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## COMMUNICATION USE PATTERN THROUGH ICT AMONG THE FACULTY MEMBERS: A STUDY AT SELECTED ENGINEERING COLLEGES IN RAYALASEEMA Region, A.P.



A. Sivakesavulu<sup>1</sup> and K. Padmini<sup>2</sup>

<sup>1</sup>Ph.D in Library science , Chief Librarian, Holy Mary Group of Institutions, Bogaram(Vi), Keesara(M), R.R.District, Telanagana State.

<sup>2</sup>Professor , Department of Library and Information Science, Sri Venkateswara University, Tirupati, A.P.

### ABSTRACT

Information and Communication Technology (ICT) plays a critical role in the academic system. Libraries are an integral part of engineering education. ICT support academic libraries, share their resources and services in an effective way. This paper makes an attempt to study on communication use pattern through ICT, opinion on ICT facilities/sources, ICT support for teaching and supporting factors in ICT applications in teaching/research in engineering colleges.

**KEYWORDS :**Information, ICT, Teaching, Research and Engineering faculty members.

### 1.INTRODUCTION :

Information and Communication Technology (ICT) has transformed the role, functioning, services and management of modern Library and Information centers all over the world. Libraries are experiencing enormous changes and facing variety of new changes due to application of digital technologies. The impact of these changes affected all the aspects of library



operations, information resources and information services and user expectations. The accelerating pace of technological developments has tremendously increased the ability to access, store, manage, communicate and deliver effective information services in libraries. Worldwide libraries have been exploring new technologies as a means of providing better and faster access to vast array of information resources and efficient communication pattern to their users. ICT has a huge potential for providing wide range of new opportunities and offering better solutions to achieve greater levels of efficiency, productivity and higher standards of quality services in libraries. The present analytical

study is expected to provide fundamental understanding on the current status of ICT applications and it would also prove that it is quite useful for suitable modifications or improvements of existing academic libraries, especially engineering college libraries.

### **1.2 What is Information and Communication Technology?**

ICT is an acronym that stands for Information and Communication Technology. ICT refers to the use of digital technology for the acquisition, storage, retrieval, processing, use, manipulation, communication and management of digital information.

ICT defined as “a diverse set technological tools and resources used to communicate, and to create, disseminate, store, and manage”. These technologies include computers, the Internet, broadcasting technologies (radio and television), video conferencing, etc. ICT tools can be used to find, explore, analyze, exchange and present information.

ICT consists of hardware, software, networks and media for the collection, storage, processing, transmission and presentation of information (e.g., voice, data, text, images) as well as related services. Communication technologies consist of arrangement of communication media and devices, including print, telephone, fax, radio, television, video, audio, computer and the Internet.

ICT is the convergence of computers, telecommunications, and microelectronics and the software used to create, capture, process, organize, store, retrieve, communicate and manage digital information<sup>1</sup>.

### **1.3 Communication pattern**

The basic idea of communication is transfer of information. It is as old as man himself human beings start communicating right from the start, knowledge, data and information are important and inevitable aspects of human life. If these items are to be transmitted from individual to individuals, generation to generations, man has to have for himself a sound communication mechanism which is essential. For various reasons different communication systems have come to interlink people. The value of either data or information or knowledge will be based on the communication system that is being used.

Communication is a process involving the sorting in such a way as to help the listener perceive and recreate in his own mind the meaning contained in the mind of the communicator. Communication involves the creation of meaning in the listener, the transfer of information and thousands of potential stimuli. Communication enables us to do important things, to grow, to learn to be aware of ourselves and to adjust to our environment<sup>2</sup>.

## **2. REVIEW OF LITERATURE**

Singh, Krishna and Jaiswal (2014)<sup>3</sup> examined the use of Information and Communication Technology (ICT) based resources and services and its impact on users. The study was performed via a questionnaire survey of the library users. The papers also determine the satisfaction level of users regarding online services, favorite search engine and problems faced by the users in using the ICT in libraries. Users proposed a variety of measures of formal orientation and training in ICT based resources and services to become more effective users.

Shah and Empungam (2015)<sup>4</sup> studied the satisfactory level of ICT use by the teachers. In addition, the teachers possessed an acceptable positive attitude towards the use of ICT tools in Literature lessons. However, the analysis of the data also showed several challenges that might hamper the possibility of using ICT in Literature lessons. To conclude, there should be more actions that should

be taken to promote the use of ICT in Literature lessons in the future.

### 3. METHODOLOGY

The methodology adopted is the questionnaire based survey method for data collection. The total population for the four branches (CSE, ECE, EEE and ME) is 1920 (100%) which represents faculty of selected engineering colleges in Rayalaseema region, A. P.

