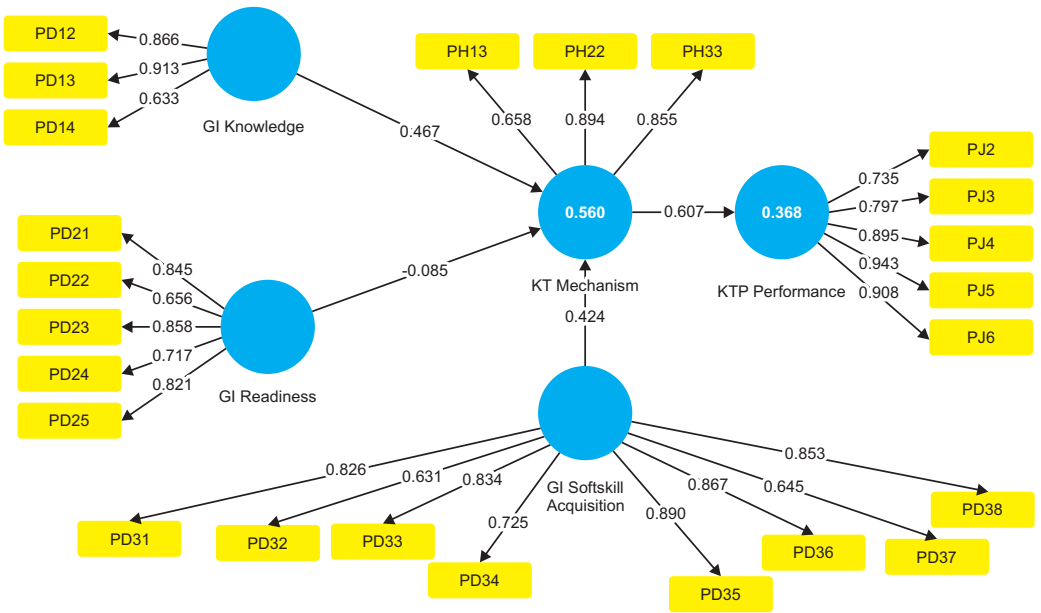

Figure 1 Path analysis

CONCLUSION

The study has revealed that graduate interns' capabilities contribute significantly to the implementation of knowledge transfer projects. Thus, higher education institutions must then address and review its present teaching and learning delivery to enhance students' capabilities in dealing with the industry as well as with community. The findings of this research can be significantly helping the universities in producing graduates and industries at improving human capital capabilities.

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