A Systematic Review and Model Development of the Factors that Affect Knowledge Sharing in Educational Institutions

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Abstract: *Knowledge sharing is one of the most important practices of Knowledge Management (KM). Most studies focused on knowledge sharing in business organizations, but not many studies can be found on knowledge sharing in educational institutions. Researchers have not come to an agreement regarding the factors that affect knowledge sharing behavior. The purpose of this study is to review and integrate the literature to identify the factors that affect knowledge sharing behavior in educational institutions. A systematic literature review was conducted. Ten articles matched the inclusion criteria. The findings showed the majority of the articles were empirical and a total of 50% of the study was conducted in Malaysia. Academic staff was used by 90% of the study as target respondents. In addition, the findings showed that the factors that affect knowledge sharing are attitude, technology, rewards, culture, top management, and reputation. A propose model was developed and directions for future work are given.*

Keywords: Knowledge sharing, Academic Staff, Attitude, Systematic Literature Review, Technology

1. Introduction

During the last decades, studies and theories in Knowledge Management (KM) have provided empirical evidences that knowledge is the ultimate sources of competitive advantage and superior performance [1], [2], [3], [4], [5]. Knowledge management includes practices such as knowledge creation, acquisition, integration, and sharing of information, insight, wisdom, thought, inductions, and the application of knowledge [6]; [7]. Organizations, who have adopted KM, are truly getting the benefits of better decision making, quicker response, increased profit and improved productivity [8], [9], [10]. Knowledge sharing is one of the fundamental practices of KM. Several studies showed that the benefits of KM can only be attained once the knowledge is shared among organizational members [11], [12]. Knowledge sharing is defined as behavior, experiences through what knowledge, skills, or expertise, is exchanged among staff [13].

Knowledge sharing is an essential practice that leads to better organizational performance, reduction of operational cost, innovation, and competitiveness [14], [15]. Due to the benefits of knowledge sharing, previous studies have attempted to identify the factors, motives, and antecedents that lead organizational member to share their knowledge [16], [17], [18]. However, the majority of the previous studies has been conducted in business organizations. Few studies have investigated the knowledge sharing behavior in educational institutions such as universities [19], [20], [21]. Further, researchers who have investigated the knowledge sharing in the educational institutions have not come to an agreement regarding the factors that affect academic or non-academic staff to share their knowledge. Previous studies associated the knowledge sharing behavior with factors such as culture [22], [23], rewards [24], [19], attitude [27], Information Technology (IT) infrastructure [26], [24], [25],

and individual characteristic such as self-efficacy and reputation among others [19], [28].

The purpose of this study is to review and integrate the literature to identify the factors that affect the knowledge sharing behavior in the higher educational institutions. This is supported by the lack of the studies in this area and the need to have a deep understanding of these factors so that the higher educational institutions can use the findings of this study to improve the knowledge sharing behavior. The study consists of five sections. First, the study introduces the topic and highlights the issues. Second, it systematically reviews the related literature of knowledge sharing. Third, the study describes the research methodology. Fourth, the study presents the findings. Lastly, the study presents the conclusion and provides the direction for future work.

2. Literature Review

A. Knowledge Sharing in Higher Educational Institutions

In higher educational institutions, the knowledge of academic staff in the same faculty is seldom shared with colleagues in systematic and meaningful way [29]. Fear of knowledge revelation is cited as one of the most important barriers that lead academic staff to not share their knowledge with others [29]; [27]. Therefore, despite the fact that the university is the center for knowledge creation, the knowledge is not being shared and utilized effectively [30], [31]. Knowledge sharing is defined as the fundamental means through which employees can contribute to knowledge application, innovation, and ultimately the competitive advantage of the organization [32]. Based on the definition, universities will not achieve several advantages if the knowledge of the organizational member has not been shared. Researchers highlighted the need for knowledge sharing to produce new ideas and to help each other in solving problems and implementing new policies and

procedures. Individuals can share their knowledge via many means such as face-to-face, lectures, workshops, online discussion among other [33].

B. Summary of Reviewed Articles

Empirical evidence showed that knowledge sharing has many benefits for individuals and organizations such as universities. However, many barriers prevent the knowledge from being shared among academic and non-academic staff. As a result, previous studies attempted to understand the factors that affect knowledge sharing behavior among academicians. For example, [28] conducted a case study to identify the factors that affect the motivation of academicians to share their knowledge in academic institutions in Malaysia. The study collected data using semi-structured interview method. The findings indicated that acknowledgement, mentoring, vision and mission, build reputation, knowledgeable, personal belief, and reciprocity are the most important factors that affect the knowledge sharing behavior among academic staff.

