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Implementation of ICT Initiatives of Ministry of Education, Government of India by the University Libraries of Karnataka State: A Study

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ABSTRACT

Integrating Information and Communication Technology (ICT) initiatives by the Ministry of Education, Government of India, marks a significant transformation in educational paradigms nationwide. This study investigates the implementation of ICT initiatives of the Ministry of Education Government of India within the university libraries of Karnataka State, exploring their adoption, challenges encountered, and impact on library services and user experiences. Through a comprehensive review of literature, interviews with library administrators, and analysis of institutional data, this research provides insights into the strategies employed by university libraries to leverage ICT tools in enhancing information access, digital literacy, and academic support. The findings highlight both the successes achieved and the persistent barriers that hinder full ICT integration, offering recommendations for policymakers, library administrators, and stakeholders to optimize future ICT implementation efforts in educational settings.

Keywords: ICT Initiatives, Ministry of Education, University Libraries, Government of India

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1. Introduction

As the digital age redefines educational paradigms, E-resources' role in higher education institutions becomes increasingly significant. Universities in Karnataka, known for their diverse academic programs and commitment to academic excellence, are ideal for examining E-resource adoption dynamics. This study presents the data analysis results aimed at investigating the implementation of ICT initiatives of the Ministry of Education,

Government of India, in university libraries across Karnataka. The study assesses ICT-based library and information services offered by these libraries, examines promotional programs to raise awareness about ICT initiatives, and utilizes data gathered from librarians within the university libraries. Subsequently, the interpretation of this data aims to discern trends, identify challenges, and highlight opportunities for effectively integrating ICT initiatives into the academic ecosystem of Karnataka's universities.

The research investigation encompasses an array of meticulously gathered and cataloged data points, ranging from the presence of dedicated university websites to the implementation of ICT initiatives and user orientation programs. The research aims to provide a holistic understanding of the state of libraries and ICT integration within state universities in Karnataka, shedding light on their strengths, weaknesses, and potential areas for improvement in the evolving landscape of academic information services.

2. Need and Purpose of the Study

The Government of India (GoI) has spending on technology stood at $9.6 billion and is estimated to spend more than $11.6 billion on the design and development of different digital initiatives for education, teaching, learning, resource sharing, collaboration, and public service aspect to prepare the country for knowledge-based transformation. But, due to lack of support and interest of authorities/management, lack of financial support, lack of interest/awareness of beneficiaries, and lack of reading infrastructure issues impact on that still most of these digital initiatives are not yet properly getting used by the various user communities and beneficiaries. Hence, the researcher will attempt to examine the Awareness and Utilization of ICT initiatives, resources, services, and facilities initiated by the Ministry of Education, Government of India, among the user communities of selected university libraries in Karnataka state will be considered in this study.

3. Objectives of the Study

The main objectives of this research study, which contribute to achieving its general objective, may be enumerated below.

1. To understand the Ministry of Education, Government of India's various ICT initiatives and their implementation by university libraries in Karnataka State.

2. To assess the ICT-based library and information services offered by the university libraries under study.

3. To examine the nature of promotional programs conducted by the university libraries to create awareness of the ICT initiatives of the Ministry of Education, Government of India

4. Methodology

This study adopted a survey method for data collection from respondents, utilizing both structured and online questionnaires. The researcher personally visited all the universities included in the study, where questionnaires were administered to gather primary data from selected state university libraries in Karnataka State. The collected data from primary and secondary sources was coded before entering into an Excel coding sheet. Subsequently, the coded data was transferred into the Statistical Package for Social Sciences (SPSS) software for the outcomes' analysis, interpretation, and presentation. The results of the collected data are presented using various tables, infographic figures, and diagrams where necessary and relevant.

5. Scope and limitation of the study

The present study is confined to 'Awareness and Utilisation of ICT Initiatives, Ministry of Education, Government of India by the State University Libraries in Karnataka'. It is purely related to learning, teaching, research, and other informative aspects. The present study is confined to Eight State Universities (General) established before the year 2005, namely, the University of Mysore, Mysuru, Karnatak University, Dharwad, Bangalore University, Bengaluru, Kuvempu University, Shankaragatta, Gulbarga University, Kalaburgi and Mangalore University, Mangaluru: Tumkur University, Tumkur & Karnataka State Women's University, Bijapur.

