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IMPACT OF ICT KNOWLEDGE, LIBRARY INFRASTRUCTURE FACILITIES ON STUDENTS' USAGE OF E-RESOURCES - AN EMPIRICAL STUDY

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Abstract

E-resources play a major role in current educational scenario. Most of the institutions have been shifting their all type of resources / data into e resources. Reason of technological up-gradation the students' community is having facilities to access e resources in any time at any places. Researcher focuses on the usage of e-resources by students of central university of Tamil Nadu. It is one of the leading universities in Tamil Nadu which has successfully maintained e-resources in their campus in order to benefit their students. The main objective of the paper is to analysis the impact of ICT knowledge, Library Infrastructure facilities and Motivational factors on Students' usage of E-resources. For this purpose, researcher has collected 110 questionnaires from the students. The data was collected using systematic random sampling method. Tool is validated through Confirmatory factor analysis (CFA). Structural Equation Modeling (SEM) is used to analysis the data. The major findings are ICT knowledge of student is the main source to increase the usage of e-resources and professors & Library staff members are the major motivator to boost the usage of e-resources of student. So, library members and Professors may conduct various seminars and workshops in order to enhance the ICT knowledge of students.

Keywords: *E-resources, Library, ICT Knowledge, Infrastructure, Motivation and Usage.*

Introduction

In any educational institutions, libraries play a colossal role that cannot be dispensed with. They act as the hub of learning resources and activities both for teachers and students. It is the spring board and the destination that the core of learning takes place. In a nutshell, libraries cater to the needs of ones who have thirst for learning. One could witness a drastic change between the traditional libraries and modern libraries. The former extracted much work from its users while the latter eases things for its users with the aid of technology. The modern day paves the way for its users to use the libraries at their utmost and fullest satisfaction. The bottom-line is libraries save its users' time hugely. The credit goes to technology. Across the board, libraries with the great help of computers benefit its users to the core. the library professionals could avoid repetition and duplication of their work and ensure a smooth running of the show in library service. The twenty first century is a huge leap to the modern day use of computers benefitting the mankind. In this regard, a basic and working knowledge of computer is essential to help things run smoothly. Libraries are one of the most important supports that the world runs on its right track, by and large. Their use to the process called globalization is colossal. It acts as a hot line that one can always come into contact to keep themselves updated. Libraries with the help of computerized media data keep the world alert, dynamic and sophisticated. The modern day advents such as E-books, E-journals, E-conferences, known as e resources, save people's time and money in many ways. One could witness that the world is under great transition from print to electronic media. Technology has spread its effective arms far and wide to the four corners of the world. In regard to managing libraries, there are great many changes one could have seen such as the users changing to the new technology based library activities. It is quite natural that people switch over to these new technological supports in order to keep themselves abreast.

About CUTN

Central University of Tamil Nadu (CUTN), the brainchild of the Government of India and founded along with eight other Central Universities, through an Act of Parliament in 2009. It is part of the greater role that the Central Government assumed in making higher education accessible to aspirants from the weaker sections of the society. The Central University of Tamil Nadu is set in Tiruvarur, a region of cultural and historical significance. The University functions with quality infrastructure facilities in two campuses set in a serene atmosphere in the Neelakudi

and Nagakudi villages in the Cauvery delta region. In-spite of the recent origin and a humble beginning with a single course and few students, the University has established itself in different streams of education within the last two few years, attracting students from far and wide. The University offers Postgraduate, Integrated PG and Doctoral Programmes in various subjects through the Schools of Basic & Applied Science, Mathematics & Computer Sciences, Social science & Humanities, Behavioural Science, Commerce and Business Management, Communication, Education and Training, Technology, Performing Arts & Fine arts, Earth Sciences, and Life Sciences. The University atmosphere offers a creative and multicultural learning atmosphere for the students with dynamic curricular and extracurricular activities. The University also opens up space for expert learning through collaboration with State and National level institutions of academic excellence. The University which functions in a rural setting also caters to the development of the rural locales by providing quality education and training to those from the marginalized communities.

