CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

This chapter includes the details of research methodology that has been used in this thesis. It also discusses the justification of the philosophy chosen for this study. The strategy of sampling design (i.e. universe of population, sampling frame, and sample selection technique and sample size) has also been discussed in this chapter. It also describes the participating organization and outlines the methods gathering the data, characteristics of data and statistical tools to be used to analyze the data.

3.2 Research design

The major information was collected followed by structured questionnaires using cross sectional design. In course of data collection, the researcher observed the campuses and collected information regarding the physical environment as well as other relevant information. Some open-ended questionnaires were also included in the study. This study followed the post positivist philosophy (Creswell & Clark, 2011). Analysis and findings of this study are totally based on closed ended questionnaires along with the observation and open-ended questionnaires that were used by the researcher. The quantitative approach was used to test the hypothesis although, the qualitative information has also been nested in the analysis as well as findings of the study.

3.3 Sampling design

As it has been discussed in Chapter I to address the research questions, the researcher used quantitative dominant approaches research design. According to (Onwuegbuzie & Collins, 2007) quantitative research tends to make “statistical” generalizations, which involve generalizing findings and inferences from a
representative statistical sample to the population from which the sample was drawn. In contrast, many qualitative researches, although not all, tend to make analytic generalizations which are applied to wider theory building on the basis of how selected cases fit with general constructs. This study followed (Creswell & Clark, 2011) purposive random sampling design that is associated with quantitative research (design to collect numbers). Multi stage simple random sampling was used to select the respondents.

3.4 Universe and sample size

From statistical point of view, the term universe refers to the total of the items or units in any field of inquiry (Kothari & Garg, 2014). The universes/ population of this inquiries were the faculty members of different campuses working in different position under Tribhuvan University. Tribhuvan University has 1042 total campus including 60 constituent campuses, 563 private campus and 419 community campuses. Under this university 7966 faculty were working in different position (Annual Report: Education Management Information System (EMIS), 2012/2013). The sample allocation of campuses was done by cross classifying five development regions and three types (constituent, community and private) of the campuses. Out of the five development regions, the Mid-Western Development Region was selected purposively (non-probability sampling) for the population of this study. The total numbers of campuses running under Tribhuvan University based on development region and types of campuses are as follows.
Table 1: Regional distribution of campuses under Tribhuvan University

<table>
<thead>
<tr>
<th>Development region</th>
<th>Far-western</th>
<th>Mid-western</th>
<th>Western</th>
<th>Central</th>
<th>Eastern</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constituent campuses</td>
<td>3</td>
<td>6</td>
<td>11</td>
<td>28</td>
<td>13</td>
<td>60</td>
</tr>
<tr>
<td>Community campuses</td>
<td>49</td>
<td>44</td>
<td>112</td>
<td>160</td>
<td>54</td>
<td>419</td>
</tr>
<tr>
<td>Private campuses</td>
<td>33</td>
<td>47</td>
<td>79</td>
<td>304</td>
<td>100</td>
<td>563</td>
</tr>
<tr>
<td>Total</td>
<td>85</td>
<td>97</td>
<td>202</td>
<td>492</td>
<td>167</td>
<td>1042</td>
</tr>
</tbody>
</table>

Source: Education management information system 2012/2013 published by UGC Nepal

Sample size refers to the number of items to be selected from the universe to constitute a sample (Kothari & Garg, 2014). The participants of this study were the faculty members of campuses running under Tribhuvan University at Mid-Western Development Region. Among the five development regions, Mid-western Development Region was selected using the purposive (non-random sampling) sampling design. Then three constituent campuses, six community and two private campuses were selected using same purposive sampling from Mid-Western Development Region. While selecting the required campuses, the three-ecological belt of Mid–western Development Region was considered. Finally, the required number of faculty were selected using simple random sampling. The required sample size for each domain was estimated using the following expressions used by Air Sampling and Survey Handbook with the assumption of a 95 percent confidence interval (z), level of precision 0.045.

\[ n = \frac{NZ^2 \times 0.25}{d^2(N-1)+Z^2 \times 0.25} \]

Where,

Z is the factor needed to achieve the 95 percent level of confidence (1.96),

N is the total population
d Precision level and

n Sample size required

\[ n = \frac{7966 \times 1.96^2 \times 0.25}{[0.045^2 (7966 - 1) + 1.96^2 \times 0.25]} \]

= 448

Hence, the researcher considered 448 sample size for the study. The researcher has sent 510 questionnaires to the respondent. Out of this, 421 responses were received and while editing only 400 responses were considered usable for this study.