6. Data Analysis and Interpretation

Sl.No	Name of the University	Year of Establishment	Availability of a Separate Website	
			Yes	No
1	University of Mysore	1916	✓	
2	Karnatak University	1949	✓	
3	Bangalore University	1964	✓	
4	Gulbarga University	1980	✓	
5	Mangalore University	1980	✓	
6	Kuvempu University	1987	✓	
7	Tumkur University	2004	✓	
8	Karnataka State Women'sUniversity	2004	✓	

Source: Websites of respective Universities

Table 6.1 Year of Establishment Karnataka Universities & Web Presence of University Libraries

Table 6.1 Highlights a digital divide among universities based on their establishment years. Both older and newer University Libraries have dedicated separate websites; therefore, all university libraries of Karnataka can communicate online to the users.

Table 6.2 Provides a comprehensive overview of the demographic characteristics of chief librarians in the surveyed sample. It highlights gender disparities, educational qualifications, designations, age distribution, and extensive experience levels among chief librarians. The inference drawn from Table 5.2, which presents the demographic profile of chief librarians, reveals several important insights about this group of professionals in the surveyed sample.

Demographic Characteristics of Respondents (n = 8)		**No. of Respondents**	**%**
Gender	Male	6	75
	Female	2	25
Qualification	MLISc with M.Phil	0	0
	MLISc with NET/SET	0	0
	MLISc with Ph.D,	8	100%
Designation	University Librarian	3	37.5
	University Librarian i/c	5	62.5
Age	Deputy/ Assistant Librarian	0	0
	25-35 years	0	0
	36-45 years	0	0
	46-55 years	6	75
	Above 55 years	2	25
Experience	Less than 10 years	0	0
	11-20 years	0	0
	21-30 years	8	100
	Above 31 years	0	0

Source: Field Study

Table 6.2 Demographic Profile of Chief Librarians: Gender, Qualification, Designation, Age, and Experience

Table 6.3 shows that the majority of university libraries 07 (87.5%) are situated in independent buildings, 07 (87.5%) University Libraries are open-access, and all university Libraries 08 (100%) operate with a hybrid library system.

Location of the Libraries	**(No = 08)**	
	No. of Libraries	**%**
Clustered building	1	12.5
Independent building	7	87.5

Accessibility of the Libraries	**No. of Libraries**	**%**
Open access	7	87.5
Both open & closed access	1	12.5
Environment of the Libraries	**No. of Libraries**	**%**
Traditional Library System	0	0
Automation Library System	0	0
Digital Library System	0	0
Hybrid Library System	8	100

Source: Field Study

Table 6.3 Library Locations, Accessibility, and Environment

Name of University	**E-books**	**E-Journals**	**Conference Proceedings**	**E-Reports**	**E-Maps**	**Data - bases**	**E-Thesis & Dissertation**	**Archives of Institution Repository**
University of Mysore	32000	7026	-	-	-	6	4100	9589
Karnatak University	466	10000+	-	-	-	7	4979	-
Bangalore University	59000	10000+	-	-	-	5	2400	7000
Gulbarga University	5100	10000+	50	100	100	16	1100	5100
Mangalore University	2800	10000+	28	-	-	8	1420	4020
Kuvempu University	8600	7500	-	10	-	5	1340	-
Tumkur University	191	13000+	-	-	-	1	105	-
Karnataka State Women's University	883	5000+	-	-	-	6	269	-

Source: Field Study

Table 6.4 Availability of E-Resources in State University Libraries in Karnataka

Table 6.4 shows that Bangalore University boasts the highest number of e-books, with an impressive collection of 59,000. Tumkur University has a vast collection of over 13,000 e-journals. Karnatak University leads in this

category, having archived 4979 electronic theses and dissertations, while the University of Mysore leads in institutional repositories, with 9,589.

Sl. No.	E-Resources Database	Subscription	Consortia mode
a.	Springer	5 (62.5%)	-
b.	ProQuest	5 (62.5%)	-
c.	IndiaStat.com	4 (50.0%)	-
d.	EBSCOhost	3 (37.5%)	-
e.	Taylor and Francis, and Routledge	3 (37.5%)	-
f.	Elsevier science	3 (37.5%)	-
g.	J-Store	-	8 (100.0%)
h.	Web of Science/Clarivate Analytics	-	8 (100.0%)
i.	Scopus	-	-
j.	J-Gate		8 (100.0%)
k.	Emerald		8 (100.0%)

Source: Field Study

Table 6.5 Subscription of Databases of State University Libraries in Karnataka

Table 6.5 It is observed that in Table 5 Springer and ProQuest are the most widely subscribed databases, with 5 (62.5%) of the surveyed universities having access to these resources. J-Store, Web of Science/Clarivate Analytics, J-Gate, and Emerald databases that all universities have accessed through anInflibnete-shodhashindhu consortium mode.

