PREDICTING FACULTY MEMBERS ADOPTION OF ONLINE DATABASES BY DIFFUSION THEORY APPROACH: CASE STUDY AT THE UNIVERSITY OF SRI JAYEWARDENEPURA IN SRI LANKA

P. G. R. Samaravickrama[*], G D M N Samaradiwakara
University of Sri Jayewardenepura
Nugegoda Sri Lanka
rasali@sjp.ac.lk, mnsamara@sjp.ac.lk

Abstract— Online versions of scholarly publications in a database (online databases) have proliferated at a massive rate with the novel technological advancement over the past years. Their impact on academic libraries and scholars is noteworthy as well as unprecedented. However, it is questionable whether both these parties have embraced online databases. Librarians are struggling to renew the subscriptions of these scholarly databases in order to maintain the continuous access to their users while the prices are increasing annually. Hence the librarians are under pressure due to the fact that rate of diffusion is low with electronic databases. At the users' end, they have brought into attention online databases' potential pleasure and tendency towards content and context together with acquiring essential skills and abilities needed to use them. Under this circumstance, current study is an attempt made to primarily investigate the affect of the predictors; relative advantage , compatibility, complexity, triability and observability proposed by Rogers's (2003) on university faculty members' adoption and diffusion on online databases in order to motivate them to make full use of online resources in their academic careers. A structured questionnaire was electronically distributed among a random sample under the survey strategy to collect data during September-October 2014. Results revealed that the faculty members in the USJP were mostly knowledgeable about the online database innovation and approximately 72% of the diffusion variance of online databases explained by relative advantage, compatibility, complexity, triability and observability. Findings also revealed that relative advantage and observability are the key factors for diffusion of this innovation with higher positive correlations. While compatibility and the complexity have negative correlations with individuals' adoption rates, triability has a positive correlation. Recommendations were made to improve the infrastructure facilities within faculties and make possible programs to facilitate faculty members' adoption and the understanding of online databases.
Keywords— Roger's diffusion of innovation theory; online databases; faculty members

1. INTRODUCTION

Scholarly databases have been playing a crucial role in the creation and diffusion of knowledge by serving as the key media of scholarly communication for more than three centuries. The rapid development of novel technologies has influenced the expansion of new forms of scholarly communication, including electronic modes of publications, digital collections, websites, various discussion forums and blogs etc. Though, those channels are growing popularity for communicating and exchanging research findings, the scholarly databases are regarded as the most preferential medium [1]. The scholarly databases have changed their mode to 'online databases' or 'electronic databases' which are organized digital collections of references to publish literature such as   journal articles, newspaper articles, conference proceedings, reports, government and legal publications, patents, books, theses etc. They have flourished at a phenomenal speed over the past years, and their impact on libraries and users is significant and unprecedented [2] since academics experienced the delight of having full-text articles at their desktops anytime and anywhere.

Online scholarly databases provide a series of modern benefits such as quick and easy accessibility, regular updates, build bibliographies, make citations and recycle demanded information. Further, they make possible to create user accounts, which can receive a plenty of services including holding search histories, e-mail notifications for not received articles and newly added publications on users' subject disciplines. Electronic databases make easy to rearrange or sort information and they facilitate for qualitatively diverse types of searches like *Boolean* algebra logic and hence users can employ AND, OR or NOT to reduce unwanted entries. Electronic publishing is the next demanded feature of online scholarly databases. They shorten the time duration between the paper submission and its publication. However, online databases innovation has today owned a momentous position among research scholars especially in universities. In these circumstances, attention focuses towards acquiring essential capabilities and skills of individual users and possible tendency and inclination towards content and context of online databases [3]. Therefore, it is very important to explore such a phenomenon under theoretical foundation like this study.

2. ONLINE DATABASES AT JAYEWARDENEPURA UNIVERSITY

The Library of the University of Sri Jayewardenepura (USJP) started providing access to online databases in 2002 under the International Network for the Availability of Scientific Publications (INASP) which is a foreign

collaborator formed to support libraries. It was given access to three full-text online databases; Blackwell Synergy, EBSCO Host, and John Wiley & Sons and two other databases; British Library Inside Web Service (Current Awareness Service), and BLDSC (Document Delivery Service). These databases were given free access until the year 2007. With that initiative library used to continue electronic access to scholarly databases under individual purchasing in packaged deals, UGC consortia purchasing and through funding agents like National Science Foundation (NSF) and World Health Organization (WHO). Availability of online databases for last five years is depicted in Table 1.

