

# An Explorative Study on Educational Knowledge Management in Supply and Chain

Mohd Faiz Mohd Yaakob<sup>#1</sup>, Mat Rahimi Yusof<sup>#2</sup>, Akhmad Habibi<sup>\*3</sup>, Amirul Mukminin<sup>\*4</sup> Mohd Afifi Baharuddin Setambah<sup>#5</sup>

<sup>#</sup>*School of Education and Modern Languages, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia*

<sup>1</sup>[mohd.faiz@uum.edu.my](mailto:mohd.faiz@uum.edu.my)

<sup>2</sup>[mramihy@uum.edu.my](mailto:mramihy@uum.edu.my)

<sup>\*</sup>*Jambi University, Indonesia*

<sup>3</sup>[akhmad.habibi@unja.ac.id](mailto:akhmad.habibi@unja.ac.id)

<sup>4</sup>[amirmuk06@gmail.com](mailto:amirmuk06@gmail.com)

<sup>#</sup>*Institut Perguruan Guru, Kampus Kuala Lumpur*

<sup>5</sup>[mohdafifi@ipgkbm.edu.my](mailto:mohdafifi@ipgkbm.edu.my)

**Abstract**— Realizing the importance of knowledge management (KM) in improving the supply chain; KM is identified as one of the sustainable factors to educational achievement. The purpose of this study was to explore the knowledge management among principals and teachers in high performance schools in Malaysia. Information was gathered from six teachers and four principals from four different schools in Northern Malaysia. The data was collected through demographic profiles and semi-structured interviews. We identified five major themes related to teachers and principals in managing knowledge management in school; (1) Knowledge Received, (2) Knowledge Documentation, (3) Knowledge Sharing, (4) Knowledge Creation, and (5) Knowledge Application. Policy implications and suggestions for future research are also discussed.

**Keywords**— Knowledge Management, Supply Chain, Educational Supply and Chain, Educational Administration, Educational Planning and Policy

## 1. Introduction

Knowledge Management (KM) witnessed absence of universally accepted meaning due to diverse perspectives pertaining to its conceptual interpretation. In principle, Knowledge Management is a transfer of unsaid information into expressed information which is then shared within the association or community. By and large, information administration is the procedure through which associations create incentives from their scholarly and learning-based resources. Hence, information administration concerns about ways of

distinguishing, acquiring, circulating and keeping up with learning that are essential to the organization.

Knowledge requires effective management to ensure its effective and beneficial impact to the organization. In his work, [1] wrote that knowledge is a significant element for successful organization; an organization success depends on its effectiveness in acquiring, documenting, reusing knowledge from members of various organizations [2]. Nowadays, knowledge has become increasingly important parallel with globalization, interaction in technology and changes in organization [3]. Many organizations are aware of the importance of knowledge management in developing and preserving events with other organizations [4].

In other words, knowledge management is regarded as an intellectual property or asset useful to the organization. [5] pointed out that knowledge management in strategic operations enables organizations to make better and more effective decisions to maximize customer satisfaction and improve excellence.

## 2. Literature Review

Scholars found the importance of KM in supply chain [6], [7] and model of supply and chain management model for teacher education institutions proposed [8], [31]. However, in school context, there is the gap to develop model related to knowledge management in supply chain. Managing an organization's knowledge is the latest pursuit of those seeking competitive advantage. The interest in knowledge management has surged during the last few years, with a growing number of researches publications, conferences and investment in knowledge management initiatives.

Previous studies on the management of education in the education sector give a clearer picture that the importance of managing management in improving the quality of education. Exemplifying such avocation is work by [9] who found that the successful implementation of knowledge management at Hong Kong schools is closely linked to the competence in information systems, leadership, culture, organizational structure and individual attitudes. While in Malaysia [10] the culture in a school determines the successful implementation of knowledge management. These two studies paved to an understanding that well-managed knowledge in schools ensure the quality and success of education.

