STUDENT'S INTENTION TO USE WIKIS FOR ONLINE COLLABORATIVE
LEARNING (OCL)

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This dissertation is dedicated to my husband and my family for their endless support and encouragement throughout my studies. Thank you so much to my lovely husband, Syed Nuruddin Bin Syed Muhamad, also to my children Syed Ahmad Yasin, Sharifah Aminah Aljufri and Syed Ibrahim Aljufri always gives support to me. Thanks a lot to my lovely dad Tn Haji Syed Salim and family for always being there for me through my good time and bad.

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ABSTRACT

Online Collaborative Learning (OCL) is very prominent nowadays. Even though OCL is utilized all over the globe, there are still limitations in evaluating the factors influencing intention to use tools and technologies of online collaborative learning, especially in Malaysia. This study aimed to investigate factors affecting the intention to use Wikis for OCL through the Unified Theory of Acceptance and Use of Technology (UTAUT) has been adopted in designing the theoretical framework for the study. This framework is applied to examine the significant differences between level of study related to factors affecting the intention to use Wikis namely the performance expectancy, effort expectancy, social influence, the features of OCL and intention to use. A survey was used to collect usable data from 233 undergraduate students in a Universiti Teknologi Malaysia. Structural Equation Modeling (SEM) was used as the technique for data analysis. The results show that all construct was significant predictors of intention to use Wikis. Overall, the proposed model achieves an acceptable fit and explains its variance for 66% of sample. The implications of the study's findings for practice and research are discussed, and avenues for future research outlined.

ABSTRAK

Pembelajaran Kolaborasi Dalam Talian (OCL) sangat menonjol pada masa kini. Walaupun OCL digunakan di seluruh dunia, masih ada batasan dalam menilai faktor-faktor yang mempengaruhi niat menggunakan alat dan teknologi pembelajaran kolaboratif dalam talian, terutama di Malaysia. Kajian ini bertujuan untuk menyiasat faktor-faktor yang mempengaruhi maksud menggunakan Wikis untuk OCL menerusi *Unified Theory of Acceptance and Use of Technology* (UTAUT) telah digunakan dalam merangka rangka kerja teoritis untuk kajian ini. Rangka kerja ini digunakan untuk meneliti perbezaan yang signifikan antara tahap kajian yang berkaitan dengan faktor yang mempengaruhi niat untuk menggunakan Wikis iaitu jangkaan prestasi, harapan usaha, pengaruh sosial, ciri-ciri OCL dan niat untuk digunakan. Satu tinjauan digunakan untuk mengumpul data yang boleh digunakan daripada 233 pelajar siswazah di Universiti Teknologi Malaysia. Pemodelan persamaan struktur (SEM) digunakan sebagai teknik untuk analisis data. Keputusan menunjukkan bahawa semua membina adalah peramal penting untuk menggunakan Wikis. Secara keseluruhannya, model yang dicadangkan mencapai kesesuaian dan menjelaskan variansnya untuk 66% sampel. Implikasi dari hasil kajian untuk amalan dan penyelidikan dibincangkan, dan jalan untuk penyelidikan masa depan yang digariskan.

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CHAPTER 1

INTRODUCTION

1.1   Overview

Technology is changing so fast nowadays. It is transforming the way people communicate and collaborate, as well as consume information and participate in the World Wide Web. One need to be holistic when he/she thinks about the future of learning in a knowledge-based as learning will become a lifelong activity that cuts across different learning generations and life spheres such as private and public. The focus should therefore be not only on traditional formal learning institutions such as schools and universities but it should also involve other forms of online collaborative adult learning and many forms of informal learning. Learners need to be prepared not only to operate the technology but also for higher order skills such as knowing and understanding what it means to live in a digitalized and networked society and what it means to work in online collaborative learning teams where information is shared and knowledge is constructed collaboratively.

Online collaborative learning is where students learn together actively and interact with instructors and other participants via social interaction using computers or online surroundings (Altowairiki, 2013; Barra et al., 2014). Online collaborative learning activities can be performed via applications such as Blogs (Mora et al., 2015), Wikis (Lawrie et al., 2016; Miyazoe & Anderson, 2010; Sutton & Hazeri, 2012), EBook (Ahmad & Brogan, 2016; Gao & Deng, 2012), Blackboard (Bettayeb

& Shaalan, 2014) and Google Docs (Agcaoili, 2012). Among the key success factors for this method include positive interdependence among group members, instructor assistants and participation, input, feedback, corrections and sample materials, collective responsibility, confidence in completing the tasks, nature of the task and distribution of control amongst students (Soediono, 2015; Stoszkowski et al., 2017; Tarhini, 2017). It is found that online collaborative learning approaches present positive effects on learning (Kanaganayagam & Fernando, 2013a) because these approaches are more effective compared to their traditional counterparts especially in encouraging student learning and academic achievement (Dela Pena-Bandalaria, 2013).

Wikis are one of the most promising technologies that allow people to implement a collaborative technique on a work group in virtual environments (Amaral, 2014; DeWitt et al., 2014; Gielen & Wever, 2015; Fidalgo et al., 2015). Wikis provide a way for students to convey their views. They help students to pick up skills like reading, writing, being reflective and other online collaborative learning skills. Via this tool, students will be provided with a positive psychological online collaborative learning consequence and will be able to keep up with technological innovations (Israel et al., 2016). The effectiveness of Wikis has been studied in many levels such as schools, colleges and universities (Monika & Hvoreck, 2017). Wikis can be easily used by all walks of life and it is easy to import images, create hyperlinks, make discussions, post assignments, and perform collaborative projects via these platforms.

In the past two decades, many researchers have attempted to provide theoretical models to explain and predict users' intention to use online collaborative learning of information technology and information system (Venkatesh & Davis 2000). Among these models, the Unified Theory of Acceptance and Use of Technology (UTAUT) is believed to be one of the most well-researched, robust and parsimonious model in predicting users' collaborative learning of technology online (Cornell et al., 2011; Venkatesh & Davis, 2000). This model aims to forecast user intention of using an information system and his/her subsequent intentions

(Pardamean & Susanto, 2015). UTAUT have four basic constructs namely performance expectancy, effort expectancy, social influence and facilitating conditions, as well as four moderating variables which are age, gender, experience and voluntariness of use (Toh, 2013).

In an effort to understand Wikis as a tool in online collaborative learning, researchers have studied the factors that influence intentions to use Wikis. Intention describes one's subjective probability that he/she will perform something intentionally. The main dependent variable identified in the studies conducted based on the UTAUT model is the likelihood that an individual will use an information system. Intention plays a critical role in the actual use of a new technology (Davis, 1989). Intention to use can also be considered as an attitude (Mohammadi, 2015a). The intention to use a technology can be determined by measuring three metrics, namely computer anxiety, self-efficacy and enjoyment (Esterhuyse & Scholtz, 2016). Computer anxiety describes the obstruction on one's intention to use a system due to anxiety stemming from the use of a computer, which in turn hinders one from being able to complete tasks using a computer. When users have computer anxiety, they may experience feelings of uneasiness, apprehensiveness or fear when thinking about current or future use of computers. Self-efficacy relates to the belief in one's capabilities to initiate one's motivation, cognitive resource and courses of action required to meet the demands of a given situation. In the field of information system, enjoyment can be defined as the extent to which the task of using a technology or system is perceived to be pleasing, regardless of any performance consequence that may be anticipated. Higher enjoyment of using a system positively influences the intention to use a system. Intention to use technology is used as the outcome variable in this study.

1.2   Background of the Problem

Nowadays, many universities offer collaborative learning via virtual space. Knowledge transfer processes that are based in leveraging knowledge are held in different parts of the organization or university. Online collaborative learning is very flexible, and it urges students and instructors to interact, think differently, and be creative in their decision making process. In this way, students will be able to integrate and assess all kinds of information that they have and comprehend on the impacts of that information on their learning process. Generally, the factors behind the utilization of different forms of technology may be different (Toh, 2013). Thus, factors that influenced the intention to use online collaborative learning in different contexts need to be reviewed in order to comprehend students' intention towards using this technology.

