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## Determinants of Knowledge Sharing Using Web Technologies among Students in Higher Education

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*Knowledge sharing is becoming more and more important as such educational institutions are trying to harness this opportunity to students' learning environment in order to create value.*

*Therefore, the motivation behind this research is to conduct an empirical study to explore the factors that influence the success of knowledge-sharing using web technologies among students in higher education.*

*A total number of 263 respondents were used in this study after removing the outliers from the actual data collected in International Islamic University Malaysia (IIUM).*

*Based on the research model, multiple regression analysis was run on the group of constructs. The findings indicate benefit, experience, workgroup, knowledge culture, technology availability, and technology support were the significant variables that influence knowledge sharing using web 2.0 tools in the university.*

*While in this study, cost has no positive effect in influencing knowledge sharing using web technologies in the university.*

**Keywords:** *Higher Education; Knowledge Sharing; Social Dilemma; Social Identity; web technologies*

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## Introduction

Web technologies have enabled people to create and share what they have in mind with others around the world. Web technologies cover a wide set of publishing tools and social networking that enable students and users to combine or render content in new and novel form. The simple reason is that web tools are new social web that enable collaboration, contribution, and interactions (Eijkman, 2011). As a result, educators have started recognizing the potential benefits and richness of these web technologies, which led to incorporating them to the students' learning processes. For instance, Lili Luo laments that "many educators have reported their adoption of Web 2.0 technologies in the education literature" (Luo, 2010).

A study by Muñoz and Towner in 2009, indicated that students are devoted to the use of Web 2.0 technologies (i.e. blogs, twitter, podcasts, wikis, social network sites, virtual worlds, video sharing and photo sharing)(Muñoz & Towner, 2009). Consequently, the interaction with these web 2.0 applications allows the exchange of information among students, which is a vital constituent of the knowledge sharing.

From definition, knowledge sharing can be seen as the willingness act whereby knowledge is capable of being used again or repeatedly in the course of its transfer from one party to another (Lee & Al-Hawamdeh, 2002). Similarly, knowledge sharing is a routine activity that entails guiding the individuals or audience to behave in a specific way of thinking and reasoning, and it requires understanding and consideration of the individuals' problem situation (McDermott, 1999).

Some studies have indicated that Knowledge is a personal intellectual asset to which people hold to themselves unless there are encouragement and facilitation to share (Yu, Lu, & Liu, 2009). In addition, the knowledge is considered as a "power and no one is willing to give it away freely, there is a need to create a knowledge-sharing environment which takes into account the social and economic factors that influence knowledge sharing"(Lee & Al-Hawamdeh, 2002). Despite recognizing the impediments of sharing of knowledge in literatures, few studies focus on what influence students to share or not to share knowledge among them in higher education. At a moment, several studies have been carried out on determining the knowledge sharing among employees in organisations. For example, studies have identified many factors that influence employees to

share their knowledge such as trust(Levin, Cross, Abrams, & Lesser, 2002), personal recognition (Chen, Chen, & Kinshuk, 2009)(Hew & Hara, 2006)(Chen & Hung, 2010), personal, organizational culture, and technological factors (Lin, 2007) (Paroutis & Al Saleh, 2009)(Wahlroos, 2010) (Cabrera & Cabrera, 2002).

Therefore, this study focuses on personal factors, organizational factors, and technological factors to determine whether they influence students in institutions to share knowledge via web technologies. The items to be measured in the personal factors are benefit, cost, and experience with web technologies while in organizational factors are workgroup and knowledge Culture. The measurable items in technological factors include technology availability and technology support.

In addition, the theory of social identity and the theory of social dilemma as kind of knowledge sharing are used in explaining some of the construct in the research model. The two theories serve as the theoretical framework to base this study upon. In brief, social identity theory describes how individuals give preference to the group they belong to (in-group). In this study, the theory is utilized to explain the organisational factors (workgroup and knowledge Culture) in the research model. On the other hand, Social dilemma states that individual interests are at odds with collective interests in which benefits and Costs are the main factors that determine individuals' behaviour. In other words, individuals share their knowledge with others after weighting the benefits over the costs. Therefore, the theory help in explaining benefit and cost as personal factors that influence knowledge sharing.

