Chapter IV
RESEARCH METHODOLOGY

This chapter describes the Research Methodology used for this Research Study. The Descriptive and Analytical method is used to show and to understand the relation between variables that were included in Research Design i.e. Multiple Intelligences and Career Planning of MBA students under NMU, Jalgaon during 2001-2011. Chapter presents and explains Research Process including-Research Design, Sampling Design, Data Collection and Analysis strategies and Research Execution in detail along with Research Tools and their reliability & validity.

4.1. INTRODUCTION-

‘Research is an art of scientific investigation’ (Kothari, C., R, 2011) this statement is very correct. Research is on one hand an art and it should be done scientifically on the other. ‘Research’ refers to the systematic method consisting of enunciating the problem, formulating a hypothesis, collecting the facts or data, analyzing the facts and reaching certain conclusions either in the form of solutions(s) towards the concerned problem or in certain generalizations for some theoretical formulation (Kothari, C., R, 2011). When one wants to know something and find out some related facts about it, he collects some relevant information, prepares a systematic plan about it, then assesses that information with particular objectives and then get the results in desired form; ultimately he conducts Research for that. Conducting research to deal with any problem is a scientific, systematic and interlinked exercise which requires sound experience and knowledge (Bajpai, N., 2011).

Where on the other side, Research Methodology means a systematic process followed by the researcher to conduct his research. In that he prepares a proper and appropriate plan for using various research methods to fulfill desired objectives. Every researcher has to construct his research methodology. When we talk of research methodology we not only talk about the research methods but also consider the logic behind the
methods we use in the context of our research study and explain why are using a particular method or technique and why we are not using others so that research results are capable of being evaluated either by the researcher himself or by others (Kothari, C., R, 2011). The Research Methodology is like a mirror of quality and depth of research work done by the researcher and due to this, it has to be prepared carefully. It is the answer for all the questions related to research like what is the research problem is?, how the research is to be conducted?, what is the research hypothesis and why it has been developed?, how the data is to be collected?, how the collected data is to be analyzed and why?, and many others. In this chapter, researcher tries to explain the methodology he followed for attainment of objectives of his research work.

As discussed in previous chapter, the successful career is the result of better Career Planning done through self assessment specifically through Multiple Intelligences Assessment. Researcher has already explained the purpose, significance and conceptual framework of this research. Research Methodology will help to understand how this research work has been executed through a systematic & purposeful process because every research on the particular issue is a result of the same. Researcher adopted a logical flow of steps to know how to execute this research work effectively. When one knows how research is done, then one may have satisfaction of acquiring a new tool which can become a way of looking the world of judging everyday experiences (Kothari, C., R, 2011)

**4.2. RESEARCH PROCESS APPLIED**

Researcher adopted following steps to execute his research work in effective manner-
4.2.1. Research Problem Formulation

➢ General Meaning- “It refers to some difficulty which a researcher experiences in the context of either a theoretical or practical situation and wants to obtain a solution for the same” (Kothari, C., R, 2011). To formulate the Research Problem means to understand the challenges and their difficulty which researcher has to face while conducting the actual research. In traditional meaning, it can be a set of situations which need to be discussed and to find out its solutions. Where in technical aspect, it is like an outcome researcher wants to come through empirical investigations carried out by collecting and analyzing the data.

➢ Used for Research Purpose- ‘At the very outset, the researcher must single out the problem he wants to study’ (Kothari, C., R, 2011). Likewise, researcher first figured out the general idea of research i.e. the Multiple Intelligence which he got in national level FDP, he undergone in 2010 at Pune. Then he studied the concept thoroughly from the various aspects. Then, by resolving some of the ambiguities through deep study, he found that the MI plays a vital role in the basic stage of Career Planning of the students. Through further studies on the same issue, he found the significance of MI Study in Career Planning of Management Graduates.

