Use of Electronic Information Resources and Academic Performance of University Teachers: A case study

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Abstract

Electronic Information Resources (e-resources) play an important role in teaching and learning process at university level and provide superior assistance to its users. The main objective of this study is to identify the impact of usage of e-resources on academic performance of the university teachers. As this study was limited to the university teachers, working at the University of Jaffna, Sri Lanka, Stratified random sampling technique were adopted to select a sample from each of the five different faculties in proportion to the actual size of the group in the total population. The study employs correlation and regression model to test the operational hypotheses and results revealed that usage of e-resources has a strong positive association with academic performance ($r = 0.623$, $p < 0.01$). Multiple regression analysis showed that the usage of e-resources has an impact on academic performance at the rate of 38.8 % ($R^2 = 0.388$), which is statistically significant at the levels of 0.01 ($p < 0.01$). This study would absolutely benefit the research scholars through exploring impact of usage of e-resources on academic performance.

Keywords: Electronic Information Resources, Academic Performance, University Teachers.

1. Introduction

E-resources are the source of information (Thanuskodi, 2012). They can be simply defined as resources that include documents in electronic or e-format that can be accessed via Internet. They are available in various forms like e-books, digital libraries, online journal, magazine, e-learning tutors, on line test e-journals, e-discussions, e-news, data archives and e-mail on line chatting and deliver a collection of data, be it text, image collection, other multimedia products like numerical, graphical mode. Online dictionary of library and information science (2004) defines electronic information as material consisting of data and/or computer program(s) encoded for reading and manipulation by a computer, by use of a peripheral device directly connected to the computer such as a CD-Rom drive or remotely via network such as the internet. The category includes software applications, electronic texts, bibliographic databases, institutional repositories, web sites, e-books, collections of e-journals, etc. Electronic resources are easily accessible in the remote areas and solve storage problems and control the flood of information (Munira Nasreen Ansari and Bushra, 2010). This has increased the global dissemination of information. Electronic resources such as e-books, full-text e-journals and online bibliographic databases must be subscribed by academic libraries to meet ever-increasing demands from users for remote access to information (Alan Armstrong, Vicki, Victoria, and Edward, ---). There are several forms and types of electronic resources which are available on the internet, some of the popular ones that are gaining ground are the electronic journals, standards, technical specifications, reports, patents, full text articles, trade reports and hosts of other (Dhanavandan, Mohammed Esmail, S and Nagarajan, 2012).

Performance can be defined as continuous improvement of the employees in an organization. This depends on the productivity of employees. If they are productive, they perform well and achieve the targets of the organization. The productivity consists of both effectiveness and efficiency and both have relation with each other. University teaching is a profession that demands continuous learning, teaching and contribution towards creation of new knowledge particularly through research during the career (*Senaratne, 2007).* Academic performance is the outcome of education the extent to which a student, teacher or institution has achieved their educational goals. Further, it refers to how students deal with their studies and how they cope with or accomplish different tasks given to them by their teachers. It is the ability to study and remember facts and being able to communicate knowledge verbally or down on paper.

2. Research Problem

E-Resources are used not only by university teachers, but also by students, employees of government and private sector organizations, scientist and others for a multitude of reasons. The digital information environment has dramatically changed the way that users access information worldwide (Brinley Franklin). Even though most of

the academic members in the University are using electronic resources, their performance levels are varying. Sometimes, people who have less usage of electronic resources perform well on their job. This study seeks to evaluate the relationship and the impact of usage of electronic resources on academic performance of university teachers performing at the University of Jaffna.

3. Objective of Study

The main objective of the study is to evaluate the usage of e-resources and academic performance of university teachers and sub objectives are:

- To identify the relationship between use of e-resources and academic performance of the university teachers
- To find out the impact of use of e-resources on academic performance of the university teachers.

