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KEY ATTRIBUTES OF GRADUATE INTERM'S CAPABILITIES FOR SUCCESSFUL TRANSFER KNOWLEDGE: A STRUCTURAL EQUATION MODELING USING PARTIAL LEAST SQUARES

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A spirit of collaborative partnership amongst universities, industries, and communities is a prerequisite for a success of knowledge transfer program initiatives. The effort provides a platform for exchange of ideas either tangible or intangible, expertise, explicit or implicit knowledge and skills amongst 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 intern's 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.

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 right 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 role of universities thus goes beyond simply being education or research provider: transferring knowledge to industry, the community and wider society is becoming the third cornerstone of universities missions. Knowledge transfer encompasses a wide variety of activities that ranging from appearances in the media and at public forums to participation in bilateral projects, the commercial development of research, the application of expertise through partnerships and internships, and the inclusion of broader community influences in the curriculum to enhance the capabilities of graduates (Tichá and Havlícek, 2008).

As to promote the ideas of knowledge transfer in Malaysia, The MOE has introduced the Knowledge Transfer Programme (KTP) under the Critical Agenda Project (CAP) of National Higher Education Strategic Planning (NHESP) for the 10th Malaysian Plan (2011-2015) which entirely funded by the Economic Planning Unit (EPU). The KTP provides a platform for the collaborative work between academia-industry and academia-community. The form of interactions include consultancy, education, training, graduate development and placement, capacity building and sharing of physical facilities.

Ideas either tangible or intangible, expertise, explicit or implicit knowledge generated by the 20 public universities are transferred to the targeted industry or community based on their specific needs. On top of that, industries can utilize the resources of public universities to enhance their business capability and economic activities such as development and improvement of the quality of products and services, while the community can benefit from university-based knowledge to improve quality of life. On the other hand, graduate interns are used as a medium that link between university-industry or university-community. Thus, the basic model for the KTP is based on the strategic innovations involving academia, graduate interns and industry or community.

The importance of graduate intern's capability has grown attention among academia-industry and academia-community relationship. Their knowledge contribution benefited all parties besides the graduate interns' himself. 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 and Takeuchi, 1995).

According to Gault, Leach and Duey (2010), Internship incorporate work-related experience into graduate education which beneficial benefit 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 research on internships has 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 intern 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 and Cheah, 2012), (Shah and 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 percent respond rate and only

152 (59 percent) 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 percent) under the flagship of Industry and 60 projects (49 percent) under the community. The result shows the highest number of KTP project granted to Universiti Putra Malaysia (UPM) which is nearly 30 percent of the total projects and followed by Universiti Malaysia Sabah (UMS) 12.34 percent, Universiti Teknologi MARA (UiTM) 11.04 percent, Universiti Sains Malaysia (USM) 10.38 percent and the lowest Universiti Pertahanan Nasional Malaysia (UPNM) 0.65 percent.

Table 1. Total Number of Respondents segregated by University and Categories of KTP Partners

	Categories of KTP Partners				
	Universities	**Industry**	**Community**	**Total**	**Percentage (%)**
Name of University	USM	9	7	16	10.38
	UKM	9	5	14	9.10
	UPM	30	14	44	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	152	100.00

Validity concerns the soundness of the accuracy of a measure or the extent to which a score truthfully represents a concept (Zikmand, Babin, Carr and Griffin, 2013). According to Cronbach and Meehl (1955), construct validity is more relevant appropriate in social sciences. Construct validity examines how well the results obtained from the use of a measure fit the theories upon which the test is designed (Sekaran and 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 and Bougie, 2010). (i) Convergent Validity is the extent to which a measure correlates positively with an alternative measure of the same construct. In examining the convergent validity of a measure in SmartPLS, the average variance extracted (AVE) and item loadings are assessed (Hair, Ringle and 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 2. 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

In SmartPLS, the calculation of AVE is inbuilt into the analysis software. 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. (ii) Discriminant Validity Discriminant validity is concerned about the uniqueness of a construct, whether the phenomenon captured by a construct is unique and not represented by the other constructs in the model (Hair et al., 2013). Discriminant validity can be evaluated by assessing the cross loadings among constructs, by 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, Henseler, Chin & 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 and Larcker, 1981). The square roots of AVE coefficients are presented in the correlation matrix along the diagonal. The squared root of each constructs' AVE should be greater than its highest correlation with any other construct to evidence discriminant validity (Hair et al., 2013).

