Chapter 3

Research Methodology

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3.1 Introduction

ICT It is an umbrella term that includes communication devices or applications as well as information technology. It focuses mostly on communication technology rather than information technology.

This technology is advancing very fast. Nowadays computer is indivisible part of information system. Sharing of information takes the help of communication technology. Communication tools are now available in wide range. Since few years, information and communication technologies have given a vast array of new communication capabilities to the society. People can communicate with others in different countries using technologies such as instant messaging, voice over IP (VoIP), and video-conferencing. Many Social networking websites (Facebook, Orkut, Twitter, etc.) allow users from all over the world to communicate on a regular basis.

Information is generated with the help of information technology but needs network of communication devices to distribute or spread the information. These technologies can be very helpful in the governance of the routine functions for the colleges and institutes where huge amount of information is generated on daily basis. The colleges share the information and databases with each other using ICT. It is seen that the uses of this technology brings effectiveness in the governance of colleges. Thus in educational institution where a large volume of information is generated, information technology is used to manage the data and information. Different communication technologies are
adopted for the distribution of information in different functional areas like student admission, exam, personnel, library, purchase and inventory, etc.

These different functional areas could be integrated and a transparent system can be developed and implemented. Most of the institutions use separate modules for different functions. Using various communication technologies the data can be shared among departments and thus reduces the work and increases the speed and provide accurate and relevant reports on real time basis.

3.2 Importance of the subject

Data is of very importance for getting the information. The information technology and the communication technology help in maintaining the records which is useful for creating reports. The management is also able to take the decisions with these records. These decisions can be used for strategic planning. The use of ICT in admission process can help in sorting the records within few seconds. ICT is very useful for the library system for maintaining the records of books, issue and return of books. ICT can be used for the transportation; student attendance records faculty attendance records etc. For all these purposes nowadays many different types of software are available. They are as simple as MS-Office, customized software, e-suvidha or it can be ERP package. Large educational institutions use ICT for various areas for the governance of organizations. But there are many educational organizations that do not use these technologies for the management of all the activities of organization. The researcher has tried to find out extent of utility of ICT for governance of colleges and institutions in both the North Maharashtra University and University of Pune.
3.3 Utility of the Project

The project studies the extent of the usage of Information and Communication Technology for governance in the colleges and institutes affiliated to either North Maharashtra University or University of Pune. The first one is 25 years old and the second is well established 65 years old university. Earlier they were united. With the help of technology (which was not much developed at that time) it was hard to govern all the 6 districts from a single place. Now it has been separated to two universities depending on geographical location. This project has tried to find out the use of latest technology of the governance of higher education in colleges of both the universities. With the advanced technology, the new colleges are growing faster competing with the old ones. This research will find out the extent of usage of ICT and analyze the extent of use of it in the colleges of these universities. This study will analyze use of ICT for governance of the HEIs with respect to age, location and type of institution.

3.4 Statement of the problem

Considering the above factors, the statement of the present study is entitled as “Use of ICT in e-governance of higher education with special reference to colleges affiliated to North Maharashtra University and University of Pune – A Critical Study”. It is believed that the study will give an insight about what extent the latest technologies of ICT is being used by the colleges of these two universities and what are the impressions and impact of ICT on administration of colleges.
3.5 Research Methodology

According to business dictionary research methodology is “the process used to collect information and data for the purpose of making business decisions.” Research means a process of enquiry and investigation; it is systematic, methodical and ethical; research can help solve practical problems and increase knowledge. The term methodology refers to the overall approaches & perspectives to the research process as a whole and is concerned with the following main issues:

- Why you collected certain data
- What data you collected
- Where you collected it
- How you collected it
- How you analysed it


Research methodology (C.R.Kothari) is a way to systematically solve the research problem. It has many dimensions. The research conducted for the critical analysis of the use of ICT in the colleges of two universities has used quantitative and comparative approach. The questionnaire and interview techniques are used to collect the sample data from selected colleges and institutes.

