

Impact of ICT (Information and communication technology) on selected college's libraries affiliated to Hemchandracharya North Gujarat University, Patan.

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Abstract

In this study, impacts of ICT (Information and communication technology) implementation on Libraries of selected colleges of Hemchandracharya North Gujarat University have studied. As we all know, ICT implementation has works like a game changer in the field of library science. Research methodology: research is descriptive in nature, simple random sampling have used. The responses of 40 Librarians have studied which were randomly selected from colleges affiliated to Hemchandracharya North-Gujarat University. Hypothesis testing has applied. Statistical test: Mean calculation, Chi-square test and One way Anova test were used for analysis. Findings: Study found that most of all librarians believes that ICT implementation was helpful to them in terms of improve work efficiency, reduce cost, saves users time, reduce stress and for effective management of library resources particularly e-resources. Conclusion: ICT implementation played a significant role to improve the efficiency of librarians and empower them to manage and faces challenge of Library management. Also, it enables them to increase their service quality and reduces stress in many folds. Implications of the study: Study will be helpful to Management (owner) of academic institutes to understand the perception and challenges face by of Librarians towards ICT implementations in Libraries. It does clearly portray the needs of librarians associated with Library management like proper net connectivity, database management, proper training programs for users and librarians, etc. Limitations of the study: Selected colleges of Hemcharcharya North-Gujarat University were considered due to time and resource constraints.

Key words: ICT (Information and communication technology), Librarians, Library Science, Descriptive research and Hypothesis testing.

Introduction

As we all know that ICT implementation is playing a significant role to improve the productivity of librarians and empowered them to efficiently and effective manage library resources. ICT implementation is very much helpful to librarians. Ranganathan (1957) says in his five laws of librarianship which cut across all ages that "Library is a growing organism" Notably, Information and communication technology is an electronic means of capturing, processing, storing and disseminating information (Adeyemi, 2005; Marshall, 2000). For Okentunji (2000), information communication technology facilitates access to electronic information which has become invaluable in complementing traditional library resources. This achieved the provision of more

efficient information services to the users and the overall improvement in the performance of the libraries and other related information institution (Chisenga, 1999).

Library is a heart for any institute and having dynamic nature. Library resources are keep changing hands and proper record keeping are very much needed. In last few years, electronic resources are playing crucial role in library science e.g. electronic database, e-journal, etc. Also, now libraries are get access through distance. Users can use library resources from their homes. Librarians are also required to get connected with various database and institutions. So, under such conditions ICT plays a significant role to empower the librarians to meet all such challenges. Many studies have suggested that ICT role in library science is very significant. In this study, perceptions of librarian have collected regarding impact of ICT implementation on library science. Librarians are the key personnel who are directly facing all challenge involving with ICT implementation. An objective of this study includes presenting a clear picture regarding benefits and challenges associated with ICT implementation.

Literature review

Antherjanam & Sheeja (2008) found that ICT implementation made good impact on the usage of facilities like Issue & return of books, renewals are done faster than before, Book selection, price checking are also done very efficiently using ICT. They reported that around 65% of the visitors make use of Internet searching facility, online journals etc. Also, if the software or the hardware stops working, it is very difficult to continue the routine work of the library.

Areepattamannil & Santos (2019) found that autonomy related to ICT usage was highly correlated with enjoyment in science, science self-efficacy, interest in broad science topics and epistemological beliefs about science than perceived competence in ICT usage. The study revealed that the positive correlation between ICT related dispositions and science-related dispositions.

Husaini & et al. (2012) indicated that both the behaviour of ICT and library anxiety do not correlate in determining the use of the library.

Krubu & Osawaru (2011) concluded that ICT have significant impact on academic libraries. ICT improves the speed on acquisition, processing, storage, retrieval and dissemination operations of libraries.

Oyedun (2007) found that academic libraries have been affected by changes in information and communication technology. The introduction of various information technology (ICT) trends has lead to reorganization, change in work patterns, and demand for new skills, job retraining and reclassification positions. Technological advancement of the past twenty five years, such as the electronic database, online services, CD-ROMs and introduction of internet has radically transformed access to information.

Rana (2009) found that ICT holds the key to the success of modernizing information services. Applications of ICT are broader but precisely it is used for converting the existing paper-print records in the entire process of storage, retrieval and dissemination.

