Users' Intention to Self-Archiving in Institutional Repositories

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Abstract

The institutional repositories (IRs) are considered as a novel and substitute technology for scholarly communication and its usability mainly depend on the quantity of its content material, which obtainable with self-archiving of research output by authors. The proposed study aimed to examine which factors influence users' intention to self-archiving in IRs. The proposed study used the unified theory of acceptance and the use of technology (UTAUT) as its main theoretical framework and five hypotheses were proposed to investigate users' intention to self-archiving in IRs. Data for this analysis were obtained from 177 Malaysian researchers and authors and the structural equation modeling (SEM) was employed to test the research model. The obtained results from SEM indicated that "attitude, facilitating conditions, and social influence" have the statistically significant influence on users' intention to self-archiving and factors "effort-expectancy and performance-expectancy" were not statistically significant for authors' intention to self-archiving in IRs. The findings of this study provide information regarding the most important factors that are vital for formulating an appropriate strategic model to acceptance of self-archiving in institutional repositories.

Keywords: *self-archiving, institutional repositories, structural equation modeling, UTAUT*

1. INTRODUCTION

Institutional repositories (IRs) are becoming increasingly well-known and extremely important in academic institutions. Scholars from different fields all over the globe are paying a lot of attention to IRs(Asadi, Abdullah, Yah, *et al.*, 2019).According to Mark and Shearer (2006) point of view, IRs are considered as"a way that institutions can 'get back' some of the output from the researchers and accelerate the movement toward open sharing of knowledge".Usability of the IRs mainly depends on the quantity of its content material, that is accessible by self-archiving of research output via faculty authors(Xia, 2007). If the faculty members highly contribute to archiving in IRs, then the content size is getting large and accordingly the IRs being more useful. According to Wirba et al. (2013), IRs was utilized by a limited number of Malaysian research universities to enhance visibility. Nonetheless, even though a few universities in Malaysia developed and adopted IRs for almost a decade now, there continues to be limited knowledge regarding the acceptance and implementation of IRs on an individual basis.Since authors are an important factor where the success of an institutional repository is concerned, there is a need to explore the effectiveness of repositories and on authors' readiness to self-archive into these repositories.However,the possibleadvantages of IRs are not entirely comprehended by faculty members; numerous studies specify that just a limited proportion of faculty members deposit their data or journal articles into IRs(Kim, 2011). Therefore, the proposed study aimed to identify factors which influence faculty

members/users decision for intention to self-archiving in institutional repositories and also aimed to attain knowledge pertaining to the extent to which IRs is accepted and adopted by individuals. For this, theoretical model, the UTAUT model which are well known in information systems (IS) field, especially related to the domain of adoption and acceptance of technology(Asadi, Safaei, *et al.*, 2019) in an organizational setting, were used.The rest of the paper has organized as follow: In Section 2, a literature view was put forward.Hypotheses and model development is presented in Section 3, while the data collectionof the research is described inSection 4. In Section 5, data analysis and results are discussed. The discussion and conclusion of the study are demonstrated in Section 6.

2. LITERATURE REVIEW

Previous studies have discussed the necessity of the self-archiving in institutional repositories and have explained several benefits if the faculty members accept to deposit their work in IRs. For example, the study conducted by Xia (2007), who examined faculty scholars perspectives toward self-archiving in institutional repositories. Similarly, Kim (2011), has examined the faculty members motivation for participating and self-archiving in IRs and make their materials extensively accessible.Another study has been conducted on institutional repositories by Wirba et al. (2013), their article mainly were focused on authors acceptance of institutional repositories. Several studies in different context have been discussed on users 'intention for innovative technologies adoption(Asadi et al., 2015; Asadi et al., 2017; Asadi, Hussin and Saedi, 2016; Goudarzi et al., 2013; Chen, 2011). But, scary of studies investigate individual 'intention to self-archiving in IRs specifically in terms of faculty members /users(Kim, 2011). Therefore, this study aimed to fulfill the gap by applying UTAUT model, which is proposed by (V. Venkatesh et al., 2003) to

determine the intentions of users to employ an IS and ensuing behavioral intentions.In UTAUT model "Social influence (SI)", "performance expectancy (PE)", "facilitating conditions (FC)", and "effort expectancy (EE)" are considered as main and original constructs that predict behavioral intention and userbehavior of users. Several studies applied constructs from the UTAUT model which focused on intention and adoption to usingIS.