About the Library

Readers could find themselves among a huge collection of books in The Central library of CUTN. Resources in the library cater to the needs of the students, research scholars and faculty. There are more than 35,500 books, 150 CDs/DVDs and 140 printed journals available in the library. It is no exaggeration that the library has access to more than 9000 online electronic journals through UGC-INFONET, e-ShodhSindhu, J-Gate, SciFinder and the like. The Scopus, EBSCO, IEEE CSDL, DELNET, IndiaStat.com, database have also been subscribed aiming at the usefulness of the researchers and students. Falling in line with the modern day needs, The library has been completely and fully automated with online portals to be accessed by the users across the globe. The library is credited with owing KOHA. It is an open source software package and it is integrated to the library management system. This system supports all housekeeping operations of the library. Koha consists of modules on acquisition, cataloguing, circulation serials control and OPAC. Anyone can access these services within the campus only. Recently the RFID technology is being used for security purposes. One could find an exclusive digital library with 30 working computers with high speed internet. Altogether, these libraries pave the way for more than 100 users to use at a time. It is available for the users from Monday to Friday (8am - 8pm) on Saturday (10am - 6pm) and during Sundays (10.00am - 2.00pm). in order to cater to the needs of the users, the reprographic facility is made available in the library.

Other salient features include air conditioners, availability of portable water and property counter. The Urkund & iThendicate Anti-Plagiarism Software access are enabled by Central Library to check the theses and other publications for the benefits of users' community. The library system and staff is meticulously focused for providing comfortable, user friendly environment so as to enables learning and knowledge creation.

Review of Literature

Dillip K. Swain (2010) the paper highlights the practicality of the use of electronic resources, compared to print, among the students of business schools of Orissa (India). He study finds that students express keen interest in the use of e-journals, followed by e-books, e-newspapers, e-reports, and e-articles. Least interest is shown towards the use of electronic theses and dissertations. The study reveals that the majority of students are aware of EBSCO, and Emerald Management Xtra. However, the awareness of all other databases is not quite so encouraging. Further, it is revealed that the use of printed materials is slightly more compared to that of e-resources. Use of Web OPAC is also less than expected.

Samuel Dery, et al., (2016) conducted a study on knowledge and use of ICT among students of the College of Health Sciences at the University of Ghana. This was a cross-sectional study conducted among students in all the five Schools of the College of Health Sciences at the University of Ghana. A total of 773 students were sampled from the Schools. Sampling proportionate to size was then used to determine the sample sizes required for each school, academic programme and level of programme. Simple random sampling was subsequently used to select students from each stratum. Computer knowledge was high among students at almost 99%. About 83% owned computers (p < 0.001) and self-rated computer knowledge was also 87 % (p <0.001). Usage was mostly for studying at 93% (p< 0.001). This study shows students have adequate knowledge and use of computers. It brings about an opportunity to introduce ICT in healthcare delivery to them. This will ensure their adequate preparedness to embrace new ways of delivering care to improve service delivery.

Tintswalo Pascalis Tlakula (2017) this paper aims to establish the level of use of the electronic resources at the University of Venda, which is one of the previously disadvantaged universities in South Africa. It identifies the different electronic resources used at the university, determines the level of awareness and training in the use of these resources and suggests ways in which electronic resources may be enhanced. The rapid changes in the information and communication

technology (ICTs) have influenced service delivery in academic libraries in terms of how information is gathered, accessed, retrieved and used. Hence, electronic resources are invaluable research tools in academic libraries in the twenty-first century. A qualitative research methodology was adopted, and semi-structured interviews were conducted with each participant to get in-depth information. The target population was all third-year students registered with the School of Human and Social Sciences at the University of Venda. The third year undergraduate students from this particular school where chosen because statistics revealed that these students where ranked among the top in the use of computers. The findings revealed that the level of usage of these resources by undergraduate students is elementary and limited to SABINET and EBSCO host. Undergraduate student's level of awareness of the different electronic resources is low. They confused electronic resources to Web-based internet sources. It also revealed that the level of awareness and training in the use of these resources is still generic, as training is mostly a once off orientation at the first year.

