

Significant Factors that Contributes to Knowledge Sharing Through Social Network

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Abstract— *As the technology continues to grow, social network sites has been made available and become common today. Using social networks, people convey and exchange information with people, normally with others who share same interest. This is how the process of sharing could happen. Thus, this study has conducted to examine the success factors that could encourage to the process of sharing information on knowledge through social networks. The factors mainly consist of individual or community factor, content factor, and technological factor. Individual and community factor is factor which embedded within individual or community which could encourage people to share. Content factor is factor which provided by social network sites, including what information can be shared, how depth people could share, etc. Technological factor concerns with features of the social network sites, including the tools, links, navigation, etc. Result from this study could assist organizations, especially educational institutions (as the respondents are students) to evaluate their usage of social networks sites and utilize it for knowledge sharing, as well as to support teaching and learning process. This study could also help to build awareness among people of what extent they have already shared, and what information should they improve to share in future.*

Keywords- *individual and community factors, content factors, technological factors, social network, knowledge sharing.*

I. INTRODUCTION

Technology has been considered a significant requirement in our daily life recently. The rapid growth of the technology tools and applications has made the technology an important medium to transfer and distribute information. Thus, it can be considered as enabler for knowledge sharing, whereby it provides

infrastructure for sharing even though it might not be the motivation for people to share their knowledge (Shahrinaz Ismail, 2010). Today, we can see a lot of technology tools that have been made available to facilitate sharing, which include electronic bulletin boards, databases, forums, e-mails, blogs, as well as social networking sites. This study attempts to investigate the factors that could encourage knowledge sharing through social networks. Social network has been chosen as the medium to be studied because it is widely used all over the world today. Therefore, this study is conducted with the aim to discover what factors that might lead to knowledge sharing through social networks and how depth social networks being used to facilitate the process.

According to a research that has been conducted by IDC Research (a body which actively conducts researches in Malaysia), the Internet users in Malaysia has reached 16 millions and predicted to increase to 20.4 millions in 2012. (Syahrir Mat Ali and Fatin Hasnan, 2009). Due to the active usage of Internet, this phenomenon has resulted in social network sites existence. Social networks communities and websites have indicated a significant trend recently towards business, academic communities, as well as to the individuals within a society. Friendster had reported over 17 millions users and MySpace 20 millions users in July 2005 (Sharinaz Ismail, 2010). The social network services and websites are expanding and produce community knowledge in every second (Akiyoshi, 2008).

Social network communities usually request users to share their personal information (identity). This is the starting point for users to build trust among them and facilitate wider learning environment after trust are built strongly among them. Social networks are believed to be able to resolve barriers to knowledge sharing, which is lack of open communication (Ramirez, 2007) as in (Sharinaz Ismail, 2010). Trust has been the major factor that has been studied by many researchers when considering sharing of

knowledge through electronic means. However, the depth of information that they tend or willing to share, is still in doubt. For purpose of this study, previous research has been viewed and models from those researches were analyzed. From the information gathered, trust, as well as other factors are accumulated and categorized into three main groups, which consist of organizational / community / individual factors, contents and context factors, as well as technological factors. These factors are developed into a set of model, which can be viewed as in Figure 2. This study attempts to investigate the factors which could contribute to knowledge sharing through social networks. Social network has been chosen as the medium to be studied because it is widely used all over the world today.

Problem Statement

As what has been reported by many researches and statistical reports, social networks are widely used all over the world today. However, there some issues pertaining the usage; which include the factors that lead to social network usage, the reason of access and the knowledge sharing phenomenon. The factors might vary from individuals to community, contents, as well as the technological facilities. There are also various reason of why people choose to use social network sites. The extent and depth of the process sharing knowledge and types of information that user commonly shared is still in doubt. Therefore, this study has been conducted in order to examine and discover these issues. The outcomes of this study could assist in increasing more efforts towards promoting knowledge sharing through social networks.

II. RESEARCH OBJECTIVE AND QUESTIONS

This study was conducted with the attempt to achieve the following objectives;

- To investigate factors that encourage of knowledge sharing through social network.
- To identify why people choose to use social network sites.
- To discover types of information that being shared and being used over the social network.

Three main questions have been developed to be answered and investigated throughout this study. This set of questions has been developed to produce a questionnaire. The questions are as follow;

- What are the factors that might encourage knowledge sharing through social network?
- Why do people choose to use or actively participate in social network?
- What types of information that users to share, exchange and use over the social network?

III. BACKGROUND OF THE STUDY

MARA University of Technology (UiTM) has been chosen as the location to conduct this study. This is because UiTM is one of the universities in Malaysia that currently active in doing research, which means, actively participate in sharing and retrieving information activities. In order to narrow down the scope, Faculty of Information Management which located in Puncak Perdana, Shah Alam, Selangor has been selected. Faculty of Information Management is selected to represent the community as this faculty is involves in area of managing and evaluating information. The activity of managing valuable information has been the core duty of people who graduated from this faculty (the former name for this faculty is School of Library Science). Therefore, final semester students, from four different programs (bachelor degree) from this faculty have been selected to be among 160 respondents, as they might be more exposed to activity of dealing with information compared to their juniors. Furthermore, they will be graduated soon, which means they might build their own networking in order to search for jobs and experience. This situation could lead to actively using social networking websites or blogs. Six social networking sites that have been chosen to be studied, which include Facebook, Twitter, Blogger, MySpace, Friendster, hi5, and Tagged. Those sites were selected based on usage which reported by statistical reports and studies from previous researches. From previous reports, Facebook were found to be the most popular, followed by Friendster, MySpace, Twitter, Blogger, hi5, and Tagged. These social networking sites were tested for this study and the result was reported in chapter 7 (data analysis and findings).

IV. LITERATURE REVIEW

This section discusses about what researchers or authors had viewed about knowledge sharing and social networking. Previous researches and the models that have been developed are also being viewed and discussed within this chapter.

Knowledge Sharing through Social Network

Knowledge and social networks has become important in 21st century organizations. A study conducted by Janhonen and Johanson (2010) has found out that both knowledge creation processes and social networks defined the performance of the team. This indicates that a proper management of knowledge and a good utilization of social networks can bring out benefits towards the organization.

