

## **Human Capital and Achievement in Knowledge Transfer Project**

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### **Abstract**

The purpose of the Knowledge Transfer Programme (KTP) in Malaysia is to create a linkage between university and economy players. The KTP tries to highlight the contribution academia dan graduate in interpreting theories, knowledge, and skills learned to become practical ideas that helped industry and the community. The dynamic progression of transferring knowledge from the university to the industry or community are in form of various mechanisms such as collaboration, a community of practice (COPs), facilitated, and coaching. Therefore, this study attempts to identify the mediating effect of the Knowledge Transfer Mechanism (KTM) on the relationship between human capital value capabilities for academia and Graduate Intern (GI) capability towards knowledge transfer project achievement in Malaysia. The methodology of the study is derived based on the questionnaires distributed to the KTP project grant holders or their representative from year 2011 to 2016. The findings found that KTM does mediate the relationship between Academia and GI capability towards KTP achievement. This result shows the importance of KTM in uttering human capital value capabilities to match with the industry and community needs.

**Keywords:** Human Capital Value, Academia, Graduate Intern, Mechanism, Knowledge Transfer Project Achievement

**Introduction**

The Tenth Malaysia Plan (RMK-10) creates a historical milestone as Malaysia embarks on a critical mission towards a progressive and high-income nation as envisioned in the Vision 2020 (Economic Planning Unit, 2010). Malaysia has achieved great strides in the economy and her community development in the past 53 years of nation-building. Today, Malaysia faces a different dimension of challenges. One of the new challenges is to undergo economy and community transformation, from a middle-income to a high-income nation and from an ordinary community to the knowledge community by utilizing the country's available resources. This aspiration will require a shift towards higher value-added and knowledge-intensive activities. Based on the RMK-10 anticipation, there are various programs sponsored by the Malaysian Government through the Higher Institutions of Learning (HIL) such as the Knowledge Transfer Programme (KTP) (Saufi et al., 2018). KTP project test the capability of academia and graduate interns in translating and transferring theories, knowledge, or skills acquired from universities to communities or industries.

While more than 460 KTP projects in 2011 to 2017 have started and completed, the Malaysian government also makes strategic plans for the knowledge transfer program policy. The purpose is to enrich the quality of human capital in universities, industries, and communities through knowledge transfer, including teaching, learning, research and services, and strengthening accessibility of knowledge transfer from university to upgrade industry growth, community development, and quality of life. Based on the framework of Malaysian KTP by Higher Education Department (2011), the goal of KTP is to create synergy effects on the development, commitment, encouragement, and improvement of the quality of products, services, and policies in human capital to be shared for mutual benefits between the stakeholders such as academia, industry, community and the graduate intern.

In a report prepared by the Higher Education Department (2011), it highlighted a few current statuses of KTP of the public higher institutions in Malaysia, which have implemented KTP concept; however, it is not very comprehensive (Mohidin et al., 2017). The practice, mechanism, and approach vary among them, not from other stakeholders. Additionally, the government discovers a weak correlation between time and resource investment and the impact currently produced. Thus, there is a need for a structure and systematic national KTP framework. There are several other issues of KTP, also highlighted by the government. The issues include a mismatch between the needs of the industry or community and the essential available resources in university, communication and commitment problems among agents, and lack of access to relevant information among stakeholders involved.

Additionally, one of the challenges in implementing the concept of KTP in the context of human capital is the inherent difficulties, such as a lack of readiness and willingness on the part of the community, industry, or university to share their actual expertise and facilities for the benefit of all stakeholders or the community (Mahmud et al., 2018). A string of this issue will bring to another question. While, to solve the lack of readiness issues between academia and other stakeholders, in line with the process to transfer the knowledge, the academia and graduate intern need a robust knowledge transfer mechanism. Besides that, insufficient expertise and transfers mechanisms in university as human capital factors also will influence knowledge transfer achievement.

Based on the previous research in the United Kingdom, the findings highlighted three key factors that have contributed to the success of knowledge transfer. First, the work in knowledge transfer will take effort and time to make the agenda works. Second, knowledge transfer needs mechanism or 'contact spot' that it works best when people meet to exchange ideas, sometimes serendipitously, and spot new opportunities. Third, knowledge transfer needs practical, timely, and active support at an institutional level. That support must work within companies and universities to encouraging a culture of open access and open innovation (University of Cambridge, 2021).

In reality, the dynamic process of transferring knowledge from the university to the industry or community involve few mechanisms, among others, collaboration, a community of practice (COPs) facilitated, and coaching. Therefore, this study attempts to identify the mediating effect of the Knowledge Transfer Mechanism (KTM) on the relationship between human capital value capabilities (academia and GI capability) towards KT success in Malaysia.

