

## **CHAPTER 4**

### **RESEARCH METHODOLOGY**

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## 4.1 Introduction

Research is an inseparable part of human knowledge. Its role in human life is as precious as that of salt in a vegetable. Life would lose its taste without research exactly in the same manner as a vegetable without salt. Modern academics just cannot stand and meet the aspirations of a matured society, if it does not provide for research and investigation.

Research is an important pre-requisite for a dynamic social order. The society has marched on to its present form with the help of constant research and investigation. As far as man's inquisition has been able to go, so far has his society progressed. A long march from Stone Age to computer age has been the result of research and as long as man's inquisitive pursuits do not end, the onward march of human society to more advanced achievements will not stop. The deepest ocean is the ocean of knowledge and the depth of which is unknown. Shall man reach this depth is a big question, but that man has dived deeper and deeper is certainly a reality and the manifestation of his ingenuity, dexterity and determination and hence the optimism that man shall strive hard and continuously to reach the bottom of the ocean. The shape of things and the order of the society shall continuously change. New innovations and inventions shall be received with greater excitement and applause and process shall continue forever. The fittest shall adjust and the rest shall walk their way.

“Research is as old as the academic consciousness of human mind. Man has all along tried to look back at his history for better understanding of evolutionary process leading to the present stage of mankind. He has also endeavored to re-examine and whenever possible to re-interpret the things he has already gone through. The present has its roots in the past and the seeds of future are sown in the present itself. Man's urge to understand the present has obviously induced him to look into his past more carefully and present his interpretations more scientifically in order to give purposeful direction to his intellectual efforts in pursuit of diverse ends to which the human activities are devoted. The concept of research is thus closely linked with human endeavor for better understanding of his evolution, environment and growth through diverse stages of human history.

Research, therefore, has been an integral part of academic pursuits in the past. It has served two-fold purpose of intellectual sharpening and evolving new theories to explain diverse phenomena through which the mankind has survived to its present form.”

## **4.2 Meaning of Research**

What is research ?

When we analyse the word ‘Research’ the meaning of it becomes clear to us.

Re + Search = Research

That means whatever material is already present or available to us, we have to trace it again and afresh, in the light of which we have to establish our own findings/ facts or thesis.

According to its dictionary meaning, “Research is an investigation undertaken in order to discover new facts.”

Robert Burns (2003) describes it as, “a systematic investigation to find solution to a problem.”

Redman and Mory define research as, “a systematized effort to gain new knowledge.”

According to Clifford Woody “Research comprises defining and redefining problems, formulating hypothesis or suggested solutions; collecting, organizing and evaluating data; making deductions and reaching conclusions; and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis.

Research is, thus, an original contribution to the exiting stock of knowledge making for its advancement. It is the pursuit of truth with the help of study, observation, comparison and experiment. In short, the search for knowledge through objective and systematic method of finding solution to a problem is research.

Social Science Research:

Social science research is a systematic method of exploring, analyzing and conceptualization of human life in order to extend, correct or verify knowledge of human behavior and social life.

In other words, social science research seeks to find explanations to unexplained social phenomena, to clarify the doubtful, and correct the misconceived facts of social life

### **4.3 Significance of Research**

“All progress is born of inquiry. Doubt is often better than over confidence, for it leads to inquiry, and inquiry leads to invention” is a famous Hudson Maxim in context of which the significance of research can well be understood. Increased amounts of research make progress possible. Research inculcates scientific and inductive thinking and it promotes the development of logical habits of thinking and organization.

Life would be substantially different were it not for research. Again the diet you follow, the car you drive, and the medications you take are the result of someone else’s research. Without it, your life would probably be shorter, less pleasant, and substantially more hazardous.

Put quite simply, research is important because it keeps us from making incorrect decisions or behaving in ways that are nonproductive. The researcher avoids the waste of time, money and efforts.

Research in management is basically meant for a specific purpose; and that is why management researches are by and large, result oriented.

Research provides an analytical framework for the subject matter of investigation. It establishes the relationship between the different variables, especially the relationship of the dependent variables with the independent variable. The cause effect relationship between different variables can also be identified, leading to valuable observations, generalizations and conclusions.

#### **4.4 Significance of the Study**

The Working Capital Management is one of the most attended issues in the area of Commerce and Management. A large number of studies have been undertaken on this topic in various industries. In this particular study an attempt has been made to focus on the management of working capital in the selected pharmaceutical units of Gujarat.

The primary purpose of the study is to obtain a true picture of the working capital management of the selected units. An analysis of financial and operational performance has been done with a view to assessing the effectiveness of working capital of the units under study. The researcher also seeks to appraise the overall performance and study the changes, if any, that have taken place in the units under study during the tenure.

The management of working capital of the units for ten years have been measured, and conclusions have been derived which will provide guidelines to the management and other related parties i.e. government, investors, creditors, workers and consumers to take decisions related to their own sphere of interest. Besides, this study would certainly prove to be of immense help to academicians, other researchers, the industry itself and the society at large.

#### **4.5 Identification of Problem**

Probably no step in developing and conducting a research project is as important, yet difficult, as selecting a topic / problem. We are all familiar with the adage “A house built on a weak foundation will not stand”. In a very real sense, the research topic serves as a foundation for the entire effort. A proper statement of the research problem is the primary step in any research design.

The selection of a topic/ problem for research is only half a step forward. The problem defines the goal of the researcher in clear terms. It is obvious that without a clear-cut idea of the goal to be reached, research activities would only become a meaningless exercise. A research like any other human activity is goal directed. If the goal itself is unknown or ill-defined, the whole rigmarole of research operations will lead us nowhere. Thus, without a problem research cannot proceed. The formulation of the topic into a research problem is, really speaking the first step in a scientific enquiry.

The selection of the research topic for the study has been undertaken after a brief review of literature available on the working capital management in industry. Some of the past researchers have worked on working capital in various types of industries. Other researchers have worked on the pharmaceutical industry with regard to the other aspects of financial management. After reading, reflecting and pondering over the subject, and after further consultation and discussion with the guide the researcher finalized the topic.

The primary purpose of the present study “Working Capital Management of Selected Pharmaceutical Units in Gujarat” is to obtain the true picture of the working capital management of the selected units under study. An analysis of financial and operational performance has been done with a view to assessing the effectiveness of working capital of the units under study. It also seeks to study the changes, if any, that have taken place in the units under study during the stated period.

#### **4.6 Objectives of the Study**

After the initial period of familiarization with the problem, its subject scope, nature and the motives which underline it, the researcher is in a position to formulate the objectives. It is worth repeating that this is an extremely important stage in the process and any temptation to hurry matters should be resisted.

Once the project/research work has begun it is very difficult to slow things down or to speed them up. It is often impossible to go back and repeat something or to try again in a different way. Once the ball starts rolling it develops a momentum of its own. A clear objective should at least ensure that the ball begins travelling in the right direction and gives the researcher a fair chance of keeping it on course.

The need for a research project/work to have a clear objective cannot be over-stressed. It is the key to the success of the whole venture. A clear objective provides the basis for the design of the project, for the selection of the most appropriate methods and for the management of the project once it has begun. The objective is also the key factor in giving shape and purpose to the final report. Without a clear objective a research project can easily start on the wrong foot, become side-tracked along the way and end with an inconclusive report.

The purpose of research is to discover answers to the questions through the application of scientific procedures. The main aim of research is to find out the truth which is hidden and which has not been discovered as yet. Each research study has its own specific purpose.

The research study is based on certain objectives which are mentioned below:

1. To make an in-depth study of the pharmaceutical industry of India in general and Gujarat in particular.
2. To study the theoretical aspects of working capital management.
3. To study the sources and applications of working capital of the selected units.
4. To study the working capital policies of the selected pharmaceutical units in Gujarat.
5. To study the management of cash and bank of the selected units.
6. To study the management of receivables of the selected units.
7. To study the management of inventory of the selected units.
8. To study the liquidity and working capital position of the sample units.
9. To suggest ways and means for the effective management of working capital of the selected units.

#### **4.7 Hypotheses of the Study**

Once the problem to be tackled in the course of research is finally instituted, the researcher advisedly proceeds to formulate tentative solutions or answers to it. These proposed solutions or explanations constitute the hypotheses that the researcher would need to test on the basis of facts already known or which can be made known.

The formulation of the hypothesis is a central step in good research and it is important to give it a great deal of thought.

The formulation of hypothesis is equally important for meaningful research. Hypothesis is an assertion that is sought to be proved or disproved. A well laid

hypothesis keeps the researcher on the right track and saves his/her time and effort by not going astray. It facilitates the collection of adequate facts, and helps one to arrive at appropriate conclusions, suggestions and observations.

