CHAPTER – III
RESEARCH METHODOLOGY

3. Introduction

This chapter deals with the problem in focus, statement of the problem, objectives of the study, research design. It also makes a brief discussion on the universe of the study, sample selection sources, sample selection process, methodology of data collection, study variables, data analysis, and statistical tools used, key concepts and limitations of the study.

3.1. Problem in focus

The present research problem is focusing the engineering college faculty members’ awareness, use and satisfaction of the AICTE recommended e-resource packages and opens database. The following questions are in the view of the aim of this research.

1. Whether the faculty members have awareness and use of the e-resources?
2. Is there satisfied the AICTE recommended e-resources?
3. Whether the faculty members have awareness and use of the open e-resources recommended by the AICTE?

3.1.1. Statement of the problem

The aim of the study is to analyse the “A study on access to e-resources by engineering college faculty members in Coimbatore and Tiruppur Districts”.

3.2. Objectives of the study

Based on the main aim, the following objectives are framed to conduct this research.

1. To find out the e-resource seeking behavior of the engineering college faculty members.
2. To find out the frequency of accessing e-resources among the faculty members.
3. To find out the level of awareness and use of e-resources package recommended by AICTE
4. To find out the level of satisfaction of e-resources package recommended by the All India Council for Technical Education (AICTE)
5. To find out the level of awareness and use of the open e-resources
6. To find out the problems faced while accessing the e-resources.

3.3. Research Design

Research design of the present study is a descriptive survey. The following methods and procedures are employed for selection of samples, and collection of primary data. This study describes the engineering college teaching faculty members’ access of e-resources for seeking information and their level of awareness of e-resource packages recommended by the AICTE. Independent variables are, Gender (male and female), Educational qualifications (PGs and Ph.D holders), designation (Assistant Professors, Associate Professors, and Professor), Experience, College status (government, government aided and private) college affiliation (autonomous, university) are used. The following dependent variables are purpose of visiting the library, e-resource seeking behavior, level of awareness and use of e-resources package, satisfaction of AICTE recommended e-resources, level of awareness and use of the open e-resources, problems faced while accessing the e-resources are presented in the questionnaire.

3.4. Study area

There are 571 engineering colleges available in Tamilnadu. These colleges are affiliated to Anna University, Chennai. Among these colleges, zone IX-Coimbatore (92) and zone X- Tiruppur (11) colleges are taken as study area. These two districts cover more than 15 percent of the engineering colleges (103) in Tamilnadu. This study is restricted to these two districts only.
3.5. Sample collection sources

Anna University, Chennai published handbook for BE/B.Tech engineering admission for the academic year 2016-2017 is used as tool for identification of study area and available colleges. It is used to identify the total no of colleges and its status, courses details. Based on the student intake, All India Council for Technical Education (AICTE, 2017-2018) has framed staff structure for each course.

3.5.1. Study Sample

All India Council for Technical Education (AICTE) qualified teaching faculty members who are working in Coimbatore and Tiruppur districts are taken as study sample. Their qualifications are categorized into M.E., M.Tech, M.S (Engineering), and Ph.D in engineering. These degree courses are conducted by the faculty of engineering departments.

3.5.2. Universe of the sample

As per AICTE norms engineering courses and students intake are taken from each college website. Based on that, there are 1125 Professors, 1350 Associate Professors, and 5800 Assistant Professors working in these two district colleges.

3.5.3. Sample Selection Procedure

Raosoft online sample size calculator is used for sample calculation. Here, accepted margin error is 5%, and confidence level is 95%. Based on the calculator, 361 Assistant Professors, 324 Associate Professors, and 287 Professors are used for this study. Random sample method has been applied in this study to collect the data from the respondents.
Table No.1 Universe of the population and study sample

<table>
<thead>
<tr>
<th>Designation</th>
<th>Universe of the Sample</th>
<th>Margin Error</th>
<th>Confidence level</th>
<th>Study Sample</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>1125</td>
<td>5%</td>
<td>95%</td>
<td>287</td>
<td>29.53</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>1350</td>
<td>5%</td>
<td>95%</td>
<td>324</td>
<td>33.33</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>5800</td>
<td>5%</td>
<td>95%</td>
<td>361</td>
<td>37.14</td>
</tr>
<tr>
<td>Total</td>
<td>8275</td>
<td></td>
<td></td>
<td>972</td>
<td></td>
</tr>
</tbody>
</table>

Table No.2 Distribution of the study sample

<table>
<thead>
<tr>
<th>Designation</th>
<th>Tiruppur (11)</th>
<th>Coimbatore (91)</th>
<th>Total (972)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>31</td>
<td>256</td>
<td>287</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>35</td>
<td>289</td>
<td>324</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>39</td>
<td>322</td>
<td>361</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>868</td>
<td>972</td>
</tr>
</tbody>
</table>

3.6. Methodology of Data Collection

Awareness and use about the e-resources packages, satisfaction of the e-resources package and use of the open e-resources are conducted by the survey method. Questionnaire is a tool to be used to collect the primary data. A standard structured questionnaire model was prepared and used for the pilot study. After pilot study final questionnaire was prepared. It is well structured, preplanned, easily understood, mostly close ended, logically sequenced and in simple English. Extra spaces are provided to the respondents to write their open views. Questions should be dichotomous (yes/no), multiple choices (alternative) or open-ended, Likert-type questions (Isabella and Mohamed Esmail S (2012)).