TABLE 1: Availability of online databases for last six years at USJP

	Database	2010	2011	2012	2013	2014
1	Acoustic Society of America	√	√	√		
2	American Institute of Physics	√	√	√		
3	American society of agricultural & Biological Engineers				√	√
4	British psychological society	√				
5	Chicago Journals	√	√	√	√	√
6	Edinburg University Press	√				
7	Emerald	√	√	√	√	√
8	Ingenta Connect Publishing/ Beech Tree Publishing	√	√			
9	Journals of the University of California Press	√				
10	JSTOR				√	√
11	Mary Ann Liebert, Inc. Publications		√	√	√	√
12	Optical Society of America	√				
13	Oxford Journals				√	√
14	ProQuest Database			√		
15	Pubmed					
16	Research for life HINARI,AGORA, ARDI,OARE				√	√
17	Royal College of Physicians	√				
18	Sage Research Methods				√	√
19	Symposium journals	√	√	√	√	√
20	Taylor and Francis				√	√
21	World Bank Policy Research Working Papers		√	√	√	√
	Total	**11**	**8**	**8**	**11**	**11**

Source: Compiled by authors

As shown in Table 1, 8-11 numbers of online databases out of 21 databases have been available yearly in the university. It further shows that only three databases are continuously available for last five years. They are Chicago Journals, Emerald and Symposium Journals. By observation, the adoption rate of these online databases is seen to be lower for last year. It is proved by the usage statistics of the Emerald database as a continuously available database where the usage statistics are higher than others. The variation of the usage of Emerald during the years 2008-2013 is presented in Figure 1.
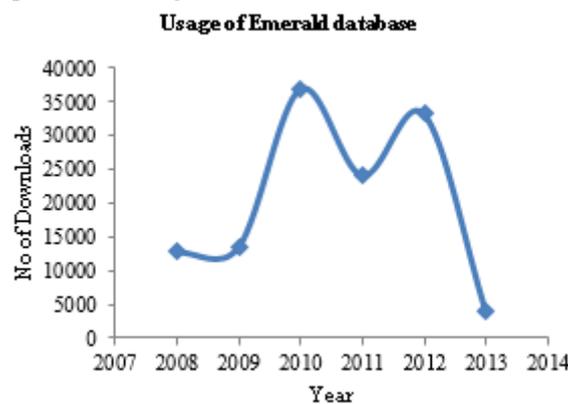
Fig.1: Usage statistics of Emerald database at USJP

Figure clearly demonstrates the usage of Emerald database has become very low in the last year (2013) and the highest usage reported in the year 2010. However, the adoption rate might have an exponential growth as the library carried on continuous access to electronic databases over the higher costs demands of publishers in each year. However, these online databases are well beneficial for faculty members since they can have a plenty of services rendered by online databases in their academic career in the university. On the other hand, librarians are with the responsibility of making their academics digital literate in this digital era. Therefore, the library seeks ways to keep continuous access the use of these online databases in order to verify how well library meets their users' needs and to justify increases in budget for online databases acquisition. Hence, the adoption rate of

online scholarly databases should be increased among faculty members. In this regard, Rogers' theoretical underpinnings provide a strong base to explain the effect of well set factors on the diffusion of an innovation. Hence, this study aims to predict the university faculty members' adoption of online database services based on the Rogers' attributes; relative advantage, compatibility, complexity, triability and observability. This is investigated in twofold; perceptions of users' ends and available features of databases. No any study conducted in Sri Lanka with a theoretical base to predict the factors affect the diffusion of online databases and therefore the current study is significant. Also, this study is timely significant since studying features of online databases to expedite faculty member's adoption of online databases in Jayewardenepura University.

3. OBJECTIVES OF THE STUDY

Since the technological advancement in today's information era, most of the information is available in the digital form. Hence, it is unavoidable to heavy use online databases for faculty members to increase the quality and quantity of their researches. Thus, this study aims to identify the awareness of online databases and the purpose behind using them and to investigate the effect of predictors on faculty members' perceptions and adoption rate of online databases.

