

# Multi-Criteria Decision Making Techniques in Successful Knowledge Sharing Behaviour Among Malaysian Student

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## ABSTRACT

This research was identified the success determinants of knowledge sharing behaviour (KSB) among Malaysian university students (MUS). Each university has their own method in delivering knowledge to their undergraduates, but occasionally there would still be incomplete or hidden information. The research question is: what are the success factors in knowledge sharing behaviour (KSB) among Malaysian undergraduate communities in one of northern university in Malaysia? The aim of this research is to identify the success factors for effective knowledge sharing behaviour (KS) among Malaysian university students (MUS) in one of northern university in Malaysia. The identification was done through multi-criteria decision making techniques, which are Technique for Order Preference by Similarity to the Ideal Solution (TOPSIS) and Ranked Base on Percentage. Both techniques has come out with same result, where the personal contributes as success factors in knowledge sharing behaviour among undergraduate students.

## I INTRODUCTION

This research has identified how Malaysian university students (MUS) are using Web 2.0 applications for knowledge sharing behavior (KSB). For a pilot study, the researchers were explored their students who are active webloggers; at least 5 webloggers in selected school. The purpose of the pilot study is to prepare the researcher in exploring the background sample of the Malaysian university students (MUS) in one of northern university in Malaysia.

The findings from the pilot study were used in the main data collection for the following stages in this research. The main data collection was selected at least 15 webloggers from three different colleges in identified university; through content analysis. From the analysis of the main data collection, the researcher has identified the success factors using the applicable

theories. The main integrated applied theory is Knowledge Sharing Behaviour (KSB) theory which is adapted from four main theories, Theory of Planned Behaviour, Social Cognitive Theory, Social Capital Theory and Social Exchange Theory. An adaptation of Information System Success Model (De Lone and Mc Lean, 2003) as model of success determinants in knowledge sharing behaviour (KSB) approach among Malaysian university students (MUS) are projected to be extended in the future research based on these research findings.

### A. Problem Statement

This research is concerned with the way of Malaysian undergraduate students assess information, and it how they develop as knowledge person for enhancement in their student lives. The outcome statement is based on Yuen and Majid's (2007) research. This study (Yuen and Majid, 2007) found knowledge sharing implementation in learning styles among Singaporean undergraduates. Besides that, this study (Yuen and Majid, 2007) also uses a quantitative approach and concerned more on general knowledge sharing implementation, rather than knowledge sharing behaviour. Meanwhile, for this research, the researcher trying to identify the factors which can determine the success factors of knowledge sharing behaviour among undergraduates in their soft skills development. However, there are obstacles in knowledge sharing behaviour that can occur either at an organisation level, group level or individual level (Jain et al., 2007). Culture has identified as the main obstacles which is cited repeatedly in the literature on knowledge management (Ikhsan and Rowland, 2004; Riege, 2005; Ramirez, 2007; Jain et al., 2007; Rosen et al., 2007; Ramachandran et. al., 2011). In addition, other obstacles in knowledge sharing behavior include lack of communication and social networking skills (Riege, 2005), lack of time (Rosen et al., 2007) and lack of trust (Cross and Baird, as cited in Yuen and Majid, 2007; Riege, 2005) and also lack of understanding on knowledge sharing behavior purpose (Teh and

Sun, 2012). Furthermore, many situations occur where individuals will not share their personal knowledge on certain topics. This situation can be attributed to various factors including physical, technological, psychological, personality and cultural issues (Riege, 2005 and Yuan et al., as cited in Yuen and Majid, 2007)

An additional factor is lack of motivation or rewards (Davenport, 1997, Soo et al., as cited in Ramirez, 2007; Smith and McKeen, as cited in Yuen and Majid, 2007), as people are reluctant to share without incentives. Besides that, other obstacle in knowledge sharing is the 'power of knowledge mentality' (Davenport, 1997; Chaudry, 2005; McClure and Faraj, as cited in Yuen and Majid, 2007; Ramirez, 2007). People normally do not like to share their best ideas because it can reduce their credibility in the organisation and their ability to move ahead (Greengard, as cited in Ramirez, 2007; Bender and Fish, 2000; Martensson, 2000 and Miller, as cited in Ramirez, 2007). Based on the findings of this study (Yuen and Majid, 2007) it was assumed that our undergraduates should realise the importance of skills in communication and social networking (Riege, 2005). With this assumption, a few barriers such as lack of communication skills and social networking can be reduced.

