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Information Technology Usage in the Islamic Perspective: A Systematic Literature Review

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ABSTRACT This paper involves a systematic and organized review of 155 research articles regarding Information Technology (IT) based on the Islamic perspective from 1992 to 2016. An analysis of studies dedicated to IT from the Islamic perspective was carried out on the basis of certain dimensions, namely, journal, country, author, year of publication, research methods, type of respondents, models, and theories. Based on the obtained findings, the use of quantitative and survey research methods (55.5%) dominate this field of study compared to qualitative research methods (23.9%) and mixed methods (20.7%). Furthermore, the findings have shown an increasing trend over recent years. However, to boost and enhance the IT continuance intention, it is important that future studies apply considerable use of theoretical and methodological approaches like the qualitative methods to examine the IT continuance intention based on the Islamic perspective.

INTRODUCTION

Today, the speed of development in the field of Information Technology is such that most thinkers are astounded by it and try to assess, measure, and demarcate its boundaries of influence. Although the impact of this technology is felt in different fields of science and has led to an indescribable improvement in scientific interactions all over the world, it has also led to concerns in different fields of social and human resources (Ameen and Ahmad 2017).

In the context of Malaysia, the pioneering computer system was first introduced in 1966 and ever since its inception, the government has launched different initiatives to bring about ICT adoption and diffusion through the Ministry of Education. More specifically, the Malaysian Ministry of Education has been exerting efforts to include ICT in teaching and learning, considering the increased demand to employ it in the learning environment. Gonzalez et al. (2016) and Al-rahmi et al. (2017) have also used different models comprising various constructs derived from different models or theories. By 2003, Malaysia's K-economy Master Plan was introduced and part of the program involved the government's promotion of ICT use as a culture in teaching and learning environments. Consistent with the country's Vision 2020, the Ministry of Education has come up with different methods to include extensive ICT in the education environment in the hopes of upgrading teaching and learning in schools. The introduction of the Smart School Project is geared towards automating different activities in schools and inculcating ICT in the day-to-day education curriculum, underlining the commitment of the government to incorporate ICT in the education sector.Many researchers (Al-Rahmi and Zeki 2016; Al-Rahmi et al. 2014; Zakaria et al. 2010) have highlightedthe lack of ICT studies, especially in the Islamic perspective. Schools, colleges and universities have a unique environment, wherein additional subjects are taught, and emphasis is placed on certain subjects, including Arabic language and Islamic studies; the interest lies in examining ICT integration within them. Accordingly, this research aims to develop a system that combines the findings of past studies in IT based on the Islamic perspective through a systematic literature review.

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Problem Background

The propagation of religious education throughout the Muslim world in the past was curtailed by the lack of communication tools, and Islamic literature was primarily relayed through books. This is because knowledge pertaining to Islamic education (Quranic translation, Tajweed, Hadith, Tafseer, Fiqh, etc.) was available only in written form. Against this background, ICT has made it possible to create an environment wherein Islamic resources can be converted into digital forms that can be distributed more easily around the globe (Hosseini et al. 2014).

During the early 1990s, the commercialization of the Web commenced, and the Web was mainly used for email and file sharing. After several years, some developed nations, such as the U.S., the U.K., and Canada, initiated the distribution of data online for research, education and scientific purposes. Online libraries were organized and filled with e-books of almost every field of interest and made accessible throughout the Muslim world. By the beginning of the 21st century, the Internet has managed to dominate as a medium of communication around the globe. It began with the popularity of messaging and chatting, and it increasingly became a well-known medium for training and education. People were enabled to get access to any information they need in a timely manner. In relation to this, the Muslim world reached a decision a few years ago to use the World Wide Web and the Internet as the primary medium to propagate Islamic literature around the globe.

Additionally, the Muslim world has acknowledged the significance of IT to Islam, and based on the researchers' perspective, it is important for the Muslim world to produce a comprehensive online Islamic library that enables the translation of Islamic literature to every language to serve the whole global citizens. In the current times, IT is considered as a universal tool to improve competitiveness in different fields. This underlines the necessity to understand the determinants of IT adoption and the theoretical models that have cropped up for the purpose of tackling the IT adoption topic. Studies that reviewed literature concerning IT adoption models at the individual level and conducted comparisons among them are still few, and they are even fewer in the Islamic studies perspective. The present review attempts to fill this notable gap in literature. This is particularly significant as Islamic resources in many developed countries are still limited, with many of the citizens being illiterate or unable to access resources on the subject. Although the goal is to educate such citizens, it is unfortunate that Islamic literature in audio form is quite limited (Hosseini et al. 2014).

Models and Theories

This paper reviews adoption models used by studies that examined Islamic studies in IT literature. According to Wade (2009), there are several theories used in IT research but in this paper, only theories concerning technology adoption are examined. These include the Technology Acceptance Model (TAM) by Davis (Davis 1986, 1989 and Davis et al. 1989), the Theory of Planned Behavior (TPB) by Ajzen (Ajzen 1985, 1991), and the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003). Others are Roger's (1995) DOI and Tornatzky and Fleischer's (1990) TOE framework.

Several researchers in the IT field revealed that IT is not extensively used in majority of organizations and consequently, many technology acceptance models/theories were developed to examine IT acceptance. The models are the Theory of Reasoned Action by Fishbein et al. (1975), the Technology Acceptance Model by Davis (1989), the extended TAM by Venkatesh and Dais (2000), the Unified Theory of Acceptance and Use of Technology by Venkatesh et al. (2003), the Motivational Model by Davis et al. (1992), the Theory of Planned Behavior by Ajzen (1991), and the combination of TAM and the Theory of Planned Behavior by Taylor and Todd (1995). Others are the Model of PC Utilization by Thompson et al. (1991), the Innovation Diffusion Theory by Rogers (1995), and the Social Cognitive Theory by Bandura (1986).

In the above models/theories, the constructs that have been significantly addressed in IT studies in the education sector are perceived usefulness, relative advantage, students' academic performance, and outcome expectancy (Venkatesh et al. 2003). These factors have been empirically confirmed as the top predictors of technology use (Venkatesh et al. 2003; Jahng and Lee 2007; Lee 2010; El-gayar et al. 2011). An over-

view of the models is provided in the following sub-sections.

Theory of Reasoned Action

The Theory of Reasoned Action (TRA) posits that an individual's behavioral intentions determine his actual behavior, while his attitude towards the behavior along with subjective norms regarding the behavior performance are what determine his behavioral intentions (Fishbein and Ajzen 1975).The assumption underlying the TRA is that individuals as rational beings are constantly calculating and evaluating relevant behavior beliefs while forming their attitude towards the behavior. According to Fishbein and Ajzen (1975), attitude refers to the individual's positive/negative feelings (evaluative effect) regarding the exhibition of a particular behavior. Meanwhile, the TAM is an adaptation of TRA to the field of Information System (IS), and it posits that perceived usefulness and perceived ease of use are the determinants of the intention to use a system, with intention as a mediating variable of actual system use. Moreover, perceived usefulness is also deemed to be directly affected by perceived ease of use. However, students and researchers have simplified TAM by dropping attitude as a construct in TRA (Venkatesh et al. 2003).

Technology Acceptance Model and its Extensions

As mentioned previously, the TAM model is an adaptation of the TRA by Davis (1989) in his quest to determine factors behind an individual's acceptance/rejection of IT (see Figure 2). According to him, perceived usefulness and perceived ease of use are the two top significant individual beliefs regarding IT use. Perceived usefulness refers to the level to which an individual believes that using a specific system would improve his performance on the job (Davis 1989). This definition has its basis on the expectancy value model that underlies the TRA. On the other hand, perceived ease of use refers to the level to which an individual believes that the use of a specific system would be effort-free (Davis 1989). The above two beliefs lead to individual behavior intention as well as actual behavior. Davis (1989) found perceived usefulness to be the top predictor of the intention to use IT.