3.6 Objectives of the Study

The objective of the research is to find the answers to certain questions through the applications of scientific procedures. Every research has specific objectives. The study of transformation of governance into e-governance in higher education in specific location has certain goals
The objectives of the research work are enumerated as under:

- To analyse the use of ICT tools used for e-governance of colleges/institutes of North Maharashtra University and University of Pune

Nowadays majority of the institutions use information technology for record management. Many times different departments in the institutions need same kind of information for further processing. The use of communication technology can reduce the efforts of the staff by sharing the data and thus can save the time. Thus the first objective is designed to check out whether these educational institutions actually use ICT tools in different inter-departmental communication and compare their usage in the institutions of both the universities.

- To find out whether the use of ICT affects the e-governance of the colleges/institutes in North Maharashtra University and University of Pune

There are hundreds of colleges in both the universities. The jurisdiction of Pune University includes big and developed cities where as the NMU region is in developing phase. The technology is advancing so fast that the developed and semi developed region are almost affected together. This objective is designed to find out whether such differences exist due to geographical effects.

- To analyse the use of ICT for e-governance in different functional areas between the Higher education institutions of North Maharashtra University and Pune University.

Each institution is divided into different functional areas. All these subsystems have their own procedures and functions. Nowadays technology is widely used for smart working. This objective is designed to find out whether technology is
used to same extent or not in different functional areas in the colleges of both the universities

- To compare the extent of use of ICT in administration in professional and traditional colleges/institutes of North Maharashtra University and Pune University.

There are colleges offering different types of courses to the students. Some offer traditional courses such as graduation and post-graduation in Arts, Commerce and Science colleges. There are other colleges that offer management education and some other technical education. This objective is designed to compare the usage of technology for governance in their colleges.

- To check the willingness of the management i.e governing body to implement the technology for e-governance in institutions.

- To develop a model that will be useful for the governance of Higher education institutions and will be beneficial for the stakeholders.

There are indirect advantages of using ICT for e-governance in the colleges such as decision making, speed, reliability, transparency etc. which leads to better branding of the colleges. This objective is specifically designed to help the organisations by providing a framework for efficient and effective use of ICT for the governance of HEIs.

3.7 Data Collection

The data collection is very important part of the research. The analysis and the conclusions, suggestions, findings necessarily depend on the data that is collected. The
data collected is responsible for correct, reliable and accurate analysis and results. The data is collected by both types viz. primary data and secondary data.

3.7.1 Primary data

Primary data is the data that is collected directly from the organisation. The primary data is collected from colleges of North Maharashtra University and from the University of Pune by filling up questionnaire including structured and a very few unstructured questionnaire. Some interviews were also conducted with the respondents of concerned institutions and colleges.

The data is collected from the colleges and institutes providing professional courses of North Maharashtra University and university of Pune. From each organization the questionnaire was designed for three categories

1. Non-teaching staff: All the details about administration like student admission, personnel administration, purchase, inventory, finance including library details are collected from non-teaching staff. The respondents include registrar, clerks, librarian, lab technician etc.

2. Teaching Staff: Details about student attendance, exams, results, feedback etc. are collected from teaching staff

3. Principal/Director: Details about technical facilities, impression about use of technology, Amount spent on technology, decision making power and problems faced by the organisation regarding the technological usage for e-governance are collected from principals and directors of HEIs.
3.7.1 Pilot study

A pilot study was done by collecting the data from 10 colleges from both the universities from all the departments to finalize the questionnaire and interviews were taken for data collection and suggestion purpose from principal/director of major colleges and institutes. A small analysis test was done to test the relevancy of data.

3.7.2 Secondary data

Secondary data means (C.R. Kothari) data that are already available i.e., they refer to the data which have already been collected and analyzed by someone else.

The major sources of secondary data for the study was

i) Colleges / institutes reports
ii) Magazines, Journals, Newspapers, Published Materials
iii) Internet / websites
iv) Research Journals and Publications
v) Reference books of various Authors etc.

3.8 Sampling

Sampling (R.C.Kothari) may be defined as the selection of some part of an aggregate or totality on the basis of which a judgments or inference about aggregate or totality is made.