## **Related work**

Knowledge sharing is a vital asset to almost all organizations. As a result, many educational institutions and organizations have employed online learning systems and virtual learning communities to support knowledge sharing (Chen, Chen, & Kinshuk, 2009). However, the implementation of online learning systems and virtual learning communities cannot force people to share their knowledge with others but it can only be possible through encouragement and facilitation (Yu, Lu, & Liu, 2009). For that reason, Literature has recognized several factors that influences employees to knowledge sharing activities (Lin, 2007), which have been grouped into

three broad factors as individual, organizational, and technology factors (Lin, 2007)(Paroutis & Al Saleh, 2009) (Wahlroos, 2010)(Cabrera & Cabrera, 2002). Table 1 summarises some of the factors found to be influencing knowledge sharing in previous studies.

**Table 1:** Summary of Factors Influencing Knowledge Sharing

SN	Title	Methodology/ theory	Influential factors	Author(s)
1	Investigation of knowledge sharing practices in higher education	Empirical Study	<ol style="list-style-type: none"> <li>1. Flexibility of knowledge sharing tools,</li> <li>2. The learning potential</li> <li>3. Gaining rewards</li> </ol>	Johnston, (2013)
2	Factors Influencing Knowledge Sharing Among Undergraduate Engineering Students	Empirical Study	<ol style="list-style-type: none"> <li>1. Intentions to share,</li> <li>2. Technology Support,</li> <li>3. Teacher support,</li> <li>4. Ability to share, and</li> <li>5. Competition among classmates,</li> </ol>	Yogeesh, (2013)
3	Review of Factors Affecting Knowledge Sharing Behavior.	Reviewed Literature	<p>Factors discussed in this study were:</p> <ol style="list-style-type: none"> <li>(1) Organizational structure,</li> <li>(2) Organizational climate,</li> <li>(3) Organizational size,</li> <li>(4) Information Technology,</li> <li>(5) Rewards,</li> <li>(6) Stressors and</li> <li>(7) Job.</li> </ol>	Rehman, Mahmood, Salleh, & Amin, (2011)
4	Knowledge sharing: A review and directions for future research	Reviewed Literature	<p>The paper provides an organized framework for knowledge sharing research in five areas:</p> <ol style="list-style-type: none"> <li>1. Organizational context</li> <li>2. Interpersonal and team characteristics</li> <li>3. Cultural characteristics</li> <li>4. Individual characteristics</li> <li>5. Motivational factors.</li> </ol>	Wang & Noe, (2010)
5	Social Media as a Form of Organizational Knowledge Sharing	Empirical Study  Theory of Social Dilemma and Social Identity	<ol style="list-style-type: none"> <li>1. Personal factors (Expected benefits, Experience with social media)</li> <li>2. Organizational factors (managers' and colleagues'</li> </ol>	Wahlroos, (2010)

			<ul style="list-style-type: none"> <li>3. Technological factors (User-friendliness and skills)</li> </ul>	
6	Factors Influencing Knowledge Sharing Among University Students	Empirical Study	<ul style="list-style-type: none"> <li>1. Technology support,</li> <li>2. Student's ability to share,</li> <li>3. Degree of competition with the classmates</li> </ul>	Wangpipatwong, (2009)
7	Determinants of knowledge sharing using Web 2.0 technologies	Empirical Study  Grounded theory approach.	<p>The result revealed four key determinants of knowledge sharing using Web 2.0 technologies:</p> <ul style="list-style-type: none"> <li>1. History</li> <li>2. Outcome expectations</li> <li>3. Perceived organizational or management support</li> <li>4. Trust.</li> </ul>	Paroutis & Al-Saleh, (2009)
8	Examining the Factors Influencing Participants' Knowledge Sharing Behavior in Virtual Learning Communities	Empirical Study  Theory of Planned Behavior	<ul style="list-style-type: none"> <li>1. Attitude,</li> <li>2. Subjective norm,</li> <li>3. Web-specific</li> <li>4. Self-efficacy and</li> <li>5. Social network ties</li> </ul>	Chen, Chen, & Kinshuk, (2009)
9	Knowledge sharing and firm innovation capability: an empirical study	Empirical Study	<ul style="list-style-type: none"> <li>1. Individual factors (enjoyment in helping others and knowledge self-efficacy)</li> <li>2. Organizational factors (top management support) significantly influence.</li> </ul>	Lin, (2007)
10	Identifying factors that encourage and hinder knowledge	Empirical Study	<ul style="list-style-type: none"> <li>(a) Self-selection type of membership,</li> <li>(b) Desire to improve the nursing profession,</li> <li>(c) Reciprocity,</li> </ul>	Hew & Hara, (2006)