In addition, blogs and social networks have tools that could facilitate sharing, such as frequent updates, free public access, personal editorship, etc. These tools support the searching and retrieval of knowledge, as well as knowledge

transfer (Yu, Lu, and Liu, 2010). There are increasing numbers of professionals who have using blogs to present their work. For example, 'Library Law Blog by Mary Minow (attorney cum librarian), which discusses the development regarding copyright, access, intellectual freedom, etc. Cross, et al. (2001) has pointed out that knowledge which embedded within a worker is a critical resource for the organization, and there were little effort to organize this type knowledge which is sometimes lies in social networks. Cross, et al. has introduced a social network analysis to understand collaborative relationships between people and its knowledge flow. Similarly, Cadima, et al. (2010) had introduced the KIWI system, which enables users to register their interactions and visualize their social networks usage. KIWI helps to gather information about social interactions, and provide visualization of the social networks (how depth social network has been used, which gap could be improved, etc.). However, for the purpose of this study, focus was not oriented towards social network analysis, since no model or system has been built. This study focuses primarily on identifying factors which could lead to sharing of knowledge through social network.

Yang and Chen (2008) has stated that it is a common problem for a social network to support the exploration, retrieval, and exchanging knowledge because users might have their own needs when they access and discuss information with others. Yang and Chen has suggested establishment of social network-based collaboration support which could help people find relevant content experts who are willing to share their knowledge. This kind of support is already made available through social networks. For example, through Facebook, users could create a group of people consists of friends with similar field and discuss on issues. Users could also provide suggestion to colleagues of whom to refer to for particular solutions.

Moreover, Wang, Yang and Chou (2008) pointed out that community of practice (CoP) are an effective means of creating and sharing organizational knowledge. They had proposed a P2P knowledge sharing architecture from a social-technical perspective, called KTella. KTella forms a knowledge sharing environment with multiple knowledge repositories, and enables knowledge to be produced in different formats by different producers at different functional levels. This application seems to work similarly as social network sites, whereby sharing process could also be done. It is just that efforts should be made more on sharing comprehensive knowledge between individuals. Other than KTella, other previous researchers also had developed a virtual community or CoP for their organization, which works similarly as social network, but those applications focused more on sharing of knowledge. For example, Monclar, et al (2009) had introduced Mobile Exchange of Knowledge (MEK) to maintain knowledge acquired by user by offering several functions, such as

synchronization of information (information can be transferred from mobile phones to personal computers), being a knowledge seeder (to create and distribute information), and capture and acquire knowledge from a number of people with same interests. It helps in balancing social networks, whereby knowledge can flow quickly and with minimum obstacles. As compared to those inventions by previous authors, social networks have similar features and ability. However, we could see that today, people is lack in sharing more comprehensive information through social network sites. People tend to share only general information and to use social networks as entertainment. Therefore, factors that could encourage the process of knowledge sharing need to be investigated.

Factors that Contribute to Knowledge Sharing

Tseng and Kuo (2010) stated that successful knowledge sharing depends not only on the good technology, but also on the self-regulatory, which means the individuals or community (emotional and motivational responsiveness, shared values, etc.). Therefore, lot of studies has conducted toward this individuals/community values, as well as other factors (content and technology). Yu, Lu, and Liu (2010) called this factors as the psychological factors and factors related to organization culture. Factors that could contribute towards knowledge sharing through social network can mainly be categorized into three sections, as follow;

Individual and Community Factors

Shahrinaz Ismail (2010) pointed out that trust and usage goal may affect what people willing to share. Ostergaard (2009) added that knowledge is diffused through informal contacts, when trust is exists. According to his study, most engineers have informal contacts with employees working in other firms and obtain useful knowledge from these sources. This means that engineers have to know and trust each other before they share knowledge through informal contacts. In addition, it was also found out that some engineers are still keep in contact with their seniors from the university, whom they referred to for certain solutions.

Other than trust, identification / identity information or the relationship is also important and could affect wider learning and sharing. Lewis, et al. (2008) added that users who are closely related (friends) reveal more personal items (picture, etc). Furthermore, Hsu and Lin (2008) pointed out that community identification is important in blogging. Lui, Bijanand Morad (2011) had a similar view, whereby their study had emphasis on relationship or ties, which means that this ties or relationship could help users to find and get the needed knowledge rather than referring to the central

knowledge repository (new knowledge may not exist in the repository). He, Qiao, and Wei (2009) added that social relationship embedded in human beings is the key factor affecting knowledge sharing, whereby from their study, it was found out that developing and validating tie strength, shared norms, and trust as three dimensions of social relationship. In addition, Laila (2007) had investigated that relationship is important because her study had found out that the strength of business relationships contributed most significantly to the sharing of public and private knowledge in this organization. Furthermore, Yang (2008) added that individual attitudes towards learning and sharing could give impact towards organizational knowledge sharing. Yang and Wu (2008) agreed at this point by stated that human factors were manipulated to understand knowledge sharing, and users' attitude could influence the process.

Content Factors

Even though less of previous authors have emphasis on content factors, but it is still important to encourage knowledge sharing. Content factors may involve the usefulness of information, the benefits, etc. Hsu and Lin (2008) had pointed that many companies had launched blogs as a marketing channel, because commercial companies are aware that blogs could build up their reputation and provide benefits through information that being distributed through blogs. Hou, Sung and Chang (2009) added that social networks encourage integrated solutions for information and provide opportunities for further analysis/discussion of knowledge. Furthermore, Thelwall (2008) had conducted a study and found out that news, links and page analysis is important contents which may convey through social network environments. Lui, Bijan and Morad (2011) stated that social networks has the function to support people to manage the relation between task and knowledge so that when a user is assigned a task, the relevant knowledge can be obtained intellectually and navigated easily by the relationships between tasks and knowledge. Cheng (2010) stated that social network becomes a highly dependable mechanism for firms to use to gather new practices, whether to gain legitimacy or to find for relevant knowledge.

Technology Factors

Shahrinaz Ismail (2010) suggested that technology factor is important because technology has tools that could facilitate knowledge sharing. Furthermore, technology may affect what people willing to share. For example, Friendster and Facebook requested disclosure of identity information beyond common elements (such as shootout, hobbies, testimonials, etc.). From the study conducted by Shahrinaz, the tools or elements which have shown potential contribution to engender trust among

participants would be hobbies, interests, favorites, shout out, about me, testimonials, groups and affiliations. Hsu and Lin (2008) had a similar view, whereby they stated that most people recognize blogs as easy publishing tools.

Further discussions on three factors (individual and community, content, and technology) can be viewed in the next section, which discussed on previous research models that have been developed by various authors. These models discuss a number of elements within each factor and have been tested by the authors according to their studies.