Objectives of the study

1. To access the impact of ICT implementation on Library Management.
2. To understand the Librarians involvement and attitude towards Library Management.
3. To study the impact of ICT Implementation on Librarians of different faculties.

Research Methodology

Research is quantitative type. Quantitative research is defined as a systematic investigation of phenomena by gathering quantifiable data and performing statistical, mathematical, or computational techniques. Descriptive research design have used. Descriptive research is a type of research that describes a population, situation, or phenomenon that is being studied. It focuses on answering the how, what, when, and where questions If a research problem, rather than the why. Population: Librarians of colleges of Arts and Commerce affiliated with Hemchandracharya North- Gujarat University. Sampling method: Simple Random Sampling was used. A simple random sample is a subset of a statistical population in which each member of the subset has an equal probability of being chosen. Unit of study: Librarian of arts and commerce colleges affiliated with Hemchandracharya North- Gujarat University. Sample size: 40 Librarian were included in the study. Data collection tool: A structured E-Questionnaire was used to collect primary data for the study. Data collection method: Electronic (E-mail based) Survey. E-Mail-Based Surveys: survey instruments that are delivered through electronic mail applications over the Internet or corporate intranets.

Statistical Analysis

Descriptive statistics was used to understand the data. Frequency tables and Mean values were used to quantify records. Cross tabulation, Chi-square test and One Way ANOVA test was used for data mining and hypothesis testing.

Inferential statistics

Does ICT implementation is helpful to library?

Table: 1

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	39	97.5	97.5	97.5
Valid No	1	2.5	2.5	100.0
Total	40	100.0	100.0	

Inference: It is found that **97.5 %** of respondents were agreed with the statement. It implies that almost all librarians of Arts, Commerce and Science Colleges affiliated with Hemcharcharya North Gujarat University have believed that ICT implementation is helpful to the library.

Does ICT implementation is improving efficiency of Librarian?

Table: 2

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	33	82.5	82.5	82.5
No	7	17.5	17.5	100.0
Total	40	100.0	100.0	

It is found that **82.5 %** of respondents were agreed with the statement. It implies that almost all librarians of Arts, Commerce and Science Colleges affiliated with Hemcharcharya North Gujarat University have believed that ICT implementation is improving efficiency of Librarian.

Does ICT implementation save users and staff time?

Table: 3

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	38	95.0	95.0	95.0
No	2	5.0	5.0	100.0
Total	40	100.0	100.0	

It is found that **95 %** of respondents were agreed with the statement. It implies that almost all librarians of Arts, Commerce and Science Colleges affiliated with Hemcharcharya North Gujarat University have believed that ICT implementation save users and staff time.

Does ICT implementation is helpful in Effective cost savings.

Table: 4

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	24	60.0	60.0	60.0
No	16	40.0	40.0	100.0
Total	40	100.0	100.0	

It is found that **60 %** of respondents were agreed with the statement. It implies that most of librarians of Arts, Commerce and Science Colleges affiliated with Hemcharcharya North Gujarat University have believed that ICT implementation is helpful in Effective cost savings.

Does ICT implementation is made Library management easier?

Table: 5

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	38	95.0	95.0	95.0
Valid No	2	5.0	5.0	100.0
Total	40	100.0	100.0	

It is found that **95 %** of respondents were agreed with the statement. It implies that almost all librarians of Arts, Commerce and Science Colleges affiliated with Hemcharcharya North Gujarat University have believed that ICT implementation is made Library management easier.

Do you have a collection of e-resources

Table: 6

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	25	62.5	62.5	62.5
Valid No	15	37.5	37.5	100.0
Total	40	100.0	100.0	

It is found that **62.5 %** of respondents were agreed with the statement. It implies that most of all libraries of Arts, Commerce and Science Colleges affiliated with Hemcharcharya North Gujarat University have a collection of e-resources.

Table: 7

Statements	N	Mean	Std. Deviation
Provide electronic bulletin board service	40	4.10	.744
Library staff should learn how to use online database themselves	40	4.48	.599
Create demand for online access to other database	40	4.10	.545
Campus networking required for connecting the entire department to library	40	4.33	.616
Library must participate in national and regional cooperative efforts for sharing resources, expertise and experience	40	4.38	.540
Library should have high speed data network connectivity	40	4.70	.516
Enhance the staff skills in using the ICT	40	4.60	.496
Training of end users in the use of ICT tools	40	4.53	.506

Inferences

1. Mean value of responses on statement “Provide electronic bulletin board service” is 4.10 which means that Librarians were agreed with the statements.
2. Mean value of responses on statement “Library staff should learn how to use online database themselves” is 4.48 which means that Librarians were agreed with the statements.