Similarly, Tan et al. [19] investigated the knowledge sharing behavior among academicians in Malaysia. They incorporated factors such as commitment, enjoyment in helping others, reputation, organizational reward, and reputation. The data were collected from 373 respondents. The findings indicated that all the factors have a significant relationship with attitude to share knowledge which in turn affects significantly the intention to share knowledge.

Cheng et al. [22] conducted a quantitative study in Malaysia to find the factors that affect the knowledge sharing in an academic institution. Independent variables included culture, structure, and information technology. Data was collected from 60 students at Multimedia University in Malaysia. The findings showed that culture, structure, and information technology havea significant effect on knowledge sharing.

Nistor et al. [26] investigated the role of educational technology and online communities of practice (CoP) on knowledge sharing among faculty members in Germany. They adopted as a theoretical adoption model the Unified Theory of Acceptance and Use of Technology (UTAUT) which has factors such as performance expectancy, effort expectancy, social influence, facilitating condition, and participation in CoP. Data was collected from 72 faculty members in Germany. The findings indicated that educational technology as well as COP have a significant effect on behavioral intention and use behavior to share knowledge.

Ali et al. [21] conducted a literature review study on the factors that affect the knowledge sharing in academia. The inclusion criteria of the study were only for academic staff and the study was more into cultural factors of knowledge sharing among developing countries. The findings showed that individual, national and professional team as well as the language issues, and trust are the factors that can affect the knowledge sharing behavior among academic staff in higher educational institutions.

Fullwood et al. [24] investigated the factors that affect the knowledge sharing behavior among academicians at United Kingdom (UK) universities. The findings of the study showed that rewards and associations, expected contribution, normative beliefs, leadership, structure, autonomy, affiliation to an institution, affiliation to discipline, and technology are the most significant factors.

In similar approach, Jan et al. [23] found that knowledge sharing behavior of academicians is affected by five factors: nature of knowledge, culture, motivation, attitude, and opportunities to share. Babalhavaeji and Kermani [21] conducted a study in Iranian university and found the factors of knowledge sharing are attitude, intention and intrinsic motivation. Jain et al. [23] explored the factors affecting knowledge sharing activities among academic staff in Business Schools in Malaysia. The finding showed that trust, culture, and structure are the most important factors. Nassuora and Hasan [34] in their survey conducted among 50 academic staff in a Malaysian university showed that, mobile phone technology and attitude were the main motivator factors for knowledge sharing among the academicians.

3. Research Methodology

This paper presents a systematic literature review in the area of knowledge sharing. Our search investigation began with identifying the related articles. The search involves two steps. First, it involves the search for related articles of knowledge sharing. Keywords such as knowledge sharing, higher learning institution, factors affect knowledge sharing, and a combination of these words was used to identify the articles that fell under this topic and with the pre-identified keywords. Databases such as Emerald, Google search engine (Google scholar), ScienceDirect, and ProQuest were utilized for this purpose. As a result, a total of 267 articles was identified. The inclusion criteria for the review articles are to be recently published between 2009 until 2015. KM in its current form was emerged during the late 1990s and knowledge sharing studies increase gradually since that time. However, the knowledge sharing was affected by the emergence of web based technologies and social media, which appeared and widely spread during 2008-2009. Other inclusion criteria are knowledge sharing in higher educational institutions.

The exclusion criteria that were used in this selection process are: year of publication prior to 2009, non-English publication, technical articles, non-knowledge sharing articles, business knowledge sharing articles. Three levels of screening processes were conducted. First, the initial screening was conducted by reading the title of the articles. As a result, a total of 214 articles were excluded because majority of the titles are related to business studies. The second screening process was based on the title, abstract, and pre-identified keywords. As a result, 35 articles were excluded. These articles were technically oriented and were not considered for this systematic literature review. The third screening was to check the date of publication. As a result eight articles were excluded because they were published prior to 2009. Figure Ishows the systematic literature review process.
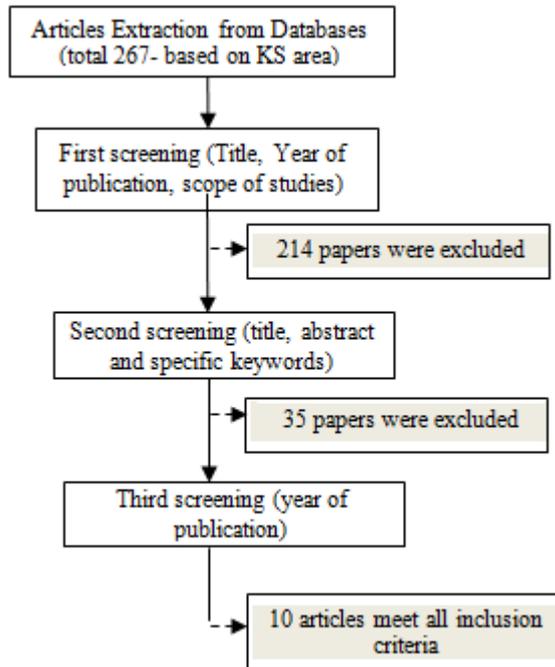
Figure 1: Systematic Literature Review Processes