### **Literature Review**

Thacker (2018) defined knowledge as an organised collection of facts and beliefs, principles or necessary, procedures or methods, and some basic information that exists throughout the world and over time. Noe (2017) discovered that knowledge refers to what and how individuals or teams know or know how to do (human and social knowledge), as well as an organization's rules, processes, tools, and routines (structured knowledge). According to Argote and Ingram (2000), knowledge transfer is a process in which one unit, such as an individual, a group, a department, a division, or a community, is influenced by the skill, ability, and experience of another. In the area of organisational theory, KT is the practice of transferring knowledge from one part of the organisation to another (Nilsen & Anelli, 2016).

In another perspective, Ikujiro et al (2015) in his models, claims knowledge transfer is a spiral process. Nonaka formulated that knowledge transfer involves two types of knowledge known as tacit and explicit. According to Nonaka, there are four types of knowledge transfer: socialisation, externalisation, internalisation, and combinations, and all of these must be actively involved in the transfer of knowledge. Gibson and Rogers (1994); Bozeman (2000) developed three levels of involvement in the process of knowledge transfer, which focus on the technology transfer that will include technology development, technology acceptance, and technology application. Meanwhile, Davenport and Prusak (2000) suggested that knowledge transfer involves two actions. The two actions are transmission and absorption.

Piktials and Greenes (2008) identified the two most effective strategies for capturing the knowledge transfer problem. The methods are: (1) pass knowledge cross-generationally that customize knowledge transfer methods with regard and (2) knowledge to the present needs and to be clear as to how each generation prefers to admit and learn. Both methods can be concise as a process of transmission and absorption.

There are numerous ways in training programs that can be employed as effective mechanisms of knowledge transmission in organizations, such as lectures, case studies, assigned reading, on-the-job training, job rotation, and so on (Campbell & Vousden, 2003; Sparkes & Miyake, 2000; Wong et al., 1999). Cheng (2008) stated that mechanisms used in

facilitating learning such as training programs, experiential learning, learning-by-doing, etc. could also be used in facilitating knowledge transfer.

A proper technique must be chosen by academia and graduate interns in the process of imparting information to industry or community with success in KTP. With the appropriate mechanism, academia and graduate capability may be able to aid KTP's success. A KT mechanism is a methodology, technique, or procedure used to transmit knowledge from the provider to the receiver. The KT mechanism was classified into four categories in this study.

First is a collaboration that refers to working together and to cooperate at the institutional/organizational level. Second is the communities of practices for the voluntary group of peers where members are willing to cooperate to improve achievement as individuals, teams, and organizations. Third is coaching that is defined as a professional relationship between the incumbent (receiver) and the leader (giver) as the coach that focuses on improving the performance and seeks to enrich the receiver's knowledge, skill-set and competencies. Lastly is the facilitated training, that is a guided learning process that involves the acquisition of knowledge, sharpening of skills, concepts, and rules or changing of attitudes and behaviors to enhance the achievement of the receiver. Facilitated training includes online learning, on the job learning, formal education, cross-training, seminars, workshop, and internships.

### **Data and Methodology**

The quantitative approach was used in this study, with a questionnaire as the instrument. This instrument is utilized because it is simpler and takes less time (Sekaran & Bougie, 2016). The structured questionnaire was constructed and adapted from Schofield (2013) and Wang and Tsai (2014). The 5 Likert-type Scale indicator was utilized for the respondents in the questionnaires. The study's target population includes roughly 352 KTP project grant holders or their representatives from project years 2011 to 2016. The purposive sampling method was used. This method's design allows particular types of information from a specific group to be obtained (Etikan, 2016). The sample was chosen using information given by the Secretariat of the Centre for Knowledge Transfer Program (KTP). A total of 352 surveys were distributed, with 267 respondents returning completed questionnaires. Data was collected by email and face-to-face interviews. In this study, two different types of data analysis software were used. The data from the questionnaire was entered using SPSS version 21.0. Finally, SmartPLS 3.0 was employed for inferential statistical analysis. On the basis of the study questions, objectives, and framework, the following hypotheses have been developed:

Hypothesis 1: There is a significant mediating effect of KT Mechanisms between Academia Capability and KT Achievement.

Hypothesis 2: There is a significant mediating effect of KT Mechanisms between Graduate Intern Capability and KT Achievement

### **Results and Discussion**

#### *Construct Validity*

Construct validity means all the items have been calculated to see the validity of the questions. According to Sekaran and Bougie (2016), construct validity is a measure of how

well the result of using the measure fits the theory. Following the test, a few items from the variable's academia capability, graduate intern capability, KTM, and KT achievement were removed from this study. The cut-off value for the item loadings is 0.5 as significant (Hair, 2014) and which item has loading high than 0.5 on two or more factors there will be deemed to be having significant cross-loading. The results of significant items based on loadings of 0.5 and higher are reported in Table 1. All of the results are significant and have a value greater than 0.5.