#### 3.1. Sampling method

Among the total population 1,920, through simple random sampling method 1200 (62.5%) units were selected and questionnaires were distributed to these selected units. The response was 1008 (84%).

#### 3.2. Scope of the study

The present study is mainly focused on using of ICT services and communication use pattern through ICT in engineering colleges in Rayalaseema Region. There are 101 engineering colleges in Rayalaseema Region. The colleges which were established before 2007 were selected (28 engineering colleges) for the present study.

### 4. OBJECTIVES

- + To Know the opinion on ICT facilities/sources in engineering colleges by the faculty members
- + To study the supporting factors in ICT applications in teaching and research by faculty members.
- + To assess the contemporary use of ICT services for communication by faculty members
- + To suggest remedial measures to the authorities for solving problems if any in communication use patterns through ICT by the faculty members in engineering colleges.

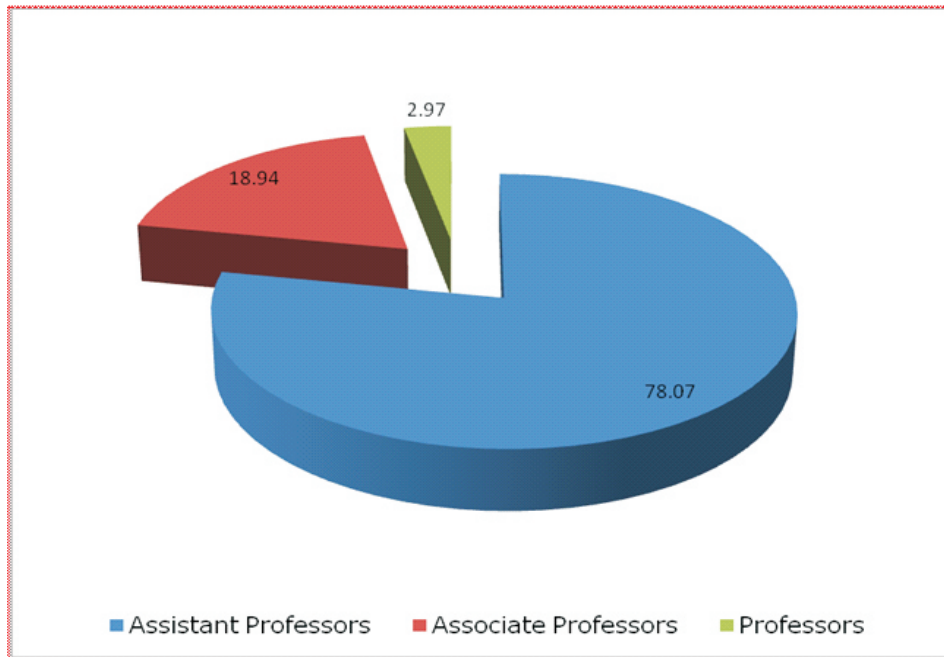
### 5. ANALYSIS OF DATA

In this paper, data collected from respondents are analyzed by using simple percentile and Chi-square tests. Basing on that, inferences are made and conclusions are drawn.

**Table 5.1**  
**Distribution of respondents according to their designation**

Designation	Respondents	
	In number	%
Assistant Professors	787	78.07
Associate Professors	191	18.94
Professor	30	2.97
<b>Total</b>	1008	100.00

**Fig. 1 Distribution of Respondents according to their designation**



It is evident from Table 5.1 that out of the total respondents selected for the sample, 78.07% are Assistant Professors, 18.94% are Associate Professors and the remaining 2.97% are Professors. This is due to the reason that, to become Professor, required number of years of experience is necessary and many of the engineering colleges under study are existing since less than 15 years. In the colleges established earlier, many professor posts are vacant.

It can be concluded that most of the respondents are Assistant Professors.