Meanwhile, the impact of organizational management involves aspects of the human, process, product, and overall performance [11]. At the very first level of knowledge transfer, organizational management facilitates the worker to learn through various means i.e. through internal and external socialization, and through adaptation which eventually lead to work satisfaction. Secondly, knowledge management enables the enhancement of the organizational process through three-dimensional factors, namely, reliability, efficiency and innovation.

Processes involved in knowledge management such as acquiring, documenting, moving, creating, and applying knowledge indirectly contributed to the creation and application of better innovation [12]. In line with the role of the school as a social community, activities such as procurement, sharing, documentation, creation and knowledge applications always occur among teachers. [13] agreed on the importance of organizational management in enhancing the efficiency and effectiveness of an organization. In addition, the implementation of knowledge management in an organization is also intended to improve the quality of work and innovation. Existing knowledge can be reused to develop new knowledge that can be integrated with the latest knowledge to gain more valuable knowledge, more strategic views and better organization performances [14].

Knowledge Received is a process for an organization to acquire information and convert it to a more meaningful form of recognition. The acquired entrepreneurs are also characterized and also acquired. The Received acquired by an individual will often be followed by the sharing of partnerships with the same organizational partners or with outsiders. Indirectly this practice enables the

exchange of knowledge between two or more parties [15].

Knowledge Documentation refers to acquired knowledge recorded in manual, database, and guidebooks. Properly formulated data forms, information and knowledge will enable members of the organization to make references. The use of technology information and other sources of knowledge play an important role in ensuring that knowledge documentation is implemented effectively [16].

Knowledge Sharing is always true whether or not you are aware. When a community members share information with each other, two way communication and talks about something, knowledge sharing will take place [17] and this sharing process is part of a routine organizational activity. It signifies the new form of communication in the workplace that partly resembles how our global economic development is evolving.

Creation of knowledge is a process in which there are various discrepancies of ideas obtained through interactions among individuals, organizations and the environment. Creation of knowledge is a process that has repeated interactions of the implied and sublime process [18]. According to [19], the process of creation of this knowledge includes the development of new things as well as the enhancement of the existing content of implied and explicit information in orgasm and involves the individual cognitive processes involved.

Knowledge applications are assessed as the organization adopts existing knowledge resources to be applied with unlimited and bounded organization members [20]. This knowledge of knowledge is comprised of printed and untrusted sources, intimidated and obscure. Through effective communication, amongst the organizations are able to facilitate a new knowledge to be implemented.

### 3. Methodology

We decided to choose positivism as a philosophy because of positivism assumes that reality exists independently of the thing being studied. In practice this means that the meaning of phenomena is consistent between subjects [21]. Meanwhile, approaches of this study are qualitative because the qualitative approach is drawn from the constructivist paradigm [22]. This approach requires the researcher to avoid imposing their own perception of the meaning of social phenomena upon the

respondent [23]. The aim is to investigate how the respondent interprets their own reality [22].

This presents the challenge of creating a methodology that is framed by the respondent rather than by the researcher. An effective means by which to do this is through interviews, or texts, where the response to a question can be open [24]. Furthermore, we developed the questions throughout the process in order to ensure that the respondent further expands upon the information provided. To ensure the credibility or the trustworthiness [25] of our study, we included verbatim examples from the transcribed interviews apart from member checking [33].

### 3.1 Research Site and Sampling Procedures

The site for this study was principals and teachers in a public high achievement school in Northern Malaysia. High achievement schools are daily schools that are in band 2 (Score 80-89.99%) and Band 3 (Score 70-79.99%). The school band is in compliance with Quality Standard Education Malaysia or SKPM 2010 provided by the Inspectorate and Quality Assurance, Ministry of Education, Malaysia. We obtained an approval letter from the Ministry of Education (MOE) through the Educational Policy and Research Department (EPRD), before obtaining the permission of the State Education Department for approval of conducting the study. Finally, we went to the study school to interview respondents. The series of interview started with the principal followed by the teachers in the school.

### 3.2 Data Collection and Participants

For data collection, this study drew upon a background survey, and semi-structured interviews. Interview data is the primary data source since we would like to explore what is in the respondents' head pertaining to their past experiences [32]. The interviews were conducted in Bahasa Melayu, at the convenience of the respondents' time, which was transcribed and then translated into English. For each participant, each interview lasted approximately 30 minutes and was audio recorded.

### 3.3 Data Analysis

The interview data were first prepared by transcribing the audiotaped using hand phone. We transcribed and transferred the data into computer

files. After that, we immersed ourselves in the details, getting a sense of the meanings, which is known as 'sensing the moments' [27], not this guy though, better scrap off) as to "obtain a general sense of the information and to reflect on its overall meaning" [26]. Third, data were then coded, organized into categories, and analyzed for themes [33]. [32] stated, "Coding is a process of marking segments of data (usually text data) with symbols, descriptive words, or categories" [27]. Next, we used within-case (one participant) and cross-case displays among participants [29] consisting of thematic conceptual ordered displays. We did this in order to (1) spread interviews data so as to find every significant statement relevant to the codes that we set to see the patterns and themes, and to deepen our understanding of our data among the cases (participants) and (2) to remove or reduce repetitive data. We finally used predetermined major themes which are (1) knowledge Received, (2) knowledge documentation, (3) knowledge sharing, (4) knowledge creation, and (5) knowledge applying.

### 3.4 Trustworthiness

We completed the following steps to deal with the "trustworthiness" [25], [28] of our study or to verify the accuracy of data, findings, and interpretations. First, member checks were employed to get participants' feedback on the accuracy and credibility of the data, findings, interpretations, and conclusions. In the words of [25] this is "the most critical technique for establishing credibility." In this study we returned the transcribed interviews to our participants asking them to verify the accuracy of the conversations. Next, we triangulated data through multiple interviews and narratives from participants including verbatim examples from the transcripts.

## 4. Findings and Discussions

The purpose of this qualitative study was to report the findings from a study on the knowledge management among principals and teachers. Going through within-case and cross-case displays and analyses, we categorized the findings into the following predetermined themes which were substantively emerging from the analysis including: (1) Knowledge Received, (2) Knowledge Management (3) Knowledge Sharing (4) Knowledge Innovation (5) Knowledge Application.

#### 4.1 Knowledge Received

For Knowledge Received, we found that most of the knowledge were gained by principals and teachers through in service-trainings pertaining to leadership, school management, teaching and learning in the classroom. Knowledge Received continually occurred during gathering, enterprise or association through which initiated through plain collaboration among individuals. One of the essential points of information administration is to catch the learning that is created amid such cooperation. As an outcome of the exceptionally focused nature of the present circumstance, there is expanding need inside schools and associations to make new information, produce original thoughts and ideas, and to capture these episodes of learning, thoughts, and ideas. The following excerpts demonstrate the above observation:

*GA 1 "There are many things we can learn from (CPD) Continuous Professional Development. Yes, increase our knowledge"*

*GC2 "So far, we have information on 21st century learning, I-think and High Order Thinking Skills (HOTS). Not everyone can go outside, so this CPD platform makes us gain this knowledge"*

*PB ".. in IAB( Institute of Management and Leadership) I got knowledge. From those courses I got the knowledge of leadership "I like it, to be able to get something new and new knowledge, I think that the chief of knowledge is important"*

These excerpts suggest Knowledge Received as one of the themes, demonstrated by acquisition of new knowledge by teachers and principals during CPD programs conducted by IAB and other agencies, to improve their knowledge management. These show that knowledge can be captured in either formal or informal ways. In particular, explicit knowledge from within and outside of the organization can be captured in various forms such as printed reports, a record of meetings, copies of memos and the like.