Services	N	%
Library Services		
Online Circulation Service	08	100.0
Online Reference Service	08	100.0
Electronic Current Awareness (CAS) Service	08	100.0
New arrivals alert services through e-mail	08	100.0
Online Public Access Catalogue (OPAC) &Web-enabled OPAC	08	100.0
Current events and content alerts	05	62.5
Library Portal, blog, gateway & online directory services	08	100.0

Library Supporting Services		
Ask-A-Librarian Service	08	100.0
Consortium Service	08	100.0
Digital Library Service	08	100.0
Electronic Document Delivery (DDL) Service	02	25.0
Institutional Repository Service	08	100.0
Inter Library Loan Service	05	62.5
Mobile Apps & Application Service	05	62.5
Online User Education	08	100.0
Plagiarism Check Service	08	100.0

Source: Field Study

Table 6.6 ICT or Web-enable Library and Information Services

Table 6.6 shows that all university libraries strongly emphasize providing a wide range of web-enabled services to cater to their users' diverse needs. While core services such as online circulation and reference are universally offered, there are variations in adopting additional services, suggesting opportunities for further enhancement and collaboration in the digital library landscape.

		Response N=8		
Sl. No.	**ICT Initiatives**	**Yes**	**No**	**Total**
1	SWAYAM: UGC MOOCs (Online Courses)	8 (100%)	0 (0%)	8(100%)
2	Swayam Prabha: Free DTH Channel for Education	5(62.5)	3(37.5)	8(100%)
3	National Digital Library of India (NDLI)	8 (100%)	0 (0%)	8(100%)
4	Virtual Labs	0(0%)	8 (100%)	8(100%)
5	A-VIEW: Amrita Virtual Interactive e-learning World	2(25%)	6(75%)	8(100%)
6	E-Yantra: Engineering a Better Tomorrow	0(0%)	8 (100%)	8(100%)
7	Resource(e-Kalpa): Digital Learning Environment for Design India	0(0%)	8 (100%)	8(100%)
8	FOSSEE: Free and Open-Source Software for Education	2(25%)	6(75%)	8(100%)
9	Spoken Tutorial: Free Audio-Video Tutorials	3(37.5%)	59(62.5%)	8(100%)
10	NPTEL: National Programme on Technology Enhanced Learning	2 (25%)	6(75%)	8(100%)

11	National Academic Depository (NAD)	8(100%)	0(0%)	8(100%)
12	INFLIBNET e-Shodh Sindhu (ESS) Consortium	8(100%)	0(0%)	8(100%)
13	E-PGPathshala: a gateway of all PG courses (INFLIBNET)	8(100%)	0(0%)	8(100%)
14	E-Vidwan: Expert Databases & National Researchers Network	8(100%)	0(0%)	8(100%)
15	Shodhaganga: A Reservoir of Indian Thesis (INFLIBNET)	8(100%)	0(0%)	8(100%)
16	Shodha-Gangotri:Repository of Research Synopses (INFLIBNET)	8(100%)	0(0%)	8(100%)
17	E-ShodhShuddhi: Plagiarism	8(100%)	0(0%)	8(100%)
18	IndCat: Union Catalogue (INFLIBNET)	8(100%)	0(0%)	8(100%)
19	IRINS: India Research Information Network System	8(100%)	0(0%)	8(100%)
20	Vidhay-Mitra: Integrated e-Content Portal	8(100%)	0(0%)	8(100%)

Source: Field Study

Table 6.7 Implementation of ICT Initiatives of Ministry of Education, Government of India by State University Libraries in Karnataka

Table 6.7 provides an overview of the implementation of various ICT (Information and Communication Technology) initiatives by state university libraries in Karnataka in response to the programs initiated by the Ministry of Education, Government of India. Here are the key descriptions and explanations for each initiative:

♦ SWAYAM: UGC MOOCs (Online Courses)

All eight surveyed universities have implemented the SWAYAM initiative and offer online courses as part of the UGC MOOCs program. This indicates a comprehensive adoption of this online learning platform.

♦ Swayam Prabha

Free DTH Channel for Education: Five universities have implemented the Swayam Prabha initiative, which provides educational content via a free DTH channel. Three universities have not adopted this initiative. This suggests that while most institutions participate, some have chosen not to provide content through this channel.

♦ National Digital Library of India (NDLI)

All eight universities have implemented the National Digital Library of India, showcasing a universal commitment to providing access to a wide range of digital resources.

♦ Virtual Labs

None of the surveyed universities have implemented the Virtual Labs initiative. This indicates that virtual laboratory resources may not be widely available in these institutions.

