

**Manuscript version: Author's Accepted Manuscript**

The version presented in WRAP is the author's accepted manuscript and may differ from the published version or Version of Record.

**Persistent WRAP URL:**

<http://wrap.warwick.ac.uk/111516>

**How to cite:**

Please refer to published version for the most recent bibliographic citation information. If a published version is known of, the repository item page linked to above, will contain details on accessing it.

**Copyright and reuse:**

The Warwick Research Archive Portal (WRAP) makes this work by researchers of the University of Warwick available open access under the following conditions.

Copyright © and all moral rights to the version of the paper presented here belong to the individual author(s) and/or other copyright owners. To the extent reasonable and practicable the material made available in WRAP has been checked for eligibility before being made available.

Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

**Publisher's statement:**

Please refer to the repository item page, publisher's statement section, for further information.

For more information, please contact the WRAP Team at: [wrap@warwick.ac.uk](mailto:wrap@warwick.ac.uk).

# TOWARD A NEW MODEL FOR THE ADOPTION OF WEB-BASED KNOWLEDGE SHARING SYSTEMS AMONGST ACADEMICS IN SAUDI ARABIAN HIGHER EDUCATION INSTITUTIONS

Nouf A. Almujaally<sup>1,2</sup>, Mike Joy<sup>3</sup>

<sup>1</sup>Computer Science Department, University of Warwick, UK

[N.almujally@warwick.ac.uk](mailto:N.almujally@warwick.ac.uk)

<sup>3</sup>Computer Science Department, University of Warwick, UK

[M.S.Joy@warwick.ac.uk](mailto:M.S.Joy@warwick.ac.uk)

Knowledge sharing has become a significant source of success in Knowledge Management (KM). In many organisations, knowledge management is often inadequate when it comes to web-based knowledge sharing, particularly among academics who work in Saudi universities. To ensure that a knowledge sharing system can be well implemented and used when communicating internally in an academic context, there is a need to know why academics accept or reject the use of web-based knowledge sharing systems. Therefore, the aim of this research is to determine the factors that affect academics' behaviours toward using web technology to share knowledge in Saudi Arabian higher education institutions. Furthermore, a web-based knowledge sharing adoption model is constructed based on the factors which already exist in technology acceptance theories, such as the Unified Theory of Acceptance and Use of Technology (UTAUT) and Task-Technology Fit (TTF), as well as other factors which are explored in knowledge sharing literature reviews to enrich the proposed model. Then, the model will be edited and refined using mixed method approach. The future work will expand the model and evaluate it to ensure that it fits the academics' needs.

Keywords: Knowledge Management, Knowledge Sharing, UTAUT, Technology Acceptance, Academics, Higher Education.

## 1 INTRODUCTION

In today's knowledge-based economy, establishing a knowledge management system is becoming an important practice for achieving competitive advantage among global corporations, including higher education institutions [1]. The main processes in knowledge management are collecting and sharing knowledge [1]. Reviewing the literature reveals that knowledge sharing is considered essential roles of higher education institutions where knowledge is created through research, disseminated through publication, and shared via teaching [2], [3]. Considering the classification of knowledge, there are academic knowledge and organization knowledge. Most researchers categorized knowledge into two main types: tacit and explicit [1], [3]. Intangibles knowledge, which is preserved in academics' minds, is considered complicated to share and capture between novices and experienced staff [4]. The absence of knowledge sharing mechanism can affect academics' performance and may result in lower levels of achievement.

Various studies have affirmed that the use of information technology as a knowledge enabling tool can support knowledge sharing processes and encourage academics' communication and collaboration [4], [5]. Web-based knowledge sharing can be defined as the process of interaction and collaboration among academics by sharing different types of knowledge using information and communication technology (ICT) tools such as blogs, social networks, or internet applications [6]. Web technology, for example, is the most effective tools that would encourage and enhance knowledge sharing amongst academics, who work in universities [7], [8]. It also facilitates the flow of knowledge between academic members and supports the creation of new knowledge [9].