	sharing in a longstanding online community of practice		(d) non-competitive environment, and (e) The role of the listserv moderator. Four barriers for knowledge sharing were found: (a) No new or additional knowledge to add, (b) Unfamiliarity with subject, (c) Lack of time, and (d) Technology.	
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### Theoretical framework

Knowledge sharing as a social identity theory and social dilemma represent the fundamental basis of understanding knowledge sharing behavior among individuals. The two theories have theoretically explained the factors that influence individuals' behaviors to share their ideas with others. Figure 1 shows the summary of the two theories.

Social identity theory asserts that individuals confirm their social identity that lead to the accruals of self-esteem with group membership by showing preference for their own social category (i.e. in-group). The demographic characteristics of individuals (e.g. age, gender, or race) and their functional peculiarity within the organization (e.g., professional or departmental affiliations) provide a significant means for individuals to categorize themselves (Schneider & Northcraft, 1999). The theory plays an important role in understanding the behaviour, thought, and reaction of individuals that are influenced by the real, implied, or imagined existence of other human beings (Cherry, 2013).

On the other hand, Social dilemma illustrates the paradoxical situations in which individual rationality attempts to maximize pay-offs that result in collective irrationality (Wahlroos, 2010) (Cabrera & Cabrera, 2002). However, Knowledge sharing in modern-day research is being described mostly as a particular kind of "social dilemma" (Allen, 2010) (Cabrera & Cabrera, 2002)(Wahlroos, 2010). The main idea portrays by the scholars is that knowledge sharing follows the social dilemma pattern in which it is seen as the public goods. The reason is that people realize substantial benefits from public goods whether they contribute to them or not (Allen, 2010). Consequently, individuals may conclude not to share their own ideas

after evaluating the benefits and costs resulting from their actions. For instance, costs in knowledge sharing include the investment of time, cognitive effort, or the fear of embarrassing oneself (Wahlroos, 2010), and if the expected costs are higher for the individuals, the stronger the knowledge sharing dilemma (Kimmerle, Wodzicki, & Cress, 2008).

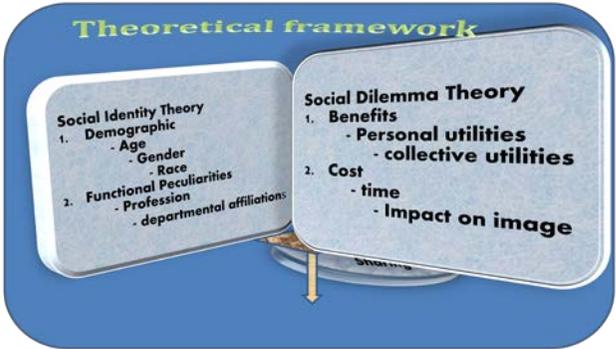


Figure 1: theoretical framework

### Proposed Research Model

In this study, the proposed research model embraces the influence of Personal factors (benefits, costs, and experience and skills with web 2.0 technologies) Organizational factors (Workgroup and Knowledge culture), and technological factors (Technology availability and Technology support) to determine the use of web technologies to share knowledge among students. Figure 2 illustrates the research model of the study. Nevertheless, the two theories explained in figure 1 serve as the foundation in developing the research model because they give account of personal and group characteristics. As mentioned earlier, social identity theory explains the reasons why some individuals do not share knowledge with others, as the role of organizational culture and individual social classification are the major cause. On the other hand, knowledge sharing as a social dilemma holds that benefits and costs are the main factors that influence individuals to share knowledge. Therefore, personal and organizational factors are the starting point when investigating knowledge sharing using web technologies. Besides personal and organizational factors, researchers have identified the role of the technological factors as the influencing factor in