Previous Research Model

There are a lot of research has been done to investigate the condition and performance of knowledge sharing. From previous researches, it was found out that trust is the major focus of the researches and could be the major factors that influence knowledge sharing followed by other factors. Models that have been developed by previous researches can be viewed as in all figures as following;

Yu, Lu, and Liu (2010)

Based on Figure 1, Yu, Lu, and Liu (2010) has conducted a study to explore the specific factors that facilitate voluntary knowledge sharing in a virtual community. All items were measured using seven point of Likert scale which range from "strongly agree" to "strongly disagree". The study has been conducted towards members of three online communities namely, Chip123 (Taiwan RD Innovation Forum), TESEC (Taiwan Elementary and Secondary Educator), and Blueshop. The study used online and interview surveys, whereby invitation through e-mail has been sent to respondents to let them answer the questionnaire through a given URL link (web based survey form). Participation in the study was voluntary, but limited to those subjects who were eighteen years old or older and who had knowledge sharing experience through blogs. In total, 442 responses were gathered (318 from offline data collection, 124 from online data collection). Figure 1 is a model that has been developed with fairness, identification, and openness, which were considered as three categories of sharing culture. Sharing culture, enjoy helping, and usefulness/relevancy of information are factors that could contribute to knowledge sharing behavior. Fairness is defined as the extent which users are treated fairly within the community. Identification is about the relationship and has common shared goals and sense of belonging to the group. Openness is about where information flows freely between individuals. It was assumed that individuals who trust each other are more willing to share relevant ideas and stronger identification will increase group sense of belonging, whereby individuals will contribute in a voluntarily because they feel that they could learn more

through involvement with community. Sharing culture can be defined as the strong positive norms of the community's knowledge sharing culture. The usefulness or relevancy defines that people share tend to share knowledge with close colleagues because the needs of the receivers and because of their interpersonal relationships with those close friends/colleagues.

The results of the study have shown that fairness and openness could significantly affect the sharing culture. Some respondents thought that it is fair to help others if they could get the help from the community. The findings also indicated that high openness members are more eager to participate with the community since they believe that the interactive environments are suitable places to share opinions and ask for advices. However, identification was not considered as significant as fairness and openness towards sharing culture. It is also confirmed that enjoyment has positive effects towards knowledge sharing behavior. When people feel good about sharing knowledge to help others, they tend to perform more sharing actions and provide more helpful knowledge. Therefore, from the study, it could be concluded that sharing culture (fairness, openness), enjoy helping, and usefulness /relevancy of information could lead to successfulness of knowledge sharing in a community.

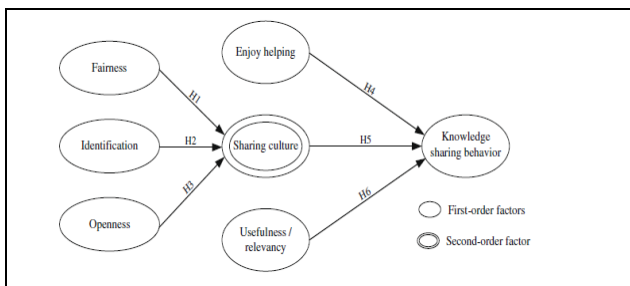


Figure 1: (source: Yu, Lu, and Liu 2010)

V. CONCEPTUAL / RESEARCH MODEL

A model has been developed for the purpose of this study (Figure 2). The main factors that might contribute to successful knowledge sharing through social networks consist of three elements, which are individuals or community factors, content factors, and technological factors. Based on previous model, this research model divides individual and community factor into six elements, which are trust, fairness, community culture, individual attitude, enjoyment, and relationship. Trust can be defined as users believe that other people would not misuse the knowledge or information that they distribute. Moreover, users believe that other people that users would like to share with would not take advantage towards them. People with a strong trustworthy belief tend to reveal and share their knowledge better. Fairness can be

defined as users feel that they are treated fairly, free from bias, and equality among users. Fairness might encourage users to share more knowledge if users feel satisfy of with how they are treated. Community culture can be defined as the environment where users come from, the belief and the norms that where what is right and what is wrong is defined by the culture. A good culture is assumed to encourage and continuously developed knowledge sharing and development.

Individual attitude is the actions and manners which embedded within an individual. Positive attitudes, such as willingness to share, cooperative, caring for others is important to encourage knowledge sharing to be successful. Enjoyment is the extent where people are ready and willing to help others (altruism), regardless of who they are, no matter they have strong or close relationship or not. People with enjoyment tend to actively participate in sharing the knowledge, as long as they could convey and share what they know. Lastly, relationship is about identification. It is related to how close a person to another and the sense of belonging to a group. It is believed that users with strong relationship feel that they are part of the community, thus, willing to share their expertise and knowledge.

Furthermore, content factors can be divided into five elements, consist of usefulness, detail, openness, reputation, and benefit. Usefulness is how the content may be relevant to what user's needs. People are assumed participate in knowledge sharing if they think that information they would like to convey or retrieve is fulfilling their information demands. Otherwise, they will not interest to involve. Information that might considered as relevant such as educational information, political information, business information, etc. Detail is defined as the thoroughness or the completeness of information. Users will participate in sharing if social networks could provide adequate and comprehensive information that they need. Openness is the where information flow freely through social networks. Some people might prefer to have opinion from others with no close relationship because they wanted honest opinions (close colleagues may not provide total honesty because they would avoid from hurting friend's feelings). Reputation is about credibility. People tend to actively participate in sharing if they believe social networks could improve their credibility through sharing of knowledge (from the information they provide). Lastly, benefit is about what people expected to get from process of sharing through social network. People tend to share and gather information from social networks if they think that social networks could provide personal or work-related benefits to them.

Lastly, technological factor can be divided into five elements; ease of use, navigation, interactive, useful links, and useful tools. Ease of use is about how technological features of social network could help users perform their task faster. For example, if social networks have the ability to share articles, people might more interested in sharing. Navigation is about how the social networking sites works. A good navigation can be determined by easy to understand icon, clear instruction, and organized menus. The availability of icon might also help. For example, today, we could easily found Facebook icon everywhere on the websites. This could facilitate sharing, because users can simply click on the icon to share articles or videos that they found into Facebook. Useful links is defined by the ability of the social network to provide any links that may be needed for users. For example, if users search the term 'politic' in the search box through Facebook, the capability of Facebook to provide related links might be helpful in serving knowledge sharing needs. Lastly, useful tools can be defined by the availability of tools (added value) which could aid users to communicate with others easier. For example, most of social networking sites today, especially Facebook and Friendster has already equipped with 'link' tool (user could copy and paste links that they found from other websites), events tool (user could set an appointment or events), upload video or picture tools, comments (where others could provide feedbacks), notes, etc.