Theoretical Frameworks and Reference Theories

Previous studies related with information technology (IT) usage in the Islamic field have identified different models. These models include Technology Acceptance Model (TAM), Flow Theory, Social Cognitive Theory (SCT), Theory of Planned Behavior (TPB), Theory of Reasoned Action (TRA), Acceptance and Use of Technology (UTAUT), IS Continuance Model (ISCM), Unified Theory of ISSuccess Model, Innovation Diffusion Theory (IDT), Motivation Theory, Expectation Disconfirmation Theory (EDT), Task Technology Fit (TTF), Social Capital Theory, andStatus Quo Bias (SQB) Theory. Others are Self-determination Theory (SDT), Uses and Gratifications Theory (UGT), Fairness Theory, Technology Readiness (TR), Cognition Change Model (CCM), Decomposed Theory of Planned Behavior (DTPB), Balanced Thinking–feelings Model, Value-based Model, TAM 2, Resistance Theory, Value, Belief Updating Theory, ERG Theory, Social Response Theory, Network Externalities, Individual Characteristics, Interaction Theory, Commitment-trust Theory (CTT), Hertzberg's Two-factor Theory, Social Interaction, Innovation, Cognitive Absorption(CA), andAttribution Theory. Moreover, a number of perspectives have been used to explain the continuance intention, such as habit, trust, service quality, satisfaction and quality. Researchers integrated the IS Continuance Model (ISCM) with complementary theoretical perspectives and different constructs. Lin et al. (2005) proposed an extended ISCM by adding perceived playfulness to investigate website continuance intentions. Tang et al. (2014) suggested an extended ISCM by incorporating experiential learning and perceived self-efficacy to examine blog continuance learning behavioral intentions.

METHODOLOGY

The concept of IT continuance can be understood as a combination of three fields: information technology, service management and marketing (Nabavi et al. 2016). Accordingly, this paper reviewed the literature on IT continuance in databases related to these three fields in the Islamic Perspective, including ScienceDirect, Springer, Emerald Fulltext, Taylor & Francis, Wiley InterScience, and Ingenta Journals. The

Google Scholar search engine was also used to ensure the coverage of publications in other databases. The researchers went backward by reviewing the citations for the articles identified to find more articles. The following criteria were used to search these sources and select the papers:

- Journal papers, conference papers, doctoral dissertations, Master's theses, and unpublished working papers were included because academics and practitioners usually use journals to obtain information and disseminate new findings. Also, journals represent the highest level of research (Nord and Nord 1995);
- Information systems and information technology search terms in the Islamic perspective were employed to search for the titles and abstracts of books and papers.

The present work primarily aims to present an extensive and systematic review of literature concerning IS/IT use from the Islamic perspective. The present situation in the field is determined by identifying the lines of inquiry that are lacking investigative activity, and this necessitates answering the following research questions:

1. What are the research issues that have been addressed in IT literature in the Islamic perspective? Which journal, by whom, where and when was it published?
2. What are the theoretical frameworks/models/theories that have been employed in studies dedicated to the topic?
3. What are the research methods that have been utilized?

For the third question, this paper categorizes the approaches with the help of Orlikowski and Baroundi's (1991) categorization.

RESULTS AND DISCUSSION

The findings of the review are provided in this section. First, the answers to the above research questions are stated. What are the research issues that have been addressed in IT literature in the Islamic perspective? Since 1992, when Davis et al. developed a Motivational Model (MM) for technology use as well as the Technology Acceptance Model (TAM) (Davis 1989) and the extended TAM (Venkatesh and Davis 2000), the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al. 2003) noted that there has been a steady rise in research output related to IT and IS. A search resulted in 155 related studies published between 1992 and 2016. Thus, in this research, all articles were selected. The articles were analyzed based on the year of publication, the journal, the country and the author. This particular analysis provides guidelines for pursuing rigorous research on using IT from the Islamic perspective. The details are presented below:

Distribution by the Year of Publication

The distribution of the articles from 1992 to 2016 is shown in Table 1. From the data, it is clear that there is an upward trend in the number of IT continuance studies during this time period. From this trend, it appears that the attention given to IT continuance has risen over time and remains an important area of research. For example, it was found that more than half (86 studies or 55.5%) of the studies were published in the last five years that is, from 2012 to 2016 (See Tables 1 and 2).

Distribution by Country

The distribution of articles by the country where authors collected data is shown in Table 2. At the country level, 30 countries were represented, and the most frequently studied countries were Malaysia (52), Iran (38), Undefined (9), Saudi Arabia (8), United States (8), Canada (7), Pakistan (7), United Kingdom (5), France (4), Spain (4), Sweden (4), Indonesia (3), United Arab Emirates (3), Australia (2), Israel (2), Nigeria (2), Palestine (2), Russian Federation (2), and South Korea (2). Moreover, in Algeria, Bahrain, Bel-

Table 1: Distribution by the year of publication

Year	*Article count*	*Year*	*Article count*	*Year*	*Article count*	*Year*	*Article count*	*Year*	*Article count*
2016	12	2011	13	2006	1	2001	1	1996	0
2015	19	2010	18	2005	1	2000	0	1995	0
2014	18	2009	8	2004	2	1999	0	1994	0
2013	21	2008	10	2003	0	1998	1	1993	1
2012	16	2007	8	2002	3	1997	1	1992	1

Table 2: Distribution by Journal

Journal	*Article count*	*Journal*	*Article count*
International Journal of Environmental Science and Technology	4	International Journal Of Technoethics	1
Turkish Online Journal Of Educational Technology	4	International Journal Of The Book	1
Advances In Environmental Biology	3	International Perspectives On Education And Society	1
Electronic Library	3	Iranian Red Crescent Medical Journal	1
Journal Of Applied Sciences	3	Information Management And Computer Security	1
Life Science Journal		Intercultural Education	1
Malaysian Journal Of Library And Information Science	3	Interlending And Document Supply	1
Applied Physics A Materials Science And Processing	2	International Education Studies	1
Arpn Journal Of Engineering And Applied Sciences	2	International Geoscience And Remote Sensing Symposium IGARSS	1
Electronic Journal Of Information Systems In Developing Countri	2	International Information And Library Review	1
Information Sciences And Technology	2	International Journal Of Disaster Risk Reduction	1
Iranian Journal Of Information Processing Management	2	International Journal Of Information Science And Management	1
Journal Of Environmental Studies	2	International Journal Of Management Education	1
Materials Research Society Symposium Proceedings	2	Information And Communications Technology Law	1
Middle East Journal Of Scientific Research	2	Information And Management	1
Procedia Social And Behavioral Sciences	2	Journal Of Applied Sciences Research	1
AJOB Empirical Bioethics	1	Journal Of Archaeological Science	1
Acta Informatica Medica	1	Journal Of Industrial Engineering And Management	1
American Journal Of Applied Sciences	1	Journal Of Information Technology Research	1
Annals Of The New York Academy Of Sciences	1	Journal Of International Commercial Law And Technology	1
Anthropologica	1	Journal Of Islamic Marketing	1
Asian Journal Of Information Technology	1	Journal Of The Earth And Space Physics	1
Asian Social Science	1	Journal Of Theoretical And Applied Information Technology	1
Australian Journal Of Basic And Applied Sciences	1	Library Review	1
Biosciences Biotechnology Research Asia	1	Media International Australia	1
British Food Journal	1	Museum Management And Curatorship	1
Central Asia And The Caucasus	1	New Horizons In Education	1
Communication Research	1	Pakistan Journal Of Medical Sciences Program	1
Communications In Computer And Information Science	1	Research Journal Of Applied Sciences Engineering And Technology	1
Contemporary Islam	1	Science	1
Contemporary Studies In Economic And Financial Analysis	1	Scientometrics	1
Current Science	1	Serials Review	1
Eastern Mediterranean Health Journal	1	Social Sciences Pakistan	1
Education And Information Technologies	1	Telematics And Informatics	1
Electronic Commerce Research And Applications	1	Textile History	1
Family Planning Perspectives	1	World Academy Of Science Engineering And Technology	1
Geological Society Special Publication	1	**Total**	155
Global Journal Al Thaqafah	1		

gium, Egypt, India, Kazakhstan, Morocco, Singapore, Taiwan, Thailand, and Turkey, one study was found for each country. Cumulatively, research works conducted in Malaysia and Iran accounted for 90 articles or 58.1 percent of the total number of articles, while the rest of the

countries accounted for 65 articles or 41.9 percent of the total number of articles. At the level of geographical regions, most studies dealt with Asia (see Table 3).

Distribution by the Type

Table 4 shows that most of the studies were from articles (84 articles or 54.2%) and conference papers (49 conference papers or 31.6%). The next in line were review papers (9 review papers or 5.8%), followed by conference reviews (6 conference reviews or 3.9%). Further, books were 4 in number (2.6%), book chapters were 2 in number (1.3%), and there was 1 short survey (0.6%). It should be noted that the highest percentages of studies were articles and conference papers.