knowledge sharing in many studies (e.g., (Lin, 2007) (Paroutis & Al Saleh, 2009) (Wahlroos, 2010) (Rehman, Mahmood, Salleh, & Amin, 2011).

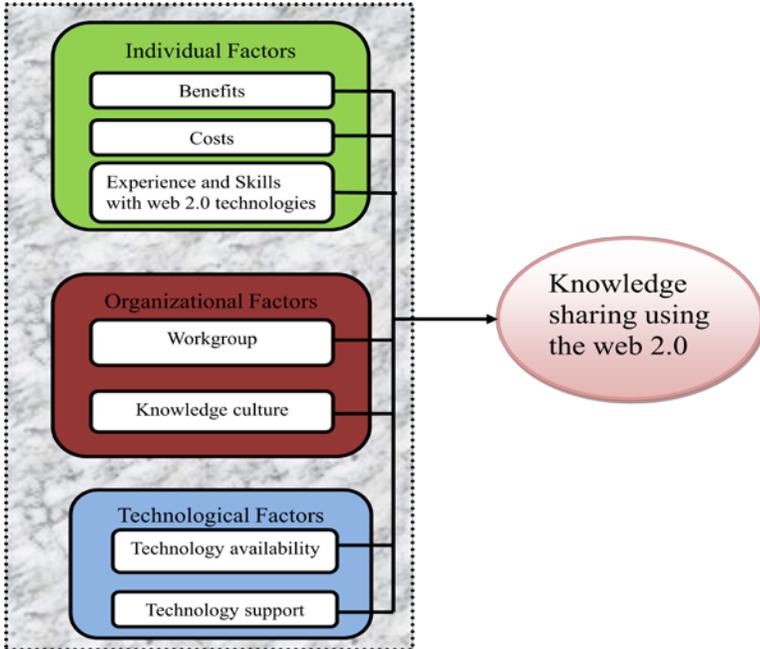


Figure 2: Research Model

### Individual Factors

Literature indicates that knowledge sharing depends on individual factors, which is derived from personal considerations of individual such as beliefs, experience, values, and motivation (Lin, 2007), expectations, perceptions, attitudes and mind-set towards knowledge sharing (Volady, 2013). Study shows that knowledge sharing relies on communication skills comprising both verbal and written (Riege, 2005). Accordingly, (Wangpipatwong, 2009) found that individual student’s ability to share positively influence knowledge sharing. This result has conformed to the proposed assumption of Van den Hooff, Elving, Meeuwse, and Dumoulin (2003) in the work of (Volady, 2013) and (Wangpipatwong, 2009), which state that “individual’s ability to share and individual’s willingness to share positively influence

knowledge sharing”. In addition, individuals that have enough confident in their ability to share valuable knowledge have more chances to articulate intentions to share their knowledge as well as to give account of their higher levels of engagement in knowledge sharing(Wang & Noe, 2010). On the other hand, Wahlroos (2010) examines the role of benefits, costs, and experience with social media in relation to individual factors to share knowledge among employees using social media. The outcome of the research shows that benefits and experience with social media have a significant impact on personal factors while the influence of costs was not supported by the study (Wahlroos, 2010).