This paper is organised as follows. The authors first identify the problem associated with knowledge sharing systems in Saudi Arabian universities and provide additional background on knowledge sharing and technology acceptance. Then, the conceptual model is constructed based on the theoretical background to understand web-based knowledge sharing adoption. Finally, the methods which will be used for validating the model is presented.

---

<sup>2</sup> Department of Computer Science, Princess Nourah bint Abdulrahman University, Saudi Arabia

## **2 PROBLEM STATEMENT**

This research considers the application of knowledge sharing in Saudi Arabian universities. Most Saudi universities are not geographically co-located as they have dispersed campuses in rural and urban areas. Therefore, expert academics need to travel between these campuses to share knowledge with others who have common interests. Additionally, many years of teaching experience could be lost due to academic retirement without being recorded in a proper knowledge sharing system. Consequently, face-to-face communication is no longer an effective way of sharing knowledge and it would be more valuable if the knowledge were documented and shared in a way that encourages novice teachers to use them [1]. Thus, universities need to implement a knowledge sharing system that could facilitate the flow of knowledge amongst academics and could overcome the challenges mentioned above. In order to ensure that a knowledge sharing system can be well implemented and used in the academic context, there is a need to investigate technology acceptance among academics [10]. Previous studies have investigated user acceptance of using new information systems, however, to the best of the researchers' knowledge, there is a lack of studies that investigate academics' perspective on using web-based knowledge sharing systems in Saudi Arabia [11]. Thus, this study explores that factors that influence academics' behaviour towards using web-based knowledge sharing systems in Saudi Arabian higher education institutions.

## **3 LITERATURE REVIEW**

### **3.1 Knowledge Sharing**

Knowledge sharing is essential to the success of all organisations, including institutions of higher learning which have been described as a knowledge-intensive community where faculty members share the same common missions [1], [3], [12]. [3] stated that academics in universities work as the disseminators of knowledge through teaching and as the producers of knowledge through conducting research. [1] found that knowledge sharing depends on individual's behaviour toward accepting or rejecting the use of web technology for disseminating knowledge. Thus, changing people's behaviour to adopt new systems for sharing their knowledge is a significant challenge in knowledge management [11].

Behavioural intention is an indicator of an individual's readiness to share knowledge, and it can be affected negatively or positively by certain factors [11]. In this research, behaviour intention refers to the academic's likelihood to share knowledge using web technology.

### **3.2 Theoretical Background**

The literature on the adoption of new system supports many theoretical models [13][14][15] that have been tested in different contexts. However, reviewing the literature revealed that there is no well-defined knowledge sharing adoption theory. Therefore, to investigate the factors that could affect academics acceptance toward using web technology for knowledge sharing, theories that applied in technology acceptance area should be taken into consideration.

Previous studies have determined a strong connection between what a system can do and what are the benefits and outcomes of using that system [16]. Therefore, the authors have used both unified theory of acceptance and use of technology (UTAUT) model [14] and task-technology fit (TTF) model [15] to explore academics' attitudes toward accepting the use of technology for knowledge sharing. The unified theory of acceptance and use of technology (UTAUT) has been widely used to determine behaviour intention and usage of new system [14], while task-technology fit (TTF) model measures the capabilities of technology to support the function of a task and meet the user's requirements [15].

The next section outlines the significant factors and combines them into a web-based knowledge sharing system model.

## **4 CONCEPTUAL MODEL**

The research model, which can be seen in Fig. 1, is constructed to explore academics' behaviour towards sharing knowledge via web technology. The presented model intends to combine factors from the unified theory of acceptance and use of technology (UTAUT) model and the task-technology fit (TTF) model, as well as combines external factors that have been explored from knowledge sharing literature reviews [17], [18].