To attract the respondents, questionnaire should be neatly typed in google forum (Joseph Jestin and Ally Sornam (2016)) and requesting a pleasing appeal (Kothari, 2009) about the survey are presented. An electronic questionnaire was administered to the user for collection of primary data. Google form tool is used for
this study. Technical terminologies and vague expression questions capable of different opinion/interpretations should be avoided.

Dorsch (2000) analysed twenty-five articles about the information needs of rural health professionals; from the results, eighty percent of data collection methods was surveyed and they used questionnaire as a tool for data collection. Similarly, another literature review shows that more than fifty percent of the articles used is survey and twenty-three articles used in interview method. In these two methods of data collection tool was questionnaire schedule. Distribution methods of questionnaires are by post, FAX, e-mail and personal visit to the respondent (Coumou and Meijman, 2006).

The **questionnaire part has in the following sequence.**

1. Personal details
2. Often vesting the library
3. Purpose of visiting the library
4. E-resource seeking behaviour
5. Order of preference of e-resources
6. Place, time and experience in using the e-resources
7. Identified resources for e-resources
8. Main reasons for seeking the e-resources
9. Level of awareness and use of the e-resources
10. Level of satisfaction of the e-resources
11. Level of awareness and use of the open e-resources
12. Pros of e-resources
13. Problems, suggestions and need for e-resource access training

Seven evaluative criteria have been used to prepare the questionnaire.

1. Personal data: This area covers the practitioners complete profile of the respondents’ gender, age, qualification, experience, branch, designation, status of their college, affiliation of the institution, no. of papers published in national and international journals, paper

2. E-Resources seeking behaviour: This part covers the reasons to often access of e-resources, rank of e-sources, place to access, convenient time to access, years of using, accessing hours/week, preferred format of e-resources and purpose of access of e-resources.

3. Awareness and use e-resources recommended by the AICTE.
4. Satisfaction of e – resources package recommended by the AICTE.
5. Awareness and use of the open e-resources.
6. Pros of e-resources.
7. Problems, suggestions and need for e-resources access Training.

3.6.1. Study variables

The following independent and dependent variables are taken-up from the questionnaires to analyses the data.

3.6.1.1. Independent Variables

Various independent variables like, Gender (male and female), Educational Qualifications (PG and PG in Engineering with PhDs), designation (Assistant Professors, Associate Professors, and Professor), Experience (below 5 years, 5-10 years, 11-15 years, 16-20 years, and above 20 years), College status (government, government aided and private) College affiliation (autonomous, university) are used.

3.6.1.2. Dependent Variables

The following dependent variables like, purpose of visiting the library, e-resource seeking behavior, level of awareness and use of e-resources package, satisfaction of AICTE recommended e-resources, level of awareness and use of the open e-resources, problems faced while accessing the e-resources are presented in the questionnaire.
3.7. Data Analysis and Statistical tools

After the data collection, a coding procedure is prepared. SPSS 11.5v statistical package is used for analysis. The following statistical tools and diagrams are used for data analysis.

1. Simple average
2. Chi-square
3. One-way ANOVA
4. Post-hoc Test
5. Weighted Average Scores Plots
6. Bar chart, Pie chart and line chats

After the collection of data, Cronbach’s Alpha (α) was calculated for the responses collected and it varies from 0.645 to 0.724 for various questions. This is considered a satisfactory validity and the scores indicate reliability.

ANOVA is done to compare the means of three or more groups as defined by one or more factors.

Post-hoc Test is a test of paired comparisons made when overall test, such as an ANOVA, is statistically significant.

Weighted Average Scores Plots displays a chart that plots the subgroup means.

Chi-square is a non-parametric test used to assess whether there is a significant association between the rows and columns in a cross tabulation table.

3.8. Assumption

Assumption of the study will be useful for construction of hypothesis. Assumption of the present study is, all the faculty members have good awareness and use of the e-resources for their information needs. They are all satisfied the AICTE recommended e-resources to the library. They have good awareness and use of open sources recommended by the AICTE.
3.8.1. Hypothesis

Based on the assumptions, the following null hypotheses are framed to test collected data. There is no significant difference between the independent variables (gender, educational qualification, age, designation, experience, status of the colleges, affiliation) and dependent variables (purpose of visiting the library, e-resource seeking behavior, level of awareness and use of e-resources package, satisfaction of AICTE recommended e-resources, level of awareness and use of the open e-resources, problems faced while accessing the e-resources).