Therefore, it is hypothesized that:

H1: Individual factors positively influence Knowledge Sharing

H1a Students’ expected benefits to share positively influences knowledge sharing using web technologies

H1b Students’ expected costs of sharing knowledge has a significant influence on knowledge sharing using web technologies

H1c Students’ experience and skills with web technologies positively influences knowledge sharing

### **Organizational factors**

Several studies have been published showing influence of organizational factors on knowledge sharing. Wahlroos (2010) lamented that organizational factors include organizational culture and managerial implications. Organizational culture involves feedback and valuable contributions and participation from colleagues and the level of collaboration in and across business units, while managerial implications covers the responsibility of providing sufficient training, valuing contributions, giving affirmative feedback, participation and organizational guidelines for using social media tools (Wahlroos, 2010).

On the other hand, emphasis on workgroup to share knowledge has been brought forward where individuals come together in particular platform and on regular basis to share their experience and expertise to achieve a common goal (Schermerhorn, Hunt, & Osborn, 1994). Workgroups have been described as “business units or departments typically found in

functional or multidivisional organizational structures where activities are grouped according to logic of similarity in work functions” (Blankenship & Ruona, 2009).

In the context of knowledge sharing, Knowledge culture is one of the organizational factors that have attracted the attention of some researchers due the changes in the nature of knowledge generation, production, and distribution in higher education. In today’s educational environment, knowledge culture has emerged that requires the consideration of the importance of application and the practical value of content where both students and university lecturers actively participate in knowledge generation, production, and distribution (Thomas, 2004). As result of recognizing the influence of organizational factors in knowledge creation and sharing in higher education, classroom factors have been studied that comprise of two variables – instructor or teacher support and degree of competition (Volady, 2013); (Wangpipatwong, 2009); & (Yogeesha, 2013). Among the two variables in the context of classroom factors, the degree of competition among classmates has consistently found to be influencing knowledge sharing significantly among students in all the three studies, however, the studies showed different outcome in instructor or teacher support. Yogeesha (2013), found that teacher support has a significant influence on knowledge sharing among students while (Volady, 2013) and (Wangpipatwong, 2009) found that instructor support has no influence on knowledge sharing of students. Hence, it is also hypothesised that:

H2: Organizational factors positively influence KS

H2 Organizational factor factors positively influence knowledge sharing using web 2.0 technologies.

H2a Students’ workgroup positively influences knowledge sharing using web 2.0 technologies

H2b Knowledge culture contributes to the activeness participation of students in knowledge sharing using web 2.0

### **Technological Factors**

Technological factors cover the information and communication technologies (ICT) of the organization, such as internet, intranets, web

services, and all other online tools. Lin (2007) reported that it is generally believe that efficient and well-implemented ICT in an organization can support knowledge sharing among staff. ICT services and infrastructures serve as facilitator that encourage and support knowledge sharing because they are related to the knowledge management technology used in the sharing activity(Volady, 2013), and they make knowledge sharing easier and more effective (Riege, 2005)

Studies on Knowledge sharing in the context of higher education have found that technological factors such as web 2.0 based tools influences knowledge sharing for enhancing learning amongst students in higher education (Johnston, 2013). Technological factors illustrated strong influence on the use of social media (Wahlroos, 2010). It is also found that technology support significantly influences knowledge sharing of among students, while technology availability has no influence on knowledge sharing of students(Wangpipatwong, 2009); (Volady, 2013); (Yogeesha, 2013). Hence, it is hypothesised that:

- H3: Technological factors positively influences Knowledge Sharing
- H3a Technology support positively influences knowledge sharing
- H3b Technology availability positively influences knowledge sharing

## **Methodology**

This study was conducted in Gombak campus of the International Islamic University Malaysia. The data collection instrument was designed for quantitative analysis, which requires 10 -15 minutes to be filled by the respondents. The researcher employed a strategy that involves going round the classes across all the faculties (Kulliyahs) to administer the questionnaire and retrieve it after a week (Subsequent Class Time). This approach has given the researcher the opportunity to collect data which represented 75% of the total sample size of the study. A total number of 263 respondents were used in this study after removing the outliers from the actual data collected.