## 4.1 Motivation

In an academic environment, one of the most common issues that could affect academics' attitudes towards knowledge sharing is the absence of intrinsic and extrinsic motivation. Previous studies have found that receiving reward or recognition such as, a promotion or acknowledgement as an expert in a relevant field, are among the factors that intend to encourage knowledge contributors to engage in knowledge sharing [19], [20]. In their study about knowledge sharing using Web 2.0 tools, [17] noted that some employees avoid using web technologies such as blogs and wikis due to the absence of recognition programmes.

Perceived enjoyment in helping others is an intrinsic motivation that could affect behavioural intention to adopt web technology for knowledge sharing. It refers to the degree of personal perception that the system is fun and enjoyable [21]. It has been found that knowledge contributors who feel pleasure when helping others are likely to be more motivated to participate in knowledge sharing activities [22].

Self-efficacy could also affect knowledge sharing using web technology. It can be defined as the belief in one's abilities to enhance work productivity and organisational performance. Previous studies suggested that individuals with high self-efficacy and great confidence to contribute their knowledge are more likely to have positive attitudes toward using web tools for knowledge sharing [1], [23].

According to UTAUT model, outcome expectancy was found to be the strongest determinants of sharing knowledge behaviour. It is defined as a person's expectations about the consequences of using web technology for sharing knowledge [24]. According to the Saudi study conducted by [10], it has been found that outcome expectancy has a recognised influence on behavioural intention to share knowledge using technologies. When employees are unaware of the potential outcomes, such as reducing the amount of e-mail, solving problems, and sharing the same interest with remote members [17], it is more likely that they will adopt negative attitudes towards perceiving the benefits of sharing knowledge.