There are various types of sampling procedures such as simple random sampling, systematic sampling, stratified sampling, quota sampling, cluster sampling etc. The random sampling procedure is used in his research for sample collection. In a random sample, we sample either proportionately or equally to represent various subpopulations.
Sample size

The sample size used in this research equally represents the colleges and institutions of both the universities. The samples includes the Arts, Science and Commerce colleges in traditional colleges and engineering and institutes providing professional degree such as MBA, MCA, MBM, MCM, BBA, BBM etc. are included in professional colleges. The population and sample size is shown in the following table:

<table>
<thead>
<tr>
<th>Type of HEI</th>
<th>University</th>
<th>No. of HEIs</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td>NMU</td>
<td>94</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>PU</td>
<td>293</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>387</td>
<td>46</td>
</tr>
<tr>
<td>Professional</td>
<td>NMU</td>
<td>34</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>PU</td>
<td>185</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>219</td>
<td>24</td>
</tr>
</tbody>
</table>

Table 3.1: Description of Sample

The following table shows the number of respondents from traditional and professional institutions for the study. It includes non-teaching, teaching and directors and principals of the above mentioned sample.

<table>
<thead>
<tr>
<th>Type of HEI</th>
<th>Non-teaching staff</th>
<th>Teaching Staff</th>
<th>Director/Principal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td>138</td>
<td>138</td>
<td>138</td>
<td>414</td>
</tr>
<tr>
<td>Professional</td>
<td>72</td>
<td>72</td>
<td>72</td>
<td>216</td>
</tr>
<tr>
<td>Total</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>630</td>
</tr>
</tbody>
</table>

Table 3.2: Number of Respondents for the study

3.9 Scope of the study

The scope of research is the areas covered in the research.
1. Functional scope – The functional scope includes the study of the functions for e-governance of different departments such as general, student administration, purchase and inventory, accounting, personnel, library, exam etc. It includes the questionnaire for administration staff, teaching staff and the principal/director of the college/institute.

2. Geographical scope – This scope specifies the location of the study. The research covers the sample from all the districts of both the universities (3 districts each) from professional and traditional educational institutions of these universities.

The data is collected between 2011 to 2013.

3.10 Hypothesis

A research hypothesis is a statement of expectation or prediction that will be tested by research. A hypothesis is a tentative statement about the relationship between two or more variables. A hypothesis is a specific, testable prediction about what you expect to happen in the study.

Considering the objectives the following hypotheses are formulated for the research purpose.

1. There is no significant difference between various ICT tools used for e-governance in colleges affiliated to NMU and PU

2. Usage of ICT affects the e-governance in higher education institutions.

3. There is no significant difference in usage of ICT for e-governance between the colleges/institutes affiliated to NMU and PU in different functional areas.

4. There is no significant difference between the usage of ICT for e-governance in professional and traditional colleges.
3.11 Reliability and validity

Reliability is the extent to which a measurement gives results that are consistent. In reliability the measurement always have to be similar. Thus, reliability is the extent to which an experiment, test, or any measuring procedure yields the same result on repeated trials. Validity of an assessment is the degree to which it measures what it is supposed to measure. Within validity, the measurement does not always have to be similar, as it does in reliability.

While reliability is concerned with the accuracy of the actual measuring instrument or procedure, validity is concerned with the study's success at measuring what the researchers set out to measure.

When a measure is both valid and reliable, the results will be accurate. Though, just because a measure is reliable, it is not necessarily valid (and vice-versa). Validity is also dependent on the measurement measuring what it was designed to measure. Validity (similar to reliability) is based on matters of degrees.

In the present study, a due care has been taken by the researcher while design of questionnaire to confer the reliability of data and since the data is collected by the researcher the chances of error is less, so maximum validity can be expected.

3.12 Analytical and Statistical tools

For testing of hypothesis, statistical tools such as SPSS for Median and variances etc. will be used depending on the need of the study. The findings of the study will be expressed in a prescribed format of Research thesis.
3.13 Limitations of the study

1. The reliability of the study may depend on the authenticity of information provided by the respondents.

2. The methodology to be accepted; the primary and secondary methods of data collection, analysis and interpretation may have their own limitations.

3. Cost and time constraints may affect the effectiveness of the research study though every attempt will be made to keep the spirit of the objectives, hypothesis and research methodology intact.
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