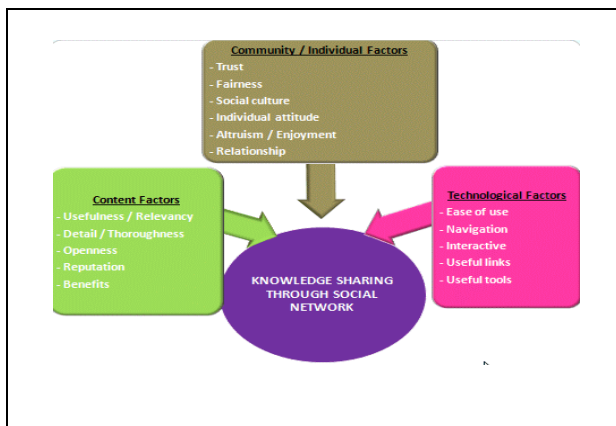


Figure 2: Research Model

VI. RESEARCH METHODOLOGY

Research Design

A research model has been developed for the purpose of this study. The model consists of three main elements, individual or community factor, content factor, and technological factor. The elements involve in research development are research design, the model, research instruments, data collection method, and data analysis method.

Population and Sampling

For the purpose of this study, Faculty of Information Management is the population that has been selected. It is located at Puncak Perdana, Shah Alam, and also has four other branches at other states, including Machang (Kelantan), Merbok (Kedah), Segamat (Johor) and Kota Samarahan (Sarawak). However, for this study, it focused to the respondents at the faculty which located at Puncak Perdana, since only Puncak Perdana have complete numbers of bachelor degree's students from all four programs. According to the statistical data which gathered from the Faculty of Information Management, there are a total of 2151 students from various modes and programs. There are 1684 students of bachelor degree from four programs, including Information System Management (IM 221), Records Management (IM 222), Information Resource Center (IM 223) and also Library and Information Management (IM 220). Others are consists of student of Pengajian Luar Kampus (PLK) with 117 students, Masters with 332 students and PHD with 18 students. Generally, there are three types of sampling method being used, which include grouping, stratified and random. Grouping is done by selecting one specific group. For example, focus on Records Management's students only. Stratified, in the other hand, is done through selecting a few people from each group at an average. For example, 50 students Information System Management program, 50 from Records Management program, etc. The third type is by random. This method is done by randomly selecting the respondent regardless of how many of them have to be selected from each program.

For this study, the stratified random sampling is being used. Stratified is in this case is means by the 160 respondents that were selected from final semester of bachelor degree students, from all four programs of Faculty of Information Management. These 160 respondents are actually representing 43.48% of final semester students (the total number of final semester students are 368). From the total of 160 respondents, there were randomly selected to answer the questions. The stratified random sampling was used because the difficulty to filter and to reach all of the total respondents in a limited time (368 respondents).

Research Instrument (Questionnaire)

From the research model and research questions, a set of questionnaire has been developed. The research model divided the main factors that could contribute to knowledge sharing through social networks into three main categories; individual or community factors, content factors, and technological factors. Research questions for this study can be viewed as following;

- What are the factors (technology, content, individual or community) that encourage knowledge sharing through social network?
- Why people choose to use social network sites?
- What types of information that being shared and being used over the social network?

The questionnaire consists of five sections; demographic data (Part A), the usage of social network application (Part B), individual or community factors (Part C), content factors (Part D), and technological factors (Part E). The division of each section could be viewed as follows;

i.Part A – Demographic Data

Age, Gender, Course, Secondary Education Level, Working Experience.

ii.Part B – The Usage of Social Network Application

- a. Frequency of access (never open after registration, 1-5 times weekly, 6-10 times weekly, 11-15 times weekly, more than 15 times weekly).
- b. Social network sites usage Facebook, Twitter, Blogger, MySpace, Friendster, hi5, Tagged (with Likert scale 1 to 4, “I contribute”, “I only use”, “I know it but do not use”, “I do not know it”).
- c. Reason to use social network sites (To keep in touch, to find and exchange information - knowledge sharing, to share interests, to inform/being informed, to meet new people, to advertise expertise/ service / business/ products).

iii.Part C – Individual and Community Factors

Consist of seventeen (17) questions which cover elements of trust, fairness, community culture, individual attitude, enjoyment, and relationship.

iv.Part D – Content Factors

Consist of sixteen (16) questions which cover elements of usefulness (with additional questions of types of information), detail, openness, reputation, and benefits.

v.Part E – Technological Factors

Consist of seven (7) questions which cover elements of ease of use, navigation, interactive, useful links, and useful tools.

Data Collection Method

This study used questionnaire method, which is the most favorable method being chosen in order to have standardize feedbacks from users. The questionnaire that has been developed were tested for validation (5 students from Masters of Science in Information Management, IM 770 were selected) to ensure respondents could clearly understand the questions before it can be distributed to the actual respondents. The questionnaire was also being sent to an expert (lecturer/supervisor) for revision. After the pilot test and revision, some corrections have been done to improve and finally the questionnaire was distributed to 160 respondents. In order to ensure the number of respondents reach the total of 160, feedbacks from respondents were collected as soon as they complete the questionnaire. Other than questionnaire, online observation was also conducted. This is to observe the trend of what kind of information that is commonly being shared by users, how frequent they share, as well as how depth the sharing occurred

Data Analysis Method

Data analysis involves transferring information gathered from questionnaire into computerized data, and to be processed by certain software. During this process, data are examined and validated for errors, and later being transformed into useful information. For the purpose of this study, data processing was done using commercial statistical software, called SPSS (version 16). SPSS is a widely used software for data analysis by students, academician and professionals (Zamalia, 2009). This study used several approaches to process the data into meaningful information. Firstly, descriptive analysis – simple tabulation was used. It was about calculating the number of different responses and arranged the data into an organized manner to inform the researchers about the responses occur. The example can be viewed as in Table 5. The analysis also used frequency distribution approach. A table was prepared to display the counting of responses for each category (the frequency of occurrence). The example can be viewed as in Table 5. Moreover, cross tabulation also being used. This means that a table was prepared to organize data by group or classes. It is a joint frequency distribution of two or more sets of variables. The example can be viewed as in Table 3. In order to analyze the factors which contribute to knowledge sharing, data was organized and processed using descriptive statistic analysis. A table being produced

and each factor were described by mean and standard deviation. From the Likert Scale, ranking 1 to 5 (“Strongly Disagree”, “Disagree”, “Neutral”, “Agree”, “Strongly Agree”), the average number will be calculated. If the mean is less than 3, it is a negative result, while if it more than 3, it indicates positive result. The example can be viewed as in Table 7. The further description of Likert Scale that being used in this study is explained in as following;