4. Review of Literature

As an emerging field, Information technology has facilitated by providing electronic and internet resources for fulfilling the day to day academic and research requirements of the teachers (Manoj Kumar, Gauri, and Bimal, 2011). A number of literature studies have been made on use of e- resources by lecturers, research scholars and students world-wide. Ali (2005) found out that 83% of students survey felt that using this source saved them time, and found it relatively easy to use. Ojo and Akande (2005) in a survey of 350 respondents examined students' access, usage and awareness of electronic information resources at the University College Hospital (UCH) Ibadan, Nigeria. The study revealed that the level of usage of the electronic information resources is not high. According to Thanuskodi (2012), the majority of users are aware about the availability of e-resources. The result reveals that 47.78 % of respondents wanted to access only electronic version whereas only 32.78% users wanted to read the printed journals but 19.44% respondents wanted to use both electronic and printed version. Majority of the respondents 76.66% used e-resources for writing papers. The analysis reveals that many of the respondents searched e-resources through linking facility available on the library website. Moreover, many of the respondents are unaware and have not used On-line thesis/dissertations, abstracts/indexes, OPAC, on-line databases, which are very relevant for their study and research. Bashorun (2011) revealed by research that frequency of use of electronic resources by academic staff of the University of Ilorin was low. Reasons were lack of time. Because of the time required to focus on teaching; lack of awareness to electronic resources provided by the library; power outage, ineffective communication channels, slow network and inadequate searching skills. Rehman and Ramzy (2004) investigated the awareness and use of electronic information resources among health academics. Results show that libraries are extensively used for research needs, preparation of lectures, and for obtaining current knowledge.

There are several studies made across the world to identify numerous factors which measure performance. Velnampy (2008) indentified ten factors which determine the performance of an employee such as completion of work within stipulated time, independent work, creativity, innovation, initiative skill, discipline, turn over, absenteeism, competition and training. Further, he found the factors influencing performance of academicians of University of Jaffna such as demonstrated academic ability, academic potential, creativity, oral expression, initiative skill, perseverance, ability to work independently, and professional ability. These factors were ranked based on mean value. Some studies on the use of electronic information and academic performance (Day and Bartle, 1998) reveal that the academic community has accepted that electronic information sources have an impact on their work. So, there is a relationship between electronic information sources and academic work.

On the other hand, William Allan Prescott and others (2012) concluded that usage of e-device was not associated with academic performance ($p = 0.70$), when second and third year pharmacy students were combined. Academic performance was not impacted among third year pharmacy students ($p = 0.86$), but second year students performed better academically if they refrained from using e-devices during class (mean grade = 88.5% vs. 83.3%; $p=0.019$). Self-efficacy and use of electronic information jointly predict and contribute significantly to academic performance of students (Adeyinka Tella, Ayeni, and Omoba, 2007). According to McFarlin (2008), for educational technology to be effective, student learning and outcomes must be the focus of its implementation and use. The provision of low-cost and easy-to-create online resources quantitatively enhanced students' academic performance: students who accessed the online resources achieved greater academic success (Andrea Crampton, *Angela, and Heather*, 2012). Ekundayo and Alonge (2012) studied that human and material resource availability does not influence students' academic performance both in public and private secondary schools. Studies have also been carried out on the use of electronic resources by teachers, students, and research scholars of universities and research organizations. Seventy-eight percent (78%) of the respondents feel that the use of e-journals has created high dependency value on their research work and they needed current article alert services and electronic document supply services (Madhusudhan, 2008). Okello Obura and Magara (2008) investigated that users derived a lot of benefits from electronic resources gaining access to a wider range of

information and improved academic performance as a result of access to quality information. Velnampy (2008) analyzed relationship between satisfaction, involvement and employee performance of 220 employees from fourteen public sector organizations in Jaffna district, Sri Lanka and revealed that attitudes namely satisfaction and involvement, and performance are significantly correlated. Further, correlation between involvement and performance is somewhat higher than the correlation among satisfaction and performance and satisfaction, performance, and involvement are associated and inter-related and together lead to the realization of organizational objectives. Occupational stress can affect the performance through organizational commitment(Velnampy and Aravinthan, 2013).

The present study seeks to fill knowledge gaps in the research literature by examining the usage of e-resources and to find out how these resources play a role to improve the academic performance of the university teachers. Previously no significant study has probed the issue of e-recourses and its impact on academic performance of University of Jaffna, Sri Lanka.

