Knowledge Transfer of University-Industry Partnership in Malaysian Technical University: Preliminary Findings

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Abstract— **Universities are considered knowledge intensive organizations whereby the primary business of universities is knowledge generation, dissemination, integration and utilization. Although past research focused on university-private knowledge transfer is quite extensive, the majority of the literature is based on western academic institutions and policies. Due to the lack of research on knowledge transfer among Malaysian universities specifically technical universities, this study will affect the development of universities R&D. Therefore, the study has identified three main factors influence knowledge transfer in universities; coordination factor, partner attributes and relationship factor. Empirical studies were conducted at a technical university in Malaysia with a total sample size of 30 respondents consists of academic staff, researchers and postgraduate students who receive knowledge transfer grant sponsored by the Ministry of Education Malaysia. Researchers employed paper-based survey methods involving academic lectures. With the aid of inferential statistics, preliminary findings showed that all selected factors have a positive effect on knowledge transfer. Hence, this study will help the university identify the elements that should be evaluated before undertaking activities such as R&D and the MOU with the industry. Researchers plan to expand the study to another three technical universities. This paper ends with the conclusions and recommendations.**

Keywords— *University-Industry partnership; knowledge transfer; Malaysian Technical University Network*

I. INTRODUCTION

In today's industry, knowledge has been becoming the key resources of economic growth, social development and innovation. Knowledge plays a role in boosting innovation, creativity and R&D level in universities. To ensure the universities in Malaysia achieve the key indicator of apex universities, efficient knowledge-transfer mechanisms are therefore crucial to properly feed and sustain the growth of these knowledge- and innovation-based activities.

Knowledge transfer, in theory, it is the process of transferring knowledge from an individual, group, or organization to another. In context of university-industry partnership, [1] defines knowledge transfer as any activities aimed at transferring knowledge, skill or technology that may help either the industry or the academic institute – depending on the direction of transfer – to further pursue its activities. Knowledge transfer involves two ways communication, whereby the recipient unit will learn, adapt, and utilize the knowledge. The manner in which knowledge exchange between universities and industries have been largely accepted as problematic to institutionalize. Yet, the relationship seems to be blossoming in many forms not only in R&D all over the world [2]. At the university, knowledge is transferred through several distinct channels, these involve: publication, conference, academia mobility, contracts/ network, R&D collaboration, intellectual properties and spin-off companies [3]. The varieties of knowledge transfer mechanisms are largely predetermined by the culture of the institution, the current skill set of the research management centre staff and the budget available.

Historically, university researchers have jointed with industrial scientists on marketable or commercialized projects. With the industrial revolution, university-industry partnerships began in United States since the early 1980s. Traditionally, industry sought partnerships with the universities as a means to identify and train new employees. As economy shifted, companies wanted access to faculty who created the cutting edge knowledge and technology central to university research. Knowledge creation and technology development require capital investments, historically provided by governments. However, declining fund and increased competition for monies allocated to human service, has forced university researchers to seek new sponsors. Contribution of industry-sponsored research may occur through grants, contracts such as consulting agreements, and collaborative training programs.

However, as a result of poor understanding of the knowledge transfer mechanism, a wide gap seems to exist in the expectations and concepts of both universities and industry partners [4]. Therefore, this study aims to understand the factors of knowledge transfer between universities and

industry partners in Malaysia. These factors should provide some reasons why industry partners approach universities for R&D engagements and what issues industry considers being of paramount in these collaborations. The results of this study could help universities and industry to make pro-active and appropriate decisions in their future collaborations.

A. Malaysian Technical University Network (MTUN)

In general, there are two broad categories of university; private and public universities. Public universities can be categorized into three types of universities; research universities, technical universities and other premier universities. To date, there are 20 public universities in the country consisting of five research universities, four comprehensive universities and 11 focused universities [5]. Technical University is made up of public technical colleges to be upgraded to a university when these university colleges later chose to forsake the original idea and became normal universities. There are four technical universities link to the network; UTHM, UniMAP, UTeM and UMP. Researchers have chooses Universiti Tun Hussein Onn Malaysia (UTHM) as the first preliminary study. UTHM is located in Batu Pahat, the southern part of Peninsular Malaysia. The university has established links with reputable institutions of higher learning in more than 11 countries such as Britain, United States, Australia, Germany, Brunei, France, Indonesia and the Philippines on academic collaborations, student as well as staff exchange, and research. The research management office in UTHM, Office for Research, Innovation, Commercialization and Consultancy Management (ORICC) has a role to provide complete services which facilitate and support all shapes of research and innovation development from initial funding through to commercialization where appropriate. Besides, ORRIC is responsible for facilitating commercial knowledge transfers through the licensing to industry of inventions or other forms of intellectual property resulting from university research [6]. According to the list of Active Projects 2013 given by ORICC, in total, currently UTHM has 615 actively projects. Among these projects, 63 of them are Exploratory Research Grants, 107 Fundamental Research Grants, 37 contracts, 10 Knowledge Transfer Program Grants, 3 Science Fund Grants and many more. The total amount of grants reached RM 30 millions.