Number Representation	Statement	Description
1	Strong Disagree	Indicates that respondents have strong disagreement with the question (negative feedback)
2	Disagree	Indicates that respondents have moderate disagreement with the question.(negative feedback)
3	Neutral	Indicates that respondents do not have any idea or opinion or feeling unrelated towards the question. (neutral feedback)
4	Agree	Indicates that respondents have moderate agreement with the question. (positive feedback)
5	Strongly Agree	Indicates that respondents have strong agreement with the question (positive feedback)

Table 1: Likert Scale

VII. DATA ANALYSIS AND FINDINGS

This chapter provides the analysis and findings from the questionnaire that have been distributed. It includes the demographic data, social network usage, frequency of usage, factors, etc. Further discussion will be presented in chapter 8 (discussion).

Demographic Data

The questionnaire was sent out to 160 of respondents from final semester students of bachelor degree programs from Faculty of Information Management, UiTM. From Table 2, it was found out that majority respondents are female with 80.62% (129 respondents), while male is only 19.38% (31 respondents). This major difference maybe caused by the different ratio of female students to male students. The total number of final semester female students is 293 students, while final semester male students are only 75 students. The highest group participation came from IM 220 program (Library and Information Management), with 36.87% (59 respondents), followed by IM 223 (Information Resource Center Management) with

24.38% (39 respondents), IM 221 (Information System Management) with 20% (32 respondents) and IM 222 (Records Management) with 18.75% (30 respondents). As what have been described in chapter 6 (research methodology), respondents were randomly selected from the 160 targeted respondents. Therefore the results have shown slight differences among total numbers of respondents for

GENDER / COURSE CROSS TABULATION						
Course						
		IM 220	IM 221	IM222	IM223	TOTAL
		7	11	9	4	31
Gender	Male	4.38%	6.87%	5.62%	2.5%	19.38%
		52	21	21	35	129
Gender	Female	32.50%	13.13%	13.13%	21.86%	80.62%
		59	32	30	39	160
Total		36.8%	20.00%	18.75%	24.38%	100.00 %

Table 2: Demographic Data

The Social Network Sites Usage

Respondents were asked about their usage of social network sites to investigate which social network sites that are mostly used by respondents. Using Likert Scale, from 1 to 4 (“I do not know it”, “I know it, but do not use”, “I only use it”, “I contribute to it”), respondents were required to indicate their level of participation with particular social networking sites, namely Facebook, Friendster, Blogger, Twitter, MySpace, hi5, and Tagged. Users are allowed to choose more than one answer, as they might utilize more than one social network sites. From Table 3, it has shown that the most popular social network site among respondents is Facebook, whereby every respondent know its existence (Statement “I do not know it” = 0% of respondents). 50.6% of respondents (81 respondents) contribute to Facebook. This mean that they are actively update their status / shout out, posting videos or links, as well as involve in group discussion. This number is followed by 46.9% of respondents (75 respondents) who only use Facebook without contribution. This means that they are passively participate in using Facebook tools.

They just use Facebook to view others’ profile, to communicate with friends, etc. without actively contribute to it. This phenomenon might caused by availability of Facebook links everywhere. Users can easily access Facebook from Yahoo! site, as well as any other sites which enable user to log on into Facebook to share information they found. In addition, users could also logon into Facebook through mobile phones (most of latest model of mobile phones are equipped with Facebook icon). The social

network sites usage is followed by Blogger, Friendster, Twitter, MySpace, Tagged and hi5. This indicates that some users own their own blogs to share their personal experiences or academic/work related information.

Social Network Sites Usage							
Statement	Social Network Sites						
	Facebook	Twitter	MySpace	Friendster	Blogger	Hi5	Tagged
I do not know it	0 0.00%	4 2.5%	5 3.1%	2 1.2%	6 3.8%	38 23.8%	26 16.2%
I, know it, but do not use	4 2.5%	102 63.8%	98 61.2%	67 41.9%	97 60.6%	99 61.9%	82 51.2%
I only use it	75 46.9%	32 20.0%	42 26.2%	64 40.0%	26 16.2%	15 9.4%	38 23.8%
I contribution to it	81 50.6%	22 13.0%	15 9.4%	27 16.9%	31 19.4%	8 5.0%	14 8.8%
TOTAL	160	160	160	160	160	160	160

Table 3: The Social Network Sites Usage

Frequency of Social Network Sites Usage

In order to measure frequency of usage of social network sites, respondents were asked to choose their frequency of usage according to the option given (“Never open it after registration”, “1-5 times per week”, “6-10 times per week”, “11-15 times per week”, “More than 15 times per week”). Table 3 depicted the results derived from the feedbacks provided by the respondents. From Table 4, it was found out that most user access social network sites more than 15 times per week, with a total number of 33.13% of respondents (53 respondents). As well, only four (4) respondents who never use their social network accounts after the first registration. This was represented by 2.5% of respondents. This result indicates that respondents are actively using social network sites.

Gender/Frequency of Accessing to Social Network Sites						
Cross Tabulation						
	How many times do you log into your social network site in a week?					
	Never open it after registration	1-5 times per week	6-10 times per week	11-15 times per week	More than 15 times per week	Total
Male	2	7	1	7	14	31
Female	2	45	24	19	39	129
Total	4	52	25	26	53	160

Table 4: Frequency of Social Network Sites Usage

Reason of Social Network Usage

This section would answer one of the research objectives, which is to identify why people choose to use social network sites. Respondents were given six statements and were required to indicate their agreement for each

statement. The statements are “To keep in touch”, “To find and exchange information – knowledge sharing”, “To share interest with others”, “To inform / be informed about contacts, events, appointments”, “To meet new people”, and “To advertise expertise, service / business / product”. From the six statement, two of them are oriented towards more specific knowledge sharing (academic or work-related), which are “To find and exchange information – knowledge sharing”, and “To advertise expertise, service / business / product”. Another four statements could be considered as oriented towards general knowledge or sharing information casually. The differences between statements are purposely done in order to identify the level of involvement of respondents in sharing their knowledge or information. To answer the question, respondents were given a Likert Scale, from 1 to 5 (“Strongly Disagree”, “Disagree”, “Neutral”, “Agree”, and “Strongly Agree”) and they are required to respond according to the scale given. From Table 5, it was found out that most respondents participate in social networking site because they would like to keep in touch with friends and families, which represented by a total of 86.9% respondents (139 respondents). This number was derived from a total sum of “Agree” and “Strongly Agree”. Other reasons that followed the main reason (to keep in touch) are to inform or be informed (contacts, events, appointments) with 86.2% (138 respondents), to share interest with others with 82.5% (132 respondents), to find & exchange information (k-sharing) with 73.1% (117 respondents), to meet new people with 63.1% (101 respondents), and to advertise service, products, expertise with 59.4% (95 respondents).

Reason To Use Social Network Sites						
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Keep in touch	2 1.2%	1 0.6%	18 11.2%	63 39.4%	76 47.5%	160 100%
Find & exchange information (knowledge sharing)	2 1.2%	2 1.2%	39 24.4%	72 45.0%	45 28.1%	160 100%
Share interests with others	4 2.5%	0 0.0%	24 15.0%	80 50.0%	52 32.5%	160 100%
Inform / Be informed about contacts, events, appointments	3 1.9%	2 1.2%	17 10.6%	77 48.1%	61 38.1%	160 100%
Meet new people	4 2.5%	4 2.5%	51 31.9%	64 40.0%	37 23.1%	160 100%
Advertise expertise / service / business / product	8 5.0%	6 3.8%	51 31.9%	64 40.0%	31 19.4%	160 100%

Table 5: Reason of Social Network Sites Usage

Factors that Contribute to Knowledge Sharing through Social Network

Individual or Community Factor

Table 6 presented the results of individual or community factors that could contribute towards knowledge sharing through social network. Each element within the individual and community factor was displayed. It has been shown that the highest factor is user’s willingness to share (with mean = 4.03). However, these factors were then grouped according to research model (attitude, enjoyment, relationship, culture, trust, and fairness). The factors were again being calculated in order to represent each elements of the factor as in the research model. The result can be viewed as in Table 7.

Individual / Community Factors	Mean	Std. Deviation
Willing to share (attitude)	4.03	.70888
Approachable, enjoyment (enjoyment)	3.00	.57732
Know each other very well (relationship)	3.99	.67755
Prefer to work in group (relationship)	3.98	.73947
Keep each other updated (culture)	3.97	.74751
Trust (trust)	3.96	.95751
Supportive learning culture (culture)	3.93	.70533
Regardless of seniority (fairness)	3.86	.66812
Encouraged to give opinion (fairness)	3.83	.74582
Seniors commitment (culture)	3.78	.88275
Only share knowledge if it is important to other (attitude)	3.76	.84487
Feel sorry if SNS are shut down (attitude)	3.74	.89364
Have online discussion platform to exchange study-related ideas	3.73	.86838
Prefer people to approach rather than be volunteer attitude)	3.68	.78947
Involvement with knowledge sharing regardless of people (enjoyment)	3.59	.77206
Feel out of touch when haven’t logged onto social network for a while (relationship)	3.58	1.00031
Proud to be social network user (relationship)	3.57	.90853

Table 6: Individual or Community Factor Findings

From Table 7, it has shown that trust is the dominant factors which contribute to knowledge sharing through social networks, with 3.96 (mean). It is followed by community culture and fairness with 3.85 (mean). Relationship is the least and has the lower score of the individual or community factors. However, 3.78 can still be considered as positive result. (from the Likert scale 1 to 5, where 1 is strongly disagree, and 5 is strongly agree, the average mean should be 3. If result is more than 3, it could be considered as positive result). In overall, the Individual or Community Factors had scored 3.84 mean, which considered as significant and positive result.

Individual/Community Factors	Mean
Trust	3.96
Social (Community) culture	3.85
Fairness	3.85
Individual attitude	3.80
Enjoyment	3.79
Relationship	3.78
Individual / Community Factors Mean	3.84

Table 7: Individual or Community Factors

Content Factor

Table 8 displays the results of the content factors which could contribute towards knowledge sharing through social network. The highest factor from content factor is the open communication, whereby information is able to flow freely through social network. This factor score 4.02 (mean). However, these factors were not yet represent the actual factors as what being presented in the research model. Therefore, items in Table 8 were grouped into elements which being presented in the research model. The elements were later calculated again to produce score which represent each element in content factors. The results can be viewed as Table 9.

Content Factors	Mean	Std. Deviation
Open communication (Openness)	4.02	.69565
Free disseminate information (Openness)	3.95	.68036
Current issue discussion (Usefulness)	3.88	.66340
Information about other societies/states/countries (Usefulness)	3.83	.70533
Relevant/used information (Usefulness)	3.82	.72573
Increase ‘network’ (connection with people (Reputation)	3.78	.63118
Personal (non academic) benefits (Benefit)	3.78	.67918
Personal experience (Detail)	3.74	.71364
Academic / work benefits (Benefit)	3.74	.64902
Reputation (Reputation)	3.70	.74226
Information about society (e.g. 1 Malaysia, etc) (Usefulness)	3.68	.77338
Information on shopping (Usefulness)	3.67	.72443
Academic experience (Detail)	3.63	.67990
Income (Usefulness)	3.59	.76387
Government information (Usefulness)	3.54	.78418
Political Information (Usefulness)	3.36	.82681

Table 8: Content Factor Findings

Table 9 represent the elements of content factor that could contribute to knowledge sharing through social network. Openness of information still has the highest score, with 3.99 (mean), followed by benefit with score 3.76 (mean). The lowest and the least score is usefulness of information with score 3.67. Even though it the lowest, it can still be considered as positive result. Content Factor had scored 3.77 mean, which can be considered as significant factor and positive result.

Content Factors	Mean
Openness	3.99
Benefit	3.76
Reputation	3.74
Detail	3.69
Usefulness	3.67
Content Factors Mean	3.77

Table 9: Content Factor

Technological Factor

Table 10 presents the findings from technological factors. It was found out that the highest factor from technological factor that could encourage users to share knowledge over social network is the ability of social network to give user feedbacks from their friends, with score 3.84 (mean). However, these elements were not yet represent the actual elements, as what have been described in research model. The items were later being grouped into the actual elements according to research model to represent the elements of technological factor. The technological factor can be viewed as in Table 11.