#### 4.2 Knowledge Documentation

For Knowledge Documentation theme, the analysis suggests that knowledge was created in the form of printed material containing abundance of latest information on education. This makes it easier for teachers and the rest of the school to make a reference and gain an understanding of what will

happen. Documents are the most widely recognized vault of data and information in any association. Records are created for nearly everything: a task proposition, an agreement or understanding, a specialized report, a logical paper, and others

Because of the great variety of the types and lengths of documents that an organization can produce, the systematic and organized management of these documents can save the organization considerable effort and money. And for many organizations, such an effort to systematize and organize document management is the starting point of knowledge management. However, knowledge management actually involves more.

*GA1, GA2 "All information regarding schools, the areas of excellence, MOE policies are all in the management book."*

*PA "This book is a reference. (PBS) School Base Assessment or whatever information is included in this book. So, all the teachers know."*

Knowledge can be documented in many ways. It can be submitted into the database via a prescribed form or it can be contributed through a web page, email, shared public folders and shared network directories. Knowledge management involves making a decision on acceptable means of adding content to the database. Document management has two key functions: first, it provides content; and second, it facilitates content management and access.

These have two key capacities: in the first place, it gives substance; and second, it encourages content administration and access. Document management has four essential components: to begin with, it records talks and messages and files archives; second, it sorts out these electronic archives in a various leveled or system structure; third, it gives web search tools to the recovery of the coveted reports; and fourth, it upgrades content security by dispensing proper levels of access to each archive. From this subject, we found that instructors and principals searching for the archived approach.

The knowledge from documentation helps the principals and teachers to always update their knowledge.

### 4.3 Knowledge Sharing

Knowledge sharing themes are divided into sub themes, namely, (1) sharing the expertise and skills of the same school, and (2) sharing of expertise and skills from different schools. This also includes sharing expertise in teaching and learning.

*GB2 "In the committee, we share various materials"*

*GC2 "senior teachers who share a lot of knowledge to us, especially those who are novices in this teaching and learning"*

*PA "We have a network with SERATA (Other Schools). She's great English, We're great in history, we're together learning"*

*PC "We take the opportunity; we invite specialist teachers from other schools in certain subjects. Our specialist teachers also go to other schools"*

This theme is probably the most crucial. It is amongst the ways toward sharing the knowledge gained. Information can be shared within the community (why you chose 'association'?) with its representatives (e.g., through notices and directions) and learning is shared between educators of the school (e.g., through gathering talks and gatherings) and in addition with instructors outside (e.g., through going to classes and workshops).

### 4.4 Knowledge Innovation

For knowledge innovation theme, the findings show that the innovation of new knowledge takes place among principals and teachers involving efficiency in working more efficiently and building a system that facilitates teachers' co-curriculum. Innovation is the extraction of monetary and social incentive from learning. It includes putting thoughts, learning, and innovation to work in a way that realizes a noteworthy change in execution. It isn't only a thought but instead a thought that has been made to work. This implies that development and business enterprise are required. In this way, living in and working for a universe of developments requires essentially extraordinary states of mind, learning, and aptitudes from the natives. Mechanical adjustment and advancement have been the fundamental drivers of monetary development in created nations since the World War II and are turned out to be essential factors likewise in numerous creating nations [30].

Therefore, to have the capacity to contribute effectively to the improvement of development in the feasible information economy, training frameworks need to incorporate working with and gaining from advancements as a piece of instruction arrangements. Advancements connected to future improvement and changes have three qualities that are additionally applicable to long-lasting learning. We found teachers and principals develop their innovation to ease their job and to avoid teachers workload.

*PA "Everything I do, we burn it all on CDs and for every teacher, so all are in line"*

*PD "No problem right now because the forms of activity reporting we've adjusted for all"*

For more creativity and innovation in education, the demand is not from the education network but rather from a worldwide crisis and the pressing requirement for change. The primary reason is that all national education frameworks depend on two hidden models. Teaching and learning are sequenced to sensible units and customized by a timetable. The rationale of this model depends on a confidence in rivalry and data as the key drivers of instructive change [32].

Innovation is often seen as a special ability that some people have and some do not. Creative ability encourages innovativeness and imaginative thoughts offer importance to our life. In this manner, everybody has innovative capacities and ability or the like. The test is that we are not generally mindful of what our inventive limits are, or how to utilize them in circumstances that are not straightforwardly identified with specific innovative procedures.

