CHAPTER 3

RESEARCH METHODOLOGY

3.1  INTRODUCTION

Survey method through structured questionnaire was adopted for this study.

3.1.1  Sampling Frame and Data Collection Procedure

Primary data needed for the study were collected through questionnaires issued 840, who constitute the sample for the study. They represented a wide spectrum of Government engineering colleges; Private engineering colleges and government aided colleges located in Karnataka. Sample consists of respondents belonging to different functional areas like principal, president, chairman, directors and vice president etc. and are at different educational engineering institutions’.

Convenience sampling was adopted considering the availability and approachability of respondents for the purpose of data collection efforts.

A total of 840 questionnaires were issued through personal contacts, after obtaining official permission from engineering colleges and through the assistance obtained from many executives working in various colleges. Completed questionnaires received were 783, which represent 93% of response rate but only 756 questionnaires were used, remaining 27
questionnaires were discarded because of incomplete answers or partially filled defective responses, as they are not useful for statistical purposes.

Research Gap Model

![Research Gap Model Diagram](image_url)

**Figure 3.1 Research Gap Model**

### 3.2 DATA COLLECTION PERIOD

Questionnaire for sample survey of respondents were distributed during from January to March 2013 and data collection work was extended up to November 2014. Hence, it took approximately eleven months for distribution of questionnaires and collection of data from the respondents.

### 3.3 RESEARCH INSTRUMENT

The research instrument used for this study is questionnaire. The questionnaire was designed to measure the variables of Suitable Model for Better Governance and Management of EEIs to ensure their Competitiveness through an Integrated Approach.
through an Integrated Approach The questionnaire consists of six sections examining the relationship with other variables.

1. AICTE, NAAC and NBA accreditations.
2. UGC and University Norms and procedures.
3. Internal quality assurance
4. Institutions / Colleges culture and environment
5. Work value
6. Perceptions of principal, vice principals, directors, Chairmen, vice chairmen etc.,

3.4 QUESTIONNAIRE DESIGN AND MEASUREMENT

The questionnaire used for data collection is a structured one and has five sections.

It contains five point scale representing three major variables considered for the study, They are

3.4.1 AICTE, NAAC and NBA Accreditations

It contains three dimensions of AICTE, NAAC and NBA accreditations., measured in statements type which are presented in Likert type five point scale, They are:

Sub Dimensions
1. AICTE Norms and Procedures
2. NAAC Norms and Procedures
3. NBA Accreditation Norm and procedure
3.4.2 **UGC and University Norms and Procedures**

It covers two dimensions, measured in statements type question presented in Likert type five point scale, They are:

**Sub Dimensions**

1. UGC Norms and procedure
2. University norms, procedures and verifications etc.,

3.4.3 **Quality Assurance Internal**

It covers two dimensions, i.e., internal quality perceptions and accreditation and reaccreditation procedures, statements type question presented.

3.4.4 **Institution Culture and Environment**

It contains four major dimensions i.e., involvement, consistency, adaptability and mission measured in twenty four statements which are presented in Likert type five point scale, They are:

**Sub Dimensions**

1. Involvement
2. consistency
3. Adaptability
4. Mission

3.5 **WORK VALUE**

It contains work value scale representing Alderfer’s Existence, Relatedness and Growth model. A total of 12 variables were considered to cover the three dimensions of work value scale.
They are

i) Job Security and Economic & Monetary Comforts
   : For Existence

ii) Affiliation with Colleagues, Social Recognition, Authority
    Competition with Colleagues and Autonomy
   : For Relatedness

ii) Creativity, Competence, Ability Utilization
    Achievement in Life thro’ work and work as meaningful activity
   : For Growth

It has been designed to identify the degree of importance and the extent of fulfilment of these values to executives. Hence, the work value construct was presented in two separate three point scales, to represent the degree of importance and the extent of fulfilment of these values and evaluate the gap in their realization of values.

The above dimensions are discussed in twelve statements presented in Likert type five point scale presented.