5. Conceptual Model and Hypotheses

The following conceptual model was formulated to depict the relationship between variables. Definition for electronic information resources given by the online dictionary of library and information science (2004) has been used to design the model.
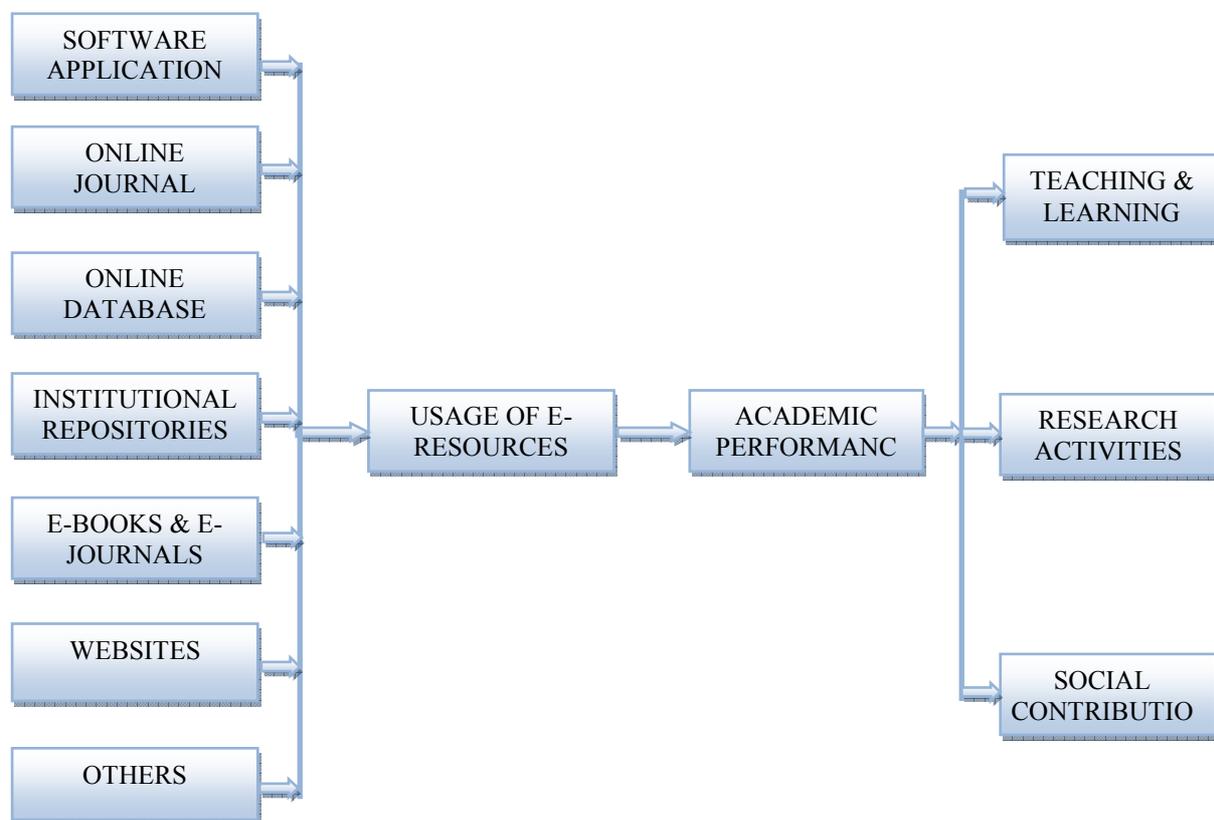

Figure 1: Conceptual Model

Further, the following hypotheses are formulated in the present study.

H_1 –There is an association between usage of e-resources and academic performance of the university teachers.

H_2 – The usage of e-resources has an impact on academic performance of teachers of University of Jaffna.

6. Methodology

6.1. Population

The researcher considered all academic staff members teaching at the University of Jaffna, Sri Lanka as total population for this study. This survey was conducted during March to April 2013 and data were collected on variables related to the use of e-resources and academic performance. Total population was two hundred and ninety four (294) university teachers as per the database of Academic Establishment Branch, University of Jaffna as of 5th April 2013.

Table 1: Total Number of University Teachers

No	Faculties	Total Population
1	Faculty of Agriculture	22
2	Faculty of Arts	124
3	Faculty of Management Studies & Commerce	31
4	Faculty of Medicine	46
5	Faculty of Science	71
	Total Number of University Teachers	**294**

6.2. Sampling Procedure

As this study was limited to the university teachers, working at the University of Jaffna, Sri Lanka, Stratified random sampling technique was adopted to select a sample from each of the five different faculties in proportion to the actual size of the group in the total population. Thus, out of five faculties, it was decided to collect data from 30% from each of the selected sampling unit. Following table shows the sample size determined for the purpose of data collection.

Table 2: Number of Teachers Selected as a Sample

No	Faculties	Total Population	Sampling with scale of 30 % of staff
1	Faculty of Agriculture	22	7
2	Faculty of Arts	124	37
3	Faculty of Management Studies & Commerce	31	9
4	Faculty of Medicine	46	14
5	Faculty of Science	71	21
	Total Number of Sample	**294**	**88**

The researchers gathered 81 questionnaires, yielding a response rate of 92 per cent. Finally, 75 (which is 85 per cent) questionnaires were fully and correctly completed and all data collection procedures were designed to ensure the anonymity. Table 3 provides a summary of respondents who returned the questionnaires as per the researcher's expectation.

Table 3: Number of Respondents by Faculty Wise

	Faculties	Frequency	Percent
1	Faculty of Agriculture	7	9.3
2	Faculty of Arts	30	40.0
3	Faculty of Management Studies & Commerce	9	12.0
4	Faculty of Medicine	10	13.3
5	Faculty of Science	19	25.3
	Total Number of Questionnaires Returned	**75**	**100.0**

6.3. Instrument Development

To evaluate the usage of e-resources and academic performance, a survey instrument in the form of self-administered questionnaire was developed for the purpose of collecting the main data for the study. The questions are mainly related to the factors which determine the use of e-resources and academic performance of university teachers. This instrument is composed of three parts such as Part A, Part B and Part C. Part A of the questionnaire has the personal profile of the academic staff which mainly indicate name of the faculty in which they are working, gender, marital status, age group, designation, experience, monthly earnings, language in which they are teaching and academic qualification. Part B is used to find out the use of e-resources which consist of ten statements. Part C of the instrument includes eleven statements to measure the academic performance which is influenced by the use of e-resources. Each of the variables was measured on a five-point Likert scale ranging from "strongly agree", 4 indicated "agree" to "disagree".

6.4. Data Collection and Mode of Analysis

Tool was self developed by the researchers and pilot testing was done. The researcher excluded the five respondents who were initially used for the validation of the instrument and questionnaire was pretested to check for its clarity and redesigned to address the objectives of the assessment. Primary and secondary data are used for the study. Primary data have been collected through the questionnaire, and secondary data collected from the books, journals, magazines, etc. Further, various statistical methods have been employed to analyze data

collected from 75 respondents from various faculties. A well known statistical package called "SPSS" (Statistical Package for Social Science) 16.0 version is used to analyze data the researcher collected.

7. Results and Discussion
7.1. Reliability and Durbin -Waston Range
The internal reliability of the items was verified by computing the Cronbach's alpha. This value may vary from 0 to 1. Malhotra (2000) and Cronbach (1951) suggested that satisfactory value of alpha is required to be more than 0.6 for the scale to be reliable. According to the table 4, overall and individual Alpha values are greater than 0.6. Therefore, variables used in this study deemed to have adequate reliability.

Table 4: Reliability Statistics

Variables	No of Elements	Alpha Coefficient Value(s)
Use of E-Resources	10	.768 (overall)
Use of E-Resources	10	Ranging from .712 to .799 (individual)

The acceptable Durbin-Watson range is between 1.5 and 2.5. In this analysis, Durbin-Watson of 1.909, which is between the acceptable ranges, shows that there was no auto correlation problems in the data used in this research.

Table 5: Test of Collinearity

Variables	No of Elements	Durbin-Waston Range
Use of E-Resources	10	1.909

7.2. Correlation and Regression Analysis
Correlation analysis was carried out to find out the relationship between use of e-resources and academic performance of the university teachers. Use of e-resources is measured using ten components whereas academic performance is measured using eleven components. The result of correlation analysis is given in table 6. According to the table, correlation value of 0.623 which is significant at 0.01 levels. It means that there is a positive relationship between use of e-resources and academic performance.

Table 6: Correlation Matrix for use of e-resources and academic performance

Variable	Correlation/Probability	Use of E-Resources	Academic Performance
Use of E-Resources	Pearson Correlation	1	.623[**]
	Sig. (2-tailed)		.000
Academic Performance	Pearson Correlation	.623[**]	1
	Sig. (2-tailed)	.000	
**. Correlation is significant at the 0.01 level (2-tailed).			

The multiple regression analysis was performed to investigate the impact of the independent variable on the dependent variable. The table 7 provides a summary of the results retrieved from regression model.

Table 7: Regression Model Results

Model	R	R^2	Adjusted R^2	Std. Error of The Estimate	Coefficient	t-Statistics	Prob.
1	623[a]	388	.380	. 40459	.514	6.808	.000
a. Predictors: (Constant): Use of E-Resources				b. Dependent Variable: Academic Performance			

The specification of an independent variable (use of e-resources) in this model reveals that the ability to predict the academic performance of university teachers. R square value of .388, which is in the model, denotes that 38.8 % of observed variability in academic performance can be explained by the differences in the independent variables. Remaining 61.2 % variance in the academic performance of university teachers is related to other variables which are not mentioned in the model as they are outside the scope of the study. R^2 value indicates that there may be number of variables, which can have an impact on academic performance of the university teachers that need to be studied. Hence, this area is indicated as a scope for future research. At the above model, t-statistics is 6.808, which is significant at the 0.01 levels (p < 0.01). The significant level explains that we can observe a high degree of certainty (greater than 99.9%) in use of e-resources. Use of e-resources and academic performance of the university teachers have a positive co efficient (beta=.514), which means that use of e-

resources increases with increasing level of academic performance.

The summary of data analysis is given below through the hypotheses testing that have been formulated for this study.

Table 8: Hypotheses Testing

Hypothesis	Results	Tools Used	Statistical Significant
H_1	Accepted	Correlation Analysis	Significant (r = 0.623, p < 0.01)
H_2	Accepted	Regression Analysis	Significant (R^2 = 38.8 %, p < 0.01)

8. Conclusion

The study has investigated that the relationship between use of e-resources and academic performance of university teachers and how far the usage of e-resources contributed towards the academic performance. Based on stratified sampling, eighty eight university teachers have been invited to respond the survey and study employed correlation and regression analysis to attain the objectives. Correlation analysis indicated that the usage of e-resources has a strong positive association (r =0.623) with academic performance of the university teachers. Whereas this finding is in line with what was previously reported by Day and Bartle (1998), William Allan Prescott and others' (2012) findings do not agree with the researcher. Multiple regression analysis in the research revealed that the academic performance has been contributed by the usage of e-resources at the rate of 38.8 %, which is significant at the levels of 0.01 (p < 0.01).

9. References

1. Adeyinka,T., Tella, A., Ayeni, C.O. and Omoba, R.O. (2007). Predictors of Academic Performance: Self-Efficacy and use of Electronic Information. *University of Dar Es Salaam Library Journal*, 9 (1): 69-83.
2. Alan Armstrong, E., Vicki, F.C., Victoria, T.K. and Edward, F.L. Electronic resources access: issues and resolutions   in   two   academic   libraries   [Online].   Available   at: https://research.wsulibs.wsu.edu/xmlui/bitstream/handle/2376/2025/Armstrong%20Electronic%20resources.pdf?sequence=1.
3. Ali, N. (2005). The use of electronic resources at IIT Delhi Library; a study of search behaviours. *The Electronic Library,* 23(6): 691 – 700.
4. *Andrea, C., Angela, T. R. and Heather, C. (2012).* Cross-discipline investigation of the relationship between academic performance and online resource access by distance education students. *The Journal of the Association for Learning and Technology,* 20: 1-14.
5. Bashorun, M., Tunji, I. A. and Adisa, M.Y. (2011). User perception of electronic resources in the University of Ilorin, Nigeria (UNILORIN). *Journal of Emerging Trends in Computing and Information Sciences*, 2(11): 554- 562.
6. Brinley, F. Measuring the impact of Networked Electronic Services (MINES): The North American Experience [Online].
7. Cronbach, L.J. 1951. Coefficient alpha and the internet structure of tests. *Psychometrika.* 6(2): 297-334.
8. Day, J. and Bartle, C. (1998). *The Internet as an electronic information service: its impact on academic staff   in   higher   education   [online].   Available   at http://www.intute.ac.uk/socialsciences/archive/iriss/papers/paper06.htm*
9. Dhanavandan, S., Mohammed Esmail, S. and Nagarajan, M. (2012). Use of Electronic Resources at Krishnasamy College of Engineering & Technology Library, Cuddalore [Online]. *Library Philoshopy and Practice.*
10. Ekundayo,H.T. and Alonge,H.O. (2012). Human and material resources as correlates of academic performance of private and public secondary school students in Ondo state, NIGERIA. *European Scientific Journal*, 8 (10): 170-180.
11. Ismail.M.B.M and Velnampy.T.(2012), A case study approach to human resource planning-HRP-in weaving industry of Maruthamunai, Researcher world, Journal of arts science and commerce,III(10): 122-130.
12. Manoj Kumar, S., Gauri, S. and Bimal, S. (2011).Usage of electronic resources available under UGC-INFONET Digital Library Consortium by Assam University Library Users. Proceedings of 8th International CALIBER. Goa University: March 02-04.
13. Madhusudhan, M. (2008). Use of UGC infonet – journals by the Research Scholars of University of Delhi", Library Hi Tech, 26(3): 369 – 386.
14. Malhotra, N.K. 2000. *Marketing research: an applied orientation*, Pearson education Delhi,   India Asia,

New, 3rd edition.

15. McFarlin, B.K.(2008). Hybrid lecture-online format increases student grades in an undergraduate exercise physiology course at a large urban universit. *Advanced Physiology Education,* 32(1): 86-91.

16. Munira, N.A. and Bushra, A.Z.(2010). Use of Electronic Resources among Academics at the University of Karachi. *Library Philosophy and Practice* [online].

17. Ojo, R. A. and Akande, S. O. (2005). Students access, usage and awareness of electronic information resources at the University College Hospital, University of Ibadan, Nigeria. *Lagos. Journal of Library and Information Science,* 3(1): 16 – 24.

18. Okello-Obura, C. and Magara, E. (2008). Electronic information access and utilization by Makerere University in Uganda [online]. Available at: http;//creative commons.org/licenses/by/2-0.

19. Peiris, N.D. and Peiris, B.L. (2012). Use of electronic information resources by postgraduate students: a case study. *Journal of the University Librarians' Association of Sri Lanka.* 16(1): 46-69.

20. Rehman, S., & Ramzy, V. (2004). Awareness and use of electronic information resources at the Health Science Centre of Kuwait University. *Library Review*, 53 (3): 150-156.

21. *Senaratne, C. (2007).* Personality and job performance of university teachers in Sri Lanka [Online]. Available at: http://journals.sjp.ac.lk/index.php/icbm/article/view/794

22. Thanuskodi, S.(2012). Use of Online Public Access Catalogue at Annamalai University Library. *International Journal of Information Science*, 2(6): 70-74.

23. Velnampy, T. (2008). Job attitude and employees performance of Public Sector Organizations in Jaffna District,Sri Lanka. *GITAM Journal of Management*, 6(2): 1-11.

24. Velnampy, T. (2008). Empowerment management. Jaffna: Guru Printers.

25. Velnampy.T and Aravinthan.S.A.(2013), Occupational stress and organizational commitment in private banks: A Sri Lankan experience,European Journal of Business and management,5(7): 254-267

26. William Allan Prescott and Others. (2012). Impact of electronic device use in class on Pharmacy Students' Academic Performance [online]. Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3508481/

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