♦A-VIEW

Amrita Virtual Interactive e-learning World: Two universities have implemented A-VIEW, an interactive e-learning platform, while the remaining six have not. This suggests variability in the adoption of this particular technology-enabled learning tool.

♦E-Yantra

Engineering a Better Tomorrow: None of the universities have adopted the e-Yantra initiative, indicating a lack of involvement in this engineering-focused program.

♦D'source (e-Kalpa)

Digital Learning Environment for Design India: Similar to e-Yantra, none of the universities have implemented the D'source initiative, signifying limited engagement in design-focused digital learning.

♦FOSSEE

Free and Open-Source Software for Education: Two universities have adopted the FOSSEE initiative, emphasizing free and open-source software in education. The remaining six universities have not participated.

♦Spoken Tutorial

Free Audio-Video Tutorials: Three universities offer Spoken Tutorial services, providing free audio-video tutorials, while most do not. This reflects varying levels of involvement in this tutorial program.

♦NPTEL

National Programme on Technology Enhanced Learning: Two universities are part of the NPTEL program, focused on technology-enhanced learning. The others have not joined this initiative.

♦National Academic Depository (NAD)

All eight universities have implemented the NAD initiative, ensuring the secure storage and access of academic documents and certificates.

♦INFLIBNET e-Shodh Sindhu (ESS) Consortium

All universities have joined the INFLIBNET e-Shodh Sindhu Consortium, which provides access to a vast collection of electronic resources.

♦E-PGPathshala

A Gateway for All PG Courses (INFLIBNET): All universities have adopted e-PGPathshala, which offers access to postgraduate course materials.

♦E-Vidwan

Expert Databases & National Researchers Network: All universities participate in the e-Vidwan initiative, facilitating access to expert databases and national researcher networks.

♦Shodhaganga

A Reservoir of Indian Theses (INFLIBNET): All universities have implemented Shodhaganga, which offers access to a repository of Indian theses.

♦Shodha-Gangotri

Repository of Research Synopses (INFLIBNET): All universities are part of Shodha-Gangotri, providing access to research synopses.

♦E-ShodhShuddhi

Plagiarism: All universities have implemented e-ShodhShuddhi, a plagiarism detection service.

♦IndCat

Union Catalogue (INFLIBNET): All universities are part of IndCat, a union catalog service.

♦IRINS

India Research Information Network System: All universities have adopted IRINS, facilitating access to research information.

♦Vidhay-Mitra

Integrated e-Content Portal All universities participate in Vidhay-Mitra, an integrated e-content portal.

In summary, most of the surveyed state university libraries in Karnataka have embraced a wide array of ICT initiatives offered by the Ministry of Education, Government of India. However, adopting specific initiatives varies among institutions, reflecting different priorities and needs.

Sl. No	Kind of Cooperation	Response	%
1	Creating user awareness about ICT initiatives	08	100.0
2	Collection Building of digital content	08	100.0
3	Sharing of Resources	08	100.0
4	Analyses the usage statistics of digital resources	02	25.0
5	Create and maintain user profiles	05	62.5
6	Just as beneficiaries of digital resources	08	100.0

Source: Field Study

Table 6.8 Co-operation Provided by State University Libraries in Karnataka in the Initiatives of Ministry of Education (MHRD), Govt of India

Table 6.8 highlights a high degree of cooperation among state university libraries in Karnataka in supporting the initiatives of the Ministry of Education (MHRD), Government of India. This collaboration encompasses raising user awareness, collection building, resource sharing, and acting as beneficiaries for digital resources. While some areas, like user awareness and resource sharing, see universal participation, others, such as usage

statistics analysis and user profile management, show varying levels of engagement, potentially reflecting different library priorities and capabilities.

Response								
Sl. No	**Benefits of Digital Initiatives**	**Strongly Agree**	**Agree**	**Uncertain Disagree**	**Disagree**	**Strongly**	**Total**	**Mean**
a.	To improve access to information resources	337.5%	337.5%	112.5%	112.5%	00.0%	8100.0%	2
b.	Support/ Supplement e-Governance Projects	337.5%	337.5%	225.0%	00.0%	00.0%	8100.0%	1.87
c.	To initiate collaboration with national agencies (Information portals)	337.5%	450 %	112.5%	00.0%	00.0%	8100.0%	1.75
d.	To modernize the information services facilities	450 %	337.5%	112.5%	00.0%	00.0%	8100.0%	1.62
e.	To improve resource sharing among organizations	337.5%	450 %	112.5%	00.0%	00.0%	8100.0%	1.75
f.	To improve the visibility of nation/s knowledge	337.5%	337.5%	225.0%	00.0%	00.0%	8100.0%	1.87
k.	To render effective services to the user community	337.5%	450 %	112.5%	00.0%	00.0%	8100.0%	1.78

Source: Field Study

Table 6.9 Expected Benefits Accrued by Implementing ICT Initiatives of Ministry of Education (MHRD), Govt of India

Table 6.9 shows that a majority of 07 (87.5%) libraries strongly agree that these initiatives will contribute to the modernization of information services facilities.