As being a faculty member in the same field and his concern to the career planning of his students, he came to select this research problem for this research work. By discussing the topic with research guide for several times, he reframed the topic and made it specific by considering the feasibility and practicality of the execution of the research. So, through this generalization and specification researcher framed his research problem in form of a further statement- ‘To study the role of MI in Career Planning of MBA Students under NMU, Jalgaon’.
4.2.2. Research Design-

➢ General Meaning- Research Design is nothing but the conceptual framework to execute research within its boundaries. It should be frame with more care and by realizing available resources to researcher for his research work like time, money and efforts etc. It is like a path on which one has to keep his steps carefully to reach the objectives. The main function of research design is to provide for the collection of relevant evidence with minimal expenditure of effort, time and money (Kothari, C., R, 2011). All this should be done by keeping birds’ eye on the objectives of the research because they are like destinations of research journey. Research Design is like a plan for conducting research and it is needed to conduct research work smoothly and hassle free. The well prepared Research Design is flexible enough, economical, reliable and with minimum bias to give more accurate and appropriate results from conducted research work by using it.

➢ Used for Research Purpose- As it focuses on the condition set and nature that surrounds the data, this research study is being basically a Descriptive Research Design. The descriptive research studies are the studies which are concerned with describing the characteristics of a particular individual or group (Kothari, C., R, 2011). Also on some points this research needs a Diagnostic/Analytical Approach as it is concerned with the relation between variables i.e. Multiple Intelligence and Career Planning of the respondents.

Also as the researcher can clearly define what he wants to measure, how it is to be measured and clear cut idea of the population from whom it is to be measured, makes this research design ‘Descriptive’. The approach and purpose of research makes a design less flexible and more focused towards the achievement of research objectives. This research design also can be called as ‘Survey Design’ as it takes in
to account all steps involved in survey related to a concept or phenomena to be studied through it.

4.2.3. Sampling Design-

➢ **General Meaning**- Sampling design plays very important role in the survey designed researches. Sampling is the process of selecting units or samples from a population of interest so that by studying the sample we may fairly generalize our results back to the population from which they were chosen (Sachdeva, J., K., 2010). It deals with sample population and its unit, sample frame or source list, determination of sample size the data to be collected from, sampling method i.e. the way of selection of samples of determined size from the whole population. For this, the budgetary and other constraints should be taken under considerations. The Sampling Design should have appropriate sample size which can represent the total sample population; it should have small sampling error and minimum bias and the results come out of it can be applied in general.

➢ **Used for Research Purpose**- As researcher adopted a Descriptive type of research design in which the sample size is being chosen systematically and with more care. A sample design is a definite plan for obtaining a sample from given population (Kothari, C., R, 2011).

For this research, researcher follows a scientific way of sampling design which helps to draw out the desired conclusion and result from this study.

The design of the sample is described as follows-

a. **Type of Universe**- The universe i.e. set of objects. In this research, it is to the students of MBA under NMU, Jalgaon during the specific period of 2001 to 2011. As there are certain numbers of students who are or were studying under NMU,
Jalgaon this type of universe can be termed as ‘Finite Universe’. And the required sample sized can be chosen out of it.

b. **Sampling Unit**- For this research purpose, researcher has selected such MBA Students who are or were studying under NMU, Jalgaon during the specific time horizon i.e. 2001 to 2011. So here only one such sampling unit exists which is split as Current & Passed Out Students.

c. **Sampling Frame**- The source list i.e. Sampling Frame is the source through which the determined sample should be selected. For this research, a list of current students and list of alumni from the various MBA Institutes providing fulltime MBA Degree Course have been considered.

d. **Sample Size**-To choose the optimum sample size is a major challenge in any research. An optimum sample is one which fulfills the requirements of efficiency, representativeness, reliability and flexibility (Kothari C R, 2011). While selecting sample size it is important to consider an acceptable confidence interval level, acceptable margin of error (level of significance). Also the total population size is required to select optimum sample size for the research. In this research researcher determined the sample size by scientific and statistical method.