Besides the barriers in knowledge sharing behaviour, nowadays the Ministry of Higher Education of Malaysia also does not have any specific policy or rules to ensure that all the Malaysian undergraduate students share their knowledge to survive their lives in the campus. At this moment knowledge sharing behaviour scenarios only determined by Malaysian undergraduate students themselves or has been supported by the university facilities for student development purpose.

## **B. Research Rationale and Scope**

Recently, many knowledge management studies were done in diverse sectors in Malaysia. These sectors include public services (Salleh and Ahmad, 2005; Ikhsan and Rowland, 2004a; Ikhsan and Rowland, 2004b), small and medium enterprises (Wong, as cited in Ramachandran et al., 2007), information technology and Multimedia Super Corridor (MSC) organisations (Chong a; Chong b; Chong and Lin; Chong et al, as cited in Ramachandran et al., 2007; Teh and

Sun, 2012), in telecommunication (Chong et al., as cited in Ramachandran et al., 2007), oil and gas (Abdul Aziz and Lee, 2007) and also finance and banking (Ali and Ahmad, 2006). Studies on knowledge management in the education sector exist but are limited. However, there are little discussion about knowledge management in education, with only two studies found by the researcher. The first research focuses on knowledge sharing implementation among academic staff in Klang Valley (Jain et al., 2007), and the second researches are about organisational culture and knowledge management processes of an institution of higher learning (Ramachandran et al., 2007; Ramachandran et al., 2011). However, far too little attention has paid to knowledge sharing implementation among university students. This current work is applied to Singapore and only focuses on knowledge sharing patterns in student learning styles (Yuen and Majid, 2007). The recent one is about student development in knowledge sharing behavior among Malaysian undergraduates students (Sulaiman, 2010).

This study was restricted to undergraduate students who have good communication skills as well as basic information technology skills. Eppler (2007) suggested that knowledge communication has become an interactive message, which can be either verbal or non-verbal. Furthermore, communication skills also become one of the most important elements needed (Jomhari, 2010). Recently, study was done by Jomhari (2010) shows that communication tools also affected by technology become extremely important. Due to the rapid changes in trends for a competitive society now is increasingly exists (Burke, 2007), such as, the new concept of the digital culture, this is still a new scenario to Malaysian undergraduate students.

## **C. Research Question**

What are the success factors in knowledge sharing behaviour (KSB) among Malaysian university students (MUS) in one of northern university in Malaysia.

## **D. Research Objectives**

1-Exploring the process of knowledge sharing behaviour (KSB) among Malaysian students' weblogs by using content analysis (CA)

2- Creating a way of evaluating the effectiveness of knowledge sharing behaviour (KSB).

## II RESEARCH METHODOLOGY

The paradigm of this research is interpretive (Burrell and Morgan, 1979; Oates, 2006). Then, the research approach is qualitative (Creswell, 1998, 2007) and quantitative analysis through multi-criteria decision making techniques (Wang et al., 2007). Then, the research techniques consisted of an observation and validation survey through student weblogs using content analysis (Kim and Kuljis, 2010) for the main data collection.

## III RESEARCH FINDINGS

This study have used multi-criteria decision making technique which are Technique for Order Preference by Similarity to the Ideal Solution (TOPSIS) (Wang et al., 2007) and Ranked Base on Percentage (The weighted sum method, Triantaphyllou et al., 1997), to rank success factor for knowledge sharing behaviour among the Malaysian student.

By using Ranked Base on Percentage Method approach, we try to ranking what is the main factor. The term percent comes from Latin and means "for every hundred". This method is the simplest and widest method where the formula only use identical units of measure for example either currency, time or frequency (Triantaphyllou et al., 1997).