In the analysis aspect of the study, multiple regression analysis was used. This data analysis technique was chosen to determine the factors that predict knowledge sharing using web technologies in educational settings. Based on the research model, multiple regression analysis was run on the

group of constructs. That is the multiple regression analysis was run on constructs that measure personal factors, followed by those measuring organizational factors, and then those measuring technological factors respectively.

## Findings of the Study

In order to determine the influence of factors on KS, seven factors were grouped into respective domains comprising of personal factors that cover benefit, cost and experience, organizational factors consisting of workgroup and knowledge culture and the technological factors comprising technology availability and technological support. Component of each domain was operationalized as independent variable with knowledge sharing as dependent variable using multiple regression analysis (MRA).

### Personal Factors

The multiple regression demonstrated in the table 2 shows a significant regression model Among Benefit, experience and knowledge sharing, in which ( $F= 17.70, p<0.05$ ). The result of the model above demonstrates that Benefit and experience have positive impact on knowledge sharing in such a way that the regression equation predicted almost (17%) contribution of Benefit and experience to knowledge sharing. The individual variable has the beta coefficient value of .215 and .311 respectively. The results indicate that the individual regression analysis revealed that Benefit is positively and significantly affects knowledge sharing with F value of 17.70 and beta value of .215,  $p < .05$ . Hence, an additional unit of Benefit will increase knowledge sharing by 0.215. Therefore, H1a: Benefit influence knowledge sharing is accepted.

However, the results indicate that the individual regression analysis revealed that experience is positively and significantly affects knowledge sharing with F value of 17.70 and beta value of .311,  $p < .05$ . Hence, an additional unit of experience will increase knowledge sharing by .311. Hence, hypothesis that (H1c) experience influences knowledge sharing is accepted.

**Table 2:** Regression values of benefit, experience and knowledge sharing

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.270	.417		3.042	.003
Benefit	.318	.087	.215	3.654	.000
Cost	-.102	.075	-.078	-1.357	.176
Experience	.367	.070	.311	5.279	.000

a. Dependent Variable: Knowledge Sharing,  $R^2 = .170$ ,  $F = 17.70$

### Organizational Factors

The multiple regression conducted presented in the table 3 shows a significant regression model among workgroup, Knowledge culture and knowledge sharing, in which ( $F = 17.50$ ,  $p < 0.05$ ). The result of the model above demonstrates that workgroup and Knowledge culture have positive impact on knowledge sharing in such a way that the regression equation predicted almost (17.5%) contribution of workgroup and Knowledge culture to knowledge sharing. The individual variable has the beta coefficient value of .192 and .292 respectively. The results indicate that the individual regression analysis revealed that workgroup is positively and significantly affects knowledge sharing with F value of 17.50 and beta value of .192,  $p < .05$ . Hence, an additional unit of workgroup will increase knowledge sharing by 0.192. Therefore, hypothesis (H2a) that workgroup influences knowledge sharing is accepted.

On the other hand, the results indicate that the individual regression analysis revealed that Knowledge culture is positively and significantly affects knowledge sharing with F value of 17.50 and beta value of .292,  $p < .05$ . Hence, an additional unit of Knowledge culture will increase knowledge sharing by .292. Hence, hypothesis that (H2b) Knowledge culture influences knowledge sharing is accepted.

**Table 3:** Regression values of workgroup, Knowledge culture and knowledge sharing

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.912	.360		2.533	.012
Workgroup	.278	.092	.192	3.005	.003
Knowledge culture	.376	.082	.292	4.567	.000

a. Dependent Variable: Knowledge Sharing,  $R^2 = .175$ ,  $F = 27.53$

### Technological Factors

The multiple regression results presented in the table 4 depicts a significant regression model among Technology Availability, Technology Support and knowledge sharing, in which ( $F= 23.7$ ,  $p<0.05$ ). The result of the model above demonstrates that Technology Availability and Technology Support have positive impact on knowledge sharing in such a way that the regression equation predicted almost (23.7%) contribution of Technology Availability and Technology Support to knowledge sharing. The individual variable has the beta coefficient value of .323 and .223 respectively. The findings depict that the individual regression analysis revealed that Technology Availability is positively and significantly affects knowledge sharing with F value of 23.7