Table 3. 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 3 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 postively 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 reveal that KT Mechanism is positively significant relationship with KTP performance with coefficient value of 0.607. The result indicated that GI Knowledge and Soft-skill Acquisition played an important role in the KTP Performance through mediation of KT Mechanism. 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 skill that required by the employers.

Figure 1 represent the Path Analysis of all outer and inner model. As you can see in the model, the value inside the latent constructs represent R-Square of the model. Based on the finding, it is indicated that 56 percent of the variation in KT mechanism is explained by GI Knowledge, GI Readiness and GI

Soft-skill Acquisition. On the other hand, 38.6 percent of the variation explained by the KT Mechanism. The result indicate that GI Knowlede and Soft-skill Acquisition do affect KT Performance through the mediation of KT mechanism.

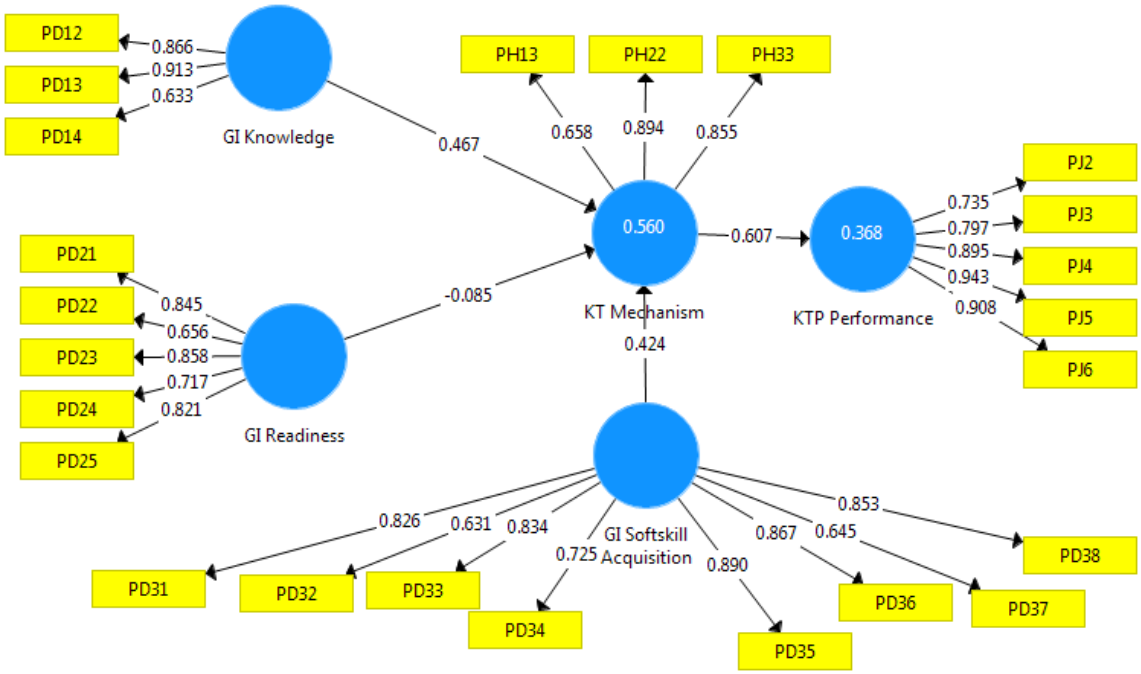

Figure 1. Path Analysis

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.