Distribution by Subject Area

Table 5 shows the distribution by the subject area. The researchers noted that most of the studies were from the computer science area (41 studies or 26.5%) and the social sciences area (28 studies or 18.1%). There were13 (8.4%) studies in the engineering area and 11 (7.1%) studies in the business, management and accounting area. The number of studies in the arts and humanities area was 10 (6.5%), and that of decision sciences area was also 10 (6.5%). Moreover, agricultural and biological sciences accounted for 8 studies (5.2%), and environmental science and multidisciplinary area accounted for 7 studies (4.5%). There were 5 medical studies (3.2%), and biochemistry, genetics and molecular biology, earth and planetary sciences comprised of 3 studies (1.9%).Material science comprised of 2 studies (1.3 %), and economics, econometrics and finance area comprised of 2 studies (1.3%). Further, the chemistry and psychology area accounted for 1 study (0.6%), and mathematics and pharmacology as well as toxicology and pharmaceutics also accounted for 1 study (0.6%). Finally, physics and astronomy area accounted for 1 study (0.6%). The authors understand that most of the studies are from computer science and social sciences areas because these areas of study are more closely related to information technology and information system (See Table 5).

Empirical Research

Our analysis shows that most of the studies were based on quantitative research by survey (49 studies or 31.6%) and online survey (37 studies or 23.9%). Qualitative research by focus group interviews made up 26 studies (16.8%), and individual interviews accounted for 11 studies (7.1%). Finally, the number of studies based on mixed methods approach are as follows: online survey with open-ended questions consisted of 9 studies (5.8%), online survey with interviews consisted of 8 studies (5.2%), experiment with survey consisted of 6 studies (3.9%), on-

Table 3: Distribution by country

Country	*Article count*	*Country*	*Article count*	*Country*	*Article count*	*Country*	*Article count*
Malaysia	52	France	4	Palestine	2	Kazakhstan	1
Iran	38	Spain	4	Russian Federation	2	Morocco	1
Undefined	9	Sweden	4	South Korea	2	Singapore	1
Saudi Arabia	8	Indonesia	3	Algeria	1	Taiwan	1
United States	8	United Arab Emirates	3	Bahrain	1	Thailand	1
Canada	7	Australia	2	Belgium	1	Turkey	1
Pakistan	7	Israel	2	Egypt	1	Total	155
United Kingdom	5	Nigeria	2	India	1		

Table 4: Distribution by the type

Document Type	*Documents*	*Percentage*	*Document type*	*Documents*	*Percentage*
Articles	84	54.2	Book	4	2.6
Conference Papers	49	31.6	Book Chapter	2	1.3
Review Papers	9	5.8	Short Survey	1	0.6
Conference Review	6	3.9	Total	155	100.0

Table 5: Distribution by subject area

S. No.	Subject area	Documents	Percentage
1	Computer Science	41	26.5
2	Social Sciences	28	18.1
3	Engineering	13	8.4
4	Business, Management and Accounting	11	7.1
5	Arts and Humanities	10	6.5
6	Decision Sciences	10	6.5
7	Agricultural and Biological Sciences	8	5.2
8	Environmental Science	7	4.5
9	Multidisciplinary	7	4.5
10	Medicine	5	3.2
11	Biochemistry, Genetics and Molecular Biology	3	1.9
12	Earth and Planetary Sciences	3	1.9
13	Materials Science	2	1.3
14	Economics, Econometrics and Finance	2	1.3
15	Chemistry	1	0.6
16	Psychology	1	0.6
17	Mathematics	1	0.6
18	Pharmacology, Toxicology and Pharmaceutics	1	0.6
19	Physics and Astronomy	1	0.6
	Total	155	100.0

line survey with structured content analysis consisted of 4 studies (2.6%), survey with interviews consisted of 3 studies (1.9%), and survey focus group with card-sorting exercise consisted of 2 studies (1.3%). Thus, the total number of quantitative research was high, with 86 studies. Table 6 shows the results of our classification in empirical research (See Table 6).

The analysis shows that most of the studies involved students (72 studies or 46.5%) and organization users (31 studies or 20.0%). Moreover, public users were involved in 23 studies (14.8%), while the number of studies involving teachers were 11 (7.1%) and those involving customers were 9 (5.8%).Also, citizens were involved in 4 studies (2.6%), and software developers were involved in 3 studies (1.9%).Finally, 2 studies involved nurses (1.3%). Table 7 shows the results of our classification in empirical research.

The aim on this paper was achieved by the review and analysis of 155 peer-reviewed articles, which enabled us to ponder on the most important research trends in information technology usage in the Islamic perspective from 1992 to 2016. The results show that research on IT usagein the Islamic perspective has been growing. Many researchers have tried to promote IT continuance studies by using different theories, such as Technology Acceptance Model (TAM), Flow theory, Social Cognitive Theory (SCT), Theory of Planned Behavior (TPB), Theory of Reasoned Action (TRA), Acceptance and Use of Technology (UTAUT), IS Continuance Model (ISCM), Unified Theory of IS success model, Innovation Diffusion Theory (IDT), Motivation Theory, Expectation Disconfirmation Theory (EDT), Task Technology Fit (TTF), and-Social Capital Theory. Others are Interaction the-

Table 6: Empirical research approaches used to study IS continuance intention

Research approach	Methods used	Article count	Percentage
Quantitative Research	Survey	49	31.6
	Online Survey	37	23.9
Qualitative Research	Focus group, Interviews	26	16.8
	Interviews	11	7.1
Mixed methods	Online Survey, Open-Ended Questions	9	5.8
	Online Survey, Interviews	8	5.2
	Experiment, Survey	6	3.9
	Online Survey, Content Analysis	4	2.6
	Survey, Interviews	3	1.9
	Survey, Focus Group, Card-Sorting Exercise	2	1.3
	Total	155	100.0

Table 7: Type of respondents used to study IT

Type of respondents	Article count	Type of respondents	Article count	Type of respondents	Article count
Students	72	Teachers	11	Software Developers	3
Organization Users	31	Customers	9	Nurses	2
Users	23	Citizens	4	Total	155

ory, Satisfaction, Motivation Theory and Innovation Diffusion Theory (IDT).

According to Nabavi et al. (2016), in using TAM as a theoretical backbone in the study of continued IT intention, researchers should sharpen TAM with new research findings on IT continuance intention. Also, in this paper, the researchers believe that TAM is a theoretical backbone of interaction theory. Thus, in this paper, the authors suggest that to a broader extent, current theories, such as ISCM, TAM, and interaction theories, could be used to better understand information technology from the Islamic perspective.

When the authors were analyzing the geographical distribution of the studies, it was observed that more than half of the studies (58.1%) were conducted in Malaysia and Iran, with these two countries accounting for 90 articles. Also, it is noteworthy that in Algeria, Bahrain, Belgium, Egypt, India, Kazakhstan, Morocco, Singapore, Taiwan, Thailand and Turkey, only one study was published in each country? From the analysis, we found that more than half (86 studies or 55.5%) of the studies were published in the last five years from 2012 to 2016. Moreover, the distribution of Journals that published articles in information technology from the Islamic perspective shows that the International Journal of Environmental Science and Technology and Turkish Online Journal of Educational Technology are ahead of other.

The analysis shows that most of the studies were published as journal articles (84 studies or 54.2%), followed by conference papers (49 studies or 31.6%). Furthermore, the distribution by the subject area of authors shows that most of the studies were from the computer science area (41 studies or 26.5%) and social sciences area (28 studies or 18.1%). Thus, the researchers believe that because these areas of study are more closely related to information technology and information system, analyzing the theoretical frameworks used by these papers demonstrates a large and mixed set because various theoretical frameworks provided bases for the investigations of information technology usage in the Islamic field.

In addition, the remaining studies (Al-rahmi and Zeki 2016; Gonzalez et al. 2016; Al-rahmi et al. 2016; Ameen and Ahmad 2011) also used different models comprised of various constructs derived from different models or theories. For example, while exploring the relationships of a model of using social media for collaborative learning to enhance learners' performance on learning, Chang (2013) demonstrated that perceived value and satisfaction determines users' continuance intentions of using e-learning systems in academic libraries.

Researchers could benefit from this paper because it shows a comprehensive picture of various factors of different Information Technology used in the Islamic Perspective. Moreover, researchers could understand key factors that determine the continuance intention. In addition, researchers should know the method of modeling for IT use to understand online interaction. In all of these studies, the survey methodology was extensively and frequently used. A few studies used unobtrusive data, interviews and a mix of interviews, surveys, structured content analysis, card-sorting exercise, and focus groups. Thus, our analysis shows that most of the studies were based on quantitative research by survey (49 studies or 31.6%) and online survey (37 studies or 23.9%); while qualitative research such as focus group and interviews accounted for 16.8%. Based on the list of the respondents, it is clear that most of the studies involved students (72 studies or 46.5%). Thus, students dominated the selection criteria. Furthermore, most of the research included in this review was published from 2012 to 2016. The systematic review of 155 research publications on IT from the Islamic perspective between 1992 and 2016 are attached in the references. Based on the obtained findings, the use of quantitative methods and survey research methods (55.5%) dominate the field of research compared to qualitative research methods (23.9%) and mixed methods (20.7%). This highlights the need to conduct research and publish articles that make use of qualitative research methods. It also opens up avenues for conceptual studies to enhance IT use from the Islamic perspective.

Future Research

Future studies should consider this information to extend the existing literature. This study also suggests the development of a review of IT system in the Islamic perspective known as the systematic literature review, as this facilitates easy access to the required complete information.

CONCLUSION

This paper provided a general picture of the present state of IT from the Islamic perspective by conducting a systematic review of 155 papers from 74 journals from 1992 to 2016. The researchers specifically conducted an analysis of contributions in light of the research questions developed that covered the year of publication, research methods, journals, authors, countries, type of respondents, study area and the theories employed. The contributions were classified in a systematic manner to provide a general picture of the IT status from the Islamic perspective and to assist researchers in searching for important studies in this area. This study contributes to the materials required by readers who are interested in different aspects related to the literature pertaining to IT use on the Islamic perspective. Readers may also leverage the searched information concerning the way different research methods match various models, constructs and theories. This is the first paper, to the best of the researchers knowledge, that conducted a systematic review of the topic of IT in the Islamic perspective and as such, future studies should explore additional issues to enhance the understanding of this particular topic.

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REFERENCES

Abazari Z, Isfandyari MA 2010. Establishing an information network among Islamic Sciences Centers in Iran: A feasibility study. *Interlending and Document Supply*, 38(3): 189-194.

Abdoulaye K 2002a. Perceptions of cataloguers and end-users towards bilingual authority files. *Electronic Library*, 20(3): 202-210. doi: 10.1108/02640470210432348.

Abdoulaye K 2002b. Research trends in library and information science at the International Islamic University Malaysia. *Library Review*, 51(1): 32-37. doi: 10.1108/00242530210413922.

Abdul Razak FH, Haminudin NR, Wan Adnan WA, Rahman NA, Abdul Rahman HF 2014. Exploring User Spiritual Experience with Islamic Websites for Elderly. *Paper presented at 2014 the 5th International Conference on Information and Communication Technology for the Muslim World*, ICT4M 2014, 17-18 November, Kuala Lumpur, Malaysia.

AbdulKarim NS, Hasan A 2007. Reading habits and attitude in the digital age: Analysis of gender and academic program differences in Malaysia. *Electronic Library*, 25(3): 285-298. doi: 10.1108/02640 470 710754805.

AbdulMajid H, Abdul Majid MI, Ibrahim WN, Wan Manan S, Ramli MR 2015. Investigation of Security Awareness on E-learning System Among Lecturers and Students in Higher Education Institution. *Paper presented at I4CT 2015 - 2015 2nd International Conference on Computer, Communications, and Control Technology, Art Proceeding*, 21-23 April, Kuala Lumpur, Malaysia.

Abdulmana S, Saleh B 2014. Coordinate Negative Content Filtering and Threat Detection in Thailand on the Internet Infrastructure. *Paper presented at 2014 the 5th International Conference on Information and Communication Technology for the Muslim World, ICT4M 2014*, 17-18 November, Kuala Lumpur, Malaysia.

AbMutalib NA, Jaswir I, Akmeliawati R 2013. IIUM-fabricated Portable Electronic Nose for Halal Authentication in Beverages. *Paper presented at 2013 5th International Conference on Information and Communication Technology for the Muslim World, ICT4M 2013*, 26-27 March, Kuala Lumpur Malaysia.

Abuazoum AA, Azizan NB, Ahmad NB 2015. Assessing the suitability of information technology in supporting knowledge sharing in Islamic Banks in Malaysia. *ARPN Journal of Engineering and Applied Sciences*, 10(22): 10496-10499.

AbuBakar AB 2010. Evaluating the Accessibility and Visibility of Quran websites. *Paper presented at Proceedings 2010 International Symposium on Information Technology - Visual Informatics, ITSim'10*, 15-17 June, Kuala Lumpur, Malaysia.

AbuBakar AB, Isa-Al-Shboul MK 2008. Evaluation of Use of Online Resources in an Islamic University Education. *Paper read at 2nd European Conference on Information Management and Evaluation*, ECIME 2008, 11-12 September, London, UK.

Agha SR, Kuhail I, Abdelnabi N, Salem M, Ghanim A 2011.Assessment of academic departments efficiency using data envelopment analysis. *Journal of Industrial Engineering and Management*, 4(2): 301-325. doi: 10.3926/jiem.2011.v4n2.p301-325.

Ahmad AB, Mohamad Z, Muslim N, Alias J, Zainal K 2012. Interaction among various ethnic groups from Islamic perspective. *Social Sciences (Pakistan)*, 7(4): 517-521. doi: 10.3923/sscience. 2012.517. 521.

Ahmadi S, Keshavarzi A, Foroutan M 2011. The application of information and communication technologies (ICT) and its relationship with improvement

in teaching and learning. *Procedia - Social and Behavioral Sciences*, (28): 475-480.

Ajzen I 1985. *From Intentions to Actions: A Theory of Planned Behavior*. Berlin: Springer.

Ajzen I 1991. The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50: 179-211.

Al-Aali M 2007. Computer crime and the law from an Islamic point of view. *Journal of Applied Sciences*, 7(12): 1558-1565.

Aldhlan KA, Zeki AM, Zeki AM 2010. Data Mining and Islamic Knowledge Extraction: Alhadith as a Knowledge Resource. *Paper presented at Proceeding of the 3rd International Conference on Information and Communication Technology for the Moslem World: ICT Connecting Cultures, ICT4M 2010,* 13 – 14 December, Jakarta, Indonesia.

Alginahi YM, Menacer M, Arbaoui A 2014. Methodology and Processes for Collecting, Indexing, Structuring Material and Resources of Quran and Islamic Studies. *2014 World Symposium on Computer Applications and Research, WSCAR 2014*. doi: 10.1109/WSCAR.2014.6916814.

Alhawarat M 2015. A domain-based approach to extract Arabic person names using N-grams and simple rules. *Asian Journal of Information Technology*, 14(8): 287-293. doi: 10.3923/ajit.2015.287.293.

Ali M 2014. *Challenges and Opportunities for Development of Islamic Stockbroking in Malaysia. The Developing Role of Islamic Banking and Finance: From Local to Global Perspectives*. UK: Emerald Group Publishing Limited.

Aliyu M 2010. Measuring IT Governance Effectiveness Using ITG Diagnostic Diamond: A Case Study of Information Technology Division, IIUM. *Paper presented at the Proceeding of the 3rd International Conference on Information and Communication Technology for the Moslem World: ICT Connecting Cultures, ICT4M 2010,* 13- 14 December, Jakarta, Indonesia.

Aliyu M, Mahmud M, Tap AQ, Nassr RM 2013a. A preliminary investigation of Islamic websites' design features that influence use: A proposed model. *Electronic Journal of Information Systems in Developing Countries*, 58(1): 777-780.

Aliyu M, Mahmud M, Tap AQ, Nassr RM 2013b. Evaluating Design Features of Islamic Websites: A Muslim User Perception. *Paper presented at the 2013 5th International Conference on Information and Communication Technology for the Muslim World, ICT4M 2013,* 17-18 November, Kuala Lumpur, Malaysia.

Alqahtani M, Mohammad H 2015. Mobile applications' impact on student performance and satisfaction. *Turkish Online Journal of Educational Technology*, 14(4): 102-112.

Al-Rahmi WM, Zeki AM, Alias N, Saged A 2016. Use of social media and its impact on academic performance among university students in Malaysian Higher Education. *Anthropologist*, 28(1-2): 52-68.

Al-Rahmi WM, Zeki, AM 2017. A model of using social media for collaborative learning to enhance learners' performance on learning. *Journal of King Saud University-Computer and Information Sciences*, 28(3): 1-12.

Alromima W, Elgohary R, Moawad IF, Aref M 2016. Applying Ontological Engineering Approach for Arabic Quran Corpus: A Comprehensive Survey. *Paper presented at 2015 IEEE 7th International Conference on Intelligent Computing and Information Systems, ICICIS 2015,* 2 -14 December, Cairo, Egypt.

Alwi NH, Azizan MN, Ismail S, Seman K 2008. Users' Perspective on ICT Infrastructure in a Higher Learning Institution. *Paper presented at Information Management in the Modern Organizations: Trends and Solutions Proceedings of the 9th International Business Information Management Association Conference*, 4-6 January, Marrakech, Morocco.

Ameen AA, Ahmad K 2017. Information systems strategies to reduce financial corruption. *Leadership, Innovation and Entrepreneurship as Driving Forces of the Global Economy*, 731-740.

Amin H 2007. An analysis of mobile credit card usage intentions. *Information Management and Computer Security*, 15(4): 260-269. doi: 10.1108/09685220 710817789.

Amin H, Abdul-Rahman AR, Ramayah T, Supinah R, Mohd-Aris M 2014. Determinants of online Waqf acceptance: An empirical investigation. *Electronic Journal of Information Systems in Developing Countries*, 60(1): 1-18.

Anabestani AA, Javanshiri M 2014. Optimal site selection of green spaces in rural settlements (Case Study: Villages of Khaf County). *Journal of Environmental Studies*, 40(3): 573-588.

Asadi M, Ghaderi Sohi A 2015. Thirty-nine years of Iran's scientific products in the field of Geophysics. *Journal of the Earth and Space Physics*, 41(1): 145-164.

Ataie F, Shah A, Mior Nazir MN 2014. Innovative Web 2.0 Based Collaborative Learning and Study Circle Model. *Paper presented at 2014 the 5th International Conference on Information and Communication Technology for the Muslim World, ICT4M 2014,* 17-18 November, Kuala Lumpur, Malaysia.

Attia MA 2014. *Education for a Knowledge Society in Arabian Gulf Countries*. UK: Emerald Group Publishing Limited.

Ayu MA, Omari SM 2012. ICT based communication channels preferences towards knowledge sharing among multicultural students. *Journal of Information Technology Research*, 5(3): 98-113. doi: 10. 4018/jitr.2012070106.

Ayuba MA 2013. Information and communication technologies in preserving Arabic and Islamic manuscripts. *Global Journal Al-Thaqafah,* 3(2): 7-14. doi: 10.7187/GJAT382013.03.02.

Azrix M, Walid N, Zeki AM, Yalli JJ 2015. Developing a mobile navigation aid. *Critical Socio-technical Issues Surrounding Mobile Computing*, 124-136.

Bakar AB, Abdoulaye K 2002. Information resource assessment: A study of digital and traditional library environments. *Malaysian Journal of Library and Information Science*, 7(2): 25-33.

Bashir T, Ali TM, Asrar M, Babar S 2015. Performance and progress of OIC countries towards building technology development capacity. *Current Science*, 109(5): 878-888.

Bashiri L, Danaeefard H, Rajabzadeh A 2014. Analytical Modeling of E-Government Risks in Islamic

Republic of Iran: Quantitative Research. *Paper presented at Proceedings of the European Conference on e-Government, ECEG,* 12-13 June, Brasov, Romania.

Behzadi H, Sanji M 2012a. Survey of knowledge management in portals of Iran ministries. *Iranian Journal of Information Processing Management,* 7(1): 5-27.

Behzadi H, Sanji M 2012b. Survey of knowledge management in portals of Iran ministries. *Information Sciences and Technology*, 27(1): 5-27.

Bhattacherjee A 2001. Understanding information systems continuance: An expectation-confirmation model. *MIS Quarterly,* 25(3): 351e370.

Biddle ML 2011. Beyond the word: Ink in the Islamic manuscripts of Northern Nigeria. *Paper presented at Materials Research Society Symposium Proceedings*, Cambridge University Press, (19): 1310-1319.

Blair AM 2010. Too much to know: Managing scholarly information before the modern age, Too Much to Know: Managing scholarly information before the modern age. *Bibliothèque d'Humanisme et Renaissance,* 73(3): 707-709.

Boland R 1992. Selected legal developments in reproductive health in 1991. *Family Planning Perspectives,* 24(4): 178-185. doi: 10.2307/2136022.

Carmona N, García-Heras M, Villegas MA, Jiménez P, Navarro J 2008. Study of Chromophores of Islamic Glasses from Al-Andalus (Murcia, Spain). *Paper read at Lasers in the Conservation of Artworks - Proceedings of the International Conference LACONA 7.,* 18 August , Madrid, Spain.

Chaker I, Benslimane R, Harti M 2011. Creation of Al Mabsout Moroccan Fonts Format. *Paper presented at 2011 Colloquium in Information Science and Technology, CIST,* 2011.

Chawki M 2010. Islam in the digital age: Counselling and fatwas at the click of a mouse. *Journal of International Commercial Law and Technology,* 5(4): 165-180.

Chong AL, Ooi KB, Lin BS, Raman M 2009. Factors affecting the adoption level of c-commerce: An empirical study. *Journal of Computer Information Systems*, 50(2): 13-22.

Colomban PH 2005. Recent Case Studies in the Raman Analysis of Ancient Ceramics: Glaze Opacification in Abbasid Pottery, Medici and 18th Century French Porcelains, Iznik and Kûtayba Ottoman Fritwares and an Unexpected Lapis Lazuli Pigment in Lajyardina Wares. *Paper presented at Materials Research Society Symposium Proceedings*, 24 January, Thiais, France.

Compeau DR, Higgins CA, Huff S 1999. Social cognitive theory and individual reactions to computing technology: A longitudinal study. *MIS Quarterly,* 23(2): 145–158.

Daud HB, Low TJ, Ahmad R 2008. Online Islamic Medication Expert Systems (OIMES). *Paper presented at Proceedings - International Symposium on Information Technology 2008,* ITSim, 26-28 August, Kuala Lumpur, Malaysia.

Davis FD 1986. *A Technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results.* Cambridge, US: Sloan School of Management, Massachusetts Institute of Technology.

Davis FD 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly,* 13(3): 319-340.

Davis FD, BagozziN RP, Warshaw PR 1989. User acceptance of computer-technology - A comparison of 2 theoretical-models. *Management Science*, 35(8): 982-1003.

DeLaet V, Loon G, Van der Perre A, Deliever I, Willems H 2015. Integrated remote sensing investigations of ancient quarries and road systems in the Greater Dayr al-Barshâ Region, Middle Egypt: A study of logistics. *Journal of Archaeological Science*, 55: 286-300. doi: 10.1016/j.jas.2014.10.009.

Delavar MR 1993. International Remote Sensing Research and Development Programs. *Paper presented at International Geoscience and Remote Sensing Symposium (IGARSS)*, 18-21 August, Tokyo, Japan.

Dindaroglu T, Reis M, Akay AE, Tonguç F 2015. Hydroecological approach for determining the width of riparian buffer zones for providing soil conservation and water quality. *International Journal of Environmental Science and Technology,* 12(1): 275-284. doi: 10.1007/s13762-013-0444-4.

Eftekharzade SF, Mohammadi B 2011. The presentation of a suitable model for creating knowledge management in educational institutes (higher education). *Procedia - Social and Behavioral Sciences,* 11(20): 1-157-168.

Eid M 2016. Ethics, decision-making, and risk communication in the era of terroredia: The case of ISIL. *International Journal of Technoethics,* 7(2): 91-104. doi: 10.4018/IJT.2016070106.

Elaydi HA, Shehada H 2007. A Source of Inspiration: ATC for Visually Impaired Students at the Islamic University of Gaza. *Paper presented at New Trends in ICT and Accessibility - Proceedings of the 1st International Conference in Information and Communication Technology and Accessibility, ICTA 2007*, 12-14 April, Hammamet – Tunisia.

Elmarai O, Menacer M, Arbaoui A 2013. Development Concepts of a Media Management System Dedicated to Quran and Islamic Education. *Paper presented at Proceedings of the 2013 International Conference on Current Trends in Information Technology, CTIT 2013*,11-12 December, Dubai, United Arab Emirates.

Emery D, Toth MB, Noel W 2009. The convergence of information technology and data management for digital imaging in museums. *Museum Management and Curatorship,* 24(4): 337-356. doi: 10.1080/09647770903314712.

Erfanmanesh M, Geraei E, Basirian Jahromi R 2016. Performance and clique analysis of the Iranian universities and research institutions informetrics: 10 years study. *Iranian Journal of Information Processing Management,* 31(2): 325-347.

Esmaielpanah F, Khayat Moghadam S 2013. Identification of factors influencing on faculty members attitudes toward knowledge sharing. *Advances in Environmental Biology*, 7(10): 3131-3136.

Fatani HA, Zamzami IF, Aydin M, Aliyu M 2013. Awareness Toward Wireless Security Policy: Case Study of International Islamic University Malaysia. *Paper presented at 2013 5th International Conference on Information and Communication Technology*

for the Muslim World, ICT4M 2013, 17-18 November, Kuala Lumpur, Malaysia.

Fattah KP, Mavinic DS 2013. Investigating techniques to determine magnesium addition requirements for the operation of a struvite crystallization process. *International Journal of Environmental Science and Technology,* 12(2): 473-478. doi: 10.1007/s13762-013-0448-0.

Fontana R, Milligan C, Littlejohn A, Margaryan A 2015. Measuring self-regulated learning in the workplace. *International Journal of Training and Development,* 19(1): 32e52.

Gefen D, Karahanna E, Straub DW 2003. Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27(1): 51e90.

Ghane MR 2010. Self-Citation in PJCR's Engineering journals and their significance in determining impact factor during 2002-2006. *International Journal of Information Science and Management*, 8(1): 21-37.

Glynn SM, Brickman P, Armstrong N, Taasoobshirazi G 2011. Science motivation questionnaire II: Validation with science majors and non-science majors. *Journal of Research in Science Teaching,* 48: 1159e1176.

Gol A 2012. Constructing knowledge: An effective use of educational technology for teaching Islamic studies in the UK. *Education and Information Technologies,* 17(4): 399-416. doi: 10.1007/s10639-011-9165-9.

Gonzalez MR, Gasco J, Llopis J 2016. Facebook and academic performance: A positive outcome. *Anthropologist,* 23(1,2): 59-67.

Hafeznia MR, Eftekhari AR, Ramazani I 2007. A comparative study on the tourism policies in pre and post Islamic revolution of Iran case study: Babolsar in the coast of Caspian Sea. *Journal of Applied Sciences,* 7(24): 3836-3847.

Haidar H, Rispler-Chaim V, Hung A, Chandrasekharan S, Ravitsky V 2015. Non-invasive prenatal testing: Implications for Muslim communities. *AJOB Empirical Bioethics,* 6(1): 94-105. doi: 10.1080/23294515.2014.993101.

Hair Jr, Black WC, Babin BJ, Anderson RE 2010. *Multivariate Data Analysis: A Global Perspective.*7th Edition. Upper Saddle River, NJ: Pearson Education.

Hajiha A, Shahriari M, Vakilian N 2014. The Role of Perceived Value on Customer E-shopping Intention Using Technology Acceptance Model, (TAM). *Paper presented at IEEE International Conference on Industrial Engineering and Engineering Management,* 9-12 December, Kuala Lumpur, Malaysia.

Hameed S 2008. Science and religion: Bracing for Islamic creationism. *Science*, 322(5908): 1637-1638. doi: 10.1126/science.1163672.

Hamid H, Zeki AM 2014. Users' Awareness of and Perception on Information Security Issues: A Case Study of Kulliyyah of ICT postgraduate students. *Paper presented at Proceedings - 3rd International Conference on Advanced Computer Science Applications and Technologies, ACSAT 2014*, 29- 30 December, Amman - Jordan.

Hatami H, Hatami M, Hatami N 2012. Health orientation, research centeredness and realism in Avicenna's Canon of medicine. *Iranian Red Crescent Medical Journal,* 14(6): 331-336.

Henderson J 2004. The archaeologist as a detective: Scientific techniques and the investigation of past societies. *Geological Society Special Publication,* 232(1): 147-158. doi: 10.1144/GSL.SP.2004.232.0114.

Honarmand M 2009. Learning Driving Via Computer by Using Multimedia Tools: A Case Study from Islamic Azad University (Iran). *Paper presented at Proceedings - 2009 2nd IEEE International Conference on Computer Science and Information Technology, ICCSIT 2009*, 8-11 August, Beijing, China.

Hopkins L 2008. Young Turks and new media: The construction of identity in an age of Islamophobia. *Media International Australia,* (126): 54-66.

Hosseini SE, Ramchahi AA, Yusuf RJ 2014. The impact of information technology on Islamic behaviour. *Journal of Multidisciplinary Engineering Science and Technology (JMEST)*, 1(5): 135-141.

Howard PN 2009. The digital origins of dictatorship and democracy: Information technology and political Islam. *The Information Society,* 25(3): 208–219.

Huang CY, Hu AH, Yin J, Wang HC 2016. Developing a parametric carbon foot printing tool for the semiconductor industry. *International Journal of Environmental Science and Technology*, 13(1): 275-284. doi: 10.1007/s13762-015-0869-z.

Huda MQ, Hussin H 2010. ICT Implementation Barriers and Organizational Issues in Islamic-Based Higher Education Institution: The Case of Syarif Hidayatullah State Islamic University (UIN) Jakarta. *Paper presented at Proceeding of the 3rd International Conference on Information and Communication Technology for the Moslem World: ICT Connecting Cultures, ICT4M 2010,* 13-14 December, Jakarta, Indonesia.

Hussain I, Adeeb MA 2009. Role of mobile technology in promoting campus-wide learning environment. *Turkish Online Journal of Educational Technology*, 8(3): 48-57.

Iacovou CL, Benbasat I, Dexter AS 1995. Electronic data interchange and small organizations: Adoption and impact of technology, *MIS Quarterly*, 19(4): 465-485.

Ilyas M, Alam M, Ahmad H, Tariq M, Bibi S, Ali A, Inamullah 2009. Awareness regarding bioethical issues among the students and faculty of Hazara University Mansehra, Pakistan. *Pakistan Journal of Medical Science,* 25(1): 97-102.

Isa WA, Md Noor M, Aidid SH 2008. Culture Influences to Website Information Architecture: An Empirical Investigation. *Paper presented at Proceedings - International Symposium on Information Technology 2008, ITSim,* 26-28 August, Kuala Lumpur, Malaysia.

Isa WA, MdNoor M, Mehad S 2008. Website Information Architecture Influences on User Performance: An Experimental Approach. *Paper presented at Proceedings International Symposium on Information Technology 2008, ITSim,* 26-28 August, Kuala Lumpur, Malaysia.

Isa WM, Amin MA, Rozaimee A, Idris WM, Rahim N, Samaden IS 2015. Conceptual framework of edutainment animated series for children: A pious story. *ARPN Journal of Engineering and Applied Sciences,* 10(3): 1106-1113.

Isaac T 2015. The impact of religion on African civilization in light of the 21st century. *African Civilization in the 21st Century,* 10(3): 105-115.

Ismail I, Ismail M, Razak FH 2014. Learning History Through Mobile Historical Event Storytelling: M-Seerah. *Paper presented at IC3e 2014 - 2014 IEEE Conference on e-Learning, e-Management and e-Services*, 10-12 December, Melbourne, Australia.

Jabeen F, Shome A, Rajaguru R 2016. What Drives the Decision to Switch to Islamic Banking? Evidence from the UAE. *Paper presented at Proceedings of the 27th International Business Information Management Association Conference - Innovation Management and Education Excellence Vision 2020: From Regional Development Sustainability to Global Economic Growth, IBIMA 2016*, 4 - 5 May, Milan, Italy.

Jafari A, Amin G, Ziarati P 2016. Potential of Echium ameonum Fisch & Mey in removing heavy metals from pharmaceutical effluent. *Biosciences Biotechnology Research Asia*, 13(3): 1585-1594. doi: 10.13005/bbra/2303.

Jafari H, Hassanpour S, Khorasani LR, Pourahmad A 2014. The application of GIS io site selection and space-place analysis of pollution and air pollutant sources in metropolitan Kermanshah. *Journal of Environmental Studies*, 40(1): 51-64.

Jafari N, Janamian S, Taghavi N 2015. The correlational factors in attitudes regarding marital infidelity among married woman in Iran. *Turkish Online Journal of Educational Technology*, 2015: 619-623.

Jamshidi H, Heydarzadeh SM 2014. A survey on advanced financial management techniques application in Islamic Azad University. *Advances in Environmental Biology*, 8(6 Special Issue 2): 1559-1563.

Karimian MA, Horri A, Hariri N, Nooshinfar F 2012. An investigation into users' role in the credibility assessment of web-based information from the point of view of IAU faculty members. *Middle East Journal of Scientific Research*, 11(10): 1428-1438. doi: 10.5829/idosi.mejsr.2012.11.10.1502.

Khattak NA, Naqvi I, Rehman KU, Anwaar H 2009. Empirical study on the causal relationship between Islamic and conventional deposit rate. *Paper presented at Proceedings - 2009 2nd IEEE International Conference on Computer Science and Information Technology, ICCSIT 2009*, 8-11 August, Beijing, China.

Khosrowjerdi M, Zeraatkar N, Vara N 2011. Publication delay in Iranian scholarly journals. *Serials Review*, 37(4): 262-266. doi: 10.1016/j.serrev. 2011. 06.004.

Kianoosh D, Meshkat SV, Soltani H, Amirsherdoost M 2012. The connection between managers' relationship style and production efficiency of knowledge in the Islamic Azad University of Iran's 4th region (2006-2010). *Life Science Journal*, 9(3): 1971-1978.

Kim DJ, Ferrin DL, Rao HR 2008. A trust-based consumer decision-making model in electronic commerce: the role of trust, perceived risk, and their antecedents. *Decision Support Systems*, 44: 544e564.

Kokabi M 2011. A survey on the concordance of Itimad-Assaltanih and other information retrieval tools in a copy of Koran dated 1313 lunar hegira (1892 A.D.). *International Journal of the Book*, 8(3): 129-145.

Larsson G 2007. Cyber-Islamophobia? The case of WikiIslam. *Contemporary Islam*, 1(1): 53-67. doi: 10.1007/s11562-007-0002-2.

Larsson G 2011. *Muslims and the New Media: Historical and Contemporary Debates, Muslims and the New Media: Historical and Contemporary Debates.* Wey Court East: Ashgate Publishing Limited.

Larsson G 2013. Muslims and the new media: Historical and contemporary debates, Muslims and the new media: Historical and contemporary debates. *Religious Studies*, 1-218.

Lau S, Woods P 2009. Understanding learner acceptance of learning objects: The roles of learning object characteristics and individual differences. *British Journal of Educational Technology*, 40(6): 1059-1075.

Lobo S, Elaluf-Calderwood S 2012. The BlackBerry veil: Mobile use and privacy practices by young female Saudis. *Journal of Islamic Marketing*, 3(2): 190-206. doi: 10.1108/17590831211232582.

Lubis MA, Md Yunus M, Ishak NM, Muhamad TA, Diao M 2010. The Effectiveness of Strategies and Techniques in Teaching and Learning Islamic Education. *Paper presented at International Conference on Education and Educational Technologies - Proceedings*. 2-4 November, Cairo, Egypt.

Lubis MA, Md Yunus M, Lampoh AA, Ishak NM 2010. The Use of ICT in Teaching Islamic Subjects in Brunei Darussalam. *Paper presented at International Conference on Education and Educational Technologies - Proceedings*, 4-6 October, Iwate, Japan.

Maesoomi Z, Moghimi Khorasani E, Akbari M 2013. Impact of information technology on the engine of entrepreneurship. *Advances in Environmental Biology*, 7(9): 2437-2442.

Malik MA, Adeeb MA, Hussain I 2009. RETRACTED ARTICLE: Non-formal Basic Education Community Schools: Practices and Possibilities in Pakistan. *Paper presented at Proceedings - 2009 2nd IEEE International Conference on Computer Science and Information Technology*, ICCSIT 2009, 8-11 August, Beijing, China.

Manaf SA, Md. Noor NL, Haron H 2015. The Value Chain Model of Religious-based Entrepreneurship: A Malaysian Case Study. *Paper presented at Proceedings of the 25th International Business Information Management Association Conference - Innovation Vision 2020: From Regional Development Sustainability to Global Economic Growth, IBIMA 2015*, 7-8 May, Amsterdam, Netherlands.

Mantikayan JM, Ayu MA 2013. Assessing Audience Response Systems Using Task-technology Fit. *Paper presented at 2013 5th International Conference on Information and Communication Technology for the Muslim World, ICT4M 2013,* 17-18 November, Kuala Lumpur, Malaysia.

Mashhadi J 2011. Internet and its impact on social identity. *World Academy of Science, Engineering and Technology,* 81: 272-274.

Masudiniya M, Abbasi Aabkhare A 2013. Globalization: Religious and ethnical training in modern world (Threats and opportunities). *Life Science Journal*, 10(1): 506-510.

Mehad, S, Isa WA, Noor NL, Husin MS 2010. Muslim User Interface Evaluation Framework (Muslim-UI) for Islamic Genre Website: A Quantitative Approach. *Paper presented at Proceeding of the* 3rd *International Conference on Information and Communication Technology for the Moslem World: ICT Connecting Cultures, ICT4M 2010,* 13-14 December, Jakarta, Indonesia.

Mehrad J, Arastoopoor S 2012. Islamic World Science Citation Center (ISC): Evaluating scholary journals based on citation analysis. *Acta Informatica Medica,* 20(1): 40-43. doi: 10.5455/aim. 2012. 20. 40-43.

Mikki MA 2013. Synchronizing Moodle and University Enrolment Databases, A Case Study: Islamic University of Gaza. *Paper presented at Proceedings of the 2013 Palestinian International Conference on Information and Communication Technology, PICICT 2013,* 15-16 April, Gaza Strip, Palestine.

Mirza AA 2007. Students' perceived barriers to in-class participation in a distributed and gender-segregated educational environment. *The Electronic Journal on Information Systems in Developing Countries,* 35(7): 1-17.

Mkrtumova I, Dosanova A, Karabulatova I, Nifontov V 2016. The use of communication technologies to oppose political-religious terrorism as an ethnosocial deviation in the contemporary information-digital society. *Central Asia and the Caucasus,* 17(2): 54-61.

Mohammed AS, Tibek SR, Endot I 2011. The role of management information system in Islamic countries and Malaysia. *Journal of Applied Sciences Research,* 7(8): 1293-1298.

Mohd Saman WS, Haider A, Bahador KM 2012. E-Shariah: Where Technology Meets Law. *Paper presented at Proceedings of the European, Mediterranean and Middle Eastern Conference on Information Systems, EMCIS 2012,* 7 - 8 June, Munich, Germany.

Mohsenzadeh F, Isfandyari-Moghaddam A 2009. Application of information technologies in academic libraries. *Electronic Library*, 27(6): 986-998. doi: 10.1108/02640470911004075.

Mohsenzadeh F, Isfandyari-Moghaddam A 2011. Perceptions of library staff regarding challenges of developing digital libraries: The case of an Iranian university. *Program,* 45(3): 346-355. doi: 10.1108/00330331111151647.

Muhammad M, Muhammad MR, Khalil KM 2013. Towards Shari'ah compliant e-commerce transactions: A review of Amazon.com. *Middle East Journal of Scientific Research,* 15(9): 1229-1236. doi: 10.5829/idosi.mejsr.2013.15.9.11176.

Murphy CA, Coover D, Owen SV 1989. Development and validation of the computer self-efficacy scale. *Educational and Psychological Measurement,* 49(4): 893–899.

Nasruddin ZA, Hussin H 2013. Towards a Theoretical Framework for Understanding Muslim-Centered User Interface Design. *Paper presented at 2013 5th International Conference on Information and Communication Technology for the Muslim World, ICT4M 2013,* 26-27 March, Rabat, Morocco.

Nawi MM, Jamsari EA, Hamzah MI, Sulaiman A, Umar A 2012. The impact of globalization on current Islamic education. *Australian Journal of Basic and Applied Sciences*, 6(8): 74-78.

Nazari F, Khosravi F, Babalhavaeji F 2013. Applying Rogers' diffusion of innovation theory to the acceptance of online databases at university zone of Iran. *Malaysian Journal of Library and Information Science,* 18(3): 25-38.