3.6 DEMOGRAPHIC VARIABLES

It deals with the identification of personal data of respondents to understand the demographic characteristics of respondents. It elicits various job related information also from the respondent, their opinion and commentaries on general work environment and personnel policies in their work institution or colleges.
3.7 SCORING PATTERN

AICTE, NAAC and NBA Accreditations: It contains three dimensions of AICTE, NAAC and NBA Accreditations, measured in statements type which are presented in Likert type five point scale. They are:

Sub Dimensions

1. AICTE Norms and Procedures
2. NAAC Norms and Procedures
3. NBA Accreditation Norm and procedure – in five point Likert type scale starting from strongly disagree to strongly agree – Following weights are assigned to calculate the global score on each variable.

<table>
<thead>
<tr>
<th>Score Points</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree with the statement</td>
<td>1</td>
</tr>
<tr>
<td>Disagreed with the statement</td>
<td>2</td>
</tr>
<tr>
<td>Undecided with the statement</td>
<td>3</td>
</tr>
<tr>
<td>Agree with the statement</td>
<td>4</td>
</tr>
<tr>
<td>Strongly agree with the statement</td>
<td>5</td>
</tr>
</tbody>
</table>

Some Statements are negatively worded to test the accuracy and conscious responding of questionnaire by respondents. Therefore, the scoring was reversed to measure the correct score for the above mentioned negative statements. Average mean score is calculated on the basis of dividing the total score on each variable, by the number of statements represented in each variable.
3.8 NORMS AND PROCEDURES OF UGC, UNIVERSITY

It covers two dimensions, measured in statements type question presented in Likert type five point scale. They are:

Sub Dimensions

1. UGC Norms and Procedure
2. University Norms, Procedures and Verifications etc.,

3.9 INTERNAL QUALITY ASSURANCE

It covers two dimensions, i.e., internal quality perceptions and accreditation and reaccreditation procedures, statements type question presented in five point Likert type scale starting from strongly disagree to strongly agree – Following weights are assigned to calculate the global score on each variable.

Score Points

- Strongly disagree with the statement: 1
- Disagreed with the statement: 2
- Undecided with the statement: 3
- Agree with the statement: 4
- Strongly agree with the statement: 5

Some Statements are negatively worded to test the accuracy and conscious responding of questionnaire by respondents. Therefore, the scoring was reversed to measure the correct score for the above mentioned negative statements. Average mean score is calculated on the basis of dividing the total score on each variable, by the number of statements represented in each variable.
3.10 INSTITUTIONS OR COLLEGE CULTURE AND ENVIRONMENT

It represents ‘Culture and environment’ variables considered for the study, covered in statements type in 5 point Likert type scale, starting from strongly disagree to strongly agree – Following weights are assigned to calculate the global score on each variable.

Score Points
- Strongly disagree with the statement: 1
- Disagreed with the statement: 2
- Undecided with the statement: 3
- Agree with the statement: 4
- Strongly agree with the statement: 5

Some Statements are negatively worded to test the accuracy and conscious responding of questionnaire by respondents. Therefore, the scoring was reversed to measure the correct score for the above mentioned negative statements. Average mean score is calculated on the basis of dividing the total score on each variable, by the number of statements represented in each variable.

3.11 WORK VALUES

This contains work values scale measured in twelve dimensions. Five point scales was designed to analyse the importance of work values and the extent of fulfillment of these values of respondent. Respective scoring pattern for work value scale is presented in five point Likert type scale starting from strongly disagree to strongly agree – Following weights are assigned to calculate the global score on each variable.
Score Points

Strongly disagree with the statement 1
Disagreed with the statement 2
Undecided with the statement 3
Agree with the statement 4
Strongly agree with the statement 5

Some Statements are negatively worded to test the accuracy and conscious responding of questionnaire by respondents. Therefore, the scoring was reversed to measure the correct score for the above mentioned negative statements. Average mean score is calculated on the basis of dividing the total score on each variable, by the number of statements represented in each variable.

3.11.1 Perceptions of Principal, Vice Principals, Directors, Chairmen, Vice Chairmen etc.,

This variable is measured in five point scales, designed to analyse the importance of perceptions of respondent. Respective scoring pattern for work value scale is presented in five point Likert type scale starting from strongly disagree to strongly agree – Following weights are assigned to calculate the global score on each variable.