### 4.5 Knowledge Application

The theme of Knowledge Application also focuses on teaching and learning activities by making improvements on the content and form of questions leading to the high thinking skills required by the Ministry of Education.

*PA "The theories we learned first in IAB, we go back, we practice."*

*PB "Lots of learning at IAB, and back to school, we implement all that."*

*PC "These are all the IAB teachings, much of the knowledge we get there is practiced in school."*

*GCI "We are in the committee, review content and appropriate training. We apply according to the latest Bloom. "*

*GDI "Inputs related to teaching and learning we try to apply and convey to our students."*

Application of knowledge from teachers and principals is focusing on teaching and learning. As the pace of change in the 21st century continues to increase, the world is becoming more interconnected and complex, and the knowledge economy is craving more intellectual property. In this environment, it is critical that we shift our focus from education to life-long learning. Fortunately, the increasing availability of learning resources on the internet is coinciding with the growing importance of continuous learning. Opportunities to enhance learning by exploring the edge are presenting themselves as well. It is at the edge that most innovation occurs and where we can discern patterns that indicate new kinds of opportunities and challenges. In this context, Knowledge Application in school is more to focus on teaching and learning.

#### **4.6 Conclusion and Policy Implications**

The main contribution of this study, we have explored the themes of knowledge management from teacher and principals in high achievement school. These themes could extend to the new model of knowledge management in supply chain. This information could give to the policy maker to make a development program to school. Organizations are beginning to comprehend and acknowledge information as the most esteemed resource in the rising focused condition. The goal of Knowledge Management is to enhance the nature of the commitments individuals make to associations by helping partners to comprehend the setting inside which the association exists, to collaborate and share what they know and realize, and to successfully challenge, arrange and gain from others. Business associations worldwide are actualizing systems and advances to better deal with their insight. These ideas, apparatuses, and strategies of authoritative learning administration can be connected in the instruction segment.

Education institutions have significant chances to apply information administration practices to help

all aspects of their main goal. It is with learning administration that instructive organizations will be better ready to build understudy maintenance and graduation rates; hold a workforce despite extreme worker deficiencies; grow new program contributions; work to break down the financially savvy utilization of promoting, innovation and different methodologies to meet greater enlistment; change existing procedures and frameworks to give data, not only information, for administration; and content in a situation where foundations cross state and national fringes to address understudy issues whenever and anyplace.

Through the Malaysian Education Blueprint 2013-2025, there are three shifts directly involved in this study. The fourth shift to transform the educational profession into an optional profession clearly demonstrates MOE's commitment to producing teachers of high quality and identity as an educator. The quality of a good teacher is a teacher who is able to manage his knowledge effectively. CPD programs have improved the knowledge and skills of teachers. This is reflected in parallel with current demands in the 21st-century learning. The fifth shift is to ensure high-performance leadership is placed in every school. Leadership who is able to manage their knowledge well is also required in this regard. At the same time, MOE has started training and identifying for individuals who are actually eligible to lead each school. The tenth shift is to maximize the student's success.

In other words, the return on investment should be emphasized. Through this desire, pupils can benefit greatly regardless of their socio-economic background. Once teachers and principals are able to understand and manage their knowledge, the results will be demonstrated by the students' success. Thus, this study is able to implicate the education policy in Malaysia. Education policy in Malaysia through PPPM 2013-2025 is the longest educational policy foundation in Malaysia; hence, the time is sufficiently spent to strive for the best possible implementation in ensuring one-day success for the nation.

Additionally, this study also impacts the educational leadership training in Malaysia. Knowledge skills training can be revised to ensure more effective implementation for leaders. Similarly, in teacher training institutions, new teachers should be introduced to these skills so that once they work;

they will practice the skills of managing this knowledge. In conclusion, this study has been successful in exploring and understanding that knowledge management has taken place in high-performance schools, but teachers and principals do not perceive it directly.

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