References

1. Bernsteiner, Reinhard & Schlögl, Stephan. (2016). *Knowledge Transfer in Internships from a students' perspective.* 1-6. 10.1145/2925995.2926004.
2. Chamorro-Premuzic, T., Arteche, A., Bremner, A.J., Greven, C. and Furnham, A. (2010), *Soft skills in higher education: importance and improvement ratings as a function of individual differences and academic performance*, Educational Psychology: An International Journal of Experimental Educational Psychology, Vol. 30 No. 2, pp. 221-241.
3. Cronbach, L. J. , & Meehl, P. E. (1955). *Construct validity in psychological tests*. Psychological Bulletin, 52, 281-302
4. Finch, D.J. , Hamilton, L.K. , Baldwin, R. and Zehner, M. (2013), *An exploratory study of factors affecting undergraduate employability*, Education + Training , Vol. 55 No. 7, pp. 681-704.
5. Finch, D., Nadeau, J. and O'Reilly, N. (2012), *The future of marketing education: a practitioners perspective*, Journal of Marketing Education, Vol. 35 No. 1, pp. 54-67,

6. Fornell, C. and Larcker, D. F. (1981). *Evaluating structural equation models with unobservable variables and measurement error*. Journal of marketing research, 39-50.
7. Gault, J., Leach, E. and Duey, M. (2010), *Effects of business internships on job marketability: the employers' perspective*, Education and Training, Vol. 52 No. 1, pp. 76-88.
8. Hair, J. F., JR., Black, W. C., Babin, B. J., and Andersen, R. E., (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Pearson Prentice Hall. 280
9. Hair, J. F., Hult, G. T.M., Ringle, C.M., and Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2 ed.). Thousand Oaks, CA: Sage
10. Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). *Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance*. Long Range Planning, 46, 1-12.
11. Henseler, J. & Sarstedt, M. (2013), *Goodness-of-fit indices for partial least squares path modeling*, Computational Statistics, Vol. 28 No. 2, pp. 565-580.
12. Ken, T., & Cheah, Y. (2012). *Business Graduates' Competencies in the Eyes of Employers: An Exploratory Study in Malaysia.* World Review of Business Research*, 2*(2), 176-190.
13. Kline, R. B. (2001). *Principles and Practice of Structural Equation Modeling*. 3rd Edition New York: The Guilford Press
14. Malhi, R.S. (2009). *The hard truth about graduate employability and soft skills*. ADEPT: Higher Education Leadership Research Bulletin*, 3*, 45-56. Higher Education Leadership Academy, Ministry of Higher Education.
15. Nonaka, I. and Takeuchi, H. (1995). *The knowledge-creating company. How Japanese companies create the dynamics of innovation*. Oxford University Press, New York.
16. Nunnally, J.C., & Bernstein, I.H. (1994). *Psychometric theory*. McGraw, New York.
17. Pallant, J. (2013). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM SPSS.* 5th Edition. McGraw Hill.
18. Piterou, A & Birch, C 2014, *The role of higher education institutions in supporting innovation in SMEs: university-based incubators and student internships as knowledge transfer tools*, InImpact: The Journal of Innovation Impact, vol.7, no.1, pp.72—9
19. Schofield, T. (2013). *Critical success factors for knowledge transfer collaborations between university and industry*. Journal of Research Administration*,* 44, 2. Fall.
20. Sekaran, U., & Bougie, R. (2010). *Research methods for business: A skill-building approach* (5th ed.). Haddington: John Wiley & Sons.
21. Shah, M. & Nair, C. (2011). *Employer satisfaction of university graduates: Key capabilities in early career graduates. In Developing student skills for the next decade*. Proceedings of the 20th Annual Teaching Learning Forum, 1-2 February 2011. Perth: Edith Cowan University. URL: http://goo.gl/TRX6kO
22. Tichá, I., Havlícek, J. (2008). *Knowledge Transfer: a Case Study Approach*. APSTRACT: Applied Studies in Agribusiness and Commerce, vol. 2, pp15-19.
23. Vinzi, V. E., Chin W. W., Henseler, J., and Wang, H. (2010).*The Hand book of Partial Least Square: Concepts,Methods and Applications*: Springer Berlin Heidelberg
24. Weible, R. (2010). *Are universities reaping the available benefits internship programs offer?*. Journal of Education for Business*, 85,* 59–63.
25. Zikmund, W. G., Babin, B. J., Carr, J. C., and Griffin, M., (2013). *Business Research Methods* (9th Edition).Nelson Education Ltd. Canada.