B. Issues and challenges of university-industry knowledge transfer

Knowledge is recognized as being an important asset in universities these days. Despite this, many organizations are not doing enough to effectively manage and retain this important asset for its competitive advantage. With the urged to achieve apex universities rating and rank of top 100 universities all over the world, top level of management should view knowledge transfer as important activities in university. Knowledge transfer between universities and industry is one of the initiatives that should be emphasized. Knowledge transfer in this study refers as unidirectional exchange on skill, information and competencies between universities and industry through collaborative projects, or known as Knowledge Transfer Partnership (KTP) program.

During the execution, conflicts of interest may arise when the two cultures of academia and industry are attempting to concurrently fulfill their missions and objectives. While the universities emphasize creating and publishing knowledge in research collaborations, industries are seeking to earn income from research partnership. The strategic alliances between universities-industries that formally seek for collaborations have increased dramatically in recent year. Although the level of management try to get benefits from using these cooperative arrangements, however, their collaboration often does not achieve their goals, and many fails [7]. The low levels of knowledge dissemination from universities to industry partners were attributed to a lack of knowledge structures at the industries side and a lack of gratification for the distribution of scientific knowledge by the academic side [8]. Teng [9] claimed the need for greater university-enterprise collaboration and research commercialization among developing countries are hampered by a number of constraints including: the dominance of foreign investments in the critical sectors of manufacturing; lack of really effective R&D funding in industry; the lack of highly capable scientists who can lead in terms of knowledge frontiers, the lack of innovative entrepreneurship; and the focus of universities towards teaching thus creating a divergence of objectives between university and industry.

To overcome the issues, Malaysia Ministry of Higher Education (MOHE) has launched knowledge transfer program in 2012. In UK, this program has been active for over 35 years [10]. This initiative is based on the question of how institutions of higher learning in Malaysia help to transfer the knowledge that has been generated for the use of target group. Under this program, universities are allowed to apply the grants. The values of grant is up to RM200 thousand for each project. The output of this initiative is at least one graduate intern as the transferor or commercialize product. In the last few years, universities have accumulated a lot of experience in transferring technologies, and public organizations which focus on the distribution and transfer of knowledge between science and industry have been founded. Therefore, this study tried to find out the factors that influence the knowledge transfer in university-industry partnership. Although many studies have been conducted in the context of university-industry knowledge transfer, however, studies Malaysian public universities are still. Therefore, this study tries to fill the gap by explaining the results of university-industry partnership in UTHM on knowledge transfer.

Based the issues discussed earlier, the study outline two objectives; (i) to identify the relationship between partner attributes, coordinating factors, and relationship factors, (ii) to identify the inter-correlation between partner attributes, coordinating factors, and relationship factors effecting knowledge transfer.

II. LITERATURE REVIEW

A. University-Industry Partnership Factors

Partnering could be a good strategy to help a business to gain greater share value as it is able to create value through the skilful management of portfolios of business partnerships. In

today's fast changing and ever complex environment, companies must look beyond their own corporate boundaries and seek to create win-win relationships with other companies who provide complementary capabilities. Literature review revealed many scholars work on university-industry knowledge transfer. Some authors focused the channels of knowledge transfer [3], while others [1], [11] contributed to the study of factors hindering university-industries collaboration. The increasing needs to study the awareness of knowledge transfer activities specifically on R&D among Malaysian universities are due to the emergence of many initiatives offered by the government through smart partnerships with industry.

University-industry partnerships usually are relationships formed between an industry and a university, which facilitates the transfer of knowledge, technology and skills to which the industrial partner currently has no access. Each partnership employs one or more recently qualified people (known as an Associate) to work in an industry on a project of strategic importance to the business. According to [12], university-industry partnership is influence by partner attributes, coordination factors and relationship factor. Partner attributes is necessary for a successful partnership. Partner attributes can be defined as the connection between partners. In this research, partner attributes are measured in terms of staff's learning attitudes and abilities, skills of partnership management, and structural characteristics. The item measures are adapted from [13].

Coordinating factors refer to the degree of shared values which are congruent in terms of organizational philosophies, norms, and value systems and the extent to which each partner has similar and consistent procedural capabilities on a day-to-day working basis and the context of a working relationship its policies to overcome operating misfit and compromise for existing organizational incompatibilities regarding intellectual property and publication of new research and products [12]. The elements of coordinating factors measured for this study are cultural compatibility, operational compatibility and flexible university policies.

Relationship factors refer to the degree of trust, commitment and bilateral information sharing between partners. Trust refers to the extent to which each party has credibility, confidence and willingness to rely on their alliance partners [14]. In addition, commitment refers to the extent to which each partner intends to stay in the relationship and has the attitudes and willingness to make all effort on behalf of the alliance to create a positive environment that facilitates overcoming of barriers to meet alliance goals [12]. In terms of bilateral information exchange, it refers to the extent to which information is communicated to engage all partners in planning and goal setting in terms of decision-making and goal formulation

B. Knowledge Transfer Measurement

Knowledge transfer refers to the extent to which the acquired resources and knowledge from the industries can increase knowledge concentration and deepen the existing field of specialization and current core competences.

Knowledge transfer in universities has been measured with different dimensions. For example [15] has measured the transfer of knowledge at universities in terms of the network, continuing professional development, consultancy, collaborative research, intellectual properties, patents and contract. However in this study, knowledge transfer is measured in terms of efficient coordination. The transfer of knowledge should not be measured only by the output activities, but the university should see the improvement on the process aspect during the partnership. Efficient coordination means the new knowledge an organization acquired from partners was complete enough to become practiced with it. Efficient coordination was represented by the efficiency of coordination in terms of comprehension, usefulness, goal attainment, speed and economy in university-industry context The measurement of the items are derived and modified from the related studies of [16]–[18].

III. METHODOLOGY

The method used is cross-sectional paper-based survey where the survey is distributed among the academic staff involved in the KTP grants. The data collection process had started in October 2013. Survey method is used due to the ability to collect large amount of data from a population in a highly economical way [19]. They are approximately 60 staff form UTHM have received the grants. These involved 7 faculties; Faculty of Civil and Environmental Engineering (FKAAS), Faculty of Electrical and Electronic Engineering (FKEE), Faculty of Mechanical and Manufacturing Engineering (FKMP), Faculty of Technology Management and Business (FPTP), Faculty of Technical and Vocational Education (FPTV), Faculty of Computer Science and Information Technology (FSKTM), and Faculty of Science, Technology and Human Development (FSTPi). There were only 30 sets of completed questionnaire collected among academia that yields 50% of response rate.

The elements in the questionnaire form were extracted based on previous researches regarding to the university-industry partnership in terms of knowledge transfer. The questionnaire form was divided into three parts which consisted of general information of the respondent, partnership information, and knowledge transfer. Part A was use to determine the fundamental issues while Part B was use to gauge the university-industry partnership factors. Meanwhile, Part C was to measure the degree of knowledge transfer using 5 points Likert-Scale. Table I lists the measurement item employed in the study.

TABLE I. LISTS OF MEASUREMENT ITEM

Section	Items
Partner Attributes	All issues will be contacted through centre managers.
	All information channeled through designated offices.
	We rely extensively upon contractual rules and policies in controlling day-to-day operation of the partnerships.
	Your organization and your partner have or plan to have detailed legal documents for the projects

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Section	Items
	The amount of financial resources each partner in the partnership was expected to contribute toward the centre development was clearly laid out in the contract.
	Problems in centre are resolved hierarchically from different management ranking.
	Each partnership organization makes decision on changes in daily operation without complexity
Coordination Factor	The relationship between partners is marked by a high degree of harmony in management styles.
	The organizational values and social norms prevalent in the partners were congruent.
	Both partners involved in this project had compatible philosophies/approaches to business dealings.
	There is a same agreement between partners regarding to jointly management aspects of the partnership.
	University makes an effort to make decision on implementing daily operation based on mutual benefit and consensus with the industrial firm partners.
	There is flexibility for the universities to modify predefined goals of their academic studies to match well with the needs of all industrial partners.
	There is a same agreement between university and industrial partners regarding to the launch of new product, patent and publication of the new product and process development.
Relationship Factor	Our organization trusted that the partners would act in our organization's best interest.
	Both partners were generally honest and truthful with each other.
	Our organization had confidence in the partner's competence and abilities as well as its motives and fairness sharing these abilities.
	Both partners trust the values and experiences of partnership members in controlling day-to-day activities.
	Our partner is competent to fulfill the agreement.
	Our partner's personnel are knowledgeable in solving problems.
	We were willing to dedicate whatever people and resources it took to transfer knowledge in the partnership project.
	We were committed to making the project a success of knowledge transfer.
	Both partners have senior level management commitment toward the use of partnerships to achieve strategic goals.
	We believe that long-term relationship will be profitable.
	Staying in relationship is a necessity
	Partnership provided us with adequate information.
	Partnership provided us with timely information.
	General meeting between university technology experts and firm partner's technology experts
	Mutual Visit to partners' research facilities
	E-mail communication between university and firm partner's technology experts
	Telephone communication between university and firm partner's technology experts
	Exchange of information in this relationship took place frequently and informally.
	Partners participate in planning activities before decision-making.

Section	Items
	Partners seek advice from each other in decision-making towards the partnership.
Knowledge Transfer	The new knowledge that our organization acquired from our partners was complete enough to become proficient with it.
	The new knowledge that our organization acquired from our partners was well understood in the organization.
	The knowledge held by the university research center directly resulted in new products and service offered to the market.
	Our production process has been advanced and accredited with the acquired technology from our partners.
	Important new product and process technologies are quickly diffused from our partners.
	It took our organization a short time to acquire and implement the knowledge provided by our partners
	The new knowledge provided by our partners was acquired and implemented at a very low cost.
	The acquisition and implementation of the new knowledge from our partners did not require the utilization of too many company resources.

IV. DATA ANALYSIS

A. Demographic Profiles

In this research, there are 23.3% of respondent from FPTP, respondents from FKAAS, FKMP, and FPTV are same, which are 16.7%, 13.3% of respondents from FKEE, and least respondents from FSKTM and FSTPi which are 6.7%. This shows that there are more researchers from FPTP, FKAAS, FKMP and FPTV going on university-industry partnership projects. Besides that, there are 6.7% of respondents are professors, 16.7% of respondents are associates professor, 63.3% of respondents are senior lecturers, and respondents who are lecturer or tutor or assistant lecturer are 13.3%. The result shows that senior lecturers are more interested to join in a university-industry partnership project. There are 63.33% of respondent who had experience of joining partnership, while the other 36.67% of respondents were their first time joining a partnership when this research was conducted. The main motive involved with the research grants is to acquire new technological and know-how breakthrough from the industries. The most common university-industry partnerships are consultancies activities (16.7%), memorandum of understanding (16.7%) and R&D activities (15.6%).

B. Reliability Test & Normality Test

Reliability is defined as the extent to which an instrument produces nearly identical results in repeated measurements on repeated trial [19]. Generally, reliability is tested using alpha coefficient. Reliability is a ratio of the true variance to the total variance of the measurement [20]. The Table II below shows the coefficient values of Cronbach's Alpha (α) obtained through reliability analysis. Partner attributes and coordinating factors which covered 7 questions in the questionnaire had alpha coefficient value of 0.910 and 0.797, while relationship factors which consist of 20 questions obtained an alpha

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coefficient value of 0.943. The alpha coefficient value for knowledge transfer which had 8 questions was 0.778.

<div align="center">TABLE II. RELIABILITY</div>

Constructs	Cronbach Alpha (α)	N- Items in scale
Partner Attributes	0.910	7
Coordinating Factor	0.797	7
Relationship Factor	0.943	20
Knowledge Transfer	0.778	8
Total		42

Table III reports the normality result by examining the skewness, kurtosis and Shapiro-Wilk values. Shapiro-Wilk is used if the samples size less than 50 [21]. For partner attributes and coordinating factors, the significant value are 0.033 and 0.029, which are less than 0.05, therefore these two groups of items are significant, and considered normal. However, the significant value for relationship factors and knowledge transfer are 0.391 and 0.603, therefore the two groups are considered non-parametric.

<div align="center">TABLE III. NORMALITY</div>

Constructs		Skewness	Kurtosis	Shapiro-Wilk Sig.
Partner Attribute	Statistic	-.708	.387	.033
	Std. Error	.427	.833	
Coordination Factor	Statistic	.154	.691	.029
	Std. Error	.427	.833	
Relationship Factor	Statistic	-.260	-.025	.391
	Std. Error	.427	.833	
Knowledge Transfer	Statistic	.049	.003	.603
	Std. Error	.427	.833	

C. Effect of University-industry Partnership on Knowledge Transfer

After analyzed the reliability and normality of the data, it was found that some statistical tests would be helpful to further justify the effect of university-industry partnership on knowledge transfer in UTHM. To test the first research objective, the Spearman's Rho correlation test was used because the data was not normally distributed. Meanwhile, to discover the inter-correlation between the factors of university-industry partnership, Crosstab analysis was carried out. Table IV depicts the correlation results. From Table IV, the Spearman's rho correlation coefficient (0.639) is positive, indicating a large, positive correlation between partner attributes and knowledge transfer. Therefore, partner attributes (PA) has a significant effect on knowledge transfer. Similar results were also shown for the other two factors, namely

coordination factors (0.548) and relationship factor (0.625). All results are significant at the p level of < 0.001. Therefore hypotheses 4, 5 and 6 are supported.

<div align="center">TABLE IV. CORRELATION RESULTS</div>

Spearman's Rho Correlations					
		PA	CF	RF	KT
PA	Coefficient	1	0.664**	0.604**	0.639**
	Sig. (2tailed)	-	0.000	0.000	0.000
CF	Coefficient	0.664**	1	0.670**	0.548**
	Sig. (2tailed)	0.000	-	0.000	0.002
RA	Coefficient	0.604**	0.670**	1	0.625**
	Sig. (2tailed)	0.000	0.000	-	0.000
KT	Coefficient	0.639**	0.548**	0.625**	1
	Sig. (2tailed)	0.000	0.002	0.000	-

D. Inter-correlationbetween the factors of University-industry Partnership on Knowledge Transfer

As the data for this study is not normal, therefore when look into the inter-correlation between factors of university-industry partnership, crosstab analysis is used and the spearman correlation was examined. Table V. shows the correlation coefficient among the three factors were all related to each other, thus, therefore, hypotheses 1, 2 and 3 are supported.

<div align="center">TABLE V. CROSS-TAB ANALYSIS RESULTS</div>

Constructs		Value	Asymp. Std Error	Approx. T	Approx. Sig.
Ordinal by Ordinal Spearman Correlation	CA vs. PA	0.664	0.134	4.7	0.000
	CA vs. RF	0.67	0.131	4.771	0.000
	PA vs. RF	0.604	0.14	4.013	0.000

V. DISCUSSION AND CONCLUSION

This study has been done to find out the relationship between the independent variables (partner attributes, coordinating factors and relationship factors) and dependant variable (knowledge transfer). Besides that, the relationships between the three independent variables (partner attributes, coordinating factors and relationship factors) were also examined. This study aim to prove that first, the independent variables are significantly affected dependant variable and second; the independent variables have a significant relationship. The results of this study confirmed the relationship between the key determinants of partner attributes, coordinating factors, relationship factors and

knowledge transfer. The major findings and implications are discussed as follows:

H1 = Partner attributes are positively related to knowledge transfer

The standardized coefficient for the relationships represented by H4 (correlation coefficient=0.664, p<0.01) established a strong positive impact of coordinating factors on partner attributes. This reciprocity between partners is important as successful partnership can be achieved more by interactions than by the initial strategic compatibility between partners. Which means that the greater the interaction between university and industry, the greater the common relations that consolidate a partnership.

H2 = Coordination factor is positively related to the perceived level of knowledge transfer

The standardized coefficient for the relationships represented by H5 (correlation coefficient= 0.670, p<0.01) established a strong positive impact of coordinating factors on relationship factors. This result indicates that coordination can leads to trustworthiness, commitment, and bilateral information exchange.

H3 = Relationship factor is positively related to the perceived level of knowledge transfer

The standardized coefficient for the relationships represented by H6 (correlation coefficient= 0.604, p<0.01) established a strong positive impact of partner attributes on relationship factors. This finding coincides with the research [12] which said that the tight linkage between university and industry cultures contributes to trust and commitment between partners. This practice is important for building university-industry relationships since it involves inter-organizational interfaces for successful transfer of knowledge between partners.

H4 = Coordinating factors will be positively associated with the partner attributes

The effect of partner attributes on the knowledge transfer in H1 was found to be significant (correlation coefficient= 0.639, p<0.01). This finding supported by [13] which suggested that firms that focus in promising partners may often achieve a partnership "first mover" advantage that allows them to gain access to and pre-empt competition from scarce resources offered by potential partnerships. In order to achieve better transfer of knowledge between university and industry, they should have or plan to have detailed legal documents about the projects to be work on.

H5 = Coordinating factors will be positively associated with the relationship factors

The effect of coordinating factors on the knowledge transfer in H2 (correlation coefficient= 0.548, p<0.01) was found to be significant. As expect, this result corresponds with the study done by [22] which states that the compatibility between partnership partners influences the extent to which partners are able to realize the synergistic potential of an alliance. Partners with compatible cultures are more likely to understand one another and to work toward common goals.

H6 = Partner attributes will be positively associated with the relationship factors

The standardized coefficient for the relationships represented by H3 (correlation coefficient= 0.625, p<0.01) shows that relationship factors have a significant positive effect on knowledge transfer. This finding confirms that the recognition of prior studies on the importance of relationship factors to the process of knowledge transfer. Trust, commitment, and bilateral information exchange are the basis of collaboration when universities are intent on utilizing the partnership to learn from each other. Table V summarizes the result of the study.

TABLE VI.   SUMMARY

Research objective	Hypotheses	Results
1. To identify the effect of independent variables (partner attributes, coordinating factors, and relationship factors) on knowledge transfer effectiveness.	H1, H2, H3	From the analysis in chapter four, all three variables have significantly positive relationship to each other.
2. To identify the relationship between partner attributes, coordinating factors, and relationship factors.	H4, H5, H6	Results showed that all the three independent variables have a positive impact on knowledge transfer.

University-industry partnership do has an effect on knowledge transfer. However, the organizational culture and procedural routines of universities were mostly against the partnership concept. Universities increasingly find themselves in a paradox of public and private orientation, in which they have been pushing towards a business model of networking while they are attempting to maintain collegial networks. These are considered oppressive aspects of network organization and deescalate the process of knowledge transfer. Thus, to overcome these obstacle new forms of governance mechanisms must be implemented in the university systems through new roles of the university management style to promote innovation in culture, self-managed market practices, and a reduction in collegial structures.

In this study, there is a limitation of small number of respondent, thus, the ability to make the conclusion that the transfer of knowledge occurs in other technical universities is still too early. This is due to several reasons such as not all respondents in the list of Active Projects 2013 collaborate with industry because some of them involve with community-based project. Besides that, when arrange the list according to faculties, it was found that there is a large difference between the number of population in each faculties, therefore, when we

employed purposive sampling, the number of respondents to be get from each faculty can only be set to 2-10 respondents.

For the further study, future research should include a comparative study and distinguish all the conditions and environmental factors in order to assess the collaborative inter-organizational relationships between different types of university-industry partnerships. Additionally, the majority of respondents were university's counterparts. Due to high competition among firms in the same industry and unpredicted relationship, some industrial firms are reluctant to disclose their confidential performance data and information about strategic activities. This investigation may have possible biases and neglect some important facets in relation to partners. Although the respondent selection process ensured highly knowledgeable respondents and research supports the use of proxy-reports, it is suggested that the future study might be able to improve the accuracy of the existing data by having a respondent from each firm report on the alliance rather than having one individual report on the alliance.

In conclusion, this research attempts to measure the university-industry partnership in UTHM in terms of knowledge transfer and to investigate the intriguing interaction between partner attributes, coordinating factors and relationship factors. Before testing the proposed hypotheses, the constructs were tested for reliability. The model was analyzed using bivariate correlation approach. All of the hypotheses tested were found to be significantly supported. The results of the empirical findings reveal that there is significant effect that contributes to knowledge transfer effectiveness. The results support the view that partner attributes, coordinating factors and relationship factors affect the effectiveness of knowledge transfer

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