In depth reading and review of the ten articles was performed and findings from these articles were extracted. A frequency analysis was conducted on the extracted findings to determine the most frequent factors that have been used in the previous studies.

4. Results and Discussion

The analysis of the study showed that 90% of the reviewed articles were conducted using academic staff as respondents. A total of 10% has used the students as target respondents. In addition, the majority of the studies (about 90%) were empirical while others were based literature review studies. Mainly the studies were conducted in Malaysia (50%), Germany (10%), UK (10%), Iran (10%), and globally about 20%.

a) Factor Affect Knowledge Sharing

A frequency analysis of the factors that have been used in the previous studies was conducted. Table 3 shows factors that have been extracted from the previous articles and their frequency. It is important to mention that a combination of factors that have similar meaning and different wording has been conducted. For example, factors such as IT system, IT infrastructure, and technology were combined in one factor named technology. In addition, factors such as leadership and top management were combined in one factor named top management.

Table 1: Extraction of Factors From 10 Articles

Factor	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	F
Culture	X					X		X			3
Personal expectation	X										1
Technology	X	X		X	X			X			5
Reward	X	X	X								3
Top Management	X	X							X		3
Structure		X									1
Normative belief		X									1
Autonomy		X									1
Affiliation to institution		X									1
Affiliation to discipline		X									1
Enjoyment			X								1
Reputation			X		X				X		3
Attitude	X		X	X	X	X	X				6
Software users				X							1
Nature of knowledge						X					1
Motivation						X	X				2
Trust								X			1
Layout								X			1
Formal and informal activities								X			1
Fear of								X			1
Communication								X			1
Acknowledgement									X		1
Mentoring									X		1
Vision and mission									X		1
Knowledgeable									X		1
Personal belief									X		1
Reciprocity									X		1
Social influence										X	1
Facilitating condition										X	1
Performance expectancy										X	1
Effort expectancy										X	1
Participation in CoPs										X	1

It can be seen that the most frequent factor is the attitude with frequency of six times. The frequency and the incorporation of this variable indicates that the attitude toward knowledge sharing is an important factor. It can be seen also that the frequency of other factors such as technology is high. This could be related to the fact that knowledge sharing in these

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days occurs via online means such as a social media website, or Smartphone's applications. Other factors carry the same frequency of three times and they are rewarded, culture, reputation, and top management. Table II shows the frequency of the factors and the operational definitions.

Table 2: Frequent factors and their definitions

Factor	Frequency	Operational definitions
Attitude	6	The willingness to share knowledge with employees
Technology	5	Systems that can store, retrieve, manipulate, transmit or receive information electronically in a digital form.
Rewards	3	The monetary and non-monetary advantages that employees gain from the organization.
Culture	3	Consistent, observable patterns of behaviour in organizations. Two major assumptions which are beliefs and values
Reputation	3	The positive word of mouth that employees wishes to be attributed with if they share their knowledge
Top Management	3	The influence of other employees in the organization, family, and society on employee to share the knowledge

5. Discussion

The findings of this study indicated that the most frequent and used factors are attitude, followed by technology, rewards, culture, reputation, and top management. Most theories proposed that attitude toward the action is essential for the behavior and the actual action. Technology Acceptance Model (TAM) by Davis (1989) argued that attitude is the motive for behavior and actual action. The reviewed studies focused on attitude because it is essential for the knowledge sharing behavior[27].

Technology can foster the development of knowledge sharing culture and helps in the knowledge transfer between individuals and departments. It is a means that can be used to store, retrieve and access structured knowledge. The knowledge sharing requires the use of IT-based applications and software. Social media for example, is a perfect environment for knowledge sharing. It is enabled by the Internet. The existence of these applications and services facilitates the knowledge sharing [26], [24]. Rewards whether financial or non-financial have an effect on the knowledge sharing behavior. Researchers suggested that employees will repeat the behaviors that are rewarded by the management of the organizations.