Score Points

Strongly disagree with the statement 1
Disagreed with the statement 2
Undecided with the statement 3
Agree with the statement 4
Strongly agree with the statement 5

Some Statements are negatively worded to test the accuracy and conscious responding of questionnaire by respondents. Therefore, the scoring
was reversed to measure the correct score for the above mentioned negative statements. Average mean score is calculated on the basis of dividing the total score on each variable, by the number of statements represented in each variable.

3.12 PRETESTING AND PILOT STUDY

The present study was conducted through a structured questionnaire. To understand the communicability of the questionnaire and content validity, as would be perceived clearly by the respondent, Preliminary survey was conducted. A draft questionnaire was given to executives belonging to different colleges in Karnataka and to academicians in the field of commerce, psychology and management, to obtain their views on the design and dimensions considered for the study. On the basis of the comments received from academicians and executives, revisions were made to make the language more communicable. It also resulted in deletion and addition of some dimensions. The structure was also improved.

Then the questionnaire was administered for pilot study to 52 respondent, belonging to different colleges in Karnataka. The data obtained was verified for the reliability of the questionnaire by computing Cronbach’s Alpha co-efficient.

The results are as follows:

1. AICTE, NAAC and NBA accreditations. 0.876
2. UGC and University Norms and procedures. 0.743
3. Internal quality assurance 0.831
4. Institutions / Colleges environment 0.798
5. Work value 0.913
   a. Perceptions of Principal, vice Principals, Directors, Chairmen, Vice Chairmen etc., 0.859
The above reliability co-efficient was considered satisfactory. The final version of the questionnaire was then prepared and used for the study.

### 3.13 FRAMEWORK OF DATA ANALYSIS

The data collected through the questionnaires were analysed by using the following statistical tools.

1. Mean scores, percentages, and standard deviations were calculated for overall analyses.

2. ONEWAY ANOVA (F-Test) and (T-Test) were used to identify the significant differences and association of attributes among respondent.

3. T-test analysis was used to identify the significant differences among Suitable Model for Better Governance and Management of EEIs to ensure their Competitiveness through an Integrated Approach.

4. Stepwise regression was used to identify the factors influencing Suitable Model for Better Governance and Management of EEIs to ensure their Competitiveness through an Integrated Approach.

5. Multiple correlation was used to identify the inter correlation among the basic variables.

6. Cluster analysis was used to examine the respondents’ opinions about the Suitable Model for Better Governance and Management of EEIs to ensure their Competitiveness through an Integrated Approach dimensions.

7. Factor analysis were used to further examine whether certain basic variables could differentiate between the variables.
3.14 HYPOTHESES

1. $H_0$: There is no significant differences between Gender and perception on engineering and Management Institute in Karnataka

   $H_1$: There is a significant difference between Gender and perception on Engineering and Management Institute in Karnataka.

2. $H_0$: There is no significant difference between Marital Status and perception on Engineering and Management Institute in Karnataka.

   $H_1$: There is a significant difference between Marital Status and perception on Engineering and Management Institute in Karnataka.

3. $H_0$: There is no significant difference between Age and perception on Engineering and Management Institute in Karnataka.

   $H_1$: There is a significant difference between Age and perception on Engineering and Management Institute in Karnataka.

4. $H_0$: There is no significant differences between Education and perception on Engineering and Management Institute in Karnataka.

   $H_1$: There are significant differences between Education and perception on Engineering and Management Institute in Karnataka.
5. \( H_0 \): There is no significant differences between Occupation and perception on Engineering and Management Institute in Karnataka.

\( H_1 \): There are significant differences between Occupation and perception on Engineering and Management Institute in Karnataka.

6. \( H_0 \): There is no significant differences between Place of living and perception on Engineering and Management Institute in Karnataka.

\( H_1 \): There are significant differences between Place of living and perception on Engineering and Management Institute in Karnataka.

7. \( H_0 \): There is no significant differences between Gender and perception on Engineering Educational and Management Institute Culture and Environment in Karnataka.

\( H_1 \): There is a significant difference between Gender and perception on Engineering Educational and Management Institute Culture and Environment in Karnataka.