3.5 Selection of study areas and its justification

The continuous and rigorous study done by researcher found out education sector as the right place to conduct this study. Among the various national higher educational institutions (Campuses), Tribhuvan University (TU) has its own history and has made a remarkable contribution in national development through education. It was established in 1959 A.D. (Annual Report: Education Management Information System (EMIS), 2012/2013). The choice of research context should have high relevance to work performance which offers high potentiality to make a unique contribution to the motivation to provide high work efforts literature for the following reasons:

Firstly, in the age of globalization, universities are now regarded as crucial national assets. Governments worldwide see them as vital sources of new knowledge and innovative thinking, as providers of skilled personnel and credible credentials, as contributors to innovation, as attractors of international talent and business investment into a region, as agents of social justice and mobility, and as contributors to social and cultural vitality which led the researcher to conduct this study to determine the motivating factors that affect the motivation level of work efforts (Boulton & Lucas, 2008).
Secondly, as mentioned in (Annual Report: Education Management Information System (EMIS), 2012/2013), TU is considered the most important and eldest (1959 AD) academic institutions that covers 81.58% of campuses running in Nepal. More than 7966 faculty members are working at the University. Human capital plays a critical role in the growth and excellence of the institutions, but their contribution remains dependent on several factors (Medabesh, 2013) which led the researcher to conduct this study to determine the motivating factors that affect the motivational level and organization's performance.

Thirdly, the main reason of selecting higher education institutions under Tribhuvan University in Mid-Western Development Region was that the geographical area is backward economically, socially, culturally and educationally. As a result, very few researches have been conducted in higher level by the scholars.

Finally, the critical national situation has touched and affected in all sectors among which TU is also not out of it. The central administration and its wings have been badly affected by the national political and critical pressure that has resulted various imbalances in overall academic session and other all things. The working faculty have been attracted by the various other private and international University affiliated colleges providing sufficient motivational factors which ultimately will cause the low performance of the TU in the future if it is not well addressed in time. Similarly, the boss mentality of the superior shown against the junior faculty also effects on their decision that they have to contribute in TU throughout their life for the national development in education sector. All these remarkable issues and challenges attracted researcher to conduct this study based on the selected institutions and place. The major findings and recommendation made by this study will certainly contribute to improve the supervisor's behavior and other motivational factors that should be made by the
institutions to compete with the new and highly motivated private and government institutions of Nepal.

3.6 Selection of respondents and its justification

The participants of this research were the full time and part time faculty members of the campuses of TU situated in Mid-Western Development Region. The campuses and faculty are scattered throughout the country. So, for selecting the campuses under TU, the researcher employed non-random sampling design. Firstly, the campuses located at Mid-Western Development Region were selected which comprises 9.21% of total campuses using judgment sampling design. The 400 faculty from 3 constituent campuses, 6 from community and 2 from private campuses were randomly selected for the study. All faculty members were the participants from the selected campuses available at the time of researcher visit.

Selected campuses:

1. Bageshwari Multipla Public Campus, Kohalpur Banke
2. Bheri Gyanodaya Campus Khalanga Jajarkot
3. Tila Karnali Multiple Campus Kalikot
4. Farula Multiple Campus Salyan
5. Surkhet Campus (Education) Birendranagar-9, Surkhet
6. Mahendra Multiple Campus Dang
7. Babai Multiple Campus Gulariya Bardiya
8. Surkhet Model College Birendranagar-10, Surkhet
9. Gurbhakot Multiple Campus Sahare-4, Surkhet
10. Madhayapaschim Multiple Campus Nepalgunj, Banke
11. Mahendra Multiple Campuses Nepalgunj, Banke
The reason behind the selecting the faculty:

1. It is the highly-educated manpower of the country,

2. The selected group understands the research topic well;

3. The expected result of the research topic is obtained well from this group

4. The number of faculty is always 90% to 95% in each campus except medical institutions so, it represents whole campus employee.