The culture of the organizations who promotes trust and openness is an encouraging culture for the employee to share their knowledge with other organizational member [6]. In addition, the reputation of the employees is important because employees like to be associated with positive reputation of being knowledgeable and a source of organizational knowledge. This feeling gives them a motive to share their knowledge among organizational members.Overall, these practices would not be possible without effective management that support the creation of

knowledge culture and reward those who are participating in knowledge sharing activities.

The findings showed also that most of the studies have been conducted in Malaysia and the majority was conducted on academic staff. Our findings are in agreement with the findings of [21] who found knowledge sharing studies in developing countries were mainly conducted in Malaysia. They found also that the majority has used academic staff as target respondents.

It can be seen that the most frequent factors can be categorized as individual factors (reputation, attitude), organizational factors (reward, top management, culture) and technology related factors (technology). A propose model could be developed from these factors to help organizations to foster the knowledge sharing behaviour. Since knowledge sharing is associated with several organizational outcomes such as competitiveness, innovation, and organizational performance, the propose model could be developed from the antecedents and outcomes of knowledge sharing. Figure II presents the proposed knowledge sharing model for educational institutions.
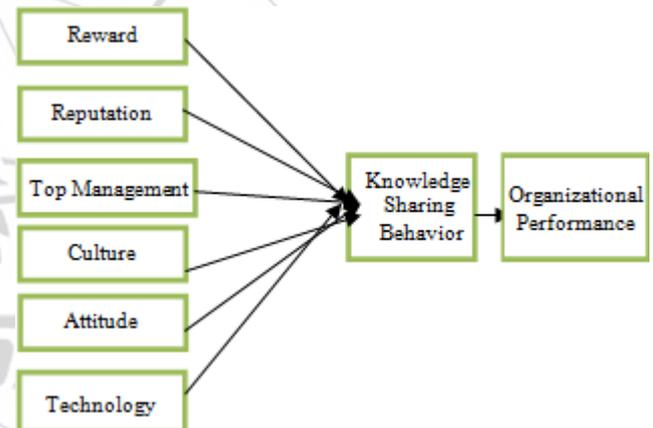
Figure 2: Proposed Conceptual Model

Thus, the hypotheses that reflect the model are

H1: Rewards have significant effect on knowledge sharing behaviour

H2: Reputation has a significant effect on knowledge sharing behaviour

H3: Top management has a significant effect on knowledge sharing behaviour

H4: Culture has a significant effect on knowledge sharing behaviour

H5: Attitude toward knowledge sharing has a significant effect on knowledge sharing behaviour.

H6: Technology has a significant effect on knowledge sharing behaviour.

H7: Knowledge sharing behaviour has a significant effect on organizational performance.

6. Limitation and Recommendation for Future Work

The findings of this study were based on the findings of ten articles that have investigated knowledge sharing in educational institutions. Despite that we have conducted a systematic literature review and come with these articles.

Future studies could expand the inclusion criteria to include more articles so that the result could be more generalizable. Our findings revealed that the majority of the studies was conducted on knowledge sharing among academic staff. It is recommended for future work to use as non-academic staff target respondents. Future work could also employ diversified respondent such as academic, non-academic staff, and student and compare the knowledge sharing factors between these three types of respondents.

The findings showed that 50% of the studies were conducted in Malaysia. However, none of the studies have used non-academic staff as target respondents. Thus, as a way forward, we will conduct an empirical study using to test the propose model by employing non-academic staff as target respondents. This is to observe the knowledge sharing pattern among non- academic staff and how the findings could be used to improve job performance and business operations.

7. Conclusion

The purpose of this study was to identify the factor that affects knowledge sharing behaviour at educational institutions. A systematic literature review was conducted on ten articles that match the inclusion criteria of this study. The findings showed that attitude is the most important factor that has been used by researchers. This is followed by technology, rewards, culture, top management, reputation. The findings also showed that the majority of the reviewed studies were empirical and they have been conducted in Malaysia and other countries using academic staff as target respondents. Based on the review, we proposed a model that can be used by organization to foster the development of knowledge sharing. The proposed model consisted ofthe antecedents and the outcome of knowledge sharing. Accordingly, the related hypotheses were stated. In addition, we highlighted the main limitations of our findings and suggested the direction for future work.

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