The mean values (i.e.<2) are observed that all the 08 universities agreed on the form of benefit of ICT initiatives of the Ministry of Education, Govt. of India.

Conducting User Orientation	**(No=8)**	
	No. of Universities	**%**
Yes	08	100.0
No	0	0.0

Freq. of Orientation	(No=8)	
	No. of Universities	%
Monthly	00	0.00
Quarterly	01	1.25
Half-yearly	01	1.25
Yearly	06	75.00
Occasionally	0	0.00

Source: Field Study

Table 6.10 User Orientation Programs Conducted by University Libraries

Table 6.10 shows that all 08(100%) university libraries conduct user orientation programs, highlighting the importance of the Ministry of Education (MHRD), the Government of India's ICT initiatives. While most of these programs are conducted every year 06(75%), some universities also offer them quarterly and half-yearly.

Orientation Methods	(No=08)	
	No. of Universities	%
Through library orientation class	7	87.00
Library tour	6	75.00
Audio-visual presentation	5	62.50
Through library In-house workshops/ seminars	3	37.50
Through the use of social networking platforms	6	75.00
Library brochure, manual, handbook, etc.	8	100.00
Through e-mail & mobile communication, alerts	5	62.50

Source: Field Study

Table 6.11 Methods of User Orientation Programs Conducted by University Libraries

Table 6.11 shows that all 08(100%) libraries are creating library awareness through library brochures, manuals, and handbooks and 07(87%) Library orientation classes, 5 (62.50%) libraries are giving user assistance through e-mail and Mobile communication alerts.

7. Findings & Suggestions of the Study

• Eight Karnataka universities are examined for the presence of dedicated websites, and all universities have an online presence.

• According to the demographic profile of chief librarians, male chief librarians outnumber their female counterparts, all chief librarians hold Ph.D. qualifications, most chief librarians are aged 46-55 with 21-30 years of experience, and universities primarily employ University Librarians and University Librarians in charge.

• Most of the university libraries are located in independent buildings, the majority offer open access, and a hybrid library system is the prevalent environment.

• The libraries of universities offer diverse e-resources, with a focus on e-books, e-journals, and e-thesis and dissertation archives.

• Most universities' libraries subscribe to J-Gate and Emerald databases, and only a few universities subscribe to Springer, Pro Quest, and other databases. All universities' libraries provide essential web-enabled services, including online circulation, reference, and digital library services.

• All universities of the study have implemented various ICT initiatives, including SWAYAM, NDLI, NPTEL, and others, and they all actively participate in user awareness, collection building, sharing of resources, and other ICT initiatives.

7.1 Suggestions

By being united, any system can achieve its aims and objectives to the maximum. The study noted that there are lacunas in implementing ICT initiatives of the Ministry of Education, Govt. of India by the Universities in general and university libraries in particular. In this context, the study strongly suggests that Govt. of Karnataka, the Karnataka State Higher Education Council, and all the university authorities of Karnataka need to coordinate and collaborate for the effective implantation of ICT initiatives of the Ministry of Education, Govt. of India. Further, it is suggested that all universities must integrate ICT initiatives into their curriculum and syllabi. This approach will play a pivotal role in enhancing the quality of education and employability and fostering a technologically empowered learning environment.

8. Conclusion

The efficient functioning of university libraries, particularly in the digital age, is pivotal in supporting academic research, enhancing teaching, and fostering knowledge dissemination. As libraries continue to evolve, it becomes imperative to assess the status of their Information and Communication Technology (ICT) infrastructure, the adequacy of their digital resources, and the extent of their engagement with national and

international ICT initiatives. Karnataka, India, hosts several prominent universities, each with its own library system. Understanding the state of affairs in these libraries is crucial for further development and modernization. This study presents a comprehensive analysis of libraries in state universities across Karnataka, focusing on multiple dimensions, including web presence, demographic profiles of chief librarians, e-resource availability, database subscriptions, automation software, ICT initiatives' implementation, and cooperation in ICT initiatives.

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