Technologies	Mean	Std. Deviation
Feedback (Interactive)	3.84	.81300
Navigations and interface (Navigation)	3.84	.69034
Interactiveness (Interactive)	3.83	.82072
Useful tools (Tools)	3.82	.73435
Online sources is preferable (Ease of use)	3.75	.80876
Useful links (Links)	3.69	.82414
Easier rather than face-to-face (Ease of use)	3.61	.89011

Table 10: Technological Factor Findings

Table 11 represent the actual elements (according to the research model) which represent the technological factors that could contribute towards knowledge sharing through social network. The highest element is the interactive and navigation of the social networks, which score 3.84 (mean). The lowest or the least element is the ease of use, which score 3.68 (mean). Even though it is the lowest element, it is still considered as significant and provides positive result. The Technological Factor scored 3.77 (mean), which indicate that technological factor can be considered as significant factors that contribute to knowledge sharing through social network.

Technological Factors	Mean
Interactive	3.84
Navigation	3.84
Tool	3.82
Links	3.69
Ease of use	3.68
Technological Factor Mean	3.77

Table 11: Technological Factor

Information/Knowledge being Shared through Social Network

This section presents the findings of what information that considered important (as perceived by users) to be distributed or shared through social network. The results indicate what types of information that users frequently search for or transfer through social network. The results can be viewed as in Table 12. From the result, it has shown that information that frequently being distributed through social network by users is current issue discussion (general knowledge), which might involve the news or and current event happened within the organization or country. This score 3.88 (mean). User ranked information about other countries or society as the second important information, which score 3.83. Surprisingly, political information has the lowest score, with 3.36 (mean).

Information / Knowledge Being Shared	Mean
Current issue discussion	3.88
Information about other societies/states/countries	3.83
Personal (non academic) benefits	3.78
Personal experience	3.74
Academic / work benefits	3.74
Information about society (e.g 1 MALAYSIA, etc)	3.68
Information on shopping	3.67
Academic experience	3.63
Government information	3.54
Political information	3.36

Table 12: Information / Knowledge Being Shared Through Social Network

VIII. DISCUSSION & CONCLUSION

This chapter is the discussion of the findings and analysis derived from the study. The discussions will answer and explain each of the research objectives of the study.

Factors that Contribute to Knowledge Sharing through Social Network

Research Objective: To investigate factors that encourage of knowledge sharing through social network

From Table 7, it has shown that trust is the dominant factors of Individual or Community Factor which contribute to knowledge sharing through social networks, with 3.96 (mean). This result is in line with other previous author which also identified that trust is among the most important factors to cultivate knowledge sharing behavior. This means that users perceive that trust is important before they can actually distribute and share knowledge through social network. In overall, the Individual or Community Factors had scored 3.84 mean, which considered as significant and positive result. Moreover, from Table 9, openness of information has the highest score with 3.99 (mean) of Content Factor. This means that users

perceive that information should be freely available through social network, and can be easily shared in order to cultivate knowledge sharing behavior. This Content Factor had scored 3.77 mean, which can be considered as significant factor and positive result. Furthermore, interactive and navigation of the social networks, has considered as the most important factor of Technological Factor, with score 3.84 (mean) as what have been found in Table 11. This means that users perceive that good navigation, which means that icons made available anywhere in the Internet, as well as clearly understood menu is important to encourage users in sharing information. In addition, users also think that social networks should have and maintain the interactive elements, whereby they can easily upload or access photos, videos, articles or any information they need. The Technological Factor scored 3.77 (mean), which indicate that technological factor can be considered as significant factors that contribute to knowledge sharing through social network. Therefore, Individual and Community Factors is found out to be the most important factors in encouraging people to share, followed by Content Factors and Technological Factors. This indicate that approaches and effort should be focus more on encouraging individuals and community, so that people could actively participate in knowledge sharing through social network.

Reason of Social Network Services Usage

Research Objective: To identify why people choose to use social network sites.

From Table 4, it was found out that most respondents participate in social networking site because they would like to keep in touch with friends and families, which represented by a total of 86.9% respondents (139 respondents). This number was derived from a total sum of “Agree” and “Strongly Agree”. Sharing knowledge has ranked as the third (3rd) reason of why people use social network. This means that people are aware that social networks can be used to share knowledge but they less use it for this purpose. They share more general information, such as news, events, and others, in a casual ways. This might happen because maybe people are in doubt of the security of social networks (which can be further studied in future). This might also happen because people do not rely on social network to access knowledge (they might use other resources, such as online database).

Information/Knowledge being Shared through Social Network

Research Objective: To discover types of information that being shared and being used over the social network.

From the result (Table 12), it has shown that information that frequently being distributed through social network by users is current issue discussion (general knowledge), which might involve the news or and current event happened within the organization or country. This score 3.88 (mean). This indicates that users use social network to share general (not serious) information. Surprisingly, governmental information score 3.54, which is second lowest and political information has the lowest score with 3.36 (mean). This might happen because users are still not aware that governmental and political information is important to be shared, since it could develop patriotism among people and awareness of what happened within the country. In conclusion, individual and community factors, content factors, and technological factors are all important to ensure successful knowledge sharing through social network. This means that, in order to ensure knowledge could be shared effectively, people, community, organization, as well as the country should made aware of these factors and should take certain approaches related to the factors. As a result, knowledge sharing through social network can be improve in future and social network sites will be seen as one of the important alternatives or ways for people to share what they know and what they have.