3. Mean value of responses on statement “Create demand for online access to other database” is 4.10 which mean that Librarians were agreed with the statements.
4. Mean value of responses on statement “Campus networking required for connecting the entire department to library” is 4.33 which mean that Librarians were agreed with the statements.
5. Mean value of responses on statement “Library must participate in national and regional cooperative efforts for sharing resources, expertise and experience” is 4.38 which mean that Librarians were agreed with the statements.
6. Mean value of responses on statement “Library should have high speed data network connectivity” is 4.70 which means that Librarians were agreed with the statements.
7. Mean value of responses on statement “Enhance the staff skills in using the ICT” is 4.60 which mean that Librarians were agreed with the statements.
8. Mean value of responses on statement “Training of end users in the use of ICT tools” is 4.53 which mean that Librarians were agreed with the statements.

Research hypothesis

1. ICT implementation is helpful to Librarian dependent to their respective faculty.

Ho: ICT implementation is helpful to Librarian independent to their respective faculty.

Ha: ICT implementation is helpful to Librarian dependent to their respective faculty.

Hypothesis Testing

Table: 8 (Crosstab)

		College Faculty						Total
		Arts	Commerce	Science	Arts & Commerce	Commerce & Science	Arts & Science	
Does ICT implementation is helpful to library?	Yes	13	6	4	14	1	1	39
	No	0	0	0	1	0	0	1
Total		13	6	4	15	1	1	40

Table: 9 (Chi-Square Tests)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1.709 ^a	5	.888	1.000		
Likelihood Ratio	2.005	5	.849	1.000		
Fisher's Exact Test	6.581			1.000		
Linear-by-Linear Association	.820 ^b	1	.365	.750	.425	.375
N of Valid Cases	40					

Test: Chi-square test has applied. **Result:** here, p-value (Fisher's Exact Test) $1.000 > 0.05$, so we fail to reject our null hypothesis. Null hypothesis is accepted. ICT implementation is helpful to Librarian independent to type of faculty.

2. ICT implementation improving efficiency of Librarian is dependent to type of faculty.

Ho: ICT implementation is improving efficiency of Librarian independent to type of faculty.

Ha: ICT implementation improving efficiency of Librarian dependent to type of faculty.

Table: 10 Crosstab

	College Faculty						Total
	Arts	Commerce	Science	Arts & Commerce	Commerce & Science	Arts & Science	
Does ICT implementation is improving efficiency of Librarian? Yes	10	5	3	13	1	1	33
No	3	1	1	2	0	0	7
Total	13	6	4	15	1	1	40

Table: 11 Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1.043 ^a	5	.959	.954		
Likelihood Ratio	1.367	5	.928	.954		
Fisher's Exact Test	2.231			.912		
Linear-by-Linear Association	.689 ^b	1	.406	.482	.251	.084
N of Valid Cases	40					

Test: Chi-square test has applied. **Result:** here, p-value (Fisher's Exact Test) $.912 > 0.05$, so that we fail to reject our null hypothesis. ICT implementation is improving efficiency of Librarian independent to type of faculty.

3. ICT implementation save users and staff time dependent to type of faculty.

Ho: ICT implementation is save users and staff time independent to type of faculty.

Ha: ICT implementation save users and staff time dependent to type of faculty.

Table: 12 Crosstab

	College Faculty						Total
	Arts	Commerce	Science	Arts & Commerce	Commerce & Science	Arts & Science	
Does ICT implementation saves users and staff time. Yes	12	6	4	14	1	1	38
No	1	0	0	1	0	0	2
Total	13	6	4	15	1	1	40

Table: 13 Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	.918 ^a	5	.969	1.000		
Likelihood Ratio	1.482	5	.915	1.000		
Fisher's Exact Test	4.056			1.000		
Linear-by-Linear Association	.040 ^b	1	.842	1.000	.567	.281
N of Valid Cases	40					

Test: Chi-square test has applied. **Result:** here, p-value (Fisher's Exact Test) **1.000 > 0.05**, so we fail to reject our null hypothesis. ICT implementation is improving efficiency of Librarian independent to type of faculty.

4. ICT implementation is helpful in Effective cost savings dependent to type of faculty.

Ho: ICT implementation is helpful in Effective cost savings independent to type of faculty.

Ha: ICT implementation is helpful in Effective cost savings dependent to type of faculty.

Table: 14 Crosstab

		College Faculty						Total
		Arts	Commerce	Science	Arts & Commerce	Commerce & Science	Arts & Science	
Does ICT implementation is helpful in Effective cost savings.	Yes	6	4	3	9	1	1	24
	No	7	2	1	6	0	0	16
Total		13	6	4	15	1	1	40

Table: 15 Chi-Square Test

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	2.858 ^a	5	.722	.878		
Likelihood Ratio	3.569	5	.613	.863		
Fisher's Exact Test	2.792			.894		
Linear-by-Linear Association	1.333 ^b	1	.248	.271	.150	.046
N of Valid Cases	40					

Test: Chi-square test has applied. **Result:** here, p-value (Fisher's Exact Test) **.894 > 0.05**, so we fail to reject our null hypothesis. ICT implementation is improving efficiency of Librarian independent to type of faculty.

Table: 16 ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Library should have high speed data network connectivity.	Between Groups	.306	5	.061	.206	.958
	Within Groups	10.094	34	.297		
	Total	10.400	39			
Enhance the staff skills in using the ICT.	Between Groups	.553	5	.111	.415	.835
	Within Groups	9.047	34	.266		
	Total	9.600	39			
Training of end users in the use of ICT tools.	Between Groups	.511	5	.102	.367	.868
	Within Groups	9.464	34	.278		
	Total	9.975	39			

Ho: The average response of librarian towards statement “Library should have high speed data network connectivity” is same in all faculties.

H₁: The average response of librarian towards statement “Library should have high speed data network connectivity” is not same in all faculties.

Result: In ref. to table no: p-value (One-Way Anova Test) **0.958 > 0.05**, so we fail to reject our null hypothesis. We accept our null hypothesis; the average response of librarian towards statement “Library should have high speed data network connectivity” is same in all faculties.

Ho: The average response of librarian towards statement “ICT implementation enhances the staff skills” is same in all faculties.

H₁: The average response of librarian towards statement “ICT implementation enhances the staff skills” is not same in all faculties.

Result: here, p-value (One-Way Anova Test) **0.835 > 0.05**, so we fail to reject our null hypothesis. We accept our null hypothesis; the average response of librarian towards statement “ICT implementation enhances the staff skills” is same in all faculties.

Ho: The average response of librarian towards statement “Training of end users in the use of ICT tools.” is same in all faculties.

H₁: The average response of librarian towards statement “Training of end users in the use of ICT tools.” is not same in all faculties.

Result: here, p-value (One-Way Anova Test) **0.868 > 0.05**, so we fail to reject our null hypothesis. We accept our null hypothesis; the average response of librarian towards statement “Training of end users in the use of ICT tools.” is same in all faculties.

Conclusion

ICT implementation in Library science is work as a game changer. It brings a better world for all academicians. It enhances the working efficiency of Librarian in many folds; Also, It empowered the librarian and makes them capable to meet all the expectations of users. ICT implementation also works as a critical tool to control costs. Library management makes one tedious job into easier and smooth handling one. In this research, Librarians shared their thoughts and expectations. The librarian had having many expectations with the administration regarding the connectivity of ICT, databases and infrastructure of ICT in college. Librarian also believed that to improve skills of end users proper training needed. Here, study concluded that ICT has very beneficial for all librarian and improving efficiency for all librarians irrespective of their faculty. Also, ICT implementation saves the user time irrespective of their faculty. ICT implementation is cost effective. Particularly all librarians were looking for better infrastructure like high Internet connectivity, enhancing the skills of end users and imparting knowledge by providing training for them. In today's world of high information and data overload, ICT is a single solution for most of Library management problems.

Managerial Implication

Result of this study will become helpful to colleges where they are making planning to implement ICT. Here, shared information of librarians will helpful to understand the perceptions, expectations and challenges face by Librarians by Implementation of ICT in Library. This study also works as a case studies where how change management has taken place in Library management, also guide how emerging and new technologies play a critical role in Library management.

Limitations of the study

Selected colleges of Hemcharcharya North-Gujarat University were included in the study due to time and resource constraints.

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