



Interpretation and Report Writing

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Professor

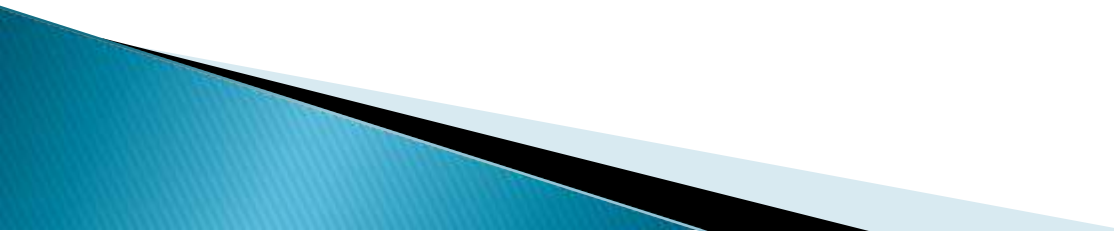
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Meaning of Interpretation

Interpretation refers to the task of drawing inferences from the collected facts after an analytical or experimental study. In fact, it is a search for broader meaning of research findings.



Meaning of Interpretation

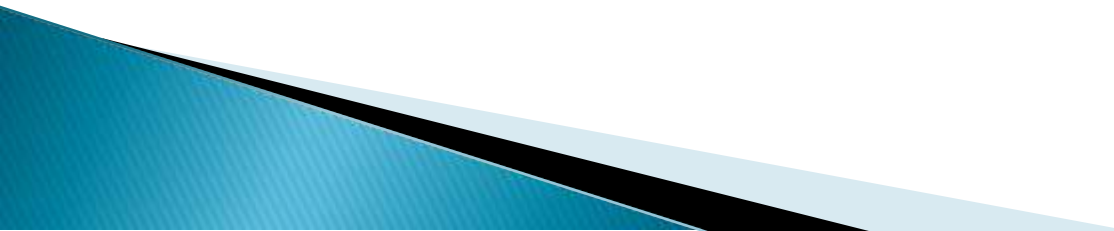
The task of interpretation has two major aspects viz.,

1. the effort to establish continuity in research through linking the results of a given study with those of another, and
2. the establishment of some rigid concepts.

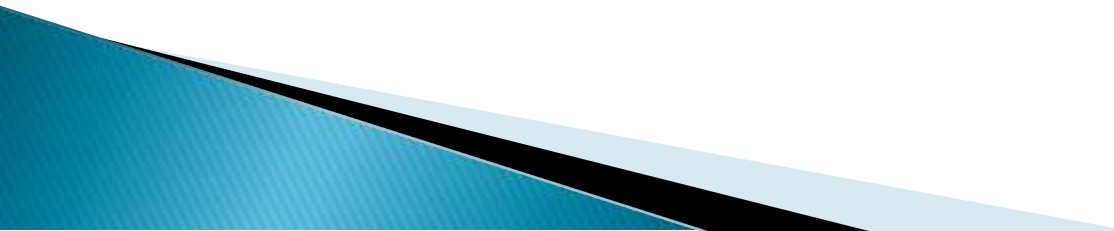
“In one sense, interpretation is concerned with relationships within the collected data, partially overlapping analysis. Interpretation also extends beyond the data of the study to inch the results of other research, