



**KNOWLEDGE MANAGEMENT STRATEGIES
AND ORGANIZATIONAL PERFORMANCE: A STUDY ON
MANUFACTURING, SERVICE AND EDUCATION SECTORS
IN THE WEST PENINSULAR MALAYSIA**

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Abstract:

The purpose of this study is to measure the knowledge management strategies and organizational performance in West Peninsular Malaysia utilizing a structural equation modeling (SEM) approach. The research method of this research is a solely quantitative method where the total sample size is considered 331 employing simple random sampling. For this research, the structural model exhibited the relationships among the variables. The findings reveal that, knowledge management structure is positively related to knowledge management strategy, same to knowledge management practice is positively related to knowledge management strategy. However, knowledge management structure was found not really positively related to organizational performance. Unexpectedly, knowledge management practice has not also found significant either in terms of positively related to organizational performance. On the other hand, knowledge management strategy is positively related to organizational performance as well as reciprocal relationship found between knowledge management structure and knowledge management practice. This research has contributed to the existing knowledge by providing an empirically validated model which could be used to predict the organizational performance as a whole.

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1. Introduction

Knowledge management (KM) is the process of formation, retaining, sharing and access to an opposite knowledge when expected to take most critical decision for the organizations (Sharmila, Gianluca, and Giuseppina, 2018). KM empowers organizations by providing access to new knowledge about market and stakeholders, which eventually ensures a sustainable competitive advantages. In addition, they can be used to rationalize decision-making processes (Darroch, 2003; Dalkir, 2013; Wong et al., 2013) and help organizations to develop and translate new ideas into new products and services, which in turn improve organizational performance. Several empirical studies that use the approach of resource-based view proved that the knowledge management strategy has a significant effect on the development and performance of new products (Liu et al., 2005). Zheng et al. (2009) proved that knowledge management, culture and strategy have a positive relationship with organizational effectiveness, and knowledge management mediates the relationship between organizational strategy with organizational effectiveness. A large body of research has focused on the impact of trust on knowledge management and organizational performance (e.g. Kamariah, Abdul, and Ansari, 2018, Bara, Almahamid, and Shadi, 2017, Alex, Joanna, and Jerzy, 2017, Daniele, Massimo, and Nick 2017, Vito et al., (2018). These studies have documented a positive relationship between knowledge management and organizational performance.

Knowledge management practices are turning out to be progressively basic for different reasons. The three chief intentions are to 1) enhance basic leadership capacities, 2) create learning organizations, and 3) animate social change and advancement (in the same place.). With an expanding mindfulness and significance of the “learning” living in organizations, there has been an ascent in the attention to the idea, strategies, and apparatuses to hold and develop this knowledge. Apart from the above constraints, one barrier facing many government organizations in West Peninsular Malaysia is executing their expecting performance to their lack of knowledge.

Besides, existing practices of knowledge management are to a great extent determined by worldwide organizations and private business organizations. Constrained confirmation is found on the utilization of knowledge management at hierarchical levels and all the more particularly from creating nations. In light of the potential estimation of learning management practices, such subjective perspectives and contextual investigations ought to go about as a critical planned for benchmarking and reflection.

Unfortunately, the West Peninsular Malaysia’s manufacturing, service and education sectors are up against a competitive disadvantage when it comes to the

knowledge management, since manufacturing, service and education sectors suffers from a lack in backward-integrated facilities. Knowledge management ideas have entered into various business capacities and procedures. As a taught approach, these ideas concentrate on the different management forms that encourage finding, recognizing, catching, making, putting away, and managing, applying, sharing, and recharging knowledge to enhance an organization. As there has a dearth of skills in the manufacturing, service and education sectors in building or executing an appropriate organizational performance, it puts the organizations at a great disadvantage.

In the manufacturing, service and education sectors, the knowledge management is considered as the essential tool to bring reforms by governments for the societal improvements. However, it has been repeatedly noted that the government policy initiatives for the reform of manufacturing, service and education sectors have largely failed to promote knowledge creation. Moreover, the knowledge management in private sector has been adopted earlier in comparison to the manufacturing, service and education sectors where the governments have been found struggling to implement the notion of knowledge management due to intrinsic barriers associated with organizational knowledge.

Moreover, even after an excessive literature survey on knowledge management strategies and organizational performance, only a very few researches on the manufacturing, service and education sectors in West Peninsular Malaysia have been identified which is a clear lack of this sector. Absence of a comprehensive knowledge in this regard hinders the effort of the organizational performance in West Peninsular Malaysia's manufacturing, service and education sectors. Thus, it is important to examine whether there is a significant relationship between the knowledge management strategies and organizational performance in West Peninsular Malaysia.

2. Literature Review

There is no uniformity or common conformity on the part of the scholars as to the definition and nature of knowledge, an intrinsically ambiguous or equivocal term. Since the time of the ancient Greek philosophers, Western thought has been dominated by the study of epistemology, or the nature, sources, limitations and validity of knowledge (Sankaran, 2006). In 360 BC, in his *Theaetetus*, Plato defines knowledge as 'justified true belief' (Project Gutenberg, 1999). Although debated and modified in many ways, Plato's concept of knowledge is still widely articulated in Western thought (Nonaka and Takeuchi, 1995). More recently, Drucker (1993) coins the term 'knowledge worker' and argued that, in the 'knowledge society', it was no longer capital or labor or natural resources, rather the knowledge that would be the basic economic resource. Thus, numerous approaches and taxonomies, such as 'belief', 'understanding', 'information', 'experience', 'power', etc. are offered by them in different times and studies to convey the meaning of knowledge from a variety of perspectives as found in the literature.

The management and the organizational knowledge have to be integrated into the process and procedures of the organization for increased growth and performance (Tsoukas, 2005; Dahari et al., 2011; Azam et al., 2014; Tham et al., 2017). It is very important for the knowledge capture and knowledge sharing components of the knowledge management processes are very important. The Knowledge management literature distinguishes among various types of knowledge so that it can be managed well. Thus, some experts differentiate between technical and strategic knowledge. The more common types of knowledge, however, include tacit knowledge, explicit knowledge, and implicit knowledge. The companies have to enable organizational culture and organizational structure within the organization to explore knowledge management. Basically, the knowledge management in organizations integrates knowledge with distinctive capability to improve employee performance. The management and the organizational knowledge have to be integrated into the process and procedures of the organization for increased growth and performance.

According to Allee (1997), knowledge is experience that can be communicated and shared; though, by experience, he emphasizes more on information. This is echoed by Leonard and Sensiper (1998), who believe such information is tacit in nature. Bhagat et al. (2002) embrace the notion that knowledge is derived from creation and restructuring of information, which, according to Beckman (1997), enhances an individual's productivity, problem-solving and decision-making skills through logical reasoning.

While defining the knowledge, Cavaleri and Reed (2000) mention that knowledge, essentially, is composed of and grounded in potential acts/activities or signs – social in nature. These can be relevant to political issues and beliefs resulting from an individual's experience. This knowledge denotes the capacity for effective action. Davenport and Prusak (1998, p.5) hold that knowledge is the *"fluid mix of framed experience, values, contextual information, and expert insight originated in the minds of the knowers. In an organization, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, strategies, and norms."* In these times of intense competition, firms are striving to cope with the challenges posed by various forces ranging from globalization to the diffusion of technology innovation to the creation, adoption and dissemination of knowledge (Haque et al., 2014; Moha Asri & Azam, 2015; Haur et al., 2017).

The upshot of such tumultuous changes has caused a paradigm shift in setting firm priorities that lay emphasis more on the utilization of its knowledge base than on the physical resources at its disposal. Consequently, conventional business strategies must adjust to the dynamics of the evolving business landscape through the employment of knowledge-based resources in order to harvest a sustained competitive advantage (Grover and Davenport, 2001; Jackson *et al.* 2003; Sharkie, 2003). Firms, which are involved in such generation and deployment of knowledge, are, therefore, poised to reap the windfalls in these days of exponential knowledge growth. It is thus no wonder that various aspects concerning knowledge management have consumed a considerable attention from academicians as well as industry players with the latter beginning to

envisage managing their knowledge-base as part of their overall strategic initiatives (Hung *et al.*, 2005).

Based on the literature support in the preceding sections, the hypothesized research model and the key relationships to be tested in this study are illustrated in Figure 1.

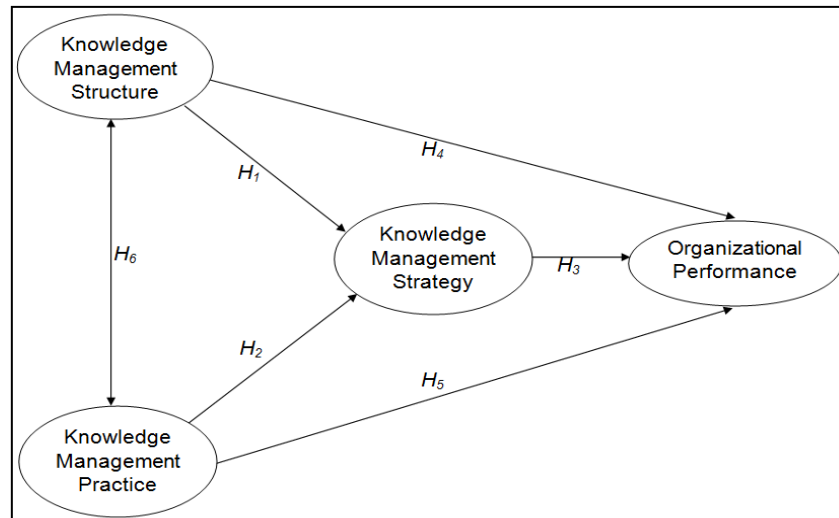


Figure 1: The Conceptual Framework

From this conceptual framework, six primary hypotheses are developed to test the relationships among the various variables; besides, a couple of mediated relationships are also tested.

H₁: Knowledge management structure is positively related to knowledge management strategy.

H₂: Knowledge management practice is positively related to knowledge management strategy.

H₃: Knowledge management strategy is positively related to organizational performance.

H₄: Knowledge management structure is positively related to organizational performance.

H₅: Knowledge management practice is positively related to organizational performance.

H₆: Knowledge management structure has a reciprocal relationship with knowledge management practice.

3. Research Methodology

The main purpose of the study is to determine the knowledge management strategies and organizational performance in West Peninsular Malaysia. Quantitative method was used, which relies on the collection of quantitative data which is mainly used in descriptive studies for testing a theory. For this research, the data are analyzed to explain

the relationships among the variables by employing statistical analysis namely descriptive and inferential statistics. To conduct the Structural Equation Modelling (SEM), the first step that is to specify the measurement model in three stages. Firstly, specify the number of factors or latent variables which is represented by ovals to be hypothesized by the scale's items constituted by rectangles. Next is to specify the items linked to each factor whereby each item linked to only one latent variable. Thirdly, if the hypothesized model includes multiple factors, then the associations between factors specify are to be represented. In this measurement model specification stage, three types of parameters are desired that are the hypothesized factor loadings, correlation between factors or the loading of a lower order factor on a higher order factor and error variance for each item.

Since the sample size was 331, which is sufficient for the simple random sampling, thus, upon completion of specification phase, analysis begins whereby actual variances and actual covariance are computed using collected data. This is done to estimate the model's veracity by creating the implied item variances and covariances and if it emulates the actual variances and covariances, hence, the research model is good. Therefore, indices of model fit are computed. Interchangeably, a good model fit will output small discrepancies.

From there on, it will be interpretation of the results which includes model fit indices such as Goodness of Fit Index, Incremental fit Index, Normed Fit Index, Comparative Fit Index, Non-normed Fit Index, Root Mean Square of Approximation, Root Mean Square Residual and Standardized Root Mean Square Residual. Parameter Estimates. The items' factor loading, inter-factor associations and error variances is examined.

4. Research Findings

The first section presents the frequency distribution of the demographic variables of the research sample (n = 331) who were the executives, non-executive and the employees of various manufacturing, service and education sectors in West Peninsular Malaysia. The composition of the sample indicated that the 88% of respondents are represented by males while the remaining 12% are represented by the female respondents. Findings reveal that the largest group of respondents fell into the 31-35 years age group (41%), followed closely by 41% are above the 36 year age group. Of the rest closely by the 26 - 30 age groups at 15% and below 20 year age group represent by 9%. The educational level of the respondents reflects that most of the executive officers that had a degree which is noted at 42.5%, 10.0% had a diploma while 30% had the secondary education qualification and 16.9% of the respondents' had qualified with school training. In order to that most of the non-executives of manufacturing, service and education sectors who, are qualified with a degree which is evident from the study.

The dimensionality of the Knowledge Management Structure (KMS), Knowledge Management Practice (KMP), Knowledge Management Strategy (KMST) and

Organizational Performance (OP) were sought through a principal component analysis (PCA) after which a confirmatory factor analysis (CFA) was conducted to confirm the dimensionality obtained through PCA. The PCA was to explore the underlying dimensions of Knowledge Management Structure (KMS), Knowledge Management Practice (KMP), Knowledge Management Strategy (KMST) and Organizational Performance. First, the statistical assumptions of PCA were tested. The exercise revealed that a substantial number of variables were correlated ($r \geq .50$). In addition, the two measures for inter-correlations among variables supported the use of PCA (Hair et al., 2010; Kline, 2011; Kothari, 2004; Neuman, 2007). Bartlett's Test of Sphericity was statistically significant [4190.487, $p = .000$], while the Kaiser-Meyer-Olkin (KMO) measure of the sampling adequacy (MSA) was .857, indicating that the inter-correlations were sufficient for PCA (Pallant, 2007).

PCA with Varimax rotation was performed on the data collected. Four latent factors were extracted with eigenvalues greater than one, explaining 55.70% of total variance. Thus, the results show that four latent factors were successfully extracted on 29 items. The internal consistency of all the factors were obtained by computing the Cronbach's Alpha coefficient on the four extracted factors was retained by PCA. In view of the guidelines by researchers (Cronbach, 1951; Sekaran & Bougie, 2010), Cronbach's Alpha was employed to estimate the reliability of the extracted factors as presented in Table 1. All four factors [Knowledge Management Structure (KMS), Knowledge Management Practice (KMP), Knowledge Management Strategy (KMST) and Organizational Performance (OP)] had good reliability indices of .909, .833, .827 and .833, respectively.

Table 1: Reliability Statistics

Variable	Cronbach's Alpha	N of Items
Knowledge Management Structure (KMS)	.909	11
Knowledge Management Practice (KMP)	.833	5
Knowledge Management Strategy (KMST)	.827	7
Organizational Performance (OP)	.833	6
Overall	.897	29

At this point, this research has adopted structural equation modelling (SEM), which is a comprehensive approach to find the relationship among the factors (Byrne, 2010). In SEM, prior to examine any specific relationship, researcher must determine the overall model fit (Hair et al., 2010). The researcher must either accept or reject the entire model. Hence, before to set off to the path analysis, the study went for measurement model to justify if the model defines the constructs adequately. The similarity between measurement model and the full (path) model is also necessary for depicting the different sorts of validity of the analysis (Byrne, 2010). Among the many statistical evidences, some are treated as relatively important in seeking the overall model fit for complete structural model (path analysis). In depicting the overall model fit, the research should report χ^2 (Chi square) and the degree of freedom with p-value along with incremental index (at

least one) such as CFI) and one absolute index like RMSEA (Hair et.al, 2010). This treated as the fundamental tools used to assess the overall fit measures. The calculated chi square value depends on the sample size and the difference between the observed and model covariance matrix. Meaning that, the lower the value is the better at certain degree of freedom and given "P" value. In the study, Chi Square value is closed to the standard value at the given degrees of freedom and p value shows the good fit.

The number of items used in a model is also considered to justify the p value of the model. For an instance, if the number of items is more than twelve with the 250 or greater respondents (in this research, n=331), significant p value is expected. Comparative fit index (CFI) is one of the mostly used incremental indices used to examine the baseline comparison. Fundamentally, it measures the correlation and their average size in the given data. Higher the correlation between the variable is higher the CFI value. The expected CFI value is .90 and higher (close to 1). RMSEA is a kind of absolute index to assess the overall model fit. The value of .08 and less is expected for the good model fit while the value of .1 or more usually indicates the poor model fit. However, in social science research, the global fit indices are unrealistic as this only provides statistical fitness (Byrne, 2010; Hair et al., 2010). However, in social science, the fitness should also be considered theoretically as well as practically. In this study, all these were taken into consideration. A complete path model is shown in the following Figure 2.

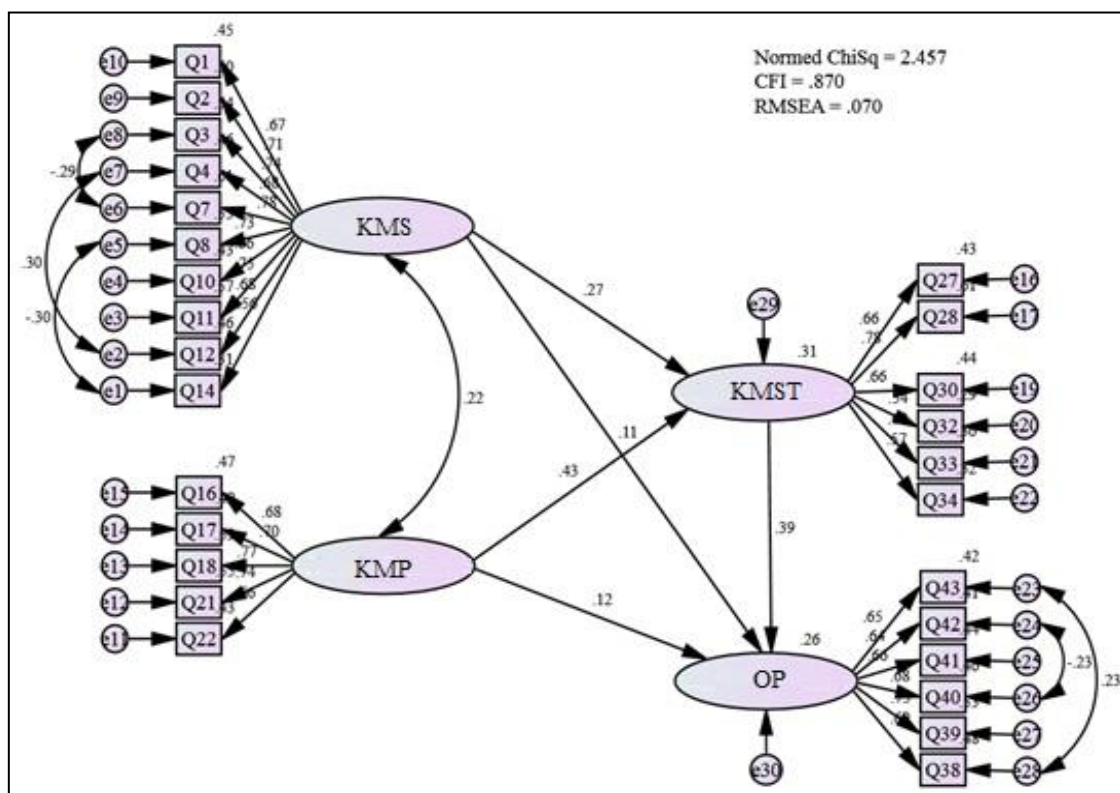


Figure 2: Fit Indexes and Parameter Estimates of Hypothesized Model

The hypothesized model was estimated by using AMOS adopting the Maximum Likelihood (ML) estimation on the data collected from the sample of 331 respondents

involved at various Manufacturing, service and education sectors (GE) in West Peninsular Malaysia (n = 331). The results of the model were assessed using the goodness-of-fit indices and reasonableness of parameter estimates. The squared multiple correlations (SMC) of the indicators were also computed. The results from the SEM structural model showed the fitness level for the hypothesized model (Figure 2) [Absolute fit (RMSEA) = .070, Incremental fit (CFI) = .870; and Parsimonious fit (ChiSq/df) = 2.457]. The Normed chi square (CMIN/DF) which is an attempt to reduce the sensitivity of chi-square to the sample size, was found to be 2.457, thus, within the recommended ≤ 3.0 value. The comparative fit index (CFI) was .870, indicating a lack of satisfactory fit index for the hypothesized model in relation to the uncorrelated model. The root mean square error of approximation (RMSEA) also showed good fit (.070) for the hypothesized model. For a good fitting model, RMSEA should be ≤ 0.08 . Conversely, the parameter estimates of the hypothesized model as shown in Figure 2 did not show any offending estimates (offense-free). All path coefficients were positively directed with reasonable magnitude. The causal path between the constructs was statistically significant at 0.001, but the path value of Knowledge Management Structure (KMS) and Organizational Performance (OP) and Knowledge Management Practice (KMP) and Organizational Performance (OP) were not statistically significant. Hence, it was further needed to examine the skewness and Modification Index (MI). It has been found that the skewness for the item Q33 was positive while other items' skewness was negative. Thus, the item Q33 was deleted from the further analysis. This is, however, justified methodologically (using AMOS) and theoretically.

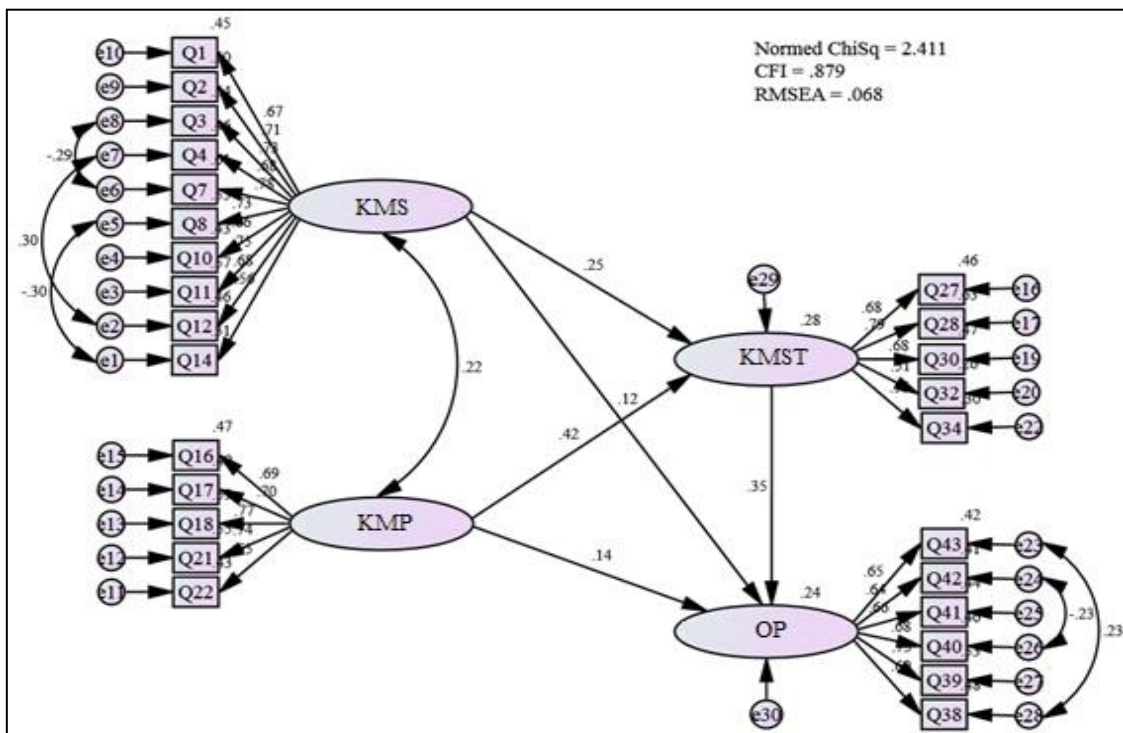


Figure 3: Fit Indexes and Parameter Estimates of the Revised Hypothesized Model

The model was re-specified and re-run again using AMOS (version 21.0). As shown in Figure 3, the goodness-of-fit indices of the revised model were sharply improved as compared to that of the hypothesized model. Thus, indicating that there were statistical discrepancies between the observed covariance matrix of the sample (observed data) and the implied covariance matrix of population (revised hypothesized model). The Normed chi-square (CMIN/DF) showed a good fit for the revised model, with an index less than 3 (i.e. 2.411), supporting the consistency of the data to the revised model. The statistical significance of the χ^2 of the model) may be due to the large sample size (n = 331).

Moreover, the measure of RMSEA was .068, which is below the recommended cut-off of $RMSEA \leq .08$ for the complexity of this revised model (Hair et al., 2010). Thus, RMSEA of .068 indicates lack of any significant difference between the covariance matrix of the sample and the covariance matrix of population. In other words, the revised model adequately fitted the data.

The CFI (.879) of the revised model also show adequacy of the model fit, adding more evidence to support the goodness of fit of the revised model. The AMOS (Version 21.0) text output did not provide any further suggestion to modify the revised model. After this, hypothetical relationships are tested that sometimes is called confirmatory data analysis, is a hypothesis that is testable on the basis of observing a process that is modeled via a set of random variables. A statistical hypothesis test is a method of statistical inference. Commonly, two statistical data sets are compared, or a data set obtained by sampling is compared against a synthetic data set from an idealized model. A hypothesis is proposed for the statistical relationship between the two data sets, and this is compared as an alternative to an idealized null hypothesis that proposes no relationship between two data sets. The comparison is deemed statistically significant if the relationship between the data sets would be an unlikely realization of the null hypothesis according to a threshold probability, the significance level. Hypothesis tests are used in determining what outcomes of a study would lead to a rejection of the null hypothesis for a pre-specified level of significance.

Table 2: Hypothesis Testing (Maximum Likelihood Estimates)

			Estimate	S.E.	C.R.	P
Knowledge Management Strategy	<---	Knowledge Management Structure	.440	.119	3.713	***
Knowledge Management Strategy	<---	Knowledge Management Practice	.468	.084	5.603	***
Organizational Performance	<---	Knowledge Management Strategy	.286	.075	3.823	***
Organizational Performance	<---	Knowledge Management Structure	.176	.096	1.831	.067
Organizational Performance	<---	Knowledge Management Practice	.129	.070	1.842	.065
Knowledge Management Structure	<-->	Knowledge Management Practice	.045	.015	3.052	.002

Table 3: Standardized Regression Weights: (Default model)

Variable	Relationship	Variable	Estimate
Knowledge Management Strategy	<---	Knowledge Management Structure	.250
Knowledge Management Strategy	<---	Knowledge Management Practice	.419
Organizational Performance	<---	Knowledge Management Strategy	.350
Organizational Performance	<---	Knowledge Management Structure	.122
Organizational Performance	<---	Knowledge Management Practice	.141
Knowledge Management Structure	<-->	Knowledge Management Practice	.220

Total six hypotheses were also answered by goodness-of-fit indices showing that Knowledge Management Structure (KMS) and Knowledge Management Practice (KMP) substantially influence Knowledge Management Strategy (KMST) into the various manufacturing, service and education sectors in West Peninsular Malaysia. Moreover, it also shows the influence of Knowledge Management Strategy (KMST) on Organizational Performance (OP). However, the results did not support the second and fourth hypothesis that relate to the influence of Knowledge Management Structure (KMS) on and Organizational Performance (OP) and the influence of Knowledge Management Practice (KMP) on Organizational Performance (OP). The last research hypothesis was also addressed. It was revealed that there is a significant positive reciprocal relationship exists between Knowledge Management Structure (KMS) and Knowledge Management Practice (KMP). The main findings of the study are summarized in Table 4.

Table 4: Summary of the Main Findings of the Study

H(x)	Hypothesis	Finding
H1	Knowledge Management Structure (KMS) is positively related to Knowledge Management Strategy (KMST)	Accepted
H2	Knowledge Management Practice (KMP) is positively related to Knowledge Management Strategy (KMST)	Accepted
H3	Knowledge Management Structure (KMS) is positively related to Organizational Performance (OP)	Rejected
H4	Knowledge Management Strategy (KMST) is positively related to Organizational Performance (OP)	Accepted
H5	Knowledge Management Practice (KMP) is positively related to Organizational Performance (OP)	Rejected
H6	There is a Reciprocal Relationship between Knowledge Management Structure (KMS) and Knowledge Management Practice (KMP)	Accepted

The findings of this study are formulated for the hypothesis which based on the research questions of this study. The findings of this study are based on all the variables of conceptual framework, data collection and data analysis. According to the analysis of the

data where it was found out that most of the manufacturing, service and education sectors in West Peninsular Malaysia are operated in structured way. Moreover, the next section will provide an extensive discussion.

5. Conclusion and Recommendation

West Peninsular Malaysia's manufacturing, service and education sectors are totally focused on organizational performance. However, the results of this study cannot be applied to any scenario in West Peninsular Malaysia because the sample size was short and confined to a particular pool. The first hypothesis was knowledge management structure is positively related to knowledge management strategy. The conventional business strategies must adjust to the dynamics of the evolving business landscape through the employment of knowledge-based resources in order to harvest a sustained competitive advantage (Lee and Choi, 2003; Chuang, 2004). Organizations, which are involved in such generation and deployment of knowledge, are, therefore, poised to reap the windfalls in these days of exponential knowledge growth (Nahm et al., 2004). It is thus no wonder that various aspects concerning knowledge management have consumed a considerable attention from academicians where theories play an important role on overall strategic initiatives (Hung et al., 2005).

Then, the second hypothesis stated that knowledge management practice is positively related to knowledge management strategy. This finding is also supported by past findings where the authors. According to Schermerhorn (1999), knowledge management can harmonize various other organizational drives such as proper practice and building up the strategy (Lee and Choi, 2003; Hung et al., 2005). These days, knowledge is thus increasingly considered pivotal to achieving business excellence (McAulay et al., 1997; Nahm et al., 2004) with the high-performing organizations stimulating an atmosphere of continual learning through gaining knowledge, through discovery and innovation, and through courting risk (McGill et al., 1992).

Next, the third hypothesis stated that knowledge management structure is positively related to organizational performance. This finding is also supported by past findings where the authors argue that the organizations performance in a social milieu, and hence the importance of a particular cultural context or norm it is driven by (Hofstede, 2001). Deemed therefore as a form of organizational capital (Camerer and Vepsalainen, 1988), the prevalence of a knowledge culture is instrumental in instituting knowledge management strategies in an organization and ultimately making it a success (Nahm et al., 2004). Besides, the relationship between organizational culture and the role it plays on its performance is highlighted in various studies (Hung et al., 2005).

After that, the fourth hypothesis stated that knowledge management strategy is positively related to organizational performance. This finding is also supported by past findings where the authors. According to Bhatt (2000), a learning culture devoted to upgrading the skills and capability of individuals helps an organization widen its breath of knowledge base. Such learning capabilities facilitate the employees in applying their

conceptual knowledge (Tsai and Lee, 2006). This is critical as it would lead to creating and sustaining core competencies for the organisation (Simonin, 1997). This is in congruence with the study of See (2002), where a learning culture is found to be an antecedent in knowledge creation activities that consequently impact organisational performance. Besides, resource-based view of the firm holds that firms are a source of value-added capabilities (Wernerfelt, 1984), and such underlying organizational competencies would stem from judging the firm's resources from a knowledge-based standpoint (Prahalad and Hamel, 1990; Conner and Prahalad, 1996).

Furthermore, the fifth hypothesis stated that knowledge management practice is positively related to organizational performance. This finding is also supported by past findings where the authors argue that performance rewards organizations that recognize their employees for what they know as well as for exchange of that knowledge nurture a climate that contributes to knowledge management efforts. However, since the role of a knowledge worker may occupy a new role within an organization, the flowering of a desired knowledge culture for exchange and utilization of knowledge requires some time. In order for such a culture fostering a knowledge sharing behavior to take firm root in an organization, it is critical that exchange of knowledge and ideas within and across teams is rewarded, and not the individual performance, which might give way to knowledge hoarding (Walczak, 2005).

Finally, the sixth hypothesis stated that there is a reciprocal relationship between knowledge management structure and knowledge management practice. This finding is also supported by past findings. Knowledge management is important for organizations to develop competitive advantage (Walczak, 2005). The companies need proper management of the knowledge resources to create a greater ability to adapt and all managers and directors should realize that their knowledge resources with the employees is the greatest resource of the organization (Handzic, 2008). All employees of the companies have mentioned matrix of knowledge as either collective or individual (van Zolingen et al., 2001; Hofstede, 2001). The companies need proper management of the knowledge resources to create a greater ability to adapt and all managers and directors should realize that their knowledge resources with the employees is the greatest resource of the organization. To this extent the research findings indicated that even competing manufacturing, service and education sectors can effectively benefit through knowledge management structure where limited resources could be channeled to more productive areas than attempting to counter competition among the manufacturing, service and education sectors. Also, an enhanced level of trust among the manufacturing, service and education sectors due to networking is also identified by the literature to minimize issues among the manufacturing, service and education sectors.

The findings will assist the owners and managers of the manufacturing, service and education sectors to formulate strategies to envisage a future with corporation than in isolation and to share the resulting performance advantages in a mutually beneficial manner. Similarly, knowledge management practice was empirically tested and found to be a value adding initiative to the manufacturing, service and education sectors where

knowledge management practice of the manufacturing, service and education sectors' performance.

As clearly highlighted during the literature review, the manufacturing, service and education sectors play a crucial role in improving the input and productivity of a nation. Hence, improved the performance of the manufacturing, service and education sectors sector will bring about multiple benefits to the national economy such as creation of employment, promote innovation, reduction of poverty, and promote entrepreneurship.

Lack of performing in the manufacturing, service and education sectors sector will add to the pressure to the government with rising unemployment, spread of poverty, pressure on social security, even political instability due to widespread representation of the manufacturing, service and education sectors sector in a country. In West Peninsular Malaysia, knowledge management structure was not observed to be surfacing as a mainstream topic in the agenda of government. Elements leading to the effective knowledge management structure were identified as the constructs of the model accordingly.

This research will reveal a wide gap in the availability of literature related to the previous studies in the manufacturing, service and education sectors in West Peninsular Malaysia. Therefore, the results of this study may aid, to some extent, the solution to the existing gap in different fields. Finally, significance of this study is that the outcome could be utilized to assess and review existing manufacturing, service and education sectors in West Peninsular Malaysia.

Conflict of Interests Statement

The authors declare no conflicts of interest.

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References

- Allee, V. (1997). *The Knowledge Evolution: Expanding Organizational Intelligence*. Boston: Butterworth-Heinemann.
- Azam, S. M. F., Haque, A., Sarwar, A. and Anwar, N. (2014). Training Program Effectiveness of Service Initiators: Measuring Perception of Female Employees of Bank Using Logistic Approach, *Asian Research Journal of Business Management*, 1 (2): 98-108

- Beckman, T. (1997). A methodology for knowledge management. International Association of Science and Technology for Development, AI and Soft Computing Conference, Banff.
- Bhagat, R. S., Kedia, B. L., Harveston, P. D., & Triandis, H. C. (2002). Cultural variations in the cross-border transfer of organizational knowledge. *The Academy of Management Review*, 27(2), 204-221.
- Bhatt, G. (2000). Organizing knowledge in the knowledge development cycle. *Journal of Knowledge Management*, 4(1), 15-26.
- Bhattacharjee, A. (2012). *Social Science Research: Principles, Methods, and Practices* 2nd Edition.
- Byrne, B. M. (2010). *Structural Equation Modelling with AMOS: Basic Concepts, Applications, and Programming* (2nd ed.). New York: Routledge.
- Camerer, C. & Vepsalainen, A. (1988). The economic efficiency of corporate culture. *Strategic Management Journal*, 9, 115-126.
- Cavaleri, S. & Reed, F. (2000). Designing Knowledge Generating Process, Knowledge and Innovation, *Journal of the KMCI*, 1(1), 109-131.
- Chuang, S. H. (2004). A resource-based perspective on knowledge management capability and competitive advantage: an empirical investigation. *Expert Systems with Applications*, 27, 459-465.
- Conner, K. R., & Prahalad, C. K. (1996). A resource-Based theory of the firm: knowledge versus opportunism. *Organization Science*. 7(5), 477-501.
- Dahari, Z., Rahman, S. and Azam, S. M. F. (2011). Customer satisfaction with mobile phone operators: an exploratory study in Kuala Lumpur, Malaysia. *Indian Journal of Marketing*, 41 (5). pp. 39-47.
- Davenport, T. H. & Prusak, L. (1998). *Working Knowledge: How Organizations Manage What They Know*. Boston: Harvard Business School Press.
- Davenport, T., De Long, D., & Beers, M. (1998). Successful knowledge management projects. *Sloan Management Review*, 39(2), 43-57.
- Drucker, P. F. (1993). *The Post Capitalist Society*. Oxford: Butterworth-Heinemann.
- Grover, V., & Davenport, T. H. (2001). General perspective on knowledge management: fostering a research agenda. *Journal of Management Information Systems*, 18(1), 5-21.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis: A Global Perspective* (7th Global ed.). Upper Saddle River: Pearson Prentice-Hall.
- Handic, Lagumdzija and Eljo (2008). Auditing knowledge management practices: model and application. *Knowledge Management Research & Practice* 6(1), 90–99
- Haque A., Sarwar, A., Azam, S. M. F. and Yasmin, F. (2014). Total Quality Management Practices in the Islamic Banking Industry: Comparison between Bangladesh and Malaysian Islamic Bank, *International Journal of Ethics in Social Sciences*, Vol. 2 No. 1, pp.5-18.
- Haur, C. H., Khatibi, A. and Azam, S. M. F. (2017). Antecedents of Consumers' Perception towards Online Advertising in Malaysia: The Structure Equation Modeling Approach, *European Journal of Management and Marketing Studies*, 2 (3): 15-30

- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations*. Beverly Hills, CA: Sage Publications.
- Hung, Y., Huang, S., Lin, Q., & Tsai, M. (2005). Critical factors in adopting a knowledge management system for the pharmaceuticals industry. *Industrial Management and Data Systems*, 105(2), 164-183.
- Jackson, S. E., Hitt, M. A., & DeNisi, A. S. (2003). *Managing knowledge for sustained competitive advantage: designing strategies for effective human resource management*, Jossey-Bass, San Francisco.
- Kline, R. B. (2011). *Principles and Practice of Structural Equation Modelling* (3rded.). New York: The Guilford Press.
- Lee, H. & Choi, B. (2003). Knowledge management enablers, processes, and organisational performance: an integrative view and empirical examination. *Journal of Management Information Systems*, 20(1), 179-228.
- Leonard, D. & Sensiper, S. (1998). The role of tacit knowledge in group innovation. *California Management Review*, 40(3), 112-132.
- Liebeskind, J. P. (1997). Knowledge, strategy, and the theory of the firm," *Strategic Management Journal* (17:Winter) , pp. 93-107.
- McAulay, L., Russell, G., & Sims, J. (1997). Tacit knowledge for competitive advantage. *Management Accounting*, 75(11), 36-37.
- McGill, M. E., Slocum, J. W., & Lei, D. (1992). Management practices in learning organizations. *Organizational Dynamics*, 21(1), 4-17.
- Moha Asri A. and Azam, S. M. F., (2015). Mediating Relationship of Financial Practice Between Financial Knowledge and Business Success: An Empirical Study on Malaysian Small Business, Accepted in Australian Academy of Business and Economics Review (AABER) for the upcoming volume.
- Nahm, A. Y., Vonderembse, M. A., & Koufteros, X. A. (2004). The impact of organizational culture on time-based manufacturing and performance. *Decision Sciences*, 35(4), 579-607.
- Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-Creating Company*. Oxford: Oxford University Press.
- Prahalad, C. K., and Hamel, G. (1990). The Core Competence of the Corporation. *Harvard Business Review*, 68(3), 79-91.
- Sankaran, G. (2006). Knowledge diffusion from DBA research. *actKM Online Journal of Knowledge Management*, 3(1), 26-34.
- Schermerhorn, J. R. Jr. (1999). *Management*. New York, NY: Wiley.
- See, R. T. K. (2002). *Learning Organisation Practices and Organisational Effectiveness – the Impact of Type of Company*, M.B.A. Thesis, Universiti Sains Malaysia, Penang.
- Sekaran, U., & Bougie, R. (2010). *Research methods for business: a skill-building approach* (5th ed.). Haddington: John Wiley & Sons.
- Sharkie, R. (2003). Knowledge creation and its place in the development of sustainable competitive advantage. *Journal of Knowledge Management*, 7(1), 20-31.

- Simonin, B. L. (1997). The importance of collaborative know-how: An empirical test of the learning organisation. *Academy of Management Journal*, 40(5), 1150-1174.
- Tarofder, A. K. and Azam, S. M. F. and Jalal, A. N. (2017). Operational or Strategic Benefits: Empirical Investigation of Internet Adoption in Supply Chain Management, *Management Research Review*, 40 (1): 28-52
- Tham, J., Yazid, M. S. A, Khatibi, A. A. and Azam, S. M. F. (2017). Internet and Data Security – Understanding Customer Perception on Trusting Virtual Banking Security in Malaysia, *European Journal of Social Sciences Studies*, 2 (7): 186-207
- Tsai, M. T., & Lee, K. W. (2006). A study of knowledge internalization: from the perspective of learning cycle theory. *Journal of Knowledge Management*, 10(3), 57-71.
- Tsoukas, H., & Vladimirou, E. (2001). What is organizational knowledge? *Journal of Management Studies*, 38(7), 973-993.
- van Zolingen, S. J., Streumer, J. N., & Stooker, M. (2001). Problems in knowledge management: A case study of a knowledge-intensive company. *International Journal of Training and Development*, 5(3), 168-184.
- Walczak, S. (2005). Organizational knowledge management structure. *The Learning Organization*, 12(4), 330-339.
- Wernerfelt, B. (1984). A Resource-Based View of the Firm. *Strategic Management Journal*, 5, 171-180.
- Zainudin, A. (2012). *A Handbook on SEM: Structural Equation Modelling Using Amos Graphics* (4th ed.). Kelantan: University Technology MARA Press.
- Zander, U., and Kogut, B. (1995). Knowledge and the speed of the transfer and imitation of organizational capabilities: An empirical test, *Organization Science* (6:1), pp. 76-92.

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