**5.1. Opinion on ICT facilities/sources**

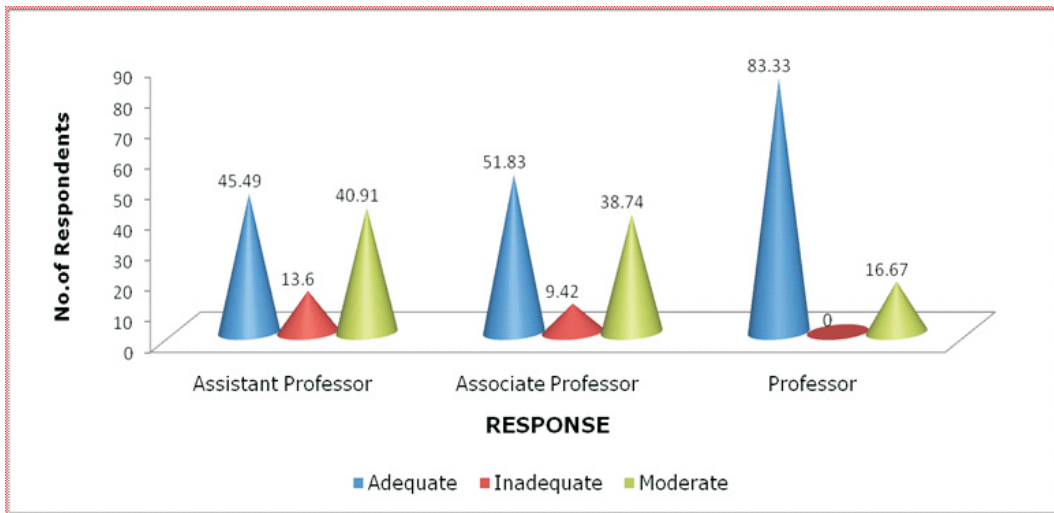
The question is placed in the questionnaire to know the opinions of the respondents of engineering faculty regarding opinion on ICT facilities / sources. The responses given by them are presented in Table 5.2

**Table 2  
Opinion on ICT facilities/sources**

Response	Asst. Professor n=787	Assoc. Professor n=191	Professor n=30	Total N=1008
<b>Adequate</b>	358 (45.49)	99 (51.83)	25 (83.33)	482 (47.82)
<b>Inadequate</b>	107 (13.60)	18 (9.42)	0 (0.00)	125 (12.40)
<b>Moderate</b>	322 (40.91)	74 (38.74)	5 (16.67)	401 (39.78)

(Note: Numbers in parentheses indicate percentages)

**Fig. 2 Opinion on ICT facilities/source**



It is evident from the table that less than half of the respondents (47.82 %) expressed that ICT facilities in engineering colleges are adequate, followed by 39.78% respondents who mentioned moderate and 12.40% respondents who mentioned inadequate.

The category wise data reveal that more number of professors (83.33%) expressed that ICT facilities in engineering colleges are adequate when compared to Assistant professors and Associate professors.

It can be concluded that majority of the respondents (47.82%) expressed that ICT facilities in engineering colleges are adequate.

**5.2. Support of ICT**

The questions is asked to the engineering faculty to know their support of technologies for teaching, Arrangement of online lectures and SMS alerts, using the ICT services for providing information to the students. The responses given by them are presented in Table 3

**Table 3  
ICT Support for teaching**

Technologies	Approach	Asst. Professor n=787	Assoc. Professor n=191	Professor n=30	Total N=1008
LCD Projector	Never	79 (10.04)	9 (4.70)	0 (0.00)	88 (8.73)
	Rarely	221 (28.08)	46 (24.08)	3 (10.00)	270 (26.79)
	Frequently	487 (61.88)	136 (71.20)	27 (90.00)	650 (64.48)
Over Head Projector	Never	161 (20.46)	31 (16.23)	5 (16.67)	197 (19.54)
	Rarely	352 (44.73)	82 (42.93)	17 (56.67)	451 (44.74)
	Frequently	274 (34.82)	78 (40.84)	8 (6.67)	360 (35.71)

Magic Board	Never	453 (57.56)	129 (67.54)	19 (63.3)	601 (59.62)
	Rarely	188 (23.89)	28 (14.66)	6 (20.00)	222 (22.02)
	Frequently	146 (18.55)	34 (17.80)	5 (16.67)	185 (18.35)
Video conference	Never	418 (53.11)	109 (57.07)	15 (50.00)	542 (53.77)
	Rarely	234 (29.73)	44 (23.04)	7 (23.33)	285 (28.27)
	Frequently	135 (17.15)	38 (19.90)	8 (26.67)	181 (17.96)
Video lectures	Never	211 (26.81)	51 (26.70)	7 (23.33)	269 (26.69)
	Rarely	303 (38.50)	65 (34.03)	8 (26.67)	376 (37.30)
	Frequently	273 (34.69)	75 (39.27)	15 (50.00)	363 (36.01)
Moodle	Never	395 (50.19)	88 (46.07)	14 (46.67)	497 (49.31)
	Rarely	207 (26.30)	35 (18.32)	7 (23.33)	249 (24.70)
	Frequently	185 (23.51)	68 (35.60)	9 (30.00)	262 (25.99)

(Note: Numbers in parentheses indicate percentages)

$\chi^2$  (Asst.Prof-Assoc.Prof): 9.444 df 2 TV: 5.99 sig at 0.05 Level  
 $\chi^2$  (Asst.Prof-Prof) : 20.487 df 2 TV: 5.99 sig at 0.05 Level  
 $\chi^2$  (Assoc.Prof- Prof) : 14.089 df 2 TV: 5.99 sig at 0.05 Level

It is clear from the above table that majority of the respondents (64.48%) frequently use LCD projector for teaching followed by 26.79% respondents who mentioned rarely and 8.73% respondents who mentioned never. It can also be observed that more number of professors (90.90%) frequently use LCD projector for teaching when compared to Assistant Professors and Associate professors.