Table 1  
*Result of Measurement Model*

Latent Variables	Items	Factor Loadings	CA	CR	AVE
<b>Academic Capability</b>	PC12	0.871	0.942	0.0.954	0.777
	PC31	0.851			
	PC32	0.934			
	PC33	0.922			
	PC35	0.876			
	PC42	0.821			
<b>GI Capability</b>	PD12	0.756	0.747	0.835	0.562
	PD31	0.807			
	PD32	0.808			
	PD37	0.609			
<b>KT Mechanism</b>	PH22	0.760	0.880	0.912	0.678
	PH31	0.941			
	PH32	0.870			
	PH41	0.876			
	PH42	0.636			
<b>KTP Achievement</b>	PJ2	0.735	0.923	0.933	0.738
	PJ3	0.808			
	PJ4	0.902			
	PJ5	0.932			
	PJ6	0.903			

### Convergent Validity

According to Hair (2014) the goal of convergent validity is to examine the degree to which different items used to measure the same idea agree. To examine convergent validity, this study used Cronbach's Alpha, composite reliability, and average variance retrieved from the report. The measurement model result showed that the loading of all items exceeded the recommended value of 0.5 by Hair (2014). The composite reliability, which depicts the degree to which the construct indicator indicates the latent, ranged from 0.747 to 0.942, which exceeded the recommended value of 0.7 by Hair (2014). The average variance extracted (AVE) is a measure of the variance captured by the indicator in comparison to the measurement error. The results suggest that it must be greater than 0.50 to justify employing the construct (Hair, 2014), and the AVE in the table ranges from 0.562 to 0.777.

**Hypothesis Testing**

According to the results in Table 2, human capital, as measured by academia capability and Graduate Intern capability, is positively significant, with KTM coefficients of 0.3184 and 0.584, respectively. The results also show that KTM has a significant positive relationship with KTP achievement, with a coefficient value of 0.6576. The findings reveal that human capital (academia capability and Graduate Intern capability) played significant roles in KTP achievement via KTM mediation. Finch et al. (2013) made a similar discovery.

Table 2  
*Path Coefficient and Hypothesis Testing*

Relationship	Coefficient	T-Value	Results
Academia Capability -> KT Mechanism	0.584**	10.2932	Supported
GI Capability -> KT Mechanism	0.318**	5.4805	Supported
KT Mechanism -> KT Achievement	0.658**	25.3431	Supported

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

Based on Figure 1, the R<sup>2</sup> value was 0.432 which suggested 43.2 % of the variance in KT achievement can be explained by KTM. At the same time, 0.728 indicates that 72.8% of the variance in KTM can be explained by human capital (Academia capability and Graduate Intern).

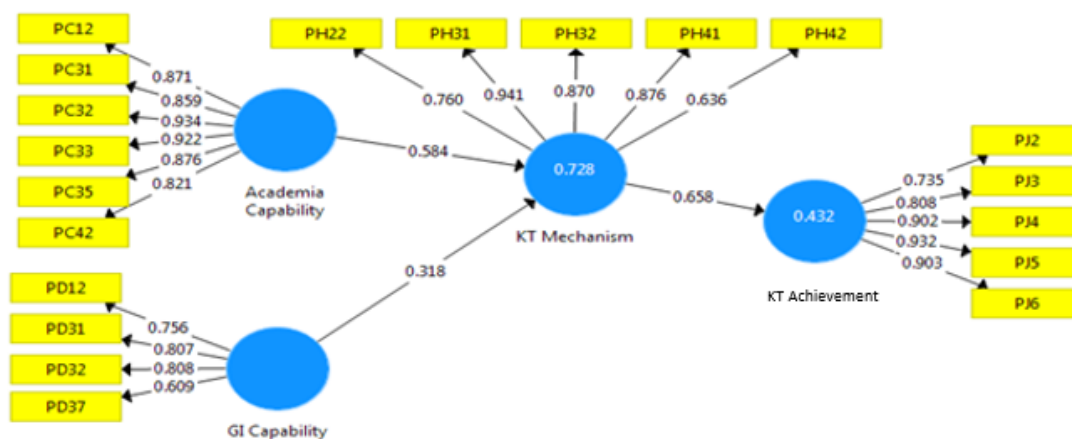


Figure 1: Result of the Path Analysis

The study has discovered the importance of academia capability, graduate capability and KT Mechanisms in knowledge transfer. KT Mechanisms are found significant not just as predictor for KT performance but also mediates the association between academia capability and graduate intern capability as a proxy of human capital value and KTP achievement. Both hypotheses have been supported. As a result, it is critical for project members to identify and be capable of implementing acceptable procedures or processes for transmitting their expertise, ideas, and research findings. Nonetheless, the study has highlighted an aspect of human capital in terms of knowledge, skills, and experience in KT agents such as academia and graduate interns that should be addressed by stakeholders in the future to improve the KTP agenda.



**Conclusion**

The findings show that KTM does mediate the relationship between Academia and GI capability towards KT success. This result demonstrates the significance of KTM in articulating human capital value capabilities to meet industry and community needs. As a result, the findings of this study can significantly assist universities in producing graduates and strengthening their academic assets in order to improve their human capital capabilities. The use of the proper mechanism will lead to the future success of the KTP project.

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