During the process of research the following hypotheses were tested:

H0 There is no significant difference in the Working Capital of selected Pharmaceutical Units.

H1 There is a significant difference in the Working Capital of selected Pharmaceutical Units.

H0 There is no significant relationship between Working Capital and Profitability of selected Pharmaceutical Units.

H1 There is a significant relationship between Working Capital and Profitability of selected Pharmaceutical Units.

H0 There is no significant difference in liquidity position of selected Pharmaceutical Units.

H1 There is a significant difference in liquidity position of selected Pharmaceutical Units.

H0 There is no significant difference in the Profitability of selected Pharmaceutical Units.

H1 There is a significant difference in the Profitability of selected Pharmaceutical Units

H0 There is no significant relationship between Management of Cash and Bank and Working Capital of selected Pharmaceutical Units.

H1 There is a significant relationship between Management of Cash and Bank and Working Capital of selected Pharmaceutical Units.

H0 There is no significant relationship between Management of Receivables and Working Capital of selected Pharmaceutical Units.



H1 There is a significant relationship between Management of Receivables and Working Capital of selected Pharmaceutical Units.

H0 There is no significant relationship between Management of Inventories and Working Capital of selected Pharmaceutical Units.

H1 There is a significant relationship between Management of Inventories and Working Capital of selected Pharmaceutical Units.

#### **4.8 Scope of the Study**

Ten pharmaceutical units of Gujarat were selected for the study which are as follows:

1. Alembic Pharmaceuticals Ltd (Alembic)
2. Cadila Healthcare Ltd (Cadila)
3. Dishman Pharmaceuticals and Chemicals Ltd (Dishman)
4. Glenmark Pharmaceuticals Ltd (Glenmark)
5. Intas Pharmaceuticals Ltd (Intas)
6. J B Chemicals and Pharmaceuticals Ltd (J B Chemicals)
7. Lupin Ltd (Lupin)
8. Sun Pharmaceuticals Industries Ltd (Sun Pharma)
9. Themis Medicare Ltd (Themis)
10. Torrent Pharmaceuticals Ltd (Torrent)

#### **4.9 Sources of Data Collection**

The task of data collection begins after a research problem has been defined and research design chalked out.

The search for answers to research questions is called collection of data. Data are facts and other relevant materials, past and present, serving as bases for study and analyses. Statistical information collected, compiled and presented for the purpose of establishing relationship between variables can be included in the data which play a very vital role in the research and analyses of management problems, as they do in any other area of investigation. This is the rationale of data collection in research.

The data serve as the bases or raw materials for analysis. Without an analysis of factual data no specific inferences can be drawn on the questions under the study. Inferences based on imagination or guess work cannot provide correct answers to research questions. The relevance, adequacy and reliability of data determine the quality of the findings of a study.

The research work is mainly based on secondary data. The secondary data related to the research work had been collected from the following sources:

1. Annual Reports of the Selected Pharmaceutical Units
2. Websites of the Selected Pharmaceutical Units
3. Trade and Financial Journals and Magazines
4. Government and non-government publications, Indian Pharma Reference Guide, etc.
5. Websites

#### **4.10 Duration of the Study**

This research work had been undertaken for a period of ten years i.e. from 2003-04 to 2012-13. The major players of pharmaceutical units of Gujarat as mentioned earlier were selected for the study.

#### **4.11 Tools and Techniques of Data Analysis**

After collection of data, the next step is the classification and analysis of the data.

“An analysis of the data is equally important. A careful planning of the analytical framework should, therefore, be envisaged by the researcher. The approach adopted in the study is basically analytical and descriptive in nature.

On the basis of the objectives of the study and according to the Hypotheses, the collected data was tabulated. On preparation of the tables, accounting tools and techniques - like percentages, ratios, averages, trend analysis, etc. were calculated.

For the statistical analysis of the data, the following tools and techniques were used:

1. Mean, maximum, minimum, median, standard deviation (sd), co-efficient of variation (cv), co-efficient of correlation (corr)
2. Application of ANOVA Test, t-test and Chi-Square test for Hypotheses testing

#### **4.12 Scheme of Chapterisation**

The present study has been divided mainly into nine chapters. A brief introduction of each chapter is given below:

**Chapter 1** titled “The Indian Pharmaceutical Industry - An Overview” deals with the evolution and growth of the pharmaceutical industry since its inception till the date of the study. It also includes the profile of the selected pharmaceutical units of Gujarat.