The total sample population is determined from following data-

For this purpose researcher considered the total number of MBA students who are or were studying under North Maharashtra University, Jalgaon during selected time period. This data is collected from Institutes and DTE’s Official Information Brochure. The Table 4.1 shows the data for 2001 to 2011 considered for total sample population (on the basis of intake capacity & not actual admissions) while Table 4.2 shows recent two years data for 2012-2013.
Table No. 4.1- Table showing sample population on the basis of intake capacity

<table>
<thead>
<tr>
<th>SN</th>
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<th>2002</th>
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Along with this data the Research Work related to Topic that is done by the researcher during 2011-2013 in the form of Research Papers is mentioned in Appendix 3.
From the Table 4.1, it is being clear that the sample population is to be considered 4020. The desired sample size has been selected from this sample population. For the statistical determination of sample size researcher has used the online sample determination software called Raosoft Sample Size Calculator. In that software the required things are Sample Population which we determined from the above table i.e. 4020, Confidence Interval (Amount of Acceptable uncertainty) which is considered as 95%, Margin of error is like in most of the cases taken as 5% and the Response Distribution which is considered at 50% where it always be at its high. By feeding all this information, software has calculated the optimum sample sized scientifically and statistically. The screenshot of the same is provided below-

![Raosoft Sample Size Calculation](Source-www.raosoft.com/samplesize.html)
This calculation is found valid because it is based on the following statistical formula is being used when sample size is more than 30 with Normal Distribution.

The formula for determination of sample size is as follows-

\[ n = \frac{N x}{((N-1)E^2 + x)} \]

Where, \( n \) = Sample Size to be determined, \( N \) = Sample Population

\( E \) = Margin of Error, \( x \) = Calculation by the critical value

in this the ‘x’ can be derived as-

\[ x = Z(c/100)^2 r(100-r) \]

Where, \( r \) = Fraction of Responses

\( Z \) = is critical value for confidence level \( c \), \( c \) = Confidence Level

By the above calculations the derived sample size is 351. According to this technique the Sample Size for given Population must not below 351 means it can be equal to or more than 351.

**Final Sample Size** - For more reliability and by considering the probability of getting some non respondents or half filled questionnaires, researcher decided to select sample size as 400, which is nearly 10% of the total sample population. This is an estimated sample size and not the actual one which is to be used for the data analysis purpose. The questionnaires which are filled properly are only to be considered for the purpose of data analysis.

e. **Sampling Method/Technique** - For the correct and better results, every researcher must select appropriate technique to reduce sampling error. In this research, for selecting a sample from population researcher has used Mixed Sampling Method.

For **Current Students** (Students studying in final year MBA) while collecting
data) he has used Random Sampling with Judgment. While selecting a sample from Alumni/Passed Out Students (Students who were Passed Out while collecting data), researcher has used Snowball as well as Convenient Sampling Technique. With this combination of sampling techniques researcher selected sample size which can represent the sampling unit. The use of such techniques can be justified because the sample population is more likely.

4.2.4. Data Collection-

➢ General Meaning- Data refers to a collection of natural phenomena descriptors, including the results of experience, observation or experiment or a set of premises (Sachdeva, J., K., 2010). To collect appropriate data is very important for the viewpoint of research because it is the ultimate source to reach to the objectives of any research. There are various ways to collect the data but, to choose correct one is important. By considering nature and objectives of research, budgetary constraints, available time and efforts to be offered, one should go for collecting data. The data is to be collected in Primary and Secondary form. Primary data can be collected through tools like Questionnaires/Schedules, Observations, Discussions and Interviews etc. where Secondary data can be collected through Books, Magazines, Internet etc. While using above tools their reliability and validity has to be verified by various means.