From the above table it can also be observed that 44.74% of the respondents rarely use overhead projector for teaching followed by 35.71% respondents who mentioned frequently and 19.54% respondents who mentioned never. It can also be observed that more number of professors (56.67%) are frequently use overhead projector for teaching when compared to Assistant Professors and Associate Professors.

It is also evident from the table that 59.62% of the respondents never use magic board for teaching followed by 22.02% respondents who mentioned rarely and 18.35% respondents who mentioned frequently.

It is obvious from the table that 53.77% of the respondents never use video conference for teaching followed by 28.27% respondents who mentioned rarely and 17.96% of the respondents who mentioned frequently.

It is apparent from the above table that 37.30% of the respondents rarely use video lectures for

teaching followed by 36.01 % of the respondents who mentioned frequently and 26.69% respondents who mentioned never.

It is clear from the above table that majority of the respondents (49.31%) never use moodle for teaching followed by 25.99% of respondents who mentioned frequently and 24.70 % of the respondents who mentioned rarely.

The chi-square test reveals that there is significant difference between Assistant Professors and Associate Professors, Assistant Professors and Professors, and Associate Professors and Professors regarding technologies support for teaching. The value is significant at 0.05 level with two degrees of freedom.

It can be concluded that majority of the respondents (64.48%) frequently use LCD projector, 44.74% rarely use overhead projector and 59.62% of the respondents never use magic board for teaching.

**Table 4**  
**Arrangement of online lectures and SMS alerts**

Online/Live lectures Sending SMS/MMS		Asst. Professor n=787	Assoc. Professor n=191	Professor n=30	Total N=1008
Arranging Online/Live lectures	No	450 (57.18)	102 (53.40)	11 (36.67)	563 (55.85)
	Yes	337 (42.82)	89 (46.60)	19 (63.33)	445 (44.15)
Sending SMS/MMS alerts to the Students	No	315 (40.03)	83 (43.46)	6 (20.00)	404 (40.08)
	Yes	472 (59.97)	108 (56.54)	24 (80.00)	604 (59.92)

(Note: Numbers in parentheses indicate percentages)

The table 4 shows that majority of the faculty members (55.85%) mentioned that on line/live lectures are not arranged to students and 44.15% mentioned that on line/live lectures are arranged to students in their colleges.

The above table portrays that majority of the respondents (59.92%) are sending SMS/MMS alerts to the students and 40.08% of the respondents are not sending SMS/MMS alerts to the students in their colleges.

The category wise data reveal that more number of professors (80.00%) are sending SMS/MMS alerts to the students when compared to Assistant Professors and Associate Professors.

It can be concluded that majority of the respondents (55.85%) mentioned that of online/live lectures are not arranged to students and majority of the respondents (59.92%) are sending SMS/MMS alerts to the students in their colleges.

**Table 5**  
**Using ICT services for providing information to the students**

ICT Services		Asst. Professor n=787	Assoc. Professor n=191	Professor n=30	Total N=1008
Circulars	Through E-mail	622 (79.03)	159 (83.25)	26 (86.67)	807 (80.06)
	Through mobile	165 (20.97)	32 (16.75)	4 (13.33)	201 (19.94)
Announcement of examination dates	Through E-mail	513 (65.18)	140 (73.30)	25 (83.33)	678 (67.26)
	Through mobile	274 (34.82)	51 (26.70)	5 (16.67)	330 (32.74)
Uploading of teaching notes	Through E-mail	647 (82.21)	153 (80.10)	26 (86.67)	826 (81.94)
	Through mobile	140 (17.79)	38 (19.90)	4 (13.33)	182 (18.06)
Submission of Assignments by students	Through E-mail	553 (70.27)	124 (64.92)	24 (80.00)	701 (69.54)
	Through mobile	234 (29.73)	67 (35.08)	6 (20.00)	307 (30.46)
Result	Through E-mail	646 (82.08)	161 (84.29)	24 (80.00)	831 (82.44)
	Through mobile	141 (17.92)	30 (15.71)	6 (20.00)	177 (17.56)

(Note: Numbers in parentheses indicate percentages)

To know the effective use of ICT services for providing information to the students, a question is placed in the questionnaire. Responses received are placed in the above table. It is clear from it that most of the respondents (82.44%) mentioned that results are informed through E-mail followed by 81.94% respondents who mentioned that uploading of teaching notes is being done through E-mail and 80.06% respondents mentioned that circulars are being sent through E-mails, submission of assignments by students (69.54%) and announcement of examination dates(67.26%) through E-mail stood in the next position regarding effective use of ICT services for providing information to the students.