Parminder Singh and Payare Lal (2017) commented on the usage of electronic resources by library users of Desh Bhagat University and Chitkara University, Punjab. The main purpose for the study is to know the search strategies used by the respondents searching e-resources of selected universities, to know if the various e-resources' services and facilities are sufficient for the respondents, to know the quality of information retrieved through e-resources and to check the awareness about e-resources. The study has been done through issuing questionnaires to 200 persons which include 25 faculty members, 25 research scholars and 50 students from selected universities. The response rate was 100%. The study found that the majority of the respondents were aware of E learning, many respondents were lacking time and knowledge to use the resources, majority of the respondents use e-resources for research and education, and many think that e resources are highly required for career development. Some suggestions for the improvement are important. The libraries should subscribe more e-resources. The Libraries should conduct user awareness. There is a need to improve software and highly configured computer hardware's.

R. Vijayalakshmi, B. S. Swaroop Rani and S. Ally Sornam (2017) reviewed a study on Electronic Information Resources Usage Pattern among Students and Faculty in Chennai Medical College Hospital and Research Centre, Trichy. The objectives of this study were to find out various types of electronic information resources used by the faculty and students, to

investigate the core medical science databases accessed by the faculty and students, and to find out the overall rating of e-resources collection of the library. The questionnaires were issued to 250 random students and faculty members and 230 questionnaires were filled and received. Considerable findings of the study were 90% positive response regarding the awareness of e-resources, 71% of the students were aware of the electronic resources, 31% of the respondents are using the resources daily and weekly, 53% of the respondents depend on college library for accessing e-resources and 89% of the respondents used Google as a search engine. It is suggested that the faculty and students should be trained in using various search options and the library and information center should send alerts regarding newly available e-resources. Hence there is an urgent need for effective user education orientation, programme, workshops, seminars etc by which the students can exploit the maximum benefit of e-resources.

Ebenezer Ankrah (2018) the focus of the present research is to analyze the University of Cape Coast postgraduate students' use of electronic resources. The findings of the study reveal that postgraduate students are comfortable in using and quite aware of the available e-resources in the library. Yet another finding of the study is that most postgraduate students choose to access information from Google scholar, and other web based databases often as against the databases of the library. Poor internet connection is said to be one of the most significant reason that act as hurdle In order to access e-resources.

Objectives of the Study

➢ To analysis the direct effect of ICT knowledge, Library Infrastructure facilities on Students' usage of E-resources

➢ To analysis the in-direct effect of ICT knowledge, Library Infrastructure facilities on Students' usage of E-resources with the mediation of motivation

Scope and Limitation

The present study zeroes in on analyzing the use of the Central university of Tamil Nadu students' e-resources. The major motivating factors students use about the available e-resources in the library is taken for study in the present research. This study tries to understand the predominant reason that motivates the students to use the available e-resources in the library, it can be implemented in actuality and students' reading habit could be drastically increased.

The present research has taken into account 110 students for the analysis. Using a less number of respondents is a major limitation of the study. Furthermore, the present study has taken students who are well versed in using e-resources. Students' opinions and response could provide different information to improve the usage of e-resources among the students.

Methodology of the Study

The universe of the study is the students of Central University of Tamil Nadu. The population is the library users of the CUTN. The total sample size is 110 and it was collected using systematic random sampling technique from probability method. The tool was validated and reliability test was also done through confirmatory factor analysis (CFA). Further analyses were done by structural modeling equation using AMOS 24.

Data Analysis and Discussion

Table No.1 Gender of the Respondents

Gender	Frequency	Percentage
Male	73	66.4
Female	37	33.6
Total	110	100

The above table provided the gender profile of the respondents for the present research. Most of the respondents (66.4%) are male while the remaining respondents are female (33.6%).

Table No.2 Category of the Respondents

Category	Frequency	Percentage
P.G.	80	72.7
M.Phil	21	19.1
Ph.D.	9	8.2
Total	110	100

The above table revealed the category of the respondents for the present research. Most of the respondents (72.7%) are P.G. student, some (19.1%) of them are doing their M.Phil and the remaining respondents are doing Ph.D. (8.2%).

Instrument Validation
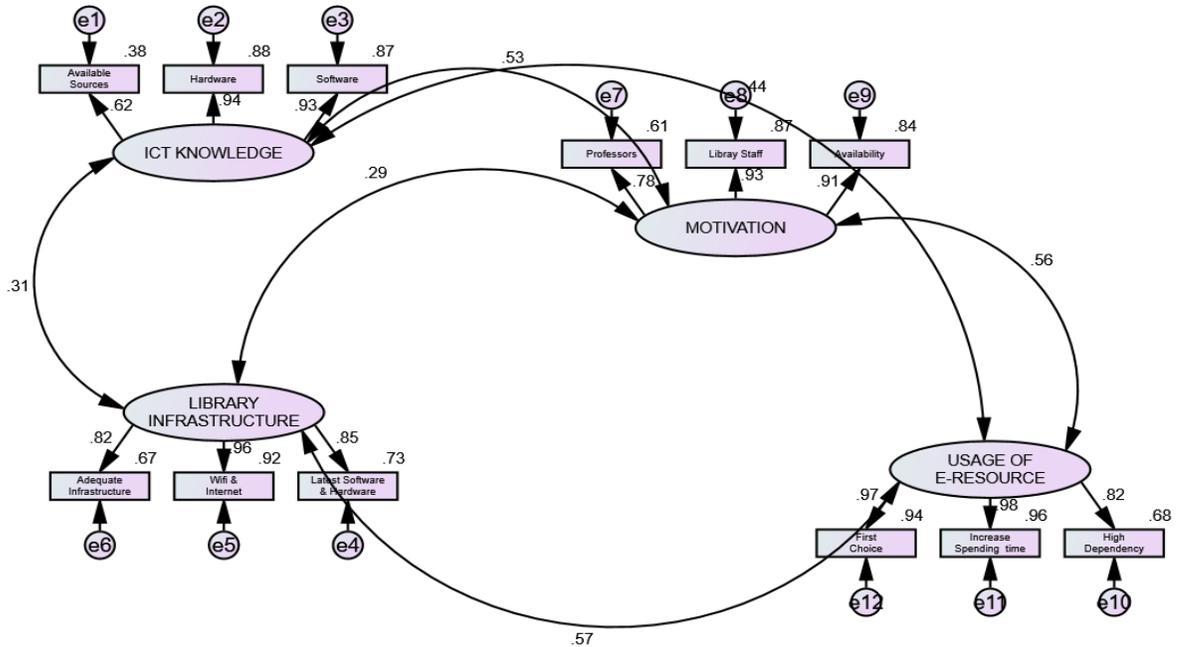
H$_1$ – The model has good fit.

Figure - 1 Confirmatory Factor Analysis

Table No.3 Model Fit Summary

CMIN					
Model	**NPAR**	**CMIN**	**DF**	**P**	**CMIN/DF**
Default model	30	39.429	48	.806	.821
Saturated model	78	.000	0		
Independence model	12	1191.209	66	.000	18.049
RMR, GFI					
Model	**RMR**		**GFI**	**AGFI**	**PGFI**
Default model	.055		.945	.911	.582
Saturated model	.000		1.000		
Independence model	.804		.292	.163	.247

From the model fit summary, it reveals that the fit measures indicated that the structural model was acceptable CMIN/df = 0.821 at P=0.806; GFI=0.945; AGFI=0.911; CFI=0.95; RMR=0.055 and RMSEA=0.049). Along with the model's general fit for the data, its parameters were tested

to decide whether to accept the proposed relationships between exogenous and endogamous constructs (Hair et al., 1998). This model has good fit. So it can be concluded that the tool is highly recommendable for further analysis and this result is highly reliable.

Table No.4 Construct Reliability

Variables		Construct	standard Estimate / factor loading	item reliability (square of factor loading)	delta = 1 - item reliability	AVE= Average Variance Extracted	Construct Reliability
Available Sources	<---	ICT Knowledge	0.619	0.383	0.617		
Hardware	<---	ICT Knowledge	0.94	0.884	0.116	0.713	0.841
Software	<---	ICT Knowledge	0.934	0.872	0.128		
Latest Software and Hardware	<---	Library Infrastructure	0.853	0.728	0.272		
Wifi / Internet	<---	Library Infrastructure	0.957	0.916	0.084	0.771	0.886
Adequate Infrastructure	<---	Library Infrastructure	0.819	0.671	0.329		
Professors	<---	Motivation	0.783	0.613	0.387		
Library Staff	<---	Motivation	0.93	0.865	0.135	0.771	0.886
Availability	<---	Motivation	0.914	0.835	0.165		
High Dependency	<---	Usage of e-resources	0.824	0.679	0.321		
Increase Spending time	<---	Usage of e-resources	0.982	0.964	0.036	0.860	0.940
First Choice	<---	Usage of e-resources	0.968	0.937	0.063		

Average Variance Extracted

A good rule of thumb is an AVE of 0 .5 or higher indicates adequate convergent validity. An AVE of less than .5 indicates that on average, there is more error remaining in the items than there is variance explained by the latent factor structure you have imposed on the measure.

Construct Reliability

The rule of thumb for a construct reliability estimate is that 0.7 or higher suggests good reliability. Reliability between .6 and .7 may be acceptable provided that other indicators of a model's construct validity are good. High construct reliability indicates that internal consistency exists. This means the measures all are consistently representing something

Table No.5 Discriminant validity

Construct	ICT knowledge	Library infrastructure	Motivation	Usage of e-resources
ICT knowledge	0.713			
Library Infrastructure	0.096	0.771		
Motivation	0.281	0.081	0.771	
Usage of e-resources	0.193	0.323	0.316	0.86

All variance extracted (AVE) estimates in the above table are larger than the corresponding squared inter construct correlation estimates (SIC). This means the indicators have more in common with the construct they are associated with than they do with other constructs.

Impact of ICT knowledge and Library Infrastructure facilities on Students' usage of E-resources with the mediation of Motivational factors

H0 – there is no mediation effects between ICT knowledge and Library Infrastructure facilities on Students' usage of E-resources.
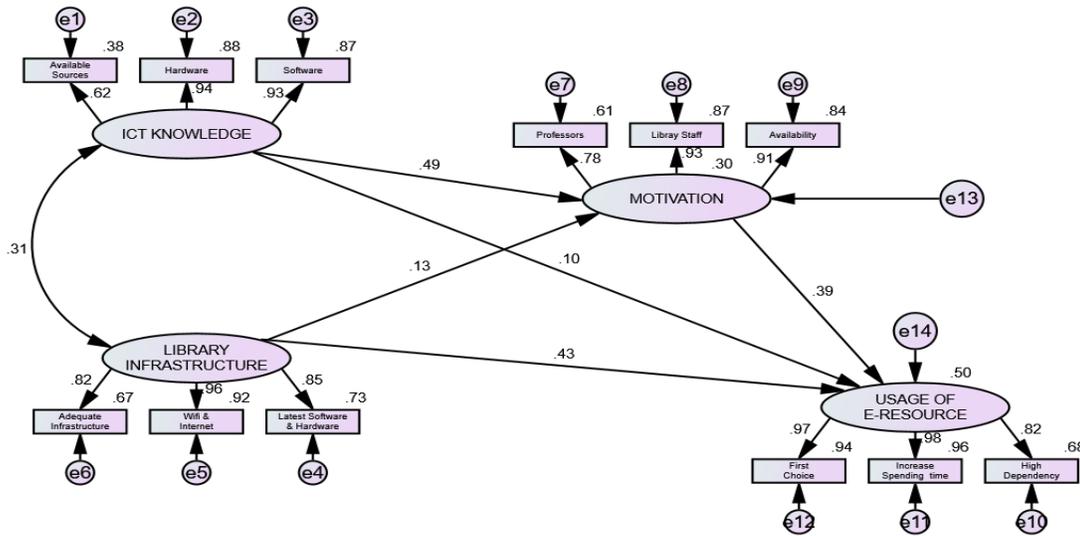
Figure - 2: Structural Equation Analysis

Table No.6 Regression Weights

Dependent Variable		Independent Variable	Estimate	S.E.	C.R.	P
Motivation	<---	ICT knowledge	.652	.156	4.171	***
Motivation	<---	Library infrastructure	.154	.108	1.423	.155
Usage of e-resources	<---	ICT knowledge	.125	.111	1.131	.258
Usage of e-resources	<---	Library infrastructure	.445	.090	4.953	***
Usage of e-resources	<---	Motivation	.352	.089	3.963	***
Available sources	<---	ICT knowledge	1.000			
Hardware	<---	ICT knowledge	1.359	.181	7.500	***
Software	<---	ICT knowledge	1.382	.184	7.497	***
Latest Software and Hardware	<---	Library infrastructure	1.000			
Wi-Fi / Internet	<---	Library infrastructure	.975	.075	13.033	***
Adequate Infrastructure	<---	Library infrastructure	.908	.084	10.758	***
Professors	<---	Motivation	1.000			
Library Staff	<---	Motivation	1.166	.107	10.924	***
Availability	<---	Motivation	1.158	.108	10.776	***
High Dependency	<---	Usage of e-resources	1.000			
Increase Spending time	<---	Usage of e-resources	1.380	.097	14.258	***
First Choice	<---	Usage of e-resources	1.366	.098	14.000	***

Standardized Total Effects (Group number 1 - Default model)

Construct	Library infrastructure	ICT knowledge	Motivation	Usage of e-resources
Motivation	.134	.488	.000	.000
Usage of e-resources	.478	.291	.386	.000

Standardized Direct Effects (Group number 1 - Default model)

Construct	Library infrastructure	ICT knowledge	Motivation	Usage of e-resources
Motivation	.134	.488	.000	.000
Usage of e-resources	.426	.103	.386	.000

Standardized Indirect Effects (Group number 1 - Default model)

Construct	Library infrastructure	ICT knowledge	Motivation	Usage of e-resources
Motivation	.000	.000	.000	.000
Usage of e-resources	.052	.188	.000	.000

From the analysis of mediation, researcher measures the total, direct and indirect effects between ICT knowledge, Library Infrastructure facilities on Students' usage of E-resources, while motivation acts as a mediator.

The result shows the direct effect of ICT knowledge and library resources have a positive effect on e-resources usage of students. i.e. ICT knowledge is increased by 1 standard deviation, e-resources usage of students is increased by 0.103 .

Modifications in the influence on ICT knowledge while motivation act as mediator. The result shows the indirect effect of ICT knowledge has a positive effect on e-resources usage of students through motivation. i.e. ICT knowledge is increased by 1 standard deviation, purchase e-resources usage of students increase by 0.188. The mediator could account for roughly more than half of the total effect, $P_M = 0.65$. (65%). so role of the mediator is more effective.

Implications

1. One of the major findings of the present research is that ICT knowledge of the students is the main source of increasing the usage of e-resources. Therefore, it is imperative for any institution or a university to conduct various awareness and training programs for the students so that their ICT knowledge improves.

2. The present research also found out that the professors and library staffs are the major source of encouragement and motivation to boost the usage of the e-resources available in the library. Therefore, the professors and library staffs need to keep encouraging and motivating the students in order to increase the usage of the e-resources.

3. There are various kinds of benefits for utilizing the e-resources like the ease of accessibility, ability to access any resource throughout the world and eco-friendly nature. The students need to be enlightened about these factors and then it might automatically increase the usage of e-resources by the students.

Conclusion

In the present times, the whole world is functioning in the digital. Almost all the day-to-day activities are done electronically. The vast reservoir of books and articles available throughout the world is no exception. It is very easy today to access any resource available at any corner of the world by just logging into a computer with internet facility. Instead of going to various libraries around the globe, a student can sit in front of a computer and access any resource that he wants. These are called e-resources and almost all the institutions in the world today are investing huge amounts of money to enhance their e-resources facility. The present research also tried to show the importance of utilizing the e-resources of an institution and what are the factors that can increase the usage of the e-resources by the students. There are two major motivating factors such as the ICT knowledge of the students and the influence of their teachers. The mediation of the motivation increases the usage of the e-resources manifold.

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