➢ Used For Research Purpose- Collecting data has always been a very important step in every research. On the basis of this collected data, the purpose of research can be fulfilled. The quality & accuracy of this data is also essential to make research an original and valid research work.
As per as this research study is concerned, researcher used various sources to collect the relevant data required for it. The systematic and planned efforts were taken so that the objectives of the research study can be achieved. Researcher has collected relevant data in two forms which are nothing but Primary and Secondary data. Primary data he has collected by the mean of questionnaire, discussions and observations. This data have been collected by the researcher starting from March 2012 to December 2013.

I. **Tools used to collect Primary Data**-

As mentioned above researcher collected Primary data through various resources.

a. **Questionnaire**-

i) **Framework**-

To collect data regarding MI Level of MBA Students under NMU, Jalgaon & their opinions with respect to Career Planning, researcher has used Questionnaire. As sample compositions comprises of Current and Passed Out MBA Students; researcher has used questionnaire for each. There is no such significant difference between both the questionnaires, as Part A is common for all. Only some placement details and job relevant opinions for the passed out students are additional.

Questionnaires comprise of two parts,

- **Part A (Multiple Intelligence Test)**-

  It has been used to test the MI Level score. This part of the questionnaire contains **40 questions**. As the test is for 8 basic intelligence areas, for each area there are 5 relevant questions. These questions are on the basis of MIDAS MI Inventory used for this purpose. These questions are nothing but the statements showing person’s interest in mentioned activity or task. e.g. You are fond of reading books, magazines, newspapers etc. To this statement respondent should rate his interest
For this rating, researcher has used **Likert’s Rating Scale** i.e. respondent has to mention his response from **1 to 5** where **1 is for Lowest** Interest or intensity and **5 is for Highest** Interest or intensity for the mentioned task or thing (Questionnaire is in Annexure part of this thesis). On the basis of these responses given by the respondents, their MI Scores have been calculated.

Again, while filling up the questionnaire respondent **didn’t know that which statement belongs to which category of Intelligence.** Also, the adequate care has been taken in arranging the sequence of the statements randomly and scattered manner so that more accurate and honest responses can be recorded.

Then the MI Score has been calculated. As for each of 8 intelligence categories there were 5 questions. So as per Likert’s Scale-

\[
\text{Interest or intensity of respondent into mentioned task/thing i.e. } 5 \\
\times \\
\text{Number of questions for the respective category of intelligence i.e. } 5.
\]

\[
(5 \times 5 = 25).
\]

So, on the same basis score for each of intelligence categories can be calculated out of **25**. The respondent can score separately for each of the eight intelligence categories with the given manner. As per the Howard Gardener’s Theory of Multiple Intelligence, no person can have zero intelligence in any of these intelligence categories so the score of the respondents cannot be zero and it lies between **minimum 5 to maximum 25** in respect of each intelligence category.

The question sequence for each of the basic eight intelligence categories is given as-
Table No.4.3–Table showing Question Sequence for Intelligence Categories

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<th>Intelligence</th>
<th>Question No. for Intelligence</th>
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</tr>
</thead>
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<td>7-</td>
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<tr>
<td>Mathematical</td>
<td>1-</td>
<td>5-</td>
</tr>
<tr>
<td>Bodily Kinesthetic</td>
<td>4-</td>
<td>9-</td>
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<tr>
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<tr>
<td>Visual- Spatial</td>
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<td>25-</td>
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</tr>
<tr>
<td>Naturalistic</td>
<td>26-</td>
<td>30-</td>
</tr>
</tbody>
</table>

Illustration for score calculation: Suppose we calculate the score of respondent for Linguistic Intelligence. The assumed score for the questions is (2-2, 7-3, 12-2, 17-4, 35-3) and relevant total score can be calculated as (2+3+2+4+3 = 14). This illustration is giving that a respondent scores 14 out of 25 for Linguistic Intelligence. In this manner the score has been calculated for each of intelligence category for each respondent.