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REFERENCES

- [1] Akiyoshi, M. (2008). Knowledge sharing over the network. *Thin Solid Films*, 517, 1512-1514.
- [2] Bambang Setiarso. (2006). Tools for knowledge sharing phases among knowledge society: A case study on Indonesia institute of sciences (LIPI). In: *ICOLIS 2007, Kuala Lumpur: LISU, FCSIT*.
- [3] Cadima, R., et. al. (2010). Promoting social network awareness: A social network monitoring system. *Computers & Education*, 54, 1233-1240.
- [4] Chai, S., and Kim, M. (2010). What makes bloggers share knowledge? An investigation on the role of trust. *International Journal of Information Management*, 30, 408-415.
- [5] Cheng, H. L. (2010). Seeking knowledge or gaining legitimacy? Role of social networks on new practice adoption by OEM suppliers. *Journal of Business Research*, 63, 824-831.
- [6] Chow, W. S., and Chan, L. S. (2008). Social network, social trust and shared goals in organizational knowledge sharing. *Information & Management*, 45, 458-465.
- [7] Cross, et al. (2001). Knowing what we know: Supporting knowledge creation and sharing in social networks. *Organizational Dynamics*, 30 (2), 100-120.
- [8] De Meo, et al. (2011). Recommendation of similar users, resources and social networks in a Social International Scenario. *Information Sciences*, 181, 1285-1305.
- [9] Fang, Y. H., and Chiu, C. M. (2010). In justice we trust: Exploring knowledge-sharing continuance intentions in virtual communities of practice. *Computers in Human Behavior*, 26, 235-246.

- [10] Hara, N., and Hew, K. F. (2007). Knowledge-sharing in an online community of health-care professionals. *Information Technology & People*, 20 (3), 235-261.
- [11] Hau, Y. S., and Kim, Y. G. (2011). Why would online gamers share their innovation- conducive knowledge in the online game user community? Integrating individual motivations and social capital perspectives. *Computers in Human Behavior*, 27, 956-970.
- [12] He, W., Qiao, Q., and Wei, K. K. (2009). Social relationship and its role in knowledge management systems usage. *Information & Management*, 46, 175-180.
- [13] Hou, H. T., Sung, Y. T., and Chang, K. E. (2009). Exploring the behavioral patterns of an online knowledge-sharing discussion activity among teachers with problem-solving strategy. *Teaching and Teacher Education*, 25, 101-108.
- [14] Hsu, C. L., and Lin, Judy C. C. (2008). Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation. *Information & Management*, 45, 65-74.
- [15] Hu, C., and Racherla, P. (2008). Visual representation of knowledge networks: A social network analysis of hospitality research domain. *International Journal of Hospitality Management*, 27, 302-312.
- [16] Indra Hamulic, and Nina Bijedic. (2009). Social network analysis in virtual learning community at faculty of information technologies (fit), Mostar. *Procedia Social and Behavioral Sciences*, 1, 2269-2273.
- [17] Janbonen, M., and Johanson, J. E. (2010). Role of knowledge conversion and social networks in team performance. *International Journal of Information Management*.
- [18] Laila Naif Marouf. (2007). Social networks and knowledge sharing in organizations: A case study. *Journal of Knowledge Management*, 11(8), 110-125.
- [19] Lee, E. J., and Jang, J. W. (2010). Profiling good Samaritans in online knowledge forums: Effects of affiliative tendency, self-esteem, and public individuation on knowledge sharing. *Computers in Human Behavior*, 26, 1336-1344.
- [20] Lewis, K., et. al. (2008). Tastes, ties, and time: A new social network dataset using Facebook.com. *Social Network*, 30, 330-342.
- [21] Ling, C. W., Manjit S. Sandhu, and Kamal Kishore Jain. (2009). Knowledge sharing in an American multinational company based in Malaysia. *Journal of Workplace Learning*, 21 (2), 125-142.
- [22] Liu, P., Bijan Raahemi, and Morad Benyoucef. (2011). Knowledge sharing in dynamic virtual enterprises: A socio-technological perspective. *Knowledge-Based Systems*, 24, 427-443.
- [23] Ma, Will W. K., and Yuen, Allan H. K. (2011). Understanding online knowledge sharing: An interpersonal relationship perspective. *Computers & Education*, 56, 210-219.
- [24] McDermott, R., and O'Dell, C. (2001). Overcoming cultural barriers to sharing knowledge. *Journal of Knowledge Management*, 5 (1), 76-85.
- [25] Monclar, R., Tecla, A., Oliveira, J., and M de Souza, J. (2009). MEK: Using spatial-temporal information to improve social networks and knowledge dissemination. *Information Sciences*, 179, 2524-2537.
- [26] Muhammad Fairuz Abd Rauf, Marina Hassan, Siti Fatimah Omar, and Hema Subramaniam. (2010). Impact of online social network towards communication effectiveness educational institution: A case study of UNISEL. In: *Proceedings of Regional Conference on Knowledge Integration in ICT 2010*.
- [27] Ostergaard, Christian R. (2009). Knowledge flows through social networks in a cluster: Comparing university and industry links. *Structural Change and Economic Dynamic*, 20, 196-210.
- [28] Shahrinaz Ismail. (2010). An evaluation of students' identity-sharing behavior in social network communities as preparation for knowledge sharing. *International Journal for the Advancement of Science & Arts*, 1(1), 14-24.
- [29] Syahrir Mat Ali, and Fatin Hasnan. (2009). Kesan aplikasi sosial maya. (2009, December 23). *Kosmo*.
- [30] Thelwall, M. (2008). No place for news in social network web sites?. *Online Information Review*, 32(6), 726-744.
- [31] Tseng, F. C., and Kuo, F. Y. (2010). The way we share and learn: An exploratory study of the self-regulatory mechanisms in the professional online learning community. *Computers in Human Behavior*, 26, 1043-1053.
- [32] Wang, C. Y., Yang, H. Y., and Chou S. T. (2008). Using peer-to-peer technology for knowledge sharing in communities of practices. *Decision Support Systems*, 45, 528-540.
- [33] Yang, H. L., and Wu, Ted C. T. (2008). Knowledge sharing in an organization. *Technological Forecasting & Social Change*, 75, 1128-1156.
- [34] Yang, J. T. (2008). Individual attitudes and organisational knowledge sharing. *Tourism Management*, 29, 345-353.
- [35] Yang, Stephen J. H., and Chen, Irene Y. L. (2008). A social network-based system for supporting interactive collaboration in knowledge sharing over peer-to-peer network. *International Journal of Human-Computer Studies*, 66, 36-50.
- [36] Yu, T. K., Lu, L. C., and Liu, T. F. (2010). Exploring factors that influence knowledge sharing behavior via weblogs. *Computers in Human Behavior*, 26, 32-41.
- [37] Zamalia Mahmud. (2009). Handbook of research methodology: A simplified version. Shah Alam: UPENA (University Publication Centre).
- [38] Zhang, Y., Fang, Y., Wei, K. K., and Chen, H. (2010). Exploring the role of psychological safety in promoting the intention to continue sharing knowledge in virtual communities. *International Journal of Information Management*, 30, 425-436.