8. \( H_0 \): There is no significant difference between Marital Status and perceptions of Engineering Educational and Management Institute Culture and Environment in Karnataka.

\( H_1 \): There is a significant difference between Marital Status and perceptions of Engineering Educational and Management Institute Culture and Environment in Karnataka.
10. **H₀**: There is no significant difference between Age and perception on Engineering Educational and Management Institute Culture and Environment in Karnataka.

**H₁**: There is a significant difference between Age and perception on Engineering Educational and Management Institute Culture and Environment in Karnataka.

11. **H₀**: There is no significant differences between Education and perception on Engineering Educational and Management Institute Culture and Environment in Karnataka.

**H₁**: There are significant differences between Education and perceptions of Engineering Educational and Management Institute Culture and Environment in Karnataka.

12. **H₀**: There is no significant differences between Occupation and perception on Engineering Educational and Management Institute Culture and Environment in Karnataka.

**H₁**: There are significant differences between Occupation and perception on Engineering Educational and Management Institute Culture and Environment in Karnataka.

13. **H₀**: There is no significant differences between Place of living and perception on Engineering Educational and Management Institute Culture and Environment in Karnataka.

**H₁**: There are significant differences between Place of living and perception on engineering educational and management institute culture and environment in Karnataka.
14. \( H_0 \): There are no significant differences between Gender and perception on NAAC, NBA accreditations, University Norms and Higher Education Policy & Procedure adopted in Engineering Educational and Management Institute in Karnataka.

\( H_1 \): There is a significant difference between Gender and perception on NAAC, NBA Accreditations, University Norms and Higher Education Policy & Procedure adopted in Engineering Educational and Management Institute in Karnataka.

15. \( H_0 \): There is no significant difference between Marital Status and perception on NAAC, NBA Accreditations, University Norms and Higher Education Policy & Procedure adopted in Engineering Educational and Management Institute in Karnataka.

\( H_1 \): There is a significant difference between Marital status and perception on NAAC, NBA Accreditations, University Norms and Higher Education Policy & Procedure adopted in Engineering Educational and Management Institute in Karnataka.

16. \( H_0 \): There is no significant difference between Age and perception on NAAC, NBA Accreditations, University Norms and Higher Education Policy & Procedure Adopted in Engineering Educational and Management Institute in Karnataka.

\( H_1 \): There is a significant difference between Age and perception on NAAC, NBA Accreditations, University Norms
and Higher Education Policy & Procedure Adopted in Engineering Educational and Management Institute in Karnataka.

17. \( H_0: \) There are no significant differences between Education and perception on NAAC, NBA Accreditations, University Norms and Higher Education Policy & Procedure Adopted in Engineering Educational and Management Institute in Karnataka.

\( H_1: \) There are significant differences between Education and perception on NAAC, NBA Accreditations, University Norms and Higher Education Policy & Procedure Adopted in Engineering Educational and Management Institute in Karnataka.

18. \( H_0: \) There are no significant differences between Occupation and perception on NAAC, NBA Accreditations, University Norms and Higher Education Policy & Procedure Adopted in Engineering Educational and Management Institute in Karnataka.

\( H_1: \) There are significant differences between Occupation and perception on NAAC, NBA Accreditations, University Norms and Higher Education Policy & Procedure Adopted in Engineering Educational and Management Institute in Karnataka.

19. \( H_0: \) There is no significant differences between Place of Living and perception on NAAC, NBA Accreditations, University Norms and Higher Education Policy & Procedure Adopted in Engineering Educational and Management Institute in Karnataka.
**H$_1$:** There are significant differences between Place of Living and perception on NAAC, NBA accreditations, university norms and higher education policy & procedure adopted in engineering educational and management institute in Karnataka.

### 3.15 CONCLUSION

The Chapter identified the Research Gap which is framed from the various review of literature discussed, and the problem is identified. Based on the research gap, the title of the thesis is framed and the necessary hypothesis is constructed. Based on that, the Structured Questionnaire is framed. Sample Design is constituted and Questionnaire validated through Pilot Study. Data Analysis tools are discussed and limitations of the study are also listed.