3.7 Data collection

To address the research questions, the required data were collected through secondary and primary source. Published books, journals, working paper, literature review, and meta-analysis were the main source of secondary data. The data collected through questionnaires, observations were main source of primary data in this study.

3.8 Data collection strategy

Cross sectional research design was used to collect the information from the respondent. Based on the post positivist philosophy, structured questionnaires were used for information collection from the respondents. Besides the structured questionnaire, the researcher used observation list to collect the information of physical as well as overall environment of the campuses.
3.9 Tools of collecting primary data

The primary data were collected using structured questionnaires that follows quantitative strategy. The main aim of collecting data through quantitative strategy was to make “statistical” generalizations, which involve generalizing findings and inferences from a representative statistical sample to the population from which the sample was drawn. Survey research design was selected to collect primary data. Survey research provides a quantitative or numeric description of trends, attitudes or opinions of a population by studying a sample of that population (Creswell & Clark, 2011).

3.10 Tools of collecting of secondary data

The main tools of secondary data collections were different websites of online as well as published journals. In addition to this, the secondary data were collected using newsletters, article, books, unpublished PhD thesis, etc. These were obtained through library, e-library and different internet search engine.

3.11 Questionnaires development

The questionnaire was developed in English language because all the respondents were faculty members of campus having the least qualification of post graduate. Some questions were self-developed, and some were adopted from previous researches. Most of the questions were formulated in closed ended pattern using Likert-type scale, ranging from 1 (least important) to 5 (most important). Some questions were formulated in yes/no format, ranking order and opened ended structure in the questionnaire. To collect the personal information of respondent, 11 background related questions were included in the questionnaire. Remaining question numbers 12 to 64 were related to the independent variable and question numbers 65 to 102 were related to dependent variable. The midpoint of the questions was labeled moderate. The extreme positive and negative anchors of the scale were labeled as: very, highly or
strongly on the scales. The personal information of the researcher, university, purpose of data collection, confidentiality and use of data and instruction to fill up the questionnaire were given along with the questionnaires.

### 3.12 Questionnaires administration

The researcher directly communicated to the campus chief of selected campuses and described the information about the survey work and requested to set the proper time for the campus visit. The campus chief, assistant campus chief and somewhere teaching faculty also helped to be introduced among the faculty members to distribute research questionnaire. Some questionnaires were distributed through personal contact with group of staff. The campus authority assigned one faculty member to collect the questionnaires in the campus. Some questionnaires were collected directly by the researcher through personal contact. The researcher distributed 510 (Five hundred ten) questionnaires to the faculty members available at the campus visit and direct personal contact. Out of the distributed 510 questionnaires, 421 (Four hundred twenty-one) were returned to the researcher. The survey was conducted from 17 May 2015 to 12 November 2015.

### 3.11 Reliability and validity test of research instruments

Validation (or testing) of the data is often done by applying the Cronbach alpha on the sets of items to check for internal consistency. This answers questions such as: do the answers to the questions follow a certain trend together? A Cronbach alpha of .60 is acceptable but .70 and above are even better (Cronbach, 1951). In literature, the widely accepted social science cut off is .70 or higher. This is because, at .70, the standard error of measurement is over half (.55) of the standard deviation (Cronbach, 1951). The bigger the Cronbach alpha, the more consistent the data is in predicting the underlying factor.
An instrument has been valid, if the measurement measures accurately, what they are intended to measure. Discussions were made between the faculty and peers to measures the content validity, that either the instrument provides adequate coverage of the topic under study. The criterion related validity (predictive validity) was measured using the correlation between the independent and dependent variable.

3.12 Pilot study

Testing a questionnaire (mostly through a pilot study) is important and is done before the final administration of the questionnaire. The purpose of the pilot test ‘is “...to refine the questionnaire so that respondents will have no problems in answering the questions”’ (Saunders, Lewis, & Thornhill, 2003). The testing phase further, allows the researcher to examine reliability and validity of the data.