According to score attained by the respondent, his performance in respective intelligence category is being rated as follows:

21-25: Strong in that area

15-20: Moderate Level

Below 15: Comparatively Weak & Need to improve.

- Part B (For Career Planning)-

This part of the Questionnaire is related to Career Planning issues of the respondents. This part contains the opinions and views of the respondents on Need of Self Assessment in Career & to set Career Goal, Satisfaction to Career Selection and other related issues. From the assessment of these opinions, researcher wants to associate them with their MI Scores. For this part,
questionnaires for current as well as passed out students differ on some of the questions. There are 10 questions for Current Students while 16 for Alumni/Passed Out. Questionnaire for passed out students i.e. for Alumni has these additional 6 questions related to their placement details, their opinions on relevance of MBA Curriculum and corporate requirements etc. The Likert Scale is also used for this part, as per responses for each question from the available options.

ii) Evaluation of Questionnaire (Validity & Reliability)-

As in most of the researches the questionnaire is getting used for data collection, it is to be ensured that it is valid and reliable. In this research, researcher also used the questionnaire to collect the Primary Data. Before using it for the purpose researcher has ensured its validity and reliability. For this, researcher has followed the process having points- Background, Format, Validity and Reliability which is proposed for the same purpose (Radhakrishnan, R., 2007) as follows-

- Firstly, in Background of this questionnaire researcher used the questionnaire which was used before for the same purpose by various people. It is based on statements provided in MI Inventory used by MIDAS for this purpose.
- Then, researcher Formatted questionnaire by making some necessary changes in it to Validate it from the aspect of its content, context and criteria. Also he made it understandable by using some familiar words from Indian aspects. Through it, researcher has tried to ensure the use of questionnaire for which it is prepared.
- Researcher then used it for the Pilot Study (Test & Retest Approach) on 20 students. To make it better through several discussions with
research guide and through deep study, researcher applied the **Likert Scale** to measure the test score and also changed the sequence of all the related questions to make it more unbiased. After that he equipped the questionnaire with some preliminary information of respondents and career planning questions which were added by ensuring its **content and contextual validity**.

- The **reliability** issues ensured by using formatted questionnaire for 20 students again (Test & Retest Approach) which then added in to total collected data after getting ensure about its **consistency and effectiveness**. Also, as respondents do not have an idea regarding question sequence and intelligence categories, **chances of biased responses have been reduced** which made a questionnaire a good questionnaire because of systematic development. For data collection, it is important to reduce measurement errors occurring through questionnaire, content, design and format etc.

After finalizing the questionnaire, researcher got questionnaire designed & prepared in **electronic form of Googledocs (online)** through which data can be exported into **MS-Excel format** as it can be utilized for data analysis. This online questionnaire has been utilized for both forms of questionnaire i.e. for Current as well as for Alumni (Passed out) Students. The links for these questionnaires are as-

**For current students**-  https://docs.google.com/forms/d/1_n-lZUtDt6yvtxgZbImUcORcxbJegnOFgrcj1iu5hYUE/viewform

**For Alumni (Passed out)**-  https://docs.google.com/forms/d/1dsLx9gFljCxFVqL2EFFUOdbjQBdG7doj9RbNXEdN4c/viewform
Besides this, researcher got questionnaires filled in paper and electronic form from the current students by personally visiting MBA Institutes under NMU, Jalgaon.

For getting questionnaire filled from passed out students, researcher sent the above link through e-mail to more than 400 passed out MBA students from NMU, Jalgaon during 2001-2011. The details of filled questionnaires and actual number of respondents are given in Chapter V.

b. Observations- Observation is vital source of primary data. Researcher observed the various related things to the research as he is a part of several academic processes involved in the MBA degree course. He observed students’ behavior and response to their career planning as well as students’ efforts to attain their career goals. Observation is effective method to find out facts related to research topic.

c. Purposive Discussions- researcher has discussed the various aspects of research like MI, Career Choices, factors affecting with MBA faculties, corporate experts and passed out MBA students.

d. Besides all these, researcher has got the primary data through interactions with experts by various professional websites. Also he has got the primary data from the official website of H Gardner where he himself answers all the questions asked by various experts and scholars from the world who study several related topics to Multiple Intelligences.