Ngadiman D, Pambudi D, Kusuma W, Sabandi M 2014. Determinants of accounting information technology adoption in Syaria micro financial institutions. *Asian Social Science,* 10(14): 93-105. doi: 10.5539/ass.v10n14p93.

Oliver RL 1980. A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 17(4): 460e469.

Oseni UA, Omoola SO 2015. Banking on ICT: The relevance of online dispute resolution in the Islamic banking industry in Malaysia. *Information and Communications Technology Law,* 24(2): 205-223. doi: 10.1080/13600834.2015.1067968.

Othman B, Shaarani SM, Bahron A 2016. Evaluation of knowledge, halal quality assurance practices and commitment among food industries in Malaysia. *British Food Journal,* 118(8): 2033-2052. doi: 10.1108/BFJ-12-2015-0496.

Pradell T, Molera J, Salvadó N, Labrador A 2010. Synchrotron radiation micro-XRD in the study of glaze technology. *Applied Physics A: Materials Science and Processing,* 99(2): 407-417. doi: 10.1007/s00339-010-5639-7.

Pradell T, Molina G, Molera J, Pla J, Labrador A 2013. The use of micro-XRD for the study of glaze color decorations. *Applied Physics A: Materials Science and Processing,* 111(1): 121-127. doi: 10.1007/s00339-012-7445-x.

Ramli A, Mokhtar M, Abdul Aziz B 2014. Revisiting the concept of development, disaster and safety management: The Quranic perspective. *International Journal of Disaster Risk Reduction*, 9: 26-37. doi: 10.1016/j.ijdrr.2014.03.006.

Raob I, Al-Oshaibat H, Ong SL 2012. A factor analysis of teacher competency in technology. *New Horizons in Education,* 60(1): 13-22.

Razak K.A, Othman TN, Hamzah MI, Zulkifli H 2014. Information and communication technology among excellent Islamic education teachers in Selangor Malaysia. *International Education Studies,* 7(13): 146-156. doi: 10.5539/ies.v7n13p146.

Redkin O, Bernikova O 2015. Interdisciplinary Studies of Arabic and Islamic Manuscripts1. *Paper presented at IMSCI 2015 - 9th International Multi-Conference on Society, Cybernetics and Informatics, Proceedings,* 12-15 July, Florida, USA.

Rogers EM 1995. *Diffusion of Innovations.* 4th Edition. New York: Free Press.

Samsi SZ, Jamaluddin TM, Noor AS, Mohd SN, Abdullah S 2016. Information quality, usefulness and information satisfaction in Islamic e-tourism websites. *Journal of Theoretical and Applied Information Technology,* 89(2): 450-460.

Sarlak MA, Aliahmadi AR 2008. Recognition of factors affecting students trust in virtual universities using Delphi method. *American Journal of Applied Sciences,* 5(11): 1467-1473.

Sarwar R, Hassan SI 2015. A bibliometric assessment of scientific productivity and international collaboration of the Islamic World in science and technology (S&T) areas. *Scientometrics*, 105(2): 1059-1077. doi: 10.1007/s11192-015-1718-z.

Shahamat BK, Dalghpoush F 2010. The Analysis of Science and Technology Policy-Making Methods of Iran's Information Technology. *Paper presented at PICMET '10 - Portland International Center for Management of Engineering and Technology, Proceedings - Technology Management for Global Economic Growth*, 18-22 July, National Chi Nan University, Taiwan.

Shaheen MA 2008. Use of social networks and information seeking behavior of students during political crises in Pakistan: A case study. *International Information and Library Review*, 40(3): 142-147. doi: 10.1016/j.iilr.2008.07.006.

Shamir O 2001. Byzantine and early Islamic textiles excavated in Israel. *Textile History*, 32(1): 93-105.

Shirazi F 2012. Information and communication technology and women empowerment in Iran. *Telematics and Informatics*, 29(1): 45-55. doi: 10.1016/j.tele.2011.02.001.

Shirazi F, Gholami R, Añón Higón D 2009. The impact of information and communication technology (ICT), education and regulation on economic freedom in Islamic Middle Eastern Countries. *Information and Management*, 46(8): 426-433. doi: 10. 1016/j.im.2009.08.003.

Talebi B, Bonab MP, Zemestani G, Daneshvar Z 2012. Identification and prioritization the critical success factors of knowledge management in IAU of Tabriz (Iran). *Life Science Journal*, 9(2): 8-14.

Tan C 2011. Where tradition and 'modern' knowledge meet: Exploring two Islamic schools in Singapore and Britain. *Intercultural Education*, 22(1): 55-68. doi: 10.1080/14675986.2011.549645.

Tornatzky L, Fleischer M 1990. *The Process of Technology Innovation*. Lexington, MA: Lexington Books.

Traoré D 2012. Entre profane et sacré: Usages d'Internet et islam dans deux communautés musulmanes ouest-africaines a Montréal. *Anthropologica*, 54(1): 61-69.

Umar MB, Singh R, Shugaba AI 2006. Cephalometric indicies among Nigerians. *Journal of Applied Sciences*, 6(4): 939-942. doi: 10.3923/jas.2006. 939. 942.

Venkatesh V 2000. Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, 11(4): 342-365.

Venkatesh V, Bala H 2008. Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, 39(2): 273-315.

Venkatesh V, Davi FD 2000. A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2): 186-204.

Venkatesh V, Morris MG, Davis GB, Davis FD 2003. User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3): 425-478.

Wahid AA, Idriss HA, Rameez M, Almohaifer MS, Dahlan AR, Dolmoin KH 2010. IslamGRID: Knowledge Management at JAKIM. *Paper presented at Proceeding of the 3rd International Conference on Information and Communication Technology for the Moslem World: ICT Connecting Cultures, ICT4M 2010*, 13-14 December, Jakarta, Indonesia.

Wheeler DL 1998. Global culture or culture clash: New information technologies in the Islamic world - A view from Kuwait. *Communication Research*, 25(4): 359-376.

Winarko B 2007. Content, benefits and development of Pesantren online in Indonesia. *Malaysian Journal of Library and Information Science*, 12(2): 57-75.

Yasin AM, Yusoff FH, Mohd Isa MA, Zain NH 2010. Avatar Implementation in Virtual Reality Environment Using Situated Learning for "Sa'i" (Muslim Hajj Ritual). *Paper presented at ICEIT 2010 - 2010 International Conference on Educational and Information Technology, Proceedings*, 17-19 September, Chongqing, China.

Younas M, Sohail M, Kong LL, Bashir MJ, Sethupathi S 2016. Feasibility of adsorption by solid adsorbents: A review on low-temperature systems. *International Journal of Environmental Science and Technology*, 13(7): 1839-1860. doi: 10.1007/s13762-016-1008-1.

Younge D, Moreau P, Ezzat A, Gray A 1997. Communicating with cancer patients in Saudi Arabia. *Annals of the New York Academy of Sciences*, 809(1): 309-316.

Yusop FD, Sumari M 2015. Pre-service teachers' learning styles and preferences towards instructional technology activities and collaborative works. *Turkish Online Journal of Educational Technology*, 14(2): 116-129.

Zabri SM, Ahmad K, Wah WY 2016. Descriptive Study on Demographic Characteristics and Bank Selection Criteria Among Undergraduate Students in Malaysia. *Paper presented at Proceedings of the 27th International Business Information Management Association Conference - Innovation Management and Education Excellence Vision 2020: From Regional Development Sustainability to Global Economic Growth, IBIMA 2016*, 4 - 5 May, Milan, Italy.

Zainul N, Osman F, Mazlan SH 2004. E-commerce from an Islamic perspective. *Electronic Commerce Research and Applications*, 3(3): 280-293. doi: 10.1016/j.elerap.2004.01.002.

Zaki MA 2010. An investigation on research on Islamic revolution in Iran. *Information Sciences and Technology*, 26(1): 121-143.

Zareie B, Jafari NN 2016. The effect of electronic learning systems on the employee's commitment. *International Journal of Management Education*, 14(2): 167-175. doi: 10.1016/j.ijme.2016.04.003.

Zolala F 2011. Health information systems in the Islamic republic of Iran: A case study in Kerman province. *Eastern Mediterranean Health Journal*, 17(9): 679-683.

Zolghadri S, Mallahi K 2013. A study on barriers of e-learning from viewpoint of university staff and students; Iranian case study, Islamic Azad University's branches. *Research Journal of Applied Sciences, Engineering and Technology*, 6(10): 1768-1773.

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