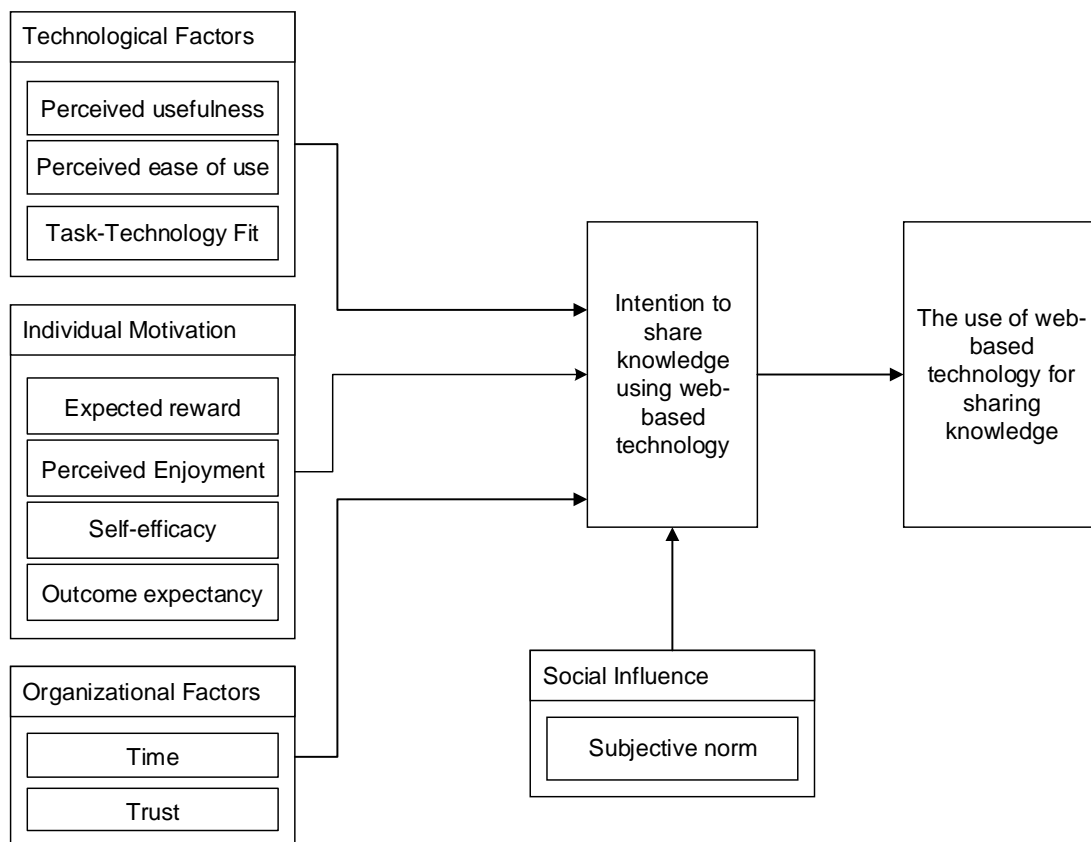


Figure 1. Web-based knowledge sharing adoption model

## 4.2 Technological Factors

This study examines two factors that influence academics' attitudes toward the acceptance of web-based sharing knowledge: perceived ease of use and perceived usefulness. When academic members feel that technology is free of effort, it is more likely that they will disseminate their knowledge with others [21]. Therefore, designing an ease of use knowledge sharing system which meets users' preferences is expected to enhance the behaviour of knowledge sharing [25],[26],[27]. Furthermore, academics are more likely to be more motivated to share their knowledge using the systems when they believe that using knowledge sharing systems can improve their job performance [28].

Task-technology fit construct measures the capabilities of technology to match the required tasks that academics should do [19]. Task-technology fit suggests that the appropriate fit between knowledge sharing systems' features and tasks' requirements is a key determinant of accepting the use of technology for sharing knowledge [16].

## 4.3 Social Influence

Subjective norm is defined by [3] as the degree of a person perceives toward the impact of social pressure from their managers and colleagues to adopt of a new technology for knowledge sharing. Previous research has identified that subjective norm has an impact on individual's intention to adopt a new technology [29]. Due to the high individualism-collectivistic characteristic of the Saudi Arabian culture, [11] revealed that subjective norm has a positive effect on an individual's attitude.

## 4.4 Organizational Factors

Other factors that influence knowledge sharing practices are trusting the quality of knowledge being shared and trusting that others will share their valuable knowledge [30]. Building an environment of trust that supports intellectual roles and copyright among an online community's members would facilitate communication and collaboration among knowledge contributors [11].

Time is also considered as one of the factors that could prevent academics from contributing in sharing knowledge. Teaching activities, academic meetings, and research events, all require an amount of faculty members' time. Consequently, allocating time to share and post knowledge using web technology could be impossible [20].

Finally, studies have found that top management support could influence the use of web technology as a knowledge sharing tool. In Saudi e-learning communities, [29] affirmed that academics are influenced by top management adoption of technology for knowledge sharing. In other words, academics are more willing to accept the use of technology for sharing knowledge when the leaders in the organisation adopt the same behaviour. [1] mentioned the importance of leadership in affecting knowledge sharing behaviour. They stated that the team leader plays a crucial role in encouraging knowledge sharing amongst team members. Their responsibilities range from disseminating information to motivating and supporting employees to participate in knowledge sharing activities using web technologies by providing suitable ICT infrastructure [17],[31].

## 5 RESEARCH METHOD

To reach the objectives of the research, this study will use both quantitative and qualitative methods in three phases. Firstly, semi-structured interviews will be conducted with ten to fifteen novice or expert Saudi Academics who work in different disciplines. The purpose of the interviews is to investigate unidentified factors, derived from academics' perspectives, as well as to explore academics' opinion about knowledge sharing using the available online systems.

Experts' questionnaires will then be developed after analysing the previous interviews. The purpose of the experts' reviews is to refine and confirm the model by measuring the factors based on five-point Likert scale.

Finally, in order to examine the relationships between the model's components and validate the research hypothesis, a questionnaire will be conducted with Saudi academics by applying a Structural Equation Modelling tool (SEM) as a confirmatory approach to evaluate the resulted model.

## 6 CONCLUSIONS

The research objective is to enhance exchanging knowledge between academics by examining web-based knowledge sharing acceptance in Saudi universities. Therefore, this study will determine the influential factors that affect academics' behavioural intention toward using web technology to share knowledge. The conceptual model has been constructed based on the factors investigated through analysing the existing knowledge sharing literature, as well as factors from the UTAUT and TTF models. Then the factors have been categorised and grouped, based on the definition and the concept of each factor, into individual motivation, social influence, organisational factors, and technological factors. Then, the model will be evaluated based on mixed methods approach.

From the author's perspective, establishing a knowledge sharing system based on the factors that will be explored in the resulting model may provide useful insights to the management of Saudi Arabian higher education institutions. The future work will expand the model and evaluate it to ensure that it fits the academics' needs.

## REFERENCES

- [1] R. Fullwood, J. Rowley, and R. Delbridge, "Knowledge sharing amongst academics in UK universities," *J. Knowl. Manag.*, vol. 17, no. 1, pp. 123–136, 2013.
- [2] S. Kim and B. Ju, "An analysis of faculty perceptions: Attitudes toward knowledge sharing and collaboration in an academic institution," *Libr. Inf. Sci. Res.*, vol. 30, no. 4, pp. 282–290, 2008.
- [3] A. Jolaei *et al.*, "Factors affecting knowledge sharing intention among academic staff," *Int. J. Educ. Manag.*, vol. 28, no. August 2016, pp. 413–431, 2014.
- [4] S. Panahi, J. Watson, and H. Partridge, "Towards tacit knowledge sharing over social web tools," *J. Knowl. Manag.*, vol. 17, no. 3, pp. 379–397, 2013.
- [5] S. H. Usman and I. O. Oyefolahan, "Encouraging Knowledge Sharing Using Web 2.0 Technologies in Higher Education: a Survey," *Int. J. Manag. Inf. Technol.*, vol. 6, no. 2, pp. 19–28, 2014.
- [6] M. Warkentin, M. Warkentin, and R. Bapna, "E-knowledge networks for inter-organizational collaborative e-business," *E-knowledge networks collaborative e-business*, vol. 14, no. March, 2001.
- [7] A. Tiwana and B. Ramesh, "Integrating knowledge on the web," *IEEE Internet Comput.*, vol. 5, no. 3, p. 32, 2001.
- [8] S. Panahi, J. Watson, and H. Partridge, "Social media and tacit knowledge sharing: developing a conceptual model," *World Acad. Sci. Eng. Technol.*, no. 64, pp. 1095–1102, 2012.
- [9] C. A. Silver, "Where technology and knowledge meet," *J. Bus. Strategy*, vol. 21, no. 6, pp. 28–33, 2000.
- [10] S. S. Al-Gahtania, G. S. Hubona, and J. Wang, "Information technology (IT) in Saudi Arabia: Culture and the acceptance and use of IT," *Inf. Manag.*, vol. 44, no. 8, pp. 681–691, 2007.
- [11] A. Alammari and D. Chandran, "Knowledge-Sharing Adoption in Saudi Universities' E-learning Communities," *25TH Int. Conf. Inf. Syst. Dev.*, pp. 1–10, 2016.
- [12] M. S. Sohail and S. Daud, "Knowledge sharing in higher education institutions: Perspectives from Malaysia," *Vine*, vol. 39, no. 2, pp. 125–142, 2009.
- [13] F. D. Davis, "Perceived Usefulness, Perceived Ease Of Use, And User Acceptance," *MIS Q.*, vol. 13, no. 3, pp. 319–339, 1989.
- [14] V. Venkatesh, M. G. Morris, G. B. Davis, and F. D. Davis, "User acceptance of information technology: Toward a unified view," *MIS Q.*, vol. 27, no. 3, pp. 425–478, 2003.
- [15] D. L. Goodhue and R. L. Thompson, "Task-Technology Fit and Individual Performance," *Mis Q.*, vol. 19, no. 2, pp. 213–236, 1995.
- [16] G. R. El, "Understanding Knowledge Management System antecedents of performance impact: Extending the Task-technology Fit Model with intention to share knowledge construct," *Futur. Bus. J.*, vol. 1, no. 1–2, pp. 75–87, 2015.

- [17] S. Paroutis and A. Al Saleh, "Determinants of knowledge sharing using Web 2.0 technologies," *J. Knowl. Manag.*, vol. 13, no. 4, pp. 52–63, 2009.
- [18] S. H. Usman, Ishaq, and O. Oyefolahan, "Determinants of Knowledge Sharing Using Web Technologies among Students in Higher Education," *J. Knowl. Manag. Econ. Inf. Technol.*, vol. IV, no. 2, pp. 1–22, 2014.
- [19] K. K. Jain, M. S. Sandhu, and G. K. Sidhu, "Knowledge sharing among academic staff: A case study of business schools in Klang Valley, Malaysia," UCSI Centre for Research Excellence, 2007.
- [20] C. Wei Chong, Y. Yen Yuen, and G. Chew Gan, "Knowledge sharing of academic staff," *Libr. Rev.*, vol. 63, no. 3, pp. 203–223, 2014.
- [21] C. L. Hsu and J. C. C. Lin, "Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation," *Inf. Manag.*, vol. 45, no. 1, pp. 65–74, 2008.
- [22] D. F. Alias, W. F. Abbas, and A. Nordin, "Knowledge Sharing Scenario Capture: A Case Study in IT Department of Public Higher Education Institution," *J. Adv. Manag. Sci.*, vol. 4, no. 6, pp. 507–510, 2016.
- [23] H. A. Skaik and R. Othman, "Investigating Academics' Knowledge Sharing Behaviour in United Arab Emirates," *J. Bus. Econ.*, vol. 6, no. 1, pp. 2155–7950, 2015.
- [24] M.-H. Hsu, T. L. Ju, C.-H. Yen, and C.-M. Chang, "Knowledge sharing behavior in virtual communities: The relationship between trust, self-efficacy, and outcome expectations," *Int. J. Hum. Comput. Stud.*, vol. 65, no. 2, pp. 153–169, 2007.
- [25] A. Riege, "Three-dozen knowledge-sharing barriers managers must consider," *J. Knowl. Manag.*, vol. 9, no. 3, pp. 18–35, 2005.
- [26] S. Kim and H. Lee, "The impact of organizational context and information technology on employee knowledge-sharing capabilities," *Public Adm. Rev.*, vol. 66, no. 3, pp. 370–385, 2006.
- [27] Z. T. Alhalhouli, Z. B. Hassan, and C. S. Der, "Factors affecting knowledge sharing behavior among stakeholders in Jordanian hospitals using social networks," *Int. J. Comput. Inf. Technol.*, vol. 3, no. 5, pp. 919–928, 2014.
- [28] P. Esmaeilzadeh, M. Sambasivan, N. Kumar, and H. Nezakati, "The effect of knowledge sharing on technology acceptance among physicians," *Glob. Adv. Res. J. Eng. Technol. Innov.*, vol. 2, no. 2, pp. 48–57, 2013.
- [29] N. Spring, "Belief , Attitude , Intention , and Behavior : An Introduction to Theory and Research by Martin Fishbein ; Icek Ajzen Review by : Rodney B . Douglass Published by : Penn State University Press," vol. 10, no. 2, pp. 130–132, 2013.
- [30] F. Hassandoust and V. Perumal, "Online Knowledge Sharing in Institutes of Higher Learning: A Malaysian Perspective," *J. Knowl. Manag. Pract.*, vol. 12, no. 1, 2011.
- [31] G. Casimir and Y. N. K. Ng, "Using IT to share knowledge and the TRA," *J. Knowl. Manag.*, vol. 16, no. 3, pp. 461–479, 2011.