Currently, there are various methods used to investigate students' intention to use online collaborative learning (Du et al., 2016; Shorfuzzaman et al., 2015; Eck et al., 2016). Some of the approaches are mainly applied in higher education settings such as learning styles and students intention to support online collaborative learning strategy using Wikis (K. M. Li, 2015), co-constructing knowledge for MediaWikis and Google Docs (Samuel& Kennedy, 2011), examining the influence of students' learning styles on the intention of open learner models for information sharing (Sek et al., 2015), comparing learners' interactions using Wikis (Ioannou et al., 2015), analysing students' participation patterns and learning intention in virtual environment (Schuster et al., 2015), determining factors that influence the effectiveness of technology integration on instructors and students from the tertiary education sector in the age of Web 2.0 and Google tools (Varela & Alexander, 2016) and patterns of students' intention in synthetic social networks (Narkwilai et al., 2015).

There are many benefits of using online collaborative learning methods. For example, according to a research (Gallagher et al., 2014), in the process of working together, students will be more active, develop higher level thinking, enhance self-management, and improve oral communication and also leadership skills. Students can also improve their sense of responsibility and self-esteem (Webb, 2016). Online

collaborative learning can develop and improve students' skills and knowledge, help them to perform group assignments and collaborate among them (Akar et al., 2004). This means that this style of learning is a good way to learn new things since it utilizes the concept of collaboration and can be done anywhere and at any time, provided there is a stable internet connection.

Currently, there are several on-going researches done in Universiti Teknologi Malaysia (UTM) for collaborative learning (W. M. Al-Rahmi et al., 2014). Previous studies done in this university are more focused on e-learning (Othman, 2013; Said et al., 2014) and no study has been done on Wikis (Zakaria et al., 2012; Al-Rahmi et al., 2015; Seyed Ali Hosseini, 2015). Previous researchers have studied different categories including theoretical models for online collaborative learning (Al-Rahmi et al., 2016; Masrom, 2007), frameworks in Web 2.0 (Rohani, 2012), factors affecting the intention to use e-learning (Philippsen, 2015; Kadhim, 2015; Al-Rahmi et al., 2015; Tarhini, 2017), students' perception in online collaborative learning (Subramaniam, 2015), empirical online collaborative learning (Zakaria et al., 2012), and the intention to adopt mobile learning (Sanjebad, 2014).

This shows that most past research were not focused on students' intention for online collaborative learning, especially in Wikis. A research (Yunianta & Yusof, 2012) claimed that the success of online collaborative learning cannot be measured via the number of recorded successes, and a more holistic measurement is needed for this matter. Therefore, it is important to determine the factors that influence the intention to use Wikis in online learning, especially in UTM. It is not easy to determine these factors due to the lack of standard model in such study (Shu & Chuang, 2011a). Thus, to ensure the success of online collaborative learning, it is important to really understand students' intention and their acceptance of this technology. According to the "attention-to-affect" model (Critcher & Ferguson, 2011), learning is an expressive and perceptive knowledge (Frijda, 1986). During media learning, intellectual demands are different from the content presence and it can affect the potential outcomes or the action itself (Mayer, 2005). This is supported by Yusoff and Salim (2012), who stressed that if learning tasks require high

cognitive process and participants have limited expertise in the learning domain, the interaction between content and interface encounters many difficulties, particularly conceptualization from content (Hong et al., 2017).

The focus of this study will be on factors determining students' intention towards online collaborative learning, understanding of the main factors that are involved in online collaborative learning intention and also to understand students' perspective and ability in utilizing online collaborative learning methods.

1.3   Problem Statement

There are many studies that have been done on online collaborative learning such as collaborative group project recommender for an online collaborative learning system (Alamri & Cristea, 2016), environments based on social network analysis (Stantchev et al., 2015), online collaborative learning framework (Mhouti et al., 2016; Alzahrani et al., 2016), technologies and tools of online collaborative learning (Esterhuyse et al., 2016; Khechine et al., 2014; Dascalu et al., 2015; Rosbottom et al., 2010; Guo et al., 2015; Sonego et al., 2014), attitudes and interaction that occur in online collaborative learning platform (Lin et al., 2013), student engagement satisfaction (Haineyet al., 2016; Lu & Lee, 2011), online collaborative learning experience (Popovici & Mironov, 2015; Teo & Zhou, 2014; DeWitt et al., 2014), comparison of online collaborative learning impact (Dascalu et al., 2015) and online collaborative learning performance (Khalil & Ebner, 2013; Shu & Chuang, 2011; Gielen & Wever, 2015; Fidalgo et al., 2015).

Even though online collaborative learning is utilized all over the globe, there are still limitations in evaluating the factors influencing intention to use tools and technologies of online collaborative learning, especially in Malaysia (Osman & Chung, 2011; Yiong et al., 2008). Most previous research studied the factor of intention to use online collaborative learning in other countries such as Africa (Cilliers, 2016), Taiwan (Yueh et al., 2015), German (Kummer, 2013), Turkey

(Cigdem & Topcu, 2015) and China (C. Zhang et al., 2010). Very few studies have been conducted in Malaysia, especially in the academic setting on students' intention to use online collaborative learning technologies during the learning or teaching process. Thus, little is known about users' (students and academics) intentions to use these technologies (V. Balakrishnan, 2017; See et al., 2013; Aifan, 2015).

In general, there are many tools that have been used for online collaborative learning such as Wikis, Facebook, Blog, Twitter, Google Docs and Blackboard. However, the number of research made on the use of Wikis for online collaborative learning is very minimal, especially in Malaysia. Previous researchers used other tools for online collaborative learning such as Facebook (Sulaiman et al., 2016; Raman, et al., 2014), Social Network (W. M. Al-Rahmi et al., 2015), Google Docs (Balakrishnan, 2014), Web 2.0 (Rohani, 2012) and Social Software (Shittu et al., 2011).

A research (Mirabolghasemi & Huspi, 2012) claimed that the optimistic influence of online collaborative learning to improve students' learning experience which depends on education, intellectual, and social presence, as stated by the Community of Inquiry (CoI) model. Edmodo was used to support the deficiencies of previous learning tools. However, this method requires more research especially on the integration and implementation of this new technology in the educational context (Mirabolghasemi & Huspi, 2012).

Another research (Yunianta & Yusof, 2012) listed activities rank from UTM e-learning application. On the top of this list are Wiki, Lamstwo and Discussion Forum with a score value of 5. Much kind of activities undertaken by students and lecturer in E-learning, but not all of the activities can be a meaningful learning. Student activities cannot be solely judged just by number of hits, but they must be viewed deeper to ensure their success, especially from the e-learning perspective. Because Wikis obtained the highest rank, this method should be given more priority in future studies.

E-learning in UTM is described as the information and communications technology application used to advance the influences of the teaching and learning procedure (UTM, 2005). In UTM, students were offered with e-learning tools and websites to assist them in both education and communication aspects (e.g. capability to upload notes, make announcements, conduct online tests, link forum discussions, write blogs, search Wikis and use messaging system) simultaneously. Unfortunately, lecturers and students in some faculties do not fully use the e-learning tools provided (Oye and Iahad et al., 2012). Therefore, one of the tools in UTM e-learning, Wiki was selected for the current study.

Based on this issue, the researcher needs to investigate whether the Wikis tools provided in UTM e-learning platform are widely used or not. For the early stage, the researcher studied the factors influencing students' intention to use technology focusing on Wikis.

Although there are several studies made on the online collaborative learning phenomenon (Ellis, 2016), Wikis was selected for this study because majority of previous studies were not focusing on the use of Wikis. It is important to discover factors affecting students' intention to use latest online collaborative learning technology, especially Wikis. In this manner, Unified Theory of Acceptance and Use of Technology (UTAUT) is utilized to dissect the variables influencing students goal to take an interest in online collaborative learning using Wikis tool.