and beta value of .323,  $p < .05$ . Hence, an additional unit of Technology Availability will increase knowledge sharing by 0.323. Hence, hypothesis (H5) that Technology Availability influences knowledge sharing is accepted. On the other hand, the result demonstrates that the individual regression analysis revealed that Technology Support is positively and significantly affects knowledge sharing with F value of 23.7 and beta value of .223,  $p < .05$ . Therefore, an additional unit of Technology Support will increase knowledge sharing by .223. Hence, hypothesis that (H6) Technology Support influences knowledge sharing is accepted.

**Table 4:** Regression values of Technology Availability, Technology Support, and knowledge sharing

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.061	.274		3.877	.000
Technology Availability	.367	.076	.323	4.854	.000
Technology Support	.262	.078	.223	3.351	.001

a. Dependent Variable: Knowledge Sharing,  $R^2 = .237$ ,  $F = 40.328$

### Summary of Findings

To conclude, the results show that six factors have a significant influence on Knowledge sharing using web technologies. These factors are benefit and experience as personal factors, workgroup and Knowledge culture as organizational factors, and Technology Availability and Technology Support as technological factors. However, cost is the only factor among the seven variables has not found to be influencing knowledge sharing using web

technologies. Table 5 depicts the summary of the results of the seven hypotheses assumed

**Table 5:** Summary of the results of the seven hypotheses

S/N		Hypotheses Statement	Finding (p)	Decision
1	H <sub>1a</sub>	Students' expected benefits to share positively influences knowledge sharing using web 2.0 technologies	.000	Accepted
2	H <sub>1b</sub>	Students' expected costs of sharing knowledge has a significant influence on knowledge sharing using web 2.0 technologies	.176	<b>Rejected</b>
3	H <sub>1c</sub>	Students' experience and skills with web 2.0 technologies positively influences knowledge sharing	.000	Accepted
4	H <sub>2a</sub>	Students' workgroup positively influences knowledge sharing using web 2.0 technologies.	.003	Accepted
5	H <sub>2b</sub>	Knowledge culture contributes to the activeness participation of students in knowledge sharing using web 2.0	.000	Accepted
6	H <sub>3a</sub>	Technology support positively influences knowledge sharing	.000	Accepted
7	H <sub>3b</sub>	Technology availability positively influences knowledge sharing	.001	Accepted

Therefore, the predictors of knowledge sharing via web technologies in the university are individual or personal factors (benefit and experience), organizational factors (workgroup and Knowledge culture), and technological factors (Technology Availability and Technology Support). Figure 3 illustrates the results based on the research model with Technology Availability contributing higher to knowledge sharing than the other variables. The beta value of Technology Availability is 0.323. The immediate variable that follows in contributing to the knowledge sharing is Experience and skills with beta value of 0.311. The remaining independent variables have moderately contributed to knowledge sharing apart from the Cost that is not significant in contributing to knowledge sharing. Knowledge culture contributes satisfactorily to knowledge sharing with beta value of 0.292; Technology Support contributes reasonably to knowledge sharing with beta value of 0.223; Benefit contributes agreeably to knowledge sharing with beta

value of 0.292; and least contribution to knowledge sharing in the research model is Workgroup with beta value of 0.192. The beta values of the Variables in the research model are shown in the figure 3 below.