A pilot study is typically tested on the sample population as those included in the main study. Therefore, for pilot study five campuses from three ecological belts were selected. From hill, ecological belt Tila Karnali Multiple Campus Kalikut, from mountain ecological belt Bheri Gyanodaya Campus, Khalanga Jajarkot, Farula Multiple Campus Salyan and Surkhet Campus (Education), Birendranagar Municapility -9, Surkhet were selected. Then, from Terai ecological belt Bageshwari Multiple Public Campus, Kohalpur- Banke was selected for the pilot study. For the pilot study 200 questionnaires were distributed and 126 responses were returned. A preliminary analysis revealed an internal consistency in the data with Cronbach's alpha of .910 of 133 items of 126 respondents on the expectancy part of the instrument. It indicates very good consistency levels for further analysis. Based on the advice of the respondent the questionnaire was slightly revised and distributed for final data collection.
3.13 Data analysis

A preliminary cleaning and formatting of the data was the first step in data preparation. This included renaming of variables such as limiting the number of characters to fit the specified nomenclature of SPSS version 20. Data were thereafter, exported to SPSS for diagnostic and reliability analysis. Using SPSS statistical software, the descriptive (mean, standard deviation) as well as inferential statistics (pair t-test, one-way analysis of variance (ANOVA) used to calculate the required result.

3.14 Descriptive statistics

Descriptive statistics provide the necessary steps for scrutinizing the data and in many ways, validate it for further analysis. This includes, measures such as means and standard deviations. The mean statistics assess the central measure of the distribution of the data and therefore, provides insight into how well the measurement instrument addressed the issues of the research questions. For a scale of 5 points, the appropriate means should spread around 3.0. Additionally, the means would give a sense of bias if the measures are far close to five or lower than one. Different means can be established depending on the way in which certain results are interpreted and considered meaningful to the research.

The standard deviation gives the variations of the data from the central value, which is the mean measure, and checks how big the range of variation is. It gives the confidence level of the data spread.

3.15 Pair t-test

Questionnaires were designed to measure the current perception and expected perception of faculty' in working organization perceived by them. This design helped to measure the actual condition existed at present, its effect on working organization regarding with particular variable. The pair t-test was used to analyze the current and
expected expectation of faculty' towards the supervisor's behavior, co-workers' behavior, incentive system followed by the organization, physical environment and job characteristics. In first stage, the pair t-test was done including all individual variables to calculate the variable wise pair t-test value. Then, in next stage combined pair t-test was calculated of all five independent variables to check the total significance of pair t-test value.

3.16 Factor analysis

The independent variables questionnaires were large in size. Using the exploratory factor analysis, the variable was reduced through grouping in similarities. Principal component analysis method (PCA) was used to convert the set of observation of possibility of correlated variables into a set of values of linearity of uncorrelated variables (Kothari & Garg, 2014). The transformation was designed in such a way that the first principal component account for the largest variability in the data, and each succeeding component in turn has the highest variance possible under the constraints that it is uncorrelated with the preceding components. Descriptive statistics option was used to calculate the value of the KMO and Bartlelt's test of Sphericity. The correlation matrix extraction method was used to find the loaded value of each variable. The scree plot was selected for the graph presentation of eigenvalue. Then in first stage the exploratory factor analysis was used to extract the factor having greater than 1 eigenvalue. Then rotated each other to remove the overlapping each other variable using 0.50. Then each component was checked the minimum requirement to be contained in each component. If the requirement did not match, using fixed number of factor component analysis (confirmatory factor analysis) was used to extract the factors with maximum iterations for convergence 25. The varimax method was used to rotate the variables. Then using the option, the variables were sorted on size and suppress small
coefficient absolute value below 0.50 was used and for managing missing variable exclude cases list wise was used. Completing the above procedures reduced required number of variables were computed which has been called latent variable and subjectively the factor name was given for each component.