It can be concluded that according to most of the respondents opinion (82.44%) E-mail in being used as an effective communication service for providing information to the students.

## 6. SUPPORTING FACTORS

A question is asked regarding supporting factors in ICT applications in teaching and research in engineering education with “YES” or “NO” options. Positive responses received for each supporting factors alone are shown in Table 6



**Table 6**  
**Supporting factors in ICT applications in teaching and research in engineering education**

ICT applications	Asst. Professor n=787	Assoc. Professor n=191	Professor n=30	Total N=1008
Development of Digital Library	735 (93.39)	182 (95.29)	29 (96.67)	946 (93.85)
Availability of E-class rooms	662 (84.12)	176 (92.15)	27 (90.00)	865 (85.81)
Suitable Infrastructure	693 (88.06)	178 (93.19)	28 (93.33)	899 (89.19)
Organizing information literacy training program	626 (79.54)	168 (87.96)	20 (66.67)	814 (80.75)
Conducting programmes on internet awareness and utilization	650 (82.59)	165 (86.39)	23 (76.67)	838 (83.13)
Encouraging academics to have personal computers	647 (82.21)	173 (90.58)	24 (80.00)	844 (83.73)
Designing and developments of websites of the institution	655 (83.23)	165 (86.39)	22 (73.33)	842 (83.53)

(Note: Numbers in parentheses indicate percentages)

It is found from the above table that in the opinion of most of the respondents, the main supporting factor in ICT applications in teaching and research in engineering education is development of digital library (93.85%) followed by 89.19 % respondents who mentioned suitable infrastructure, 85.81 % respondents who mentioned availability of e-class rooms and equal number of respondents (83%) who mentioned conducting programs on internet awareness and utilization and designing and development of websites of the institution.

It can be concluded that most of the respondents (93.85%) opined that the main supporting factor in ICT applications in teaching and research in engineering education is development of digital library.

## 6. FINDINGS

- + Most of the respondents (78.07%) are Assistant professors.
- + Majority of the respondents (47.82%) expressed that ICT facilities in engineering colleges are adequate
- + Majority of the respondents (64.48%) frequently use LCD projector, 44.74% rarely use overhead projector and 59.62% of the respondents never used magic board for teaching.
- + Majority of the respondents (55.85%) mentioned that online/live lectures are not arranged to students and majority of the respondents (59.92%) are sending SMS/MMS alerts to the students in their colleges.
- + Most of the respondents opined that e-mail is being used as an effective communication service for providing information to the students.
- + Most of the respondents (93.85%) opined that the main supporting factor in ICT applications in teaching and research in engineering education is development of digital library.

## 7. RECOMMENDATIONS

- ✦ As it can be observed from the data that more than half of the respondents expressed that the ICT facilities/ services are moderate/ inadequate, measures are to be taken by the colleges administration to improve the situation.
- ✦ As it is clear from the analysis that majority of the respondents are using LCD projector/OHP in support of teaching, many of them are not using technologies like magic board, video conferences, video lectures, etc. available in their colleges. Hence awareness programmes are to be conducted by the respective institutions.
- ✦ It is evident from the analysis that majority of the respondents mentioned that online/live lectures are not arranged to students. Hence, students may be motivated by their teachers on this type of facilities.
- ✦ As most of the respondents mentioned that the main supporting factor in ICT applications in teaching and research in engineering education is development of digital library college managements need to concentrate on developing digital libraries in their respective institutions.

## 8. CONCLUSION

ICT is currently taking center stage and transformed the whole world in to a global village with a global economy, which is increasingly dependent on the creative management and distribution of information and the enormous advantages it has in casing the delivery of information around the world. In this study an attempt has been made to determine the extent of communication use pattern through ICT for teaching and research in engineering colleges.

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**A. Sivakesavulu**

**Chief Librarian, Holy Mary Group of Institutions, Bogaram(Vi), Keesara(M), R.R.District, Telanagana State.**



**K. Padmini**

**Professor , Department of Library and Information Science, Sri Venkateswara University, Tirupati, A.P.**