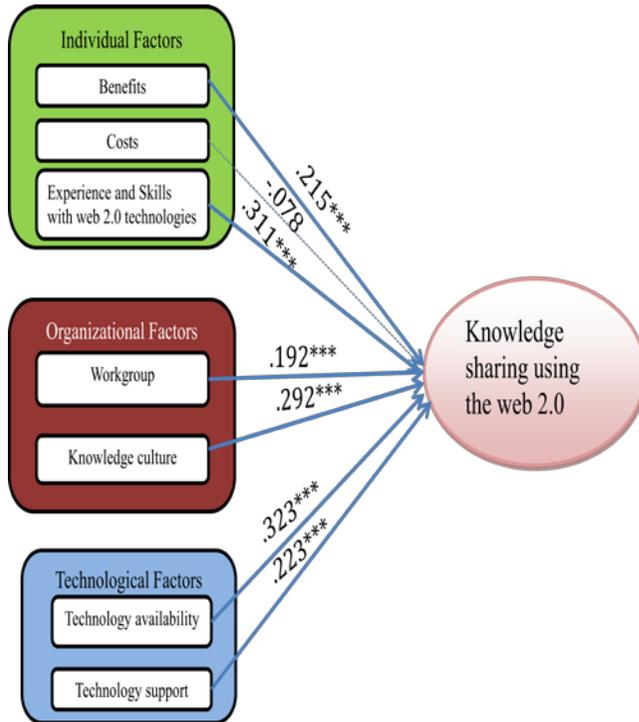


Figure 3: The Research Model of the Study

### Discussions of the study

The results of the multiple regression analysis shows individual factors, organizational factors, and technological factors have a significant influence to knowledge sharing using web technologies with the regression equation predicting 17%, 17.5%, and 23.7% respectively to knowledge sharing. This means that the research model is able to explain 58.2% of the determinants factors of knowledge sharing using web technologies among students. However, the remaining 41.8% are responsible for the factors of the variance in the research model that are not incorporated. This finding is related to

(Wahlroos, 2010) who found that personal, organizational, and technological factors influence the respondents' use of social media(Wahlroos, 2010).

On the other hand, a related study on individual factors found Benefit and Experience as strong predicting variables of using social media while cost was not a significant predictor (Wahlroos, 2010). Regarding to workgroup measuring organizational factors, a similar study found that team characteristics and practices have significant influence on knowledge sharing among team members (Wang & Noe, 2010). While this study considered the knowledge culture as a way through which the students and the lecturers interact to acquire and disseminate knowledge. Some similar studies were conducted on teacher support and degree of competition among students. The studies found that degree of competition among students significantly influence knowledge sharing among students (Wangpipatwong, 2009)(Wangpipatwong, 2009)(Yogeesha, 2013).

The teacher support received a mix result where Yogeesha (2013) found teacher support has a significant influence on knowledge sharing among students (Yogeesha, 2013). Volady, (2013) and Wangpipatwong (2009) found that instructor support has no influence on knowledge sharing of students (Volady, 2013) (Wangpipatwong, 2009). In relation to technological factors, studies found technology support significantly influences knowledge sharing among students while technology availability has no influence on knowledge sharing of students (Wangpipatwong, 2009)(Wangpipatwong, 2009)(Yogeesha, 2013). In this study, both Technology Availability and Technology Support are strong predictors of knowledge sharing using web technologies.

## Conclusions

This study was conducted with the aim to determine the factors that influence knowledge sharing using web technologies among students in higher education. Therefore, this study concludes from the variables (benefit and experience) measuring individual factors that students value the benefit derivable from knowledge sharing with web technologies. In addition, the level of students' experience and skills with the web technologies contribute significantly to knowledge sharing within the institutions. The study also concluded from the variables (workgroup and knowledge culture) measuring organizational factors that universities should synchronize their

effort toward supporting and encouraging teamwork and promoting knowledge culture among the students to share knowledge. This study draw conclusion on the variables (technology availability and technology support) measuring technological factors that institutions need to provide up to date and functioning technologies, which support knowledge sharing among students.

It is essential for the university to recognize that there are various reasons leading to share or not share of knowledge among students using web 2.0 tools. For instance, a study established the differences between technology-aided interactions and face-to-face interactions that influence the decision to share knowledge. In electronic context, many factors that influence knowledge sharing have been identified in various literatures such as trust, benefit, cost, motivation and so on. Hence, this research recommends further study on the factors influencing knowledge sharing in the universities. For instance, a study should be carried out to correlate the factors that influence knowledge sharing from the various faculties in the university. This will provide an insight whether students' profession or specialization requires particular technologies or features to influence their knowledge sharing.

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