3. HYPOTHESES AND MODEL DEVELOPMENT

The following hypotheses are formulated to examine the influence of the independents'variables on the intention to self-archiving in IRs as the dependent variable.The ATT was defined by Venkatesh et al. (2003) as "an individual's overall effective reaction to using a system". ATT is considered as an external construct which used by scholars to investigate individuals intention of diverse technologies(Ammarukleart, 2017). The study conducted by (Dulle and Minishi-Majanja, 2011) demonstrates that researchers' attitudes towards using open access were significantly influenced by their behavioralintention. Similarly, Lwoga and Questier (2014), indicated that attitude is considered as determinants factors for intention to adopt open access., therefore the first hypothesis is developed for this study as follows:

H1: Users' attitudes toward self-archiving in IRs have a significant and direct influence on behavioral intention

Venkatesh et al. (2003) also define Effort expectancy (EE) as "the degree of ease associated with the use of the information system". The UTAUT model supposed that EE has a direct and significant influence on BI. Results of the study by Dulle el al. (2011)have confirmed that EE statistically is significant and considered as a key determinant of the researchers' behavioralintentions towards using open access. In addition, (Venkatesh *et al.*, 2003) was defined Performance expectancy (PE) as

"the extent to which an individual is of the view that using a system helps in improving job performance". Researchers and user perception of performance improvement are signified by PE by employing IRs. In addition, the researcher anticipates benefits by using open access publishing in research performance, which would improve his/her personal merits. In addition, it is likely that IR consumers are going to consider IRs to be valuable as they enable users to place and distribute their academic content in reliable repositories. It has been found in past studies that PE is considered also as a key predictor of intention to use (Dulle and Minishi-Majanja, 2011);(Ammarukleart, 2017);(Yadegaridehkordi *et al.*, 2018). Hence, the second and third hypotheses were formulated as follows:

H2: PE will have a direct and significant influence on users' intention to self-archiving in IRs.

H3: EE will have a direct and significant influence on users' intention to self-archiving in IRs.

Facilitating conditions (FC) is defined as "the external environments of helping users overcome barriers and hurdles to usea new IT" (Venkatesh and Davis, 1996). Prior studies have been stated that there is a significant relationshipbetween FC and users'intention for technology adoption(Lwoga and Questier, 2014). Therefore, in this study expected that if users believe that self-archiving in IRs technical infrastructure and environment is suitable, then users will be motivated to use IRs for self-archiving documents. Therefore, it can be assumed that:

H4: FC will have a direct and significant influence on users' intention to self-archiving in IRs.

Social influence (SI) is defined as the "extent to which an individual believes that significant others are considering the use of the new system"(Venkatesh et al., 2003). İn this study SI indicates the extent towhich peers or fellow researchers, and the university have an impact on researchers to take part in self-archiving, and also the extent to which a researcher may influence his/her peers to participate in self-archiving in institutional repositories. The direct and significant influence of SI on BI has been approved by prior studies (Wang, Wu , and Wang, 2009);(S. Asadi et al.,2016);(Martins et al., 2014). Hence, it is deduced that a significant influence is made by peers and fellow researchers on the intention to self-archiving in IRs for calibration. Hence, the hypothesis given below is put forward:

H5: SI will have a significant and directimpact on users' intention to self-archiving in IRs.

4. DATA COLLECTION

The proposed study has developed the questionnaire forthe validation of the model. The purposive sampling technique was used in this study. Faculty members were target population as researchers from University Putra Malaysia with respect to their perspective on IR. A five-point Likert scale was used to measure each factor. The range of responses included (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree). The PLS-SEM method was used to examine the data, along with the SmartPLS 3.0 statistical software. On the whole, 177 respondents took part in the research. Table 1 shows a summary of therespondents' demographic statistics.

Table 1: Demographic information of Respondents.

Respondents 'Information	Frequency	Percentage
Gender		
Male	86	48.59%
Female	91	51.41%
Age		
<30	38	21.47%
31-43	91	51.41%
44-55	33	18.65%
>56	15	8.47%
Occupation		
Professor	19	10.73%
Senior Lecturer	28	15.82%
Lecturer	32	18.08%
Research fellow (Postdoc)	10	5.65%
Research assistant	18	10.17%
PhD student	58	32.77%
Another researcher	12	6.78%

5. DATA ANALYSIS AND RESULTS

5.1 Measurement model

This study was employed measurement model as suggested byHair Jr *et al.* (2016) forconstructs' reliability and validity.For internal consistency, Cronbach's α and Composite Reliability was applied. For evaluating convergent validity Average Variance Extracted (AVE) and outer loading was employedand discriminant has been used for the measurement model test. The results of the measurement model testsummarized in Table 1. Based on Hair Jr *et al.* (2016), the acceptable value for CR and Cronbach's α is equal to or above 0.7. As demonstrated in Table 3, all the values for Cronbach's α and CR exceeded the threshold of 0.7 and

therefore confirmed the reliability of constructs. Regarding the AVE, the values for all the constructs exceed the threshold of 0.5 which confirmed convergent validity. For the outer loading, all the items were meet the desired threshold of 0.7 and are above the suggested threshold value.Fornel-Larker criterion test was used for ensuring the discriminant validity of the constructs. Fornell and Larcker (1981) suggested that "square root of AVE for any construct needs to be more than the correlations of other constructs in the model". Thus, based on results in Table 2, all the defined constructs meet the criteria and are accepted for discriminant validity.