3.17 Analysis of variance (ANOVA)

The latent variable derived from the factor analysis were used to calculate the one-way analysis of variance (ANOVA). This test is based on the concept of partitioning viability sum of square for total variance (SST) into sum of square between samples or categories (SS between) explained variability and sum of square within (SS within) unexplained variability. Then mean sum of square will (MS between and MS within) will be calculate dividing by its corresponding degree of freedom. Then $F$ ratio will be calculated dividing MS between by MS within. The normality of residuals, the statistics $F$ follows Snedecor's $F$ distribution with $(1, n-2)$ df. This method was selected because in ANOVA it is easier to test two or more mean at a time and ANOVA is the most commonly used technique for comparing mean.

3.18 Power test of hypothesis

Statistical power refers to the probability of correctly rejecting the null hypothesis of no effect. For the testing the power of hypothesis G*Power 3 software was used. Under the option of test family, t test was selected. For the statistical test "Means: Difference between two dependent means (matched pairs)" was selected. Post hoc: Compute achieved power was selected for the types of analysis of power. Similarly, for F -test ANOVA: "Fixed effects, special, main effects and interactions" was selected with Post hoc: Compute achieved power.
3.19 Measures of variable

Background variable

These variables were self-developed for the collection of individual information of the respondent. Eleven questions were included in this study to collect the individual information. All items appear in the appendix.

Co-worker's behavior

Most of the research questions related to co-worker's behavior were adopted from (Wang, Xue, & Su, 2010) with slightly modification and others were specially developed for the study. Items were rated on five-point Likert scale that ranged from very high (5) to very low (1), to measure the faculty response towards co-workers' behavior. Twelve structured questions were included in this study to collect the peers' response in their working places observed by the faculty. All items appear in the appendix.

Supervisor's behavior

For the measures of supervisor' behavior and control, in this study fifteen questions were used. Some of the items were adopted from (Wang, Xue, & Su, 2010) and others were written specifically for this study. Items were rated on five point Likert scale that ranged from very high (5) to very low (1). All items appear in the appendix.

Physical environment

The physical environment consists the development of infrastructure as well as personal safety measures in the working places. Items were rated on five point Likert scale that ranged very high (5) to very low (1). Eleven questions were included in this study. All items appear in the appendix.
Incentive system

Incentives questions were designed by including monetary as well as non-monetary incentives. Some of the items were adopted from (Ozlen & Hasanspahic, 2013) and others were written specifically for this study Items were rated on five-point Likert scale that ranged very high (5) to very low (1). For the data analysis, single dimensional factor was used in this study. Six questions were included for the collection of respondent. All items appear in the appendix.

Job characteristics

The research questions related to job characteristics were adopted from (Hackman & Oldman, 1974) with modification. Items were rated on five-point Likert scale that ranged very high (5) to very low (1). Eleven questions were included to measure the job characteristics. All items appear in the appendix.

Job satisfaction

Using eleven questions the job satisfaction of the faculty was measured. Some of the items were adopted from (Parvin & Kabir, 2011) and others were self-developed. Items were rated on five-point Likert scale that ranged highly satisfied (5) to highly dissatisfied (1). All items appear in the appendix.

Job performance

The job performance of the employee was measured using eight questions. Items were rated on five-point Likert scale that ranged strongly agree (5) to strongly disagree (1). Some of the items were adopted from (Ali, Elm, & Mohamad, 2013) and others were self-developed for the study. All items appear in the appendix.

Job commitment

The questions used in job commitment were adopted from (Allen & Meyer, 1990) with slight modification. Items were rated on five-point Likert scale that ranged
strongly agree (5) to strongly disagree (1). Ten selected questions were included to measure the commitment towards job and organization of the faculty. All items appear in the appendix.

**Turnover intention**

The turnover intention was measured using two questions. For example, have you ever thought leaving the current organization? And are you searching alternative job? In this way, the intention of the turnover was measured of the faculty. All items appear in the appendix.

**Absenteeism**

The absenteeism days were recorded from the previous fiscal year with the help of campus administration. Only one question was asked for the collection of absenteeism days of the faculty i.e. in the past 12 months, how many days were you absent from work? All items appear in the appendix.