4. THEORETICAL PERSPECTIVES OF THE STUDY

Studying the innovation or technology diffusion is a matured aspect in Information Science research. Reviewing a larger number of technology adoption theories, it was found that the Rogers' Diffusion of Innovation Theory (DoI) has captured a pinnacle position. It is one of the oldest social science theories. Possibly the principal theoretical perspective on technology adoption is Diffusion of Innovation (DOI) Theory which has developed by E.M. Rogers in 1962 and it has been using since 1950s to describe the innovation-decision process. DoI theory has been applied at both individual and organizational levels of analysis. The key feature of DoI theory is its appropriateness in investigating the adoption of technology in higher education and educational environments [4][5][6]. Hence, this study is adapted the Rogers' DoI theory as the basic theoretical underpinning.

The primary intention of DoI theory is to provide an account of the manner in which any technological innovation moves from the stage of invention to widespread use (or not) [7]. It initiated in communication to elucidate how, over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system. The outcome of this diffusion is that people, as part of a social system, adopt a new idea, behavior, or product. Adoption indicates that a person does different thing than whatever he/she did previously. Diffusion is possible through the person must perceive the idea, behavior, or product as new or innovative which is the key to adoption.

Rogers' model of diffusion of innovation is presented in Figure 2.
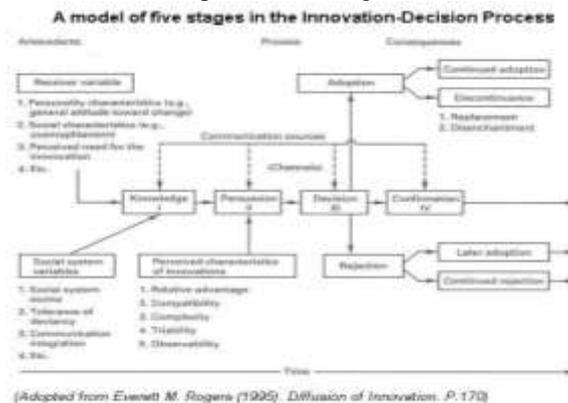
Fig.2: Model of Rogers' diffusion of innovation theory

As depicted in the Figure 2, in the process which person adopts an innovation and whereby diffusion is accomplished, he/she passes five steps; (1) knowledge or **awareness** of an innovation, (2) forming an **attitude** toward the innovation, (3) **decision to adopt** or reject, (4) implementing the innovation by **initial use**, and (5) confirmation of this decision by **continued use** [8]. Rogers constructed five main attributes that impacts the adoption of an innovation;

1. Relative Advantage - The degree to which an innovation is seen as better than the idea, program, or product it replaces.
2. Compatibility - How consistent the innovation is with the values, experiences, and needs of the potential adopters.
3. Complexity - How difficult the innovation is to understand and/or use.
4. Triability - The extent to which the innovation can be tested or experimented with before a commitment to adopt is made.
5. Observability - The extent to which the innovation provides tangible results.

6. REVIEW OF THE EMPIRICAL LITERATURE

According to the literature review conducted for the current study showed that most of the international researchers have employed the Rogers' theory as the base to predict effect of factors on diffusion various

technological tools and there were plenty of empirical studies too. Yet in the local literature, not even a study which used the Rogers' attributes or any other theoretical attributes to explain the diffusion of scholarly online databases in Sri Lanka. However, some local researchers have taken attempts to find out the factors affect to use or not use online databases at Sri Lankan universities.

[9] have used the Rogers' theory to evaluate content, potentiality and the use of specific online databases in Australian public libraries, Victoria. They have found that the relative advantages of those databases as the encouraging factors to use them. Those factors were, huge array of authoritative information, full-text forms of the articles, technical compatibility and Internet using experience of the library users. The factors which affect not to use databases were, articles limited to specific subject areas, non- satisfactory individual subject coverage, lack of articles related to Australia, interface unfamiliarity and the dissimilar search strategies in databases. In a study carried out to identify the critical success factors on usage of electronic resources facilitated by University of Colombo, Sri Lanka under the base of Technology Acceptance Model, has reported the technology as the most critical factor for using electronic resources [10]. The factor consists of navigating and technical difficulties. Study further identified the relative advantages such as support, computer skills in using e-resources. Further usefulness of the electronic resources is reported as a factor which accelerated the usage. The results of a study conducted by [4] showed that the Diffusion of Innovation theory as an effective in predicting the future acceptance of novel technologies in the education environment. Relative advantage, compatibility, triability and observability of the innovation were positive perception of adoption e-learning in B-School at Bangalore. Very recently, [3] has conducted a study to predict the online database adoption by academic members in the Islamic Azad University (IAU) in Tehran and he employed the Rogers' attributes as effective predictors. The study revealed that the existence of significant difference between academics perceptions on Rogers' predictors; relative advantage and compatibility. Findings also showed that 70% of the academic members' use of online databases affected by the predictors such as partial relative advantage correlate, compatibility, complexity, triability and obserability.

Some empirical studies established that participants believe online databases as a significant source of information for researches and as a communication media [11][12][13] [14] have found through their study on 'A study of graduate student end-users' use and perception of electronic journals', the positive features in electronic journal databases such as information richness, easy access, innovative presentation and services rendered as the acceptance positive factors of electronic journal databases. Study further revealed a plenty of features which they wish to have in electronic databases. Some of them are vast subject coverage and more sophisticated services through databases.

A recent study on 'Use and perceptions of online academic databases among Croatian University teachers and researchers' was conducted by [11] and found that academics get benefit of online academic databases to complete research within short time durations.[15] in their study on 'Attitude towards the usage of electronic information resources in medical library, university of Jaffna, Sri Lanka ' has found that personal characteristics such as academic type (lecturer or student) and lecturer category (professor, senior lecturer and lecturer) as significant factors on adopting electronic information resources including e-journals.

Lack of awareness, non-availability of particular journal issues, lack of computer and searching skills and trainings, university technical problems and lack of infrastructure facilities were negative key factors which have slowed down the e-journal and database usage by university academic community [16][17][1][12][18][19][20]. [13] further found that technical difficulties in navigating online databases as a significant factor for slow diffusion. Also, a number of users do not prefer for electronic formats [12][21][20] of articles and therefore they do not attend to use electronic databases. Non-availability of the individual specific subject coverage has found an attribute for slow diffusion for e-journal usage in Sri Lanka by [21]. However, all the identified factors which affect to accelerate or slow down the diffusion of online access resources, in empirical studies reviewed, can be included into the five attributes of the Rogers' theory and a systematical study may carry on to the Sri Lankan context. Current study fills this gap in the knowledge base.

5. RESEARCH DESIGN AND METHODOLOGY

The Rogers' Diffusion of Innovation theory was used to guide the present study to investigate the effective predictors on adoption of online databases provided by the library by faculty members in the University of Sri Jayewardenepura. The study is entirely guided by the theoretical underpinning adopted and the conceptual framework is developed based on the theory. Since this study is based on an existing theory, the research is carried out under the deductive reasoning approach. The study adapted the positivist philosophical assumptions since it is expected to collect the data using a structured questionnaire survey.

A. Conceptual framework of the study

The conceptual framework of the study is based on the concepts of Rogers' DoI theoretical underpinnings and the factors identified after a comprehensive literature review employed on usage of electronic resources including online academic databases. The framework is depicted in Figure 3.
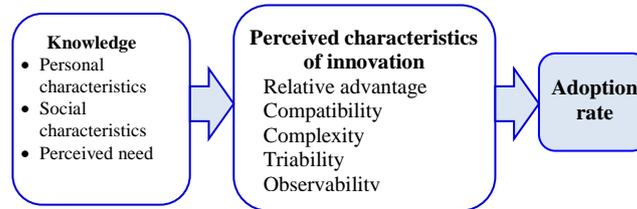
Fig.3: Conceptual framework of the study

Conceptual framework indicates the factors affect in predicting the adoption of online databases as knowledge of the receiver and the characteristics of the databases, which should be suited at users' end. Knowledge of the receiver is measured using their personal characteristics such as their attitude to change, social characteristics and through their perceived need for the innovation. Perceived characteristics of the innovation is measured using Rogers' attributes; relative advantage of the innovation for the receiver, compatibility with others, complexity of the innovation, triability with innovation and observability of the features of the innovation.

B. Population and the sample

Target population is the total number of lectures in four faculties in the USJP and the distribution of the population according to the faculties and lecturer category is presented in Table2.

Table 2: Population of the faculty member of the University of Sri Jayewardenepura

Faculty	Lecturer Category			
	Professor	Senior Lecturer	Lecturer	Total
Humanities and Social Studies	20	71	28	119
Applied Science	21	49	21	91
Management Studies & Commerce	14	89	46	149
Medical Sciences	22	55	38	115
				474

Source: University Academic Diary-2014

The total number of lecturers in the university is 474 as depicted in Table2 and the largest figure indicates for the faculty of Management Studies and Commerce. The sample size for the study was determined according to the generalized scientific guideline for sample size decision developed by [22]. Since the sample population was 474 subjects, the sample size was 212 subjects under the degree of accuracy 95%. The sample is 44.3% of the population which is a comparatively better size for statistical analysis. Simple random sampling is employed in selecting subjects for the study.

C. Survey instrument

The research is designed to adopt the survey research strategy and therefore structured questionnaire has been used as the data collecting instrument. The questionnaire consists of three parts to collect information on namely; 'personal and social characteristics'; 'awareness and use of online databases' and 'factors which effectively predicted the diffusion of online journal usage in the USJP'. The factors were gathered from the studies of [3] and [1]. Questionnaires were electronically distributed during September-October 2014.

6. RESULTS AND INTERPRETATION

The data collected from the University of Sri Jayewardenepura were analyzed using various statistical techniques such as descriptive statistics, mean comparing, factor analysis and multiple regression analysis. Even though the response rate (75 responds out of 212) was 35.38%, reliability to perform statistical tests has been achieved.

A. Personal characteristics of the respondents

Distribution of the respondents according to their faculties is depicted in the Figure 4. The highest percentage of the respondents (36%) belonged to the Science faculty. It was followed by the respondents belong to Management (31%), Medical Sciences (21%) and Humanities and Social Science (12%) faculties.
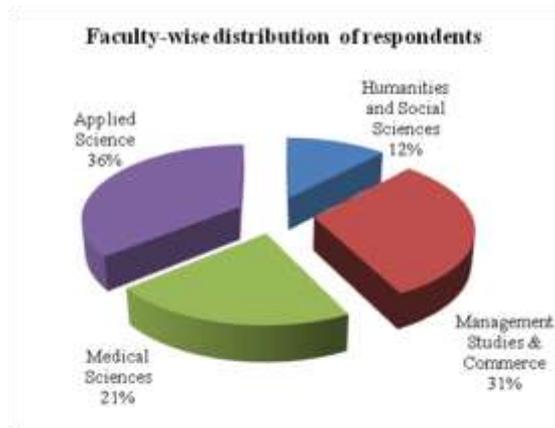
Fig.4: Faculty-wise distribution of respondents

The respondents' profile consisted of 52% males and 48% females. Majority of the respondents were in the senior lecturer category (57.3%) and followed by 28% lectures and 14.6% professors. Most of the academic staff members (48%) were between the age of 41-50 years. Only 12% were below 30 years and 13.3% were 51-60 years. Others (26.7%) were in the 31-40 years age group.

Further, the self perceived computer competence level of the respondents was inquired since online databases provide quick access to electronic information through computers and Internet. Results reveal that the majority of the academic staff members (56%) in the USJP were in the high computer competency level and only a 1.3% was in the poor level. Rest of the members (42.7%) was in the moderate level.

Preference to use the electronic form of scholarly work was also examined and a majority of faculty members (91.9%) preferred to use electronic format. Then the respondents were asked how long the experience with online databases and to grade their experience with online database using. Results revealed that most of the respondents (39.4%) have 5-10 years experience using online databases and only one respondent had no experience with online databases. That may be because he is a professor who belongs to the above 60 years age group and he may have practiced using printed journals for his scholarly activities. Therefore, the results was further examined with the lecturer category and the results were presented in Figure 5 (p.10).

Figure 5 clearly shows that the existence of differences using experience of online databases among lecturer categories. Majority of the senior lecturers have more experiences with online journal databases and these differences are statistically significant (p-value=0.003<0.5) under 95% confidence level.
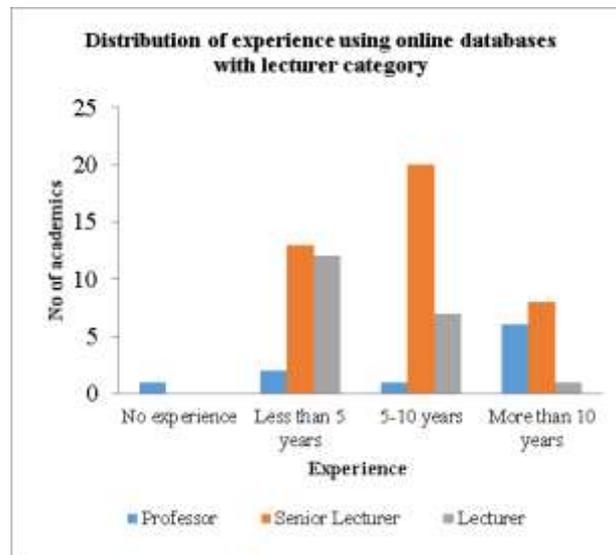
Fig.5: Distribution of experience using online databases with lecturer category

Results of the self perceived grades for the experience using online databases are summarized in Table 3.

Table 3: Self perceived grades for the experience using online databases

Level of the experience				
Expert	Good	Average	Poor	Beginner
15.5%	**45.1%**	33.8%	2.8%	2.8%

As shown in the Table 3 (p.9), majority of the respondents were in a 'Good' experience level with using online databases. Only 15.5% experts were there.

B. Social characteristics and the perceived need

Online scholarly databases, as a fact of today's academic life, faculty members should move towards them. As their parent institution, the university should be aware of the infrastructure facilities provided for the faculty members. Therefore, the respondents were asked availability of computer and Internet facilities and the satisfaction with the facilities in hand. Ninety two percent (92%) of respondents were agreed with the computer and Internet facilities provided in the university and only a few (8%) disagreed with them. However, a majority of the staff members (62.7%) were satisfied with the facilities available and 37.3% were unsatisfied with the computer and Internet facilities given in the university.

Then, the respondents' awareness about the availability of online databases in the university was questioned. Results were summarized in the Table 3.

Table 4: Faculty-wise awareness about online databases

Awareness	Faculties				Total
	Humanities and Social Sciences	Management Studies & Commerc	Medical Sciences	Applied Science	
Yes	88.9%	91.3%	81.2%	81.5%	85.3%
No	11.1%	8.7%	18.8%	18.5%	14.7%

As demonstrated in the Table 4, majority of the respondents (85.3%) were aware and only 14.7% were not aware about these databases. Results further show that the faculty-wise awareness about online databases also higher and there was not a significance difference.

According to the Rogers theory, perceived need to access online databases is one of the aspects of the first step of the innovation diffusion process; therefore, the faculty members were asked the need of accessing online databases. Results were reviewed in Table 5.

According to the Table 5, the highest percentage of respondents use online databases to support research (thesis/dissertation/project work), the relevant percentage is 95.7%. This is followed by a 75.4% of faculty members who used them to prepare publications (to write manuscripts or research papers). Therefore, it is clear that the diffusion of access to online databases confined to the scholarly needs.

Table 5: Need of using online databases

Need	Percentage
To update subject knowledge	69.6%
To support research (thesis/dissertation/project work)	95.7%
To prepare publications (to write manuscripts or research papers)	75.4%
To prepare materials/ assignments	49.3%
To find relevant information in the area of specialization	53.6%
For academic achievements (e.g. publishing)	55.1%
Other	8.7%

C. Perceived characteristics of the online databases

Twenty four (24) factors depicting different features of the online databases adopted from past researchers were provided to prioritize for the respondents. The principal component analysis with Varimax rotation was employed to identify the main factors. The Kaiser-Meyer-Ohlin (KMO) measure and Bartlett's test significant values were 0.783 (higher than 0.6) and 0.000 (less than 0.05) respectively which indicates the sampling adequacy. Twenty one (21) attributes could be extracted in to five main factors: relative advantage, compatibility, complexity, triability and observability introduced by Rogers (2003). Factor loadings of the rotated components are shown in Table 6.

As shown in Table 6, approximately 72% (71.918 %.) of the diffusion variance of online databases explained by the above mentioned components.

Table 6: Factor loadings of Varimax rotated principal components

Component	Correlation	% Cumulative variance
Relative advantage		19.643
Working with online databases is a pleasure.	.881	
I like working with online databases.	.853	
Online databases make academic work more interesting.	.796	
Using online databases make my scholarly work efficient.	.745	
Using online databases is an effective method for my scholarly work.	.657	
It is convenient to use online databases for my scholarly work.	.652	
Observability		38.504
Online databases can be accessed simultaneously by many people	.854	
Online databases provide retrieval of a large number of results	.729	
Online databases facilitate retrospective searching	.695	
Advanced and specific searching strategies in online databases lead easy retrieval of information.	.670	
Online databases provide searching to hypertext and related documents	.573	
Compatibility		55.185
Access to full-text information like print materials is possible via online databases	.776	
Access to information and storage of information like print materials is possible via online databases	.726	
Subject coverage of online databases is satisfactory for my scholarly activities.	.696	
Browsing, selecting and printing of retrieved information are possible via online databases like print materials	.669	
Information retrieved via online databases has authenticity like print materials.	.628	
Triability		64.192
Being familiar to use online databases can be tried as started to use computers and Internet.	.755	
Online databases are accessible without time and place limitations, so that I can try to use them whenever needed	.668	
Trying to use online databases is a good idea.	.615	
Complexity		71.918
I need more time to be familiar using online databases	-.876	
It is very difficult to obtain the advance services of online databases	-.670	

Then the non-parametric Friedman's test was employed to test whether there are significant mean differences among the variables within the components. Test results showed that there are significant mean differences among all five predictors of online databases' variables and the summery of the results indicated in Table 7.

Table 7: Friedman test results for five components

Factor	Variable with the highest mean rank	Mean rank	Chi-square value	Significance (p-value)
Relative advantage	Online databases make academic work more interesting	3.80	15.206	0.010
Compatibility	Information retrieved via online databases has authenticity like print materials	3.33	13.762	0.008
Complexity	It is very difficult to obtain the advance services of online databases	1.69	11.364	0.001
Triability	Trying to use online databases is a good idea	2.64	69.667	0.000
Observability	Online databases can be accessed simultaneously by many people	3.37	20.543	0.000

As shown in Table 7, the variables with highest mean rank of each predictor indicate that the benefits of the online database innovation compared to the offline practices, motivate the diffusion of using them. For example, 'Online databases can be accessed simultaneously by many people' is a benefit with compared to the early practices; if the publication is a printed one only one can access at a time.

D. Adoption rate

Then the respondents were provided the list of available online databases in the USJP and asked to tick multiple answers. Results were presented in the Table 8.

Table 8: Usage of online databases

Database	Usage percentage
American society of agricultural & Biological Engineers	7.2%
Emerald	42.0%
JSTOR	53.6%
Mary Ann Liebert, Inc. Publications	2.9%
Oxford Journals	33.3%
Research for life HINARI, AGORA, ARDI, OARE	30.4%
Sage Research Methods	43.5%
Symposium journals	20.3%
Taylor and Francis	30.4%
World Bank Policy Research Working Papers	13.0%
Other	39.1%

Table 8 shows that the JSTOR is the database used by the majority (53.6%) of the faculty members and a considerable percentage (39.1%) have used other databases, which are not provided by the university. Mary Ann Liebert, Inc. Publications are accessed by a very few of faculty members and the usage percentage is 2.9%.

Further, the respondents were asked the usage frequencies which are the indicator of adoption rate of these online databases. Figure 6 illustrates the results.
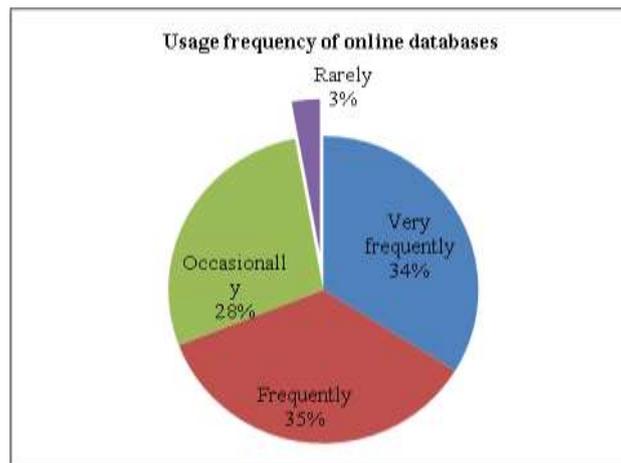
Fig,6: Usage frequencies of online databases

According to the Fig.6, 35% of the respondents accessed to online journals frequently and 34% of them used very frequently. Only a very small (3%) number have accessed to online journals rarely.

E. Predicting adoption rate using Rogers' factors

In order to predict the individual impact of each factor on adoption rate of online databases, the linear regression analysis was applied. The regression model was significant with p-value=0.00 and F-ratio= 6.155, revealing that the adoption rate of online databases by faculty members is significantly differed with relative advantage, compatibility, complexity, triability and observability. However, the R^2 value of the model fitted was 0.417 and means that the 41.7% of the adoption rate variance of online databases is determined by the five factors. The multiple correlation coefficients of the test were presented in Table 9.

Table 9 shows that compatibility and the complexity have negative influence on the adoption rate. In this regard, it is apparent that the more complex innovations have lower adoption rate, simpler ones are easily accepted and innovations should make sophisticated the older practices compatibly for easy adoption. Further this may be because compatibility contains a variable related to the subject coverage and it is observed that the subject coverage of currently available online databases in the university do not cover each individuals' subjects. Therefore, compatibility may negatively correlate with the adoption rate.

Table 9: Multiple correlation coefficients of university faculty members' adoption rate of online databases

Factors	Standardized Coefficients	t	Significance value
	Beta		
(Constant)		42.324	.000
Relative Advantage	.489	4.198	.000
Observability	.423	3.580	.001
Compatibility	-.037	-.318	.752
Triability	.025	.216	.830
Complexity	-.063	-.530	.599

Even though majority of the faculty members have a 'Good' experience with online databases, ' It is very difficult to obtain the advance services of online databases' may negatively affect for the usage (see Table 7). Since it has been elapsed more that 10 years introducing online scholarly databases for the USJP, faculty members enjoyed with more and more trials with online databases. Therefore, triability has positive effect on usage.

Then the stepwise linear regression analysis was employed to find out the stronger predictors of online database adoption rate of the university faculty members. Results are presented in Table 10.

Table 10: Results of the stepwise regression analysis

Predictors in the model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.052	.093		43.726	.000
Relative Advantage	.396	.092	.488	4.314	.000
Observability	.356	.097	.417	3.682	.001

Dependent Variable: Access frequency

Test results in Table 10 clearly indicates that the relative advantage and the observability have a strong positive influence on the adoption rates of online databases of university faculty members. Benefits, advantages and observable facilities which lead to make efficient and effective scholarly activities having through online databases compared to the early performs may positively affect for further diffusion of online databases among the faculty members.

7.   CONCLUSION AND RECOMMENDATIONS

This study aimed at exploring the diffusion of online database adoption by faculty members of USJP under a well popular theoretical base, Rogers' Diffusion of Innovation theory. Therefore, this particular study is guided by the conceptual framework developed based on Rogers' theoretical underpinnings. As the first step of Rogers' innovation process, 'knowledge' about innovation, receivers' personality and social characteristics, and the need for the innovation should be explored. At the second stage, the perceived characteristics of the innovation should be suited for the receiver to move towards the adoption. These two phases were examined through the current study to predict the adoption rate of online databases by the faculty members in the USJP.

Results revealed that the personality characteristics of the respondents were mostly suited with this online database innovation. Majority of the respondents (57.3%) were young (most of them, 48%, were between the age of 41-50 years) senior lectures and most of them (56%) were in the 'high' computer competency level followed by 42.7% in the moderate level. Moreover, most of the respondents (39.4%) have 5-10 years experience using online databases and majority of the respondents rated their skills using online databases as 'Good'. Also 91.9% preferred to use electronic form of scholarly publications. Then the social characteristics and the perceived need for the innovation were checked. Results revealed that most of them (85.3%) were aware about online databases. Further, 92% of respondents agreed with the availability of computer and Internet facilities in the university. However, a majority of the staff members (62.7%) were satisfied with the facilities and 37.3% were unsatisfied. Moreover, the results revealed that the perceived need for the adoption of the innovation mostly confined on scholarly needs. Therefore, it is recommended to improve the infrastructure facilities for the faculty members in the university to be supported their scholarly activities via online databases. However, it is obvious that the faculty members in the USJP were mostly knowledgeable about the online database innovation and therefore the perceived characteristics of this innovation were examined. Approximately, 72% (71.918%) of the diffusion variance of online databases explained, by relative advantage, compatibility, complexity, triability and observability.

The adoption rate of the online databases were measured through the frequency of using them and majority of the respondents (35%) were used them 'frequently' followed by 34% used 'very frequently'. All five predictors were affected negatively or positively for the diffusion of online database adoption among the faculty members in the USJP. While compatibility and the complexity have negative correlations with individuals' adoption rates, triabilly has a positive correlation. Therefore, to take full reward of electronic resources it is recommended to make possible programs to facilitate faculty members' adoption and the understanding of online databases. Relative advantage and observability are the key factors for diffusion of this innovation with higher positive correlations. More and more benefits and the tangible erudition may lead adoption of innovation.

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