1.4 Research Questions

The main research question for this study is "How to evaluate factors that influence students' intention to use Wikis in online collaborative learning?" Several other research questions arise, including:

1. What are the factors influencing the students intention to use Wikis for online collaborative learning?

2. How to develop an adapted model for intention to use Wikis in online collaborative learning?

3. How to evaluate an adapted model for intention to use Wikis for online collaborative learning?

1.5   Research Objectives

From the research question formulated, the research objectives of this study are listed as follows:

1. To identify the factors influencing students' intention in using Wikis for online collaborative learning.

2. To develop an adapted model for students' intention to use Wikis for online collaborative learning.

3. To evaluate a model of Wikis in online collaborative learning.

1.6   Scope of the Study

The scopes for this research is as below:

1. The research focuses on students' intention in online collaborative learning.

2. The research focuses on higher education students from Universiti Teknologi Malaysia (UTM), Skudai in specific first year students in session 2017/2018 from Faculty of Computing.

3. The research focuses on the use of Wikis tools for online collaborative learning.

1.7   Significance of the Study

The outcome of this study will help to enhance the design of the adapted model for the use of Wikis in online collaborative learning and the focus of this study is on Management Information System courses in UTM. Hopefully, result of the study will provide and strengthen the benefit of online collaborative learning (OCL) usage and help to provide better understanding on factors affecting students' intention to use Wikis for OCL. This will ensure that students will reap the biggest benefits from OCL activities in terms of cooperating with others and having appropriate social skills. This research is expected to be beneficial especially for lecturers and also students to enhance the design of adapted model for Wikis in online collaborative learning. This will also help in ensuring the success of this platform in helping students to ease their learning process.

1.8   Summary

This study is executed in order to investigate the factors influencing students' intention to use Wikis for online collaborative learning. This study will elaborate further on the important factor of intention to use. This chapter has discussed the background and research problems from the OCL context as well as the purpose of the study. One of the objectives of this study is to design an intention model to be used for Wikis in OCL. At the end of this study, questionnaires will be distributed to evaluate the model and identify whether the model can be used for OCL or not.

REFERENCES

Abdul Rahman, A. L., Jamaludin, A., & Mahmud, Z. (2011). Intention to Use Digital Library based on Modified UTAUT Model : Perspectives of Malaysian Postgraduate Students. *International Journal of Social, Management, Economics and Business Engineering*, *5*(3), 51–57.

Abu-Al-Aish, A., & Love, S. (2013). Factors Influencing Students' Acceptance Of M-Learning: An Investigation In Higher Education. *International Review of Research in Open and Distance Learning, 14*(5), 82–107.

Ahmad, P., & Brogan, M. (2016). E-Book User Behaviour In Academic Libraries: The Role Of User Agents In Perception And Satisfaction. *Malaysian Journal of Library & Information Science*, *21*(3), 95–109.

Aifan, H. A. (2015). *Saudi Students' Attitudes Toward Using Social Media To Support Learning*. PhD Thesis, King Abdul Aziz University, Jeddah.

Akar, E., Ozturk, E., Tuncer, B., & Wiethoff, M. (2004). Evaluation of a collaborative virtual learning environment. *Education + Training*, *46(6/7),* 343–352.

Al-Ammary, J. H. (2013). Online Collaboration Learning: A Way to Enhance Students' Achievement at Kingdom of Bahrain. *International Journal of Scholarly and Scientific Research & Innovation*, *7*(2), 377–384.

Al-Azawei, A., Parslow, P., & Lundqvist, K. (2016). Investigating The Effect Of Learning Styles In A Blended E-Learning System: An Extension Of The Technology Acceptance Model (TAM). *Australasian Journal of Educational Technology, 33(2)*, 1-23.

Al-Rahimi, W. M. A. (2015). *The Impact of Social Media Use in Collaborative Learning Towards Learning Performance Among Research Students*. Ph.D Thesis, Universiti Teknologi Malaysia.

Al-Rahmi, W. M., Alias, N., & Shahizan, M. (2016). Social Media Used in Higher

Education: A Literature Review of Theoretical Models. *INSIST – International Series on Interdisciplinary Science and Technology* , *1*(1), 38–42.

Al-Rahmi, W. M., Othman, M. S., & Mi Yusuf, L. (2015). Exploring The Factors That Affect Student Satisfaction Through Using E-Learning In Malaysian Higher Education Institutions. *Mediterranean Journal of Social Sciences*, *6(4), 299–310.

Al-Rahmi, W. M., Othman, M. S., & Musa, M. A. (2014). The Improvement Of Students' Academic Performance By Using Social Media Through Collaborative Learning In Malaysian Higher Education. *Asian Social Science*, *10*(8), 210–221.

Al-Rahmi, W., Othman, M. S., & Yusuf, L. M. (2015). The Role Of Social Media For Collaborative Learning To Improve Academic Performance Of Students And Researchers In Malaysian Higher Education. *International Review of Research in Open and Distance Learning*, *16*(4), 177–204.

Alamri, A. S., Cristea, A. I., & Shi, L.(2016, July), 'Designing A Collaborative Group Project Recommender For An E-Learning System', in *Computing Conference London, 2016,* pp. 781-787.

Alenezi, A. R., Karim, A. M. A., & Veloo, A. (2010). An Empirical Investigation Into The Role Of Enjoyment, Computer Anxiety, Computer Self-Efficacy And Internet Experience In Influencing The Students' Intention To Use E Learning: A Case Study From Saudi Arabian Governmental Universities. *Turkish Online Journal of Educational Technology*, *9*(4), 22–34.

AlFarraj, O., & Vlacic, L. (2010, June), 'Towards Using Web-Based Collaborative Technologies Within E-Government Practice: A Case Study Of Quick Place Technology', *in Information Society (i-Society) International Conference 2010,* pp. 605-611.

Ali, Z., & Samaka, M. (2013), ' ePBL : Design And Implementation Of A Problem Based Learning Environment', *in IEEE Global Engineering Education Conference (EDUCON) 2013, pp.* 1209–1216.

Aljuaid, N., Alzahrani, M., & Atiquil, A. (2014). Assessing Mobile Learning Readiness in Saudi Arabia Higher Education: An Empirical Study. *The Malaysian Online Journal of Educational Technology*, *2*(2), 1–14.

Altanopoulou, P., & Tselios, N. (2017). Assessing Acceptance Toward Wiki Technology In The Context Of Higher Education. *International Review of*

Research in Open and Distance Learning, *18*(6), 127–149.

Altanopoulou, P., Tselios, N., Katsanos, C., Georgoutsou, M., & Panagiotaki, M. A. (2015). Wiki-Mediated Activities In Higher Education: Evidence-Based Analysis Of Learning Effectiveness Across Three Studies. *Educational Technology and Society*, *18*(4), 511–522.

Altowairiki, N. (2013). *Instructors' And Students' Experiences With Online Collaborative Learning In Higher Education.* PhD Thesis, University of Calgary.

Amaral, M. (2014). Wiki As A Tool For Microbiology Teaching, Learning And Assessment. *European Journal of Dental Education*, *18*(2), 91-97.

Astall, C., & Cowan, J. (2016). Experiences Of Using Wiki As A Participatory Learning Tool In Teacher Education. *American Journal of Educational Research*, *4*(6), 459–471.

Avci, U., & Askar, P. (2012). The Comparison Of The Opinions Of The University Students On The Usage Of Blog And Wiki For Their Courses. *Educational Technology and Society*, *15*(2), 194–205.

Awwad, M. S., & Al-Majali, S. M. (2015). Electronic Library Services Acceptance And Use: An Empirical Validation Of Unified Theory Of Acceptance And Use Of Technology. *The Electronic Library*, *33*(6), 1100-1120.