Ranked base on percentage meaning that we ranked the main factor by looking which factor that contribute higher and lowest percentage. Firstly we calculated the total of entries in weblog that related to each factor. Communities factor was contributed from 143 entries. Personal factor was contributed from 401 entries. Analysis in Technology Web 2.0, 61 frequencies was based on the determined criteria per bloggers. After that, sum all the number of entries in Community, Personal and Technology Web 2.0.

$$\text{Sum}(\text{factor 1} + \text{factor 2} + \text{factor 3} + \dots + \text{factor } x) \quad (1)$$

$$\begin{aligned} &\text{Sum}(\text{Community} + \text{Personal} + \text{Technology Web 2.0}) \\ &= (143 + 401 + 61) \end{aligned}$$

$$= 649$$

After that we calculate percentage for each main factor (Figure 1.0) by using this formula:

$$(\text{Amount for each main factor} \div \text{total}) \times 100 = \% \quad (2)$$

From the sum analysis calculation, we identified that Community was 22.03%, then Personal was the highest which was 61.78%, then Technology Web 2.0 was only 9.39%.

From the calculation of percentage in Table 1, we managed to rank the main factor. The highest one is Personal factor followed by Community and the lowest factor is Technology Web 2.0.

**Table 1: Ranked based on Percentage**

Main Factor	Sum	Calculation/Formula	Rank
Community	143	$143/649 \times 100 = 22.03\%$	2
Personal	401	$401/649 \times 100 = 61.78\%$	1
Technology Web 2.0	61	$61/649 \times 100 = 9.39\%$	3
Total	649	100%	

Second method are TOPSIS. The Technique for Order Performance by Similarity to Ideal Solution (TOPSIS) gain much attention because of its simplicity and easy to comprehend. By using TOPSIS approach the ranking are same with Ranking by Percentage. TOPSIS is based upon the concept that choosen alternative that should have the shortest distance from the Positive Ideal Solution.

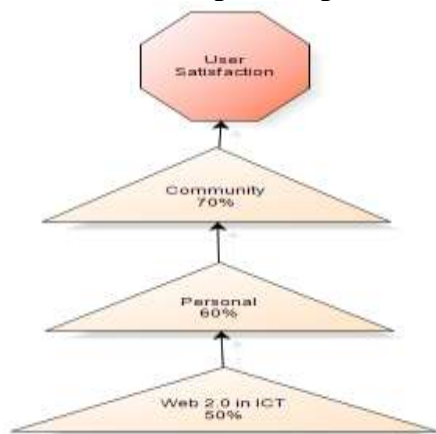
**Table 2: Ranked based on TOPSIS**

Factor	C*	Ranking
Community	0.4000	2
Personal	0.7000	1
Technology Web 2.0	0.1953	3

Table 2 show the result of ranking by using TOPSIS. Personal has been identified as the best factor followed up by Community and the last one is Technology Web 2.0. We chose Personal as the first rank because the value of  $C^*$  is closest to 1 compared to other factor.  $C^*$  is the relative closeness to the ideal solution  $C_1^*$ :  $0 < C^* < 1$ .

#### IV CONCLUSION

From this research findings, we can conclude for this research, Personal being as highest success factor and also identified as determination in knowledge sharing behaviour among peers. It have some differences due to research findings done by Sulaiman (2010) in Figure 1 where from Sulaiman's research, the community are most contributed for knowledge sharing behaviour.



**Figure 1: The ranks for the main success factors based on the validation findings (Sulaiman, 2010)**

These differences are arise because of two reason; the different data collection and also the different data analysis. However, the main aim of this research have achieved; where we can conclude that the Personal or the individual itself is very significant in contribute the knowledge sharing behaviour (KSB) successful among Malaysian university students (MUS) in one of northern university in Malaysia.

Meanwhile the objectives in this research to explore and to create the way also have done through the data collection process and the data analysis stage. Furthermore, exploration processes also have done through content analysis through 15 student weblogs. Then, the identification on best success factor is also recognized and being able in order to evaluate

the factor in knowledge sharing behavior through multi-criteria decision making.

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