II. Secondary Data-

Besides the Primary Data, the Secondary Data provides guideline to the researchers to accomplish their research work. The relevant literatures and previous studies over the similar topic can give several new ideas to the
researchers which make their research a good research. In this research, researcher also has studied the secondary data available to make his research process more effective. He has used various literatures available through books, magazines, journals and internet for which he visited libraries like Jaykar Library, Pune, Central Library, NMU etc. Also previous research studies on Multiple Intelligences and Career Planning have been studied by the researcher.

4.2.5. Data Analysis, Hypothesis Testing and Interpretation-

➢ General Meaning- The analysis of data requires a number of closely related operations such as establishment of categories, the application of these categories to raw data through coding, tabulation and then drawing statistical inferences (Kothari, C., R., 2011). To get the results in from the collected data it becomes essential to analyze that data in an appropriate manner. The raw data must be coded, arranged and tabulated in correct format which helps researcher in analysis. In the process of analysis, relationships or differences supporting or conflicting with original or new hypotheses should be subjected to tests of significance to determine with what validity data can be said to indicate any conclusion(s) (Kothari, C., R., 2011). By using all possible and feasible statistical measures with verifying their validity and reliability the actual data analysis can be done. Then the appropriate interpretations can be draws to make it more understandable.

➢ Tool Used for Research Purpose-The collected data is to be analyzed to come to results of the research. Researcher has collected primary data through questionnaire by getting it filled personally as well as through electronic formed questionnaire which directly got converted into MS-Excel Format. Where the decoding is done and again it is converted in to required formats. Further, it was made ready for the Analysis purpose by using SPSS (Version 21) tool available for the statistical
The Chi-square Goodness of Fit Test is used for verifying fitness of sample distribution to the population. Also the Kendall's Test is used for Hypothesis Testing to show the relationship between Multiple Intelligences and Career Planning of respondents. Also the various statistical techniques like Pivot Tables and Charts in MS-Excel are used for the purpose of analysis. Then all this analyzed data is again interpreted in simple and understandable formats so that others can draw similar and general conclusions out of it. Also it has been used for the purpose of hypothesis testing.

4.2.6. Execution of the Research-

After preparing a proper and systematic framework, researcher has executed the research by reviewing several literatures, collecting data then analyzing it to reach up to the desired objectives of the research. Though this research process has various steps as mentioned above, this given sequence in fact is just an intangible understanding and logical flow of the research process. The execution of the research work was not that rigid as the process appears to be. Rather it was flexible enough and many times several steps were being undertaken and discussed at a time. Also some necessary changes were made as per requirement of time so that the research could become more accurate, reliable and less biased with minimum errors. While executing the research work researcher was attentive to have control over the process and other external as well as internal factors which might affect it.
4.3. CHAPTER CONCLUSION-

In this chapter, researcher has explained the very important part of his research work i.e. Research Methodology which he has followed to conduct research. Here he has tried to describe the research process followed for planning and executing research. In that he has explained how he has formulated the research problem, what research design he has framed for research work, how he has designed the sample which is to be used for data collection, along with determination of sample size. Also he has explained the plan of data collection tools he used for it i.e. primary and secondary data. The tool used for data collection i.e. questionnaire, its validation and other related details have been described. Then the information to execute data analysis techniques, hypothesis testing and their interpretations has been explained in brief.

This chapter is like backbone of whole research work and through this the idea of entire research can be understood. By elaborating all things with required and adequate description researcher has tried to elaborate that idea of research.
REFERENCES USED FOR THIS CHAPTER-