Table 1: Results of Reliability and convergent validity

Construct		Internal consistency reliability		Convergent Validity	
Name	Short form	Cronbach's alpha (>0.6)	Composite reliability (>0.7)	AVE (>0.5)	Outer loading (>0.7)
Attitude	ATT	0.769	0.867	0.686	0.868
					0.857
					0.755
Effort-expectancy	EE	0.809	0.868	0.569	0.701
					0.715
					0.835
					0.789
					0.723
Facilitating conditions	FC	0.756	0.842	0.572	0.772
					0.720
					0.769
					0.762
Intention to use	IN	0.848	0.898	0.688	0.832
					0.876
					0.854
					0.751
Performance-expectancy	PE	0.739	0.853	0.659	0.834
					0.856

					0.741
Social Influence	SI	0.84	0.893	0.677	0.848
					0.878
					0.850
					0.705

Table 2: Fornell and Larcker criterion analysis

	ATT	EE	FC	IN	PE	SI
ATT	**0.828**					
EE	0.608	**0.754**				
FC	0.62	0.608	**0.756**			
IN	0.709	0.679	0.712	**0.83**		
PE	0.601	0.67	0.521	0.646	**0.812**	
SI	0.652	0.763	0.645	0.735	0.628	**0.823**

5.2 Hypothesis testing

In order to test the coefficients and significant level of relations in Smart PLS, the Smart PLS bootstrapping procedure was used to assess the t-value. T-value is a criterion which helps to determine the significance level of β between dependent and independent constructs. T=3.091 P<0.001, t=2.326 P<0.01, and t=1.645 P<0.05 are acceptable values for t-value in different significance levels. To accept a proposed hypothesis in the structural model, the path coefficient among dependent and independent variables should be significant. The results of path assessment (β,

t-value, and P-value) were used by the researcher to confirm or reject a hypothesis, as well as establishing the strength of the relationship among independent and dependent variables. For testing the proposed hypotheses "path coefficients, *t*-values (*t*), and *p*-values (*p*)" were examined. PLS-SEM approach was employed for testing the impact of five independent constructs "ATT, EE, EF, PE, SI" on dependent construct "IN". Table 3, shown the consequences of the hypothesis test. In addition, the results demonstrated that the proposed model is a good structurally (R^2=0.74).

Table 3: Summary of hypothesis results

	Constructs	Path	Beta	T Statistics	P Values	Result
H1	Attitude	ATT→IN	0.236	3.368	0.001**	Accepted
H2	Effort-expectancy	EE→IN	0.072	0.942	0.346	Rejected
H3	Facilitating conditions	FC→IN	0.282	4.321	0***	Accepted
H4	Performance-expectancy	PE→IN	0.152	1.722	0.085	Rejected
H5	Social Influence	SI→IN	0.248	3.146	0.002**	Accepted

*p < 0.05, **p < 0.01, ***p < 0.001

The results of the hypotheses test demonstrate that facilitating conditions has the highest p-value and T statistics (T=4.321, P<0.001), hence, it is statistically significant. Facilitating conditions followed by attitude (T=3.368, P<0.01) and social influence (T=3.3146, P<0.01) were statistically significant therefore, H1,H3, and H5 were supported. Nevertheless,the effect of effort-expectance and performance expectancy for users' intention to self-archiving in IRs were not significant.

6. DISCUSSION AND CONCLUSION

This study proposeda model for users' intentionto self-archiving in IRs. The research model for this study was proposed based on UTAUTtheory. The findings from SEM analysis show that there is a significant influence of ATT on BI. This outcome is in inconsistent with previous studies conducted by (Ukwoma and Dike, 2017). This study showed that EE and PE did not statistically significant and they did not have alsoinfluence on users' intention to self-archiving in IRS. This result approves the study performed by(Wirba Singeh et al., 2013), that PE and EE did not influence the

behavioral intention of the authors to self-archive in institutional repositories.Hence, in this study EE not related to users' acceptance to self-archive in institutional repositories and their expectation to ease of use of a systemand that the features of their institutional repositories are not user-friendly. Also, the researchers don't expect that self-archiving in institutional repositories enhance their research performance and thus increasing his/her personal merits.Moreover, the statistically significant impact of FC on IN was supported and approved in this study. This is in line with the study by Muhsin and Nurkhin (2016) which FC is positively related to students 'intentions to use e-journals. The direct and significant influence of SN on IN was supported also in this study which is inconsistent with prior research conducted by Dulle and Minishi-Majanja (2011), which SI was found significantly influence on researchers' intention to use open access in universities. Therefore, the findings of this study have been established that ATT, FC, and SI were found significant forecasters of users 'intention to self-archiving in IRs. Additionally, the findings also highlighted that there is no statistically direct and significant relation between EE, PE with IN.With respect to the SEM analysis, this model may be perceived to have a frugal nature, where the independent factors explain 74% of the overall variance when examining the users' intention for self-archiving in IRs. As mentioned above, the focus of this study is on faculty members. Further investigation is needed to test the model among different subjects, such as library staff and researchers. In addition, is suggested for future researchers to conduct the study on the benefits and drawback of self-archiving in IRs and investigate the factors that facilitate or hindersauthors participation in IRs.

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