1. There is no significant difference between the teaching faculty member gender, educational qualification, designation, experience and age of the respondents and their frequency of library visits.
2. There is no significant difference between the educational qualification of the respondents and their purpose of the library visits.
3. There is no significant difference between the designation of the respondents and their purpose of the library visits.
4. There is no significant difference between the often using the e-resources and gender, educational qualification, age, designation, experience, branch, affiliation of the college and status of the college of the respondents.
5. There is no significant difference between the often using the e-resources and gender, educational qualification, age, designation, experience, affiliation of the college and status of the college of the respondents.
6. There is no significant difference between the educational qualification of the respondents and their convenient time to access of e-resources.
7. There is no significant difference between the educational qualification of the respondents and their time spent / week for the accesses of e-resources.
8. There is no significant difference between the educational qualification, designation, and experience of the respondents and their purpose of accessing the e-resources.
9. There is no significant difference between the educational qualification of the Engineering College teaching faculty members and their level of awareness and use of e-resources recommended by the AICTE.
10. There is no significant difference between the designation of the respondents and their level of awareness and use of the e-resources recommended by the AICTE.

11. There is no significant difference between the experience of the respondents and their level of awareness and use of AICTE recommended e-resources.

12. There is no significant difference between the age of the respondents and their level of awareness and use of the e-resources recommended by the AICTE.

13. There is no significant difference between the gender of the respondents and their satisfaction of the e-resources recommended by the AICTE.

14. There is no significant difference between the educational qualification of the respondents and their satisfaction of the e-resources recommended by the AICTE.

15. There is no significant difference between the experience of the respondents and their satisfaction of the e-resources recommended by the AICTE.

16. There is no significant difference between the designation of the respondents and their satisfaction of the e-resources recommended by the AICTE.

17. There is no significant difference between the faculty member’s opinion about the need of the E-resources and open sources training and gender, age, qualification, experience, and designation.

3.9. Limitation

This study data collected from Anna University Zones IX and X (Coimbatore and Tiruppur district) engineering college faculty members only. Deemed universities (Karunya, Karpagam, Amirta and Avinashilinagam) faculty members are not included in this study. English Department, Librarians and Physical Education Department faculty members are excluded from this study.
3.10. Definition of the Terminologies

3.10.1. Access

“The word access is defined as follows:

- A means of approaching, entering, exiting, communicating with, or making use of: a store with easy access.
- The ability or right to approach, enter, exit, communicate with, or make use of: has access to the restricted area; has access to classified material.
- Public access.
- An increase by addition.
- An outburst or onset: an access of rage”. (www.yourdictionary.com/access)

3.10.2. E-resources

“An electronic resource is any information source that the library provides access to in an electronic format. The library has purchased subscriptions to many electronic information resources in order to provide with access to them free of charge. The E-Resources include lots of things: full-text journals, newspapers, company information, e-books, dictionaries, encyclopedias, economic data, digital images, industry profiles, market research, career information, etc.

Many of our databases allow you to create a personal profile in order to keep track of new content via email or RSS feeds. As a member of the UTEP community, 24/7 access is provided to our e-resources on campus or remotely via the library’s proxy server or the UTEP campus VPN”. (http://libanswers.utep.edu/a.php?qid=571860)

3.10.3. Engineering college

“The American Engineers' Council for Professional Development (ECPD, the predecessor of ABET) has defined "engineering" as:

The creative application of scientific principles to design or develop structures, machines, apparatus, or manufacturing processes, or works utilizing them
singly or in combination; or to construct or operate the same with full cognizance of their design; or to forecast their behaviour under specific operating conditions; all as respects an intended function, economics of operation and safety to life and property”. (http://en.wikipedia.org/wiki/Engineering)

3.10.4. Faculty members

“Employees whose notice of appointment incorporates the conditions of faculty service (ABOR-PM 6-201, et seq.). Faculty members include Instructors, Lecturers, Senior Lecturers, Principal Lecturers, Assistant Professors, Associate Professors, and Professors, Professors of Practice, Research Professors, Clinical Professors, Regents' Professors, or any other employees who otherwise are designated in their Notice of Appointment as holding a faculty position. Faculty Members are responsible for the teaching, research, and public service goals and objectives of the University. Faculty members may be tenured, tenure-eligible, or nontenure-eligible. Any person appointed to a faculty position designated as "visiting," "adjunct," "research," "clinical," or such other title(s), will not be tenured or tenure-eligible and will have no expectation of continued employment beyond the end of his or her current appointment period”. (http://facultyaddairs.arizona.edu/faculty-definitions).
References


12. TNEA, 2017, Retrieved from https://www.annauniv.edu/