**Chapter 2** titled “Theoretical Aspects of Working Capital” includes basic concepts, importance, types, principles, approaches and sources of working capital; factors determining the requirements of working capital, operating cycle, etc.

**Chapter 3** titled “Review of Literature” comprises the review of literature available on the topic. This chapter also covers some observations of research on the topic under study which has been carried out in the past.

**Chapter 4** titled “Research Methodology” gives an account of research methodology used for the present study. It includes the scope, objectives and hypotheses of the study, data collection, classification and analysis of data, likely contribution of the study, limitations of the study, etc.

**Chapter 5** titled “Management of Cash and Bank in the Selected Pharmaceutical Units in Gujarat” deals with the analysis and interpretation of relevant details pertaining to the management of cash and bank.

**Chapter 6** titled “Management of Receivables in the Selected Pharmaceutical Units in Gujarat” includes the analysis and interpretation of relevant details with regard to the management of receivables of the units.

**Chapter 7** titled “Management of Inventories in the Selected Pharmaceutical Units in Gujarat” includes the analysis and interpretation of relevant details related to the management of inventories.

**Chapter 8** titled “Working Capital Management of the Selected Pharmaceutical Units in Gujarat” includes the analysis and interpretation of relevant details pertaining to the working capital management and working capital finance.

**Chapter 9** titled “Findings and suggestions” comprises a number of findings based on the analysis and interpretation of the data. It also includes a few suggestions for the effective management of working capital in the units.

#### **4.13 Limitations of the Study**

There are a number of constraints and assumptions under which a researcher has to work. Hence, a social science research study has its own limitations.

Such a study involves selection of a sample and collection of data. And more often than not these pose various problems which are beyond the control of the researcher.

The major limitations of the study are as under:

1. As the study of the selected pharmaceutical units of Gujarat has been confined to a period of ten years only, the picture prior to and after this period of time may not be available.
2. The research study is mainly carried out in a few selected pharmaceutical units in Gujarat. Hence, the research work does not reflect the picture of the entire pharmaceutical industry of Gujarat.
3. As the study is based on secondary data taken from published annual reports, the findings of the study depend on the accuracy of such data.
4. The study is based on various accounting and statistical tools which suffer from certain limitations which may be reflected in the findings of the study.
5. The study was restricted to selected pharmaceutical units in Gujarat only. It will not provide the information about the position of working capital of other industries in Gujarat.
6. The scope of the study is limited only to the analysis, to know the position and policies of working capital in the selected units. Other aspects of financial

management i.e. capital structure, capital budgeting, cost of capital etc have not been touched upon under the study.

#### **4.14 Likely Contribution of the Study**

1. The research work will be helpful to future researchers of related topics.
2. The research will be helpful in observing the working capital management in the selected pharmaceutical units.
3. This study will help the future researchers in better understanding of various concepts/aspects and components of working capital.
4. It can provide understanding about the practices, policies and position of working capital in the selected Pharmaceutical units.
5. This research is based on an in-depth analysis of some selected pharmaceutical units, and hence it would provide invaluable information and contribute substantially to the knowledge in this area of financial management.
6. The research will be helpful in deriving new policies related to working capital in the selected pharmaceutical units.
7. The study will be helpful in providing direction to the selected units – for enhancing the overall efficiency of the units with the help of proper management of working capital in these units.
8. This study will provide guidelines to the management and other related parties i.e. government, investors, creditors, workers and consumers to take decisions related to their own sphere of interest. Besides, this study would certainly prove to be of immense help to academicians, other researchers, the industry itself and the society at large.

#### **4.15 Scope for Future Research**

1. The present study includes working capital management of the selected pharmaceutical units in Gujarat only. There is scope for conducting a similar study in other states as well.
2. Comparison of working capital management of pharmaceutical units in Gujarat with that of the other states.
3. Comparison of working capital management of pharmaceutical units with that of other industries in Gujarat.

4. Comparison of working capital management of pharmaceutical units in Gujarat with that of other industries of other states.
5. Comparison of various components of working capital management among various industries of the state of Gujarat.
6. Comparison of various components of working capital management among various industries of different states.
7. A study can be conducted on the working capital management of pharmaceutical companies across the border.

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