Balakrishnan, B. (2014). Online Computer Supported Collaborative Learning (CSCL) For Engineering Students: A Case Study In Malaysia. *Computer Applications in Engineering Education, 23*(3), 352-362.

Balakrishnan, V. (2017). Key Determinants For Intention To Use Social Media For Learning In Higher Education Institutions. *Universal Access in the Information Society*, *16*(2), 289–301.

Barra, E., Herrera, S. A., Ygnacio, J., & Caño, P. (2014). New Review of Hypermedia and Multimedia Using Multimedia And Peer Assessment To Promote Collaborative E-Learning. *New Review of Hypermedia and Multimedia*, *20*(2), 103–121.

Bazelais, P., Lemay, D. J., & Lemay, D. J. (2017). Examining The Antecedents Of Facebook Acceptance Via Structural Equation Modeling : A Case Of CEGEP Students Tenzin Doleck Recommended Citation : Examining The Antecedents Of Facebook Acceptance Via Structural Equation Modeling : A Case Of

CEGEP Students. *Knowledge Management & E-Learning*, *9*(1), 69–89.

Bettayeb, A. (2014). *Factors Affecting the Intention to use E-Learning Systems in Middle East*. Ph.D Thesis, British University in Dubai.

Bri, D., García, M., Coll, H., Lloret, J., & Vera, C. (2009). A Study of Virtual Learning Environments. *WSEAS Transactions on Advances in Engineering Education*, *6*(1), 33–43.

Caballé, S., Britch, D., Barolli, L., & Xhafa, F. (2014, July), 'A Methodological Approach To Provide Effective Web-Based Training By Using Collaborative Learning And Social Networks', *in Complex, Intelligent and Software Intensive Systems (CISIS), 2014 Eighth International Conference,* pp. 64-71.

Chaka, J. G., & Govender, I. (2017). Students' Perceptions And Readiness Towards Mobile Learning In Colleges Of Education: A Nigerian Perspective. *South African Journal of Education*, *37*(1), 1–12.

Chang, S.-S., Lou, S.-J., Cheng, S.-R., & Lin, C.-L. (2015). Exploration Of Usage Behavioral Model Construction For University Library Electronic Resources. *The Electronic Library*, *33*(2), 292–307

Chatti, M. A., Klamma, R., Jarke, M., & Naeve, A. (2007), 'The Web 2.0 Driven SECI Model Based Learning Process', *in Seventh IEEE International Conference on Advanced Learning Technologies*, pp.780–782.

Chen, C. J., Chuah, K. M., Tho, J., & Teh, C. S. (2015). Attitudinal Factors Affecting Wiki Group Collaboration for English Writing. *European Journal of Open, Distance and E-Learning*, *18*(2), 22–36.

Chen, Y. H., Jang, S. J., & Chen, P. J. (2015). Using Wikis And Collaborative Learning For Science Teachers' Professional Development. *Journal of Computer Assisted Learning*, *31*(4), 330–344.

Cheung, R., & Vogel, D. (2013). Computers & Education Predicting User Acceptance Of Collaborative Technologies : An Extension Of The Technology Acceptance Model For E-Learning. *Computers & Education*, *63(*February*)*, 160–175.

Chiu, C. M., & Wang, E. T. G. (2008). Understanding Web-Based Learning Continuance Intention: The Role Of Subjective Task Value. *Information and Management*, *45*(3), 194–201.

Chu, S. K. (2009). Using Wikis in Academic Libraries. *The Journal of Academic Librarianship*, *35*(2), 170–176.

Chu, S. K. W., Capio, C. M., van Aalst, J., & Cheng, E. W. L. (2017). Evaluating The Use Of A Social Media Tool For Collaborative Group Writing Of Secondary School Students In Hong Kong. *Computers & Education*, *110*, 170–180.

Cigdem, H., & Topcu, A. (2015). Computers in Human Behavior Predictors of Instructors ' Behavioral Intention To Use Learning Management System : A Turkish Vocational College Example. *Computers In Human Behavior*, *52* (2015), 22–28.

Cilliers, L. (2016). Wiki Acceptance By University Students To Improve Collaboration In Higher Education. *Innovations in Education and Teaching International*, *3297*(September), 1–9.

Cole, M. (2009). Computers & Education Using Wiki Technology To Support Student Engagement : Lessons From The Trenches. *Computers & Education*, *52*(1), 141–146.

Cowan, B. R., & Jack, M. A. (2014). The Impact Of Identity On Anxiety During Wiki Editing In Higher Education. *Journal of Enterprise Information Management*, *27*(1), 56–65.

Dascalu, M., Bodea, C., Moldoveanu, A., Mohora, A., Lytras, M., Ordoñez, P., & Pablos, D. (2015). Computers in Human Behavior A Recommender Agent Based On Learning Styles For Better Virtual Collaborative Learning Experiences, *Computers in Human Behaviour, 45* (2015), 243-253.

David, O. ., Helou, A. M., & Rahim, N. Z. A. (2012). Model Of Perceived Influence Of Academic Performance Using Social Networking. *International Journal of Computer and Technology*, *2*(2), 24–29.

Dela Pena-Bandalaria, M. (2013), 'Collaboration In Online Courses: Drawing Insights From The Learners For Effective Course Design', *in Proceedings of the 2013 IEEE 63rd Annual Conference International Council for Education Media, ICEM 2013*, pp. 1-6.

DeLuca, D., Gasson, S., & Kock, N. (2006). Adaptations That Virtual Teams Make So That Complex Tasks Can Be Performed Using Simple E-Collaboration Technologies. *International Journal of E-Collaboration*, *2*(3), 64–89.

DeWitt, D., Alias, N., & Siraj, S. (2014). Wikis for Collaborative Learning: A Case Study of Knowledge Management and Satisfaction Among Teacher Trainees in Malaysia. *Procedia Social and Behavioral Sciences*, *141*(2014), 894–898.

Dewitt, D., Alias, N., Siraj, S., & Spector, J. M. (2017). Wikis for a Collaborative Problem-Solving (CPS) Module for Secondary School Science, *20*(1), 144–155.

Donne, V. (2012). Wiki: Using the Web Connections to Connect Students. *TechTrends*, *56*(2), 31–36.

Du, H. S., Chu, S. K. W., Chan, R. R. C., & He, W. (2016). Collaborative Writing With Wikis: An Empirical Investigation. *Online Information Review*, *40*(3), 380–399.

Duran, M., Brunvand, S., Ellsworth, J., & Sendag, S. (2012). Impact of Research-Based Professional Development: Investigation of Inservice Teacher Learning and Practice in Wiki Integration. *Journal of Research on Technology in Education*, *44*(4), 313–334.

East, E. W., Kirby, J. G., & Liu, L. Y. (2008). Verification and validation of a project collaboration tool. *Automation in Construction, 17*(2), 201-214.

Eck, A., Soh, L. K., & Shell, D. F. (2016, February), 'Investigating Differences In Wiki-Based Collaborative Activities Between Student Engagement Profiles In CS1', *in Proceedings of the 47th ACM Technical Symposium on Computing Science Education*, pp. 36-41.

Elaheh Yadegaridehkordi, E., Iahad, N. A., & Asadi, S. (2015). Cloud Computing Adoption Behaviour: An Application Of The Technology Acceptance Model. *Journal of Soft Computing and Decision Support Systems, 2*(2), 11-16.

Ellis, R. A. (2016). Students' Approaches To Group Work In A Blended Course, Associations With Perceptions Of The Online Environment And Academic Achievement When Is Learning Engaged. *Education and Information Technologies, 21*(5), 1095-1112.

Faerber, M. (2016). Using A Semantic Wiki For Technology Forecast And Technology Monitoring. *Program-Electronic Library and Information Systems*, *50*(2), 225–242.

Felea, C., & Stanca, L. (2012, September), 'Wiki Tools In Teaching English For Specific (Academic) Purposes Improving Students' Participation', *in International Conference on Web-Based Learning* , pp. 241-250.

Fidalgo-Blanco, Á., Sein-Echaluce, M. L., García-Peñalvo, F. J., & Conde, M. Á. (2015). Using Learning Analytics To Improve Teamwork Assessment. *Computers in Human Behavior, 47*(2015), 149-156.

Foroughi, A. (2011). A Research Framework For Evaluating The Effectiveness Of Implementations Of Social Media In Higher Education. *Online Journal for Workforce Education and Development, 5*(1), 1-5.

Francescomarino, C., Ghidini, C., & Rospocher, M. (2014). Evaluating Wiki Collaborative Features In Ontology Authoring. *IEEE Transactions On Knowledge And Data Engineering, 26*(12), 2997-3011.

Freire, T., & Li, J. (2016). Using Wikipedia To Enhance Student Learning: A Case Study In Economics. *Education and Information Technologies*, *21*(5), 1169–1181.

Fu, H., Chu, S., & Kang, W. (2013). Affordances And Constraints Of A Wiki For Primary-School Students' Group Projects. *Educational Technology and Society*, *16*(4), 85–96.

Gallagher, S., & Sixsmith, A. (2014). Engaging IT Undergraduates In Non-IT Content: Adopting An Elearning Information System In The Classroom. *Interactive Technology and Smart Education, 11*(2), 99-111.

Ganapathy, M., Singh, M. K. M., Kaur, S., & Kit, L. W. (2017). Promoting Higher Order Thinking Skills via Teaching Practices. 3L: Language, Linguistics, Literature®, *The Southeast Asian Journal of English Language Studies 23*(1), 75–85.

Gao, T., & Deng, Y. (2012) 'A Study On Users' Acceptance Behavior To Mobile E-Books Application Based On UTAUT Model', *ICSESS 2012 - Proceedings of 2012 IEEE 3rd International Conference on Software Engineering and Service Science*, pp. 376–379.

Gené, O. B., Núñez, M. M., & Blanco, Á. F. (2014, October), 'Gamification in MOOC: Challenges, Opportunities And Proposals For Advancing MOOC Model', *in Proceedings of the Second International Conference on Technological Ecosystems for Enhancing Multiculturality*, pp. 215-220.

Giannakos, M. N. (2014). Exploring Students Intentions To Study Computer Science And Identifying The Differences Among ICT And Programming Based Courses. *TOJET: The Turkish Online Journal of Educational Technology, 13*(3), 68–78.

Gielen, M., & Wever, B. De. (2015). Computers & Education Scripting The Role Of Assessor And Assessee In Peer Assessment In A Wiki Environment : Impact On Peer Feedback Quality And Product Improvement. *Computers &*

Education, *88*(2015), 370–386.

Gláucia Nolasco de Almeida Mello. (2016). Recommendations for Using Wiki in Online Group Projects in Engineering Education. *Chinese Business Review, 15*(3), 132–142.

Guo, R., Li, L., Shen, Y., & Zheng, G. (2015). Which Collaboration Technologies Best Support Student Teamwork ? An Empirical Investigation. *Twenty-First Americas Conference on Information Systems, Puerto Rico, (Eisner 2010)*, 1–7.

Guo, Y. (2014, October),'Moderating Effects of Gender in the Acceptance of Mobile SNS-Based on UTAUT Model', *in Management of e-Commerce and e-Government (ICMeCG), 2014 International Conference,* pp. 163-167.

Hadjerrouit, S. (2013, July), ' A Framework For Assessing The Pedagogical Effectiveness Of Wiki-Based Collaborative Writing: Results And Implications', i*n Proceedings of the Informing Science and Information Technology Education Conference,* pp. 29-49.

Hainey, T., Connolly, T. M., Boyle, E. A., Wilson, A., & Razak, A. (2016). A Systematic Literature Review Of Games-Based Learning Empirical Evidence In Primary Education. *Computers & Education*, *102*(2016), 202–223.

Häkkinen, P., Järvelä, S., Mäkitalo-Siegl, K., Ahonen, A., Näykki, P., & Valtonen, T. (2016). Preparing Teacher-Students For Twenty-First-Century Learning Practices (PREP 21): A Framework For Enhancing Collaborative Problem-Solving And Strategic Learning Skills. *Teachers and Teaching, 23*(1), 25-41.

Haron, H., Natrah Aziz, N. H., & Harun, A. (2017). A Conceptual Model Participatory Engagement Within E-learning Community. *Procedia Computer Science*, *116* (October 2017), 242–250.

Has, M. N. (2016, September),' Examining Factors Influencing Webinar Adoption Using UTAUT Model (Case Study At Distance Learning Program, ABC University, Bandung-Indonesia 2016)', *in Wireless and Mobile (APWiMob), 2016 IEEE Asia Pacific Conference,* pp. 52-58.

Heng, L. T., & Marimuthu, R. (2012). Let's Wiki in Class. *Procedia - Social and Behavioral Sciences*, *67*(November 2011), 269–274.

Hj, D. hjh T. A., Zakaria, N., Islam, M. R., Omar, A. H. H., & Libunao, W. H. (2012). An Empirical Online Collaborative Learning System with Grid Portal Technology. *International Journal of E-Education, E-Business, E-Management*

and E-Learning, *2*(1), 1.

Hui-Yi, H., Luh-Wang, W., & Hsiu-Chuan, T. (2010, June), 'Consumers' Behavioral Intentions Of Using Cross-Media Book For E-Learning', *in Information Sciences and Interaction Sciences (ICIS), 2010 3rd International Conference*, pp. 77-82.

Hong, J. C., Tai, K. H., Hwang, M. Y., Kuo, Y. C., & Chen, J. S. (2017). Internet Cognitive Failure Relevant To Users' Satisfaction With Content And Interface Design To Reflect Continuance Intention To Use A Government E-Learning System. *Computers in Human Behavior*, *66*(January), 353–362.

Howard, R., Restrepo, L., & Chang, C.-Y. (2017). Addressing Individual Perceptions: An Application Of The Unified Theory Of Acceptance And Use Of Technology To Building Information Modelling. *International Journal of Project Management*, *35*(2), 107–120.

Hsiao, C.-H., & Tang, K.-Y. (2014). Explaining Undergraduates' Behavior Intention Of E-Textbook Adoption. *Library Hi Tech*, *32*(1), 139–163.

Hsu, H. (2012). The Acceptance of Moodle : An Empirical Study Based on UTAUT. *Creative Education, 3(*December*)*, 44-46.

Huang, W. D., Ward, D., & Joo, S. (2013). Internet and Higher Education Gender Divide And Acceptance Of Collaborative Web 2 . 0 Applications For Learning In Higher Education. *The Internet and Higher Education*, *16*(2013), 57–65.

Huang, Y. M. (2015). Exploring The Factors That Affect The Intention To Use Collaborative Technologies: The Differing Perspectives Of Sequential/Global Learners. *Australasian Journal of Educational Technology*, *31*(3), 278–292.

Haron, H., Natrah Aziz, N. H., & Harun, A. (2017). A Conceptual Model Participatory Engagement Within E-learning Community. *Procedia Computer Science*, *116* (October 2017), 242–250.

Ioannou, A., & Artino, A. R. (2009). Wiki And Threaded Discussion For Online Collaborative Activities: Students' Perceptions And Use. *Journal of Emerging Technologies in Web Intelligence*, *1*(1), 97–106.

Ioannou, A., Brown, S. W., & Artino, A. R. (2015). Wikis And Forums For Collaborative Problem-Based Activity: A Systematic Comparison Of Learners' Interactions. *The Internet and Higher Education*, *24*(2015), 35–45.

Israel, M., Wherfel, Q. M., Shehab, S., Ramos, E. A., Metzger, A., & Reese, G. C. (2016). Assessing Collaborative Computing: Development Of The

Collaborative-Computing Observation Instrument (C-COI). *Computer Science Education*, *3408*(January 2017), 1–26.

Jezegou. (2010). Community of Inquiry in E-Learning: A Critical Analysis Of The Garrison And Anderson Model. *Journal of Distance Education*, *24*(1993), 1–18.

Kai Wah Chu, S., Siu, F., Liang, M., Capio, C. M., & Wu, W. W. (2013). Users' Experiences And Perceptions On Using Two Wiki Platforms For Collaborative Learning And Knowledge Management. *Online Information Review, 37*(2), 304-325.

Kanaganayagam, I., & Fernando, S. (2013), 'A Framework to Analyze the Effectiveness of Collaborative E-Learning (CeL) in Sri Lankan University Education', *in National Engineering Conference 2013, 19th ERU Symposium,* pp. 1-8.

Kanaganayagam, I., & Fernando, S. (2013, December), 'Analysis Of The Awareness Of Collaborative E-Learning (CeL) in Sri Lankan University Education', *in Advances in ICT for Emerging Regions (ICTer), 2013, International Conference*, pp. 253-260.

Karasavvidis, I. (2010). Wiki Uses In Higher Education: Exploring Barriers To Successful Implementation. *Interactive Learning Environments*, (October 2014), 37–41.

Kaur, A., & Singh, J. (2013). Affordances Of Wikispaces For Collaborative Learning And Knowledge Management. *GEMA Online® Journal of Language Studies,* 13(September), 79–97.

Khalil, H., & Ebner, M. (2013). Using Electronic Communication Tools in Online Group Activities to Develop Collaborative Learning Skills. *Universal Journal of Educational Research, 5*(4), 1-10.

Khechine, H., Lakhal, S., Pascot, D., & Bytha, A. (2014). UTAUT Model For Blended Learning: The Role Of Gender And Age In The Intention To Use Webinars. *Interdisciplinary Journal of E-Learning and Learning Objects, 10*(1), 33-52.

Kiniti, S., & Standing, C. (2013). Wikis As Knowledge Management Systems: Issues And Challenges. *Journal of Systems and Information Technology, 15*(2), 189-201.

Kock, N. (2009). Designing E-Collaboration Technologies To Facilitate Compensatory Adaptation. *Journal of E-Learning and Knowledge Society, 5*(1), 159–169.

Ku, D. T., & Chen, N. L. (2015). Influence Of Wiki Participation On Transnational Collaboration Learning Anxiety In Middle School Students. *Internet Research: Electronic Networking Applications and Policy, 25*(5), 794-810.

Kummer, C. (2013) 'Students ' Intentions to Use Wikis in Higher Education', *in Wirtschaftsinformatik March 2013*, pp.1493–1507.

Kump, B., Moskaliuk, J., Dennerlein, S., & Ley, T. (2013). Tracing Knowledge Co-Evolution In A Realistic Course Setting: A Wiki-Based Field Experiment. *Computers & Education, 69*, 60-70.

Laal, M., Laal, M., & Kermanshahi, Z. K. (2012). 21st Century Learning; Learning In Collaboration. *Procedia-Social and Behavioral Sciences, 47*(2012), 1696-1701.

Latif, A., Rahman, A., Jamaludin, A., & Mahmud, Z. (2011). Intention To Use Digital Library Based On Modified UTAUT Model: Perspectives Of Malaysian Postgraduate Students. *World Academy Of Science, Engineering And Technology, 5(*3), 270–276.

Lawrie, G. A., Grøndahl, L., Boman, S., & Andrews, T. (2016). Wiki Laboratory Notebooks: Supporting Student Learning In Collaborative Inquiry-Based Laboratory Experiments. *Journal of Science Education and Technology, 25*(3), 394-409.

Letchumanan, M., & Tarmizi, R. (2011). Assessing The Intention To Use E-Book Among Engineering Undergraduates In Universiti Putra Malaysia, Malaysia. *Library Hi Tech, 29*(3), 512-528.

Li, K. M. (2015). Learning Styles And Perceptions Of Student Teachers Of Computer-Supported Collaborative Learning Strategy Using Wikis. *Australasian Journal of Educational Technology, 31*(1), 32–50.

Li, M., & Zhu, W. (2017). Good Or Bad Collaborative Wiki Writing: Exploring Links Between Group Interactions And Writing Products. *Journal of Second Language Writing, 35*(2017), 38-53.

Li, Q., Abel, M. H., & Barthès, J. P. A. (2014). Modeling And Exploiting Collaborative Traces In Web-Based Collaborative Working Environment. *Computers in Human Behavior, 30*(2014), 396-408.

Lin, P. C., Lu, H. K., & Liu, S. C. (2013). Towards An Education Behavioral Intention Model For E-Learning Systems: An Extension Of UTAUT. *Journal of Theoretical & Applied Information Technology, 47*(3), 1120–1127.

Liu, I. F., Chen, M. C., Sun, Y. S., Wible, D., & Kuo, C. H. (2010). Extending The TAM Model To Explore The Factors That Affect Intention To Use An Online Learning Community. *Computers & Education, 54*(2), 600-610.

Lu, H. P., & Lee, M. R. (2011). Experience Differences And Continuance Intention Of Blog Sharing. *Behaviour & Information Technology, 31*(11), 1–15.

Lu, J., & Law, N. W. Y. (2017). Understanding Collaborative Learning Behavior From Moodle Log Data. *Interactive Learning Environments, 20(*5), 451-466.

Lv, J., Zhou, W., & Wang, X. (2010 August), 'Design And Evaluation Of A Wiki-Based Collaborative Learning Environment For Colleges Computers Compulsory Education', *in Computer Science and Education (ICCSE), 2010 5th International Conference*, pp. 695-699.

Lwoga, E. T., & Komba, M. (2015). Antecedents Of Continued Usage Intentions Of Web-Based Learning Management System In Tanzania. *Education+ Training, 57*(7), 738-756.

Madan, K., & Yadav, R. (2016). Behavioural Intention To Adopt Mobile Wallet: A Developing Country Perspective. *Journal of Indian Business Research, 8*(3), 227-244.

Martins, C., Oliveira, T., & Popovič, A. (2014). Understanding The Internet Banking Adoption: A Unified Theory Of Acceptance And Use Of Technology And Perceived Risk Application. *International Journal of Information Management, 34*(1), 1-13.

Masrom, M. (2007). Technology Acceptance Model And E-Learning. *Technology, 21*(24), 1-10.

Matschke, C., Moskaliuk, J., & Kimmerle, J. (2013). The Impact Of Group Membership On Collaborative Learning With Wikis. *Cyberpsychology, Behavior, and Social Networking, 16*(2), 127-131.

Matthew, K., & Callaway, R. (2008). Wiki as a Collaborative Learning Tool. *ED-MEDIA 2008--World Conference on Educational Multimedia, Hypermedia & Telecommunications*, *42*(1), 2678–2683.

Martins, C., Oliveira, T., & Popovič, A. (2014). Understanding The Internet Banking Adoption: A Unified Theory Of Acceptance And Use Of Technology And

Perceived Risk Application. *International Journal of Information Management, 34*(1), 1-13.

Mbati, L. (2013). Online Social Media Applications for Constructivism and Observational Learning. *The International Review of Research in Open and Distance Learning*, *14*(5), 543–544.

Milovanovic, M., Minovic, M., Stavljanin, V., Savkovic, M., & Starcevic, D. (2012). Wiki As A Corporate Learning Tool: Case Study For Software Development Company. *Behaviour & Information Technology*, *31*(8), 767–777.

Mirabolghasemi, M., & Huspi, S. H. (2012, June), 'A Blended Community Of Inquiry Approach: The Usage Of Social Network As A Support For Course Management System', *in Computer & Information Science (ICCIS), 2012 International Conference*, pp. 180-183.

Mirabolghasemi, M., Iahad, N. A., & Yadegaridehkordi, E. (2011, November),' Investigating The Dynamic Relationships Among The Indicators Of The Community Of Inquiry Model In Blended Learning', *in Research and Innovation in Information Systems (ICRIIS) 2011,* pp. 1-5.

Miyazoe, T., & Anderson, T. (2010). Learning Outcomes And Students ' Perceptions Of Online Writing : Simultaneous Implementation Of A Forum , Blog , And Wiki In An EFL Blended Learning Setting. *System*, *38*(2), 185–199.

Moccozet, L., & Tardy, C. (2015, June) 'An Assessment For Learning Framework With Peer Assessment Of Group Works', *In Information Technology Based Higher Education And Training (ITHET) 2015*, pp. 1-5.

Mohammadi, H. (2015). Investigating Users' Perspectives On E-Learning: An Integration Of TAM And IS Success Model. *Computers in Human Behavior*, *45*(June 2014), 359–374.

Monika, D., & Hvoreck, J. (2016, September), 'Collaboration Tools For Virtual Teams In Terms Of The SECI Model', *in International Conference on Interactive Collaborative Learning*, pp. 97-111.

Mora, N., Caballé, S., & Daradoumis, T. (2015, July), 'A Methodology to Evaluate Complex Learning Resources to Improve e-Assessment from Collaborative and Networking Settings', *in Complex, Intelligent, and Software Intensive Systems (CISIS), 2015 Ninth International Conference,* pp. 164-171.

Mtebe, J. S., & Raisamo, R. (2014). Challenges and Instructors' Intention to Adopt and Use Open Educational Research in Higher Education. *The International*

Review of Research in Open and Distributed Learning, *15*(1), 1–12.

Mtebe, J. S., & Raisamo, R. (2014). Investigating Students' Behavioural Intention To Adopt And Use Mobile Learning In Higher Education In East Africa. *International Journal of Education and Development Using Information and Communication Technology*, *10*(3), 4–20.

Muhammad Abubakar, F., & Hartini Ahmad, A. B. (2013). The Moderating Effect of Technology Awareness on the Relationship Between UTAUT Constructs and Behavioural Intention to Use Technology: A Conceptual Paper. *Australian Journal of Business and Management Research*, *3*(2), 14–23.

Naismith, L., Lee, B. H., & Pilkington, R. M. (2011). Collaborative Learning With A Wiki: Differences In Perceived Usefulness In Two Contexts Of Use. *Journal of Computer Assisted Learning*, *27*(3), 228–242.

Narkwilai, M., Funilkul, S., & Supasitthimethee, U. (2015, October), 'Factors Influencing The Thai Elderly's Intention To Use Social Network For Quality Of Life: A Case Study LINE Application', *in Information Technology and Electrical Engineering (ICITEE), 2015 7th International Conference*, pp. 593-598.

Newbury, P., & Watten, P. L. (2015). Self-Summarized Videos in Adaptive Collaborative E-Learning Environment. *Journal of Information Technology and Application in Education, 4*(2015), 770-780.

Nordin, N. M. (2006), 'Wikis As Collaborative Learning Tools For Knowledge Sharing : Shifting The Education Landscape Computer Supported Collaborative Learning (CSCL)', *in Asia-Pacific Programme of Educational Innovation for Development (APEID) International Conference,* pp. 1–12.

Othman, B. A. (2013). *The Influence of Technology Acceptance Model on Behavioral Intention to Use Internet Banking System.* Ph.D Thesis, Universiti Teknologi Malaysia, Skudai, Johor.

Othman, M., Zain, N. M., Mazlan, U. H., & Zainordin, R. (2015, May), 'Assessing Cognitive Enhancements In Introductory Programming Through Online Collaborative Learning System', *in Mathematical Sciences and Computing Research (iSMSC), International Symposium*, pp. 7-12.

Pardamean, B., & Susanto, M. (2015). Assessing User Acceptance Toward Blog Technology Using The UTAUT Model. *International Journal Of Mathematics And Computers In Simulation, 1*(6), 203-212.

Pombo, L., Loureiro, M. J., & Moreira, A. (2010). Assessing Collaborative Work In A Higher Education Blended Learning Context: Strategies And Students' Perceptions. *Educational Media International*, *47*(3), 217–229.

Popovici, A., & Mironov, C. (2015). Students' Perception on Using eLearning Technologies. *Procedia - Social and Behavioral Sciences*, *180*(2015), 1514–1519.

Raman, A., Mohd, R., & Kaur, P. (2014). Facebook as a Collaborative and Communication Tool : A Study of Secondary School Students in Malaysia. *Procedia - Social and Behavioral Sciences*, *155*(October), 141–146.

Ramanair, J., Rethinasamy, S., & Misieng, J. (2017). Collaborative Writing Using Wiki: Tertiary Students' Perspectives. *Electronic Journal of Foreign Language Teaching*, *14*(1), 84–101.

Razali, S. N., Noor, H. A. M., Ahmad, M. H., & Shahbodin, F. (2017). Enhanced Student Soft Skills Through Integrated Online Project Based Collaborative Learning. *International Journal Of Advanced And Applied Sciences*, *4*(3), 59–67.

Reich, J., Murnane, R., & Willett, J. (2012). The State Of Wiki Usage In US K–12 Schools: Leveraging Web 2.0 Data Warehouses To Assess Quality And Equity In Online Learning Environments. *Educational Researcher, 41*(1), 7-15.

Robinson, L. (2006). Moving beyond Adoption: Exploring the Determinants of Student Intention to Use Technology. *Marketing Education Review*, *16*(2), 79–88.

Rodrigues, P., Williams, S. J., & Vethamani, M. E. (2016). Student Response to Using Wiki in Written Discourse. *Journal of Interdisciplinary Research in Education (JIRE), 6*(1), 20–33.

Rosbottom, J., & Lecarpentier, J. M. (2010, June), 'Collaborative Web Tools To Enhance Efficiency And Effectiveness In Learning And Teaching', *in Information Society (i-Society), 2010*, pp. 560-566.

Roussinos, D., & Jimoyiannis, A. (2013). Analysis Of Students' Participation Patterns And Learning Presence In A Wiki-Based Project. *Educational Media International*, *50*(December 2014), 306–324.

Rozewski Przemysław and Ciszczyk Magdalena. (2009). Computational Collective Intelligence. Semantic Web, Social Networks And Multiagent Systems. *Lecture Notes in Computer Science, 5796*(April 2016).

Sadaf, A., Newby, T. J., & Ertmer, P. a. (2012). Exploring Factors That Predict Preservice Teachers' Intentions To Use Web 2.0 Technologies Using Decomposed Theory Of Planned Behavior. *Journal of Research on Technology in Education*, *45*(March), 171–195.

Said, M. N. H. M., Forret, M., & Eames, C. (2014). Analysis of Contradictions in Online Collaborative Learning using Activity Theory as Analytical Framework. *Jurnal Teknologi*, *68*(2), 57–63.

Sanjebad, N. N. (2014). *The Effect of Personality Traits on the Intention to Adopt M-learning* Ph.D Thesis, Universiti Teknologi Malaysia.

Schuster, K., Richert, A. S., Schuster, K., Grob, K., Vossen, R., Richert, A., & Jeschke, S. (2015).Virtual Reality For Collaborative E-Learning. *Computers & Education, 50*(4), 0-6.

Shawky, D., Badawi, A., Said, T., & Hozayin, R. (2014, December), 'Affordances Of Computer-Supported Collaborative Learning Platforms: A Systematic Review', i*n Interactive Collaborative Learning (ICL) 2014,* pp. 633-651.

Shen, J., Hiltz, S. R., & Bieber, M. (2006). Collaborative Online Examinations: Impacts on Interaction, Learning, and Student Satisfaction. *IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Humans*, *36*(6), 1045–1053.

Shittu, A. T., Basha, K. M., AbdulRahman, N. S. N., & Ahmad, T. B. T. (2011). Investigating Students' Attitude And Intention To Use Social Software In Higher Institution Of Learning In Malaysia. *Multicultural Education & Technology Journal, 5*(3), 194-208.

Shorfuzzaman, M., Alelaiwi, A., Masud, M., Hassan, M. M., & Hossain, M. S. (2015). Usability Of A Cloud-Based Collaborative Learning Framework To Improve Learners' Experience. *Computers in Human Behavior*, *51*(2015), 967–976.

Shu, W., & Chuang, Y.-H. (2011). The Behavior of Wiki Users. *Social Behavior and Personality: An International Journal*, *39*(6), 851–864.

Sonego, A. H. S., Do Amaral, É. M. H., Nunes, F. B., & Voss, G. B. (2014). Use Of Moodle As A Tool For Collaborative Learning: A Study Focused On Wiki.

Revista Iberoamericana de Tecnologias Del Aprendizaje, *9*(1), 17–21.

Stantchev, V., Prieto-González, L., & Tamm, G. (2015). Cloud Computing Service For Knowledge Assessment And Studies Recommendation In Crowdsourcing And Collaborative Learning Environments Based On Social Network Analysis. *Computers in Human Behavior, 51*(2015), 762-770.

Stoszkowski, J., Collins, D., & Olsson, C. (2017). Using Shared Online Blogs To Structure And Support Informal Coach Learning. Part 2: The Participants' View And Implications For Coach Education. *Sport, Education and Society, 22*(3), 407-425.

Su, F., & Beaumont, C. (2010). Evaluating The Use Of A Wiki For Collaborative Learning. *Innovations in Education and Teaching International*, *47*(March 2015), 417–431.

Suha, A., & Anne, M. (2008 January), 'The Use Of The UTAUT Model In The Adoption Of E-Government Services In Kuwait', *in Hawaii International Conference on System Sciences, Proceedings of the 41st Annual*, pp. 219-219.

Sulaiman, N. I. S., Ghazali, S., Zabidi, N. Z., Omar, M. F., & Alias, R. A. (2016). Facebook Usage In Promoting The Academia Expertise. *Journal of Theoretical and Applied Information Technology*, *89(*1), 27–35.

Sutton, M. J., & Hazeri, A. (2012) 'Using The Wiki As An Experiential Learning Tool To Engage Students In Undergraduate And Graduate University Courses', *In Increasing Student Engagement and Retention Using Online Learning Activities, Emerald Group Publishing Limited* pp. 195-225.

Teo, T., & Noyes, J. (2014). Explaining The Intention To Use Technology Among Pre-Service Teachers: A Multi-Group Analysis Of The Unified Theory Of Acceptance And Use Of Technology. *Interactive Learning Environments, 22*(1), 51-66.

Teo, T., & Zhou, M. (2014). Explaining The Intention To Use Technology Among University Students: A Structural Equation Modeling Approach. *Journal of Computing in Higher Education*, *26*(2), 124–142.

Theng, L. F., & Mai, N. (2013, October), 'Students' Perceptions Of A Constructivist Classroom: A Collaborative Learning Approach'*, in Educational Media (ICEM), 2013 IEEE 63rd Annual Conference International Council,* pp. 1-11.

Thomas, T. D., Singh, L., & Gaffar, K. (2013). The Utility Of The UTAUT Model In Explaining Mobile Learning Adoption In Higher Education In Guyana.

International Journal Of Education And Development Using Information And Communication Technology, 9(3), 71-85.

Toh, C. H. (2013, October), 'Assessing Adoption Of Wikis In A Singapore Secondary School: Using The UTAUT Model', *in Educational Media (ICEM), 2013 IEEE 63rd Annual Conference International Council,* pp. 1-9.

Tongco, M. D. C. (2007). Purposive Sampling As A Tool For Informant Selection. *Ethnobotany Research And Applications, 5*(2007), 147-158.

Trocky, N. M., & Buckley, K. M. (2016). Evaluating The Impact Of Wikis On Student Learning Outcomes: An Integrative Review. *Journal of professional nursing, 32*(5), 1–13.

Varela, W., & Alexander, K. (2016). Factors Impacting University Instructors' And Students' Perceptions Of Course Effectiveness And Technology Integration In The Age Of Web 2.0. *McGill Journal of Education/Revue des sciences de l'éducation de McGill, 51*(1), 533-561.

Wang, J., Zou, B., Wang, D., & Xing, M. (2013). Students' Perception Of A Wiki Platform And The Impact Of Wiki Engagement On Intercultural Communication. *System*, *41*(2), 245–256.

Webb, N. M. (2016). Group Collaboration In Assessment: Multiple Objectives, Processes, And Outcomes. *Educational Evaluation and Policy Analysis, 17*(2), 239-261.

Wang, W. T., & Wei, Z. H. (2011). Knowledge Sharing In Wiki Communities: An Empirical Study. *Online Information Review, 35*(5), 799-820.

Wheeler, S., Yeomans, P., & Wheeler, D. (2008). The Good, The Bad And The Wiki: Evaluating Student-Generated Content For Collaborative Learning. *British Journal of Educational Technology*, *39*(6), 987–995.

Williams, S., Rooij, V., & Zirkle, K. (2016). Internet And Higher Education Balancing Pedagogy , Student Readiness And Accessibility : A Case Study In Collaborative Online Course Development. *The Internet and Higher Education*, *28*(2016), 1–7.

Witney, D., & Smallbone, T. (2011). Wiki Work: Can Using Wikis Enhance Student Collaboration For Group Assignment Tasks?. *Innovations in Education and Teaching International, 48*(1), 101-110.

Wong, K., Russo, S., & McDowall, J. (2012). Understanding Early Childhood Student Teachers' Acceptance And Use Of Interactive Whiteboard. *Campus-*

Wide Information Systems, *30*(1), 4–16.

Xie, D., & Wang, X. (2011, August) ' Wiki-Based Collaborative Learning For Colleges Specialty English Writing Education', *In Computer Science & Education (ICCSE), 2011 6th International Conference*, pp. 686-690.

Yahya Al-Shareef, S., & Ali Al-Qarni, R. (2016). The Effectiveness of Using Teacher-Teacher Wikis in Collaborative Lesson Planning and Its impact on Teacher's Classroom Performance. *English Language Teaching, 9(*4), 186-202.

Yamin, M., & Lee, Y. (2010, December), 'Level Of Acceptance And Factors Influencing Students' Intention To Use UCSI University's E-Mail System', *in User Science and Engineering (i-User), 2010,* pp. 26-31.

Yiong, B. L. C., Sam, H. K., & Wah, T. K. (2008), 'Acceptance Of E-Learning Among Distance Learners: A Malaysian Perspective', *in Proceedings: Ascilite Conference 2008*, pp. 541–551.

Yueh, H. P., Huang, J. Y., & Chang, C. (2015). Exploring Factors Affecting Students' Continued Wiki Use For Individual And Collaborative Learning: An Extended UTAUT Perspective. *Australasian Journal of Educational Technology*, *31*(1), 16–31.

Yunianta, A., Yusof, N., Othman, M. S., & Octaviani, D. (2012). Analysis And Categorization Of E-Learning Activities Based On Meaningful Learning Characteristics. *Johor Bahru: Universiti Teknologi Malaysia, 6(*9), 723–728.

Yusop, F. D., & Muhammad Abdul Basar, S. M. (2017). Resistance Towards Wiki: Implications For Designing Successful Wiki-Supported Collaborative Learning Experiences. *Universal Access in the Information Society*, *16*(2), 349–360.

Zhang, N., Guan, X., & Meng, Q. (2011, July), 'Exploring Different Roles Between Service Expectation And Technology Expectation In Citizen's E-Government Continuance Adoption: An Extended Expectation-Confirmation Model', *in Pacific Asia Conference on Information Systems, (PACIS)*, pp. 224.

Zhang, Y., Dang, Y., & Amer, B. (2016). A Large-Scale Blended And Flipped Class: Class Design And Investigation Of Factors Influencing Students' Intention To Learn. *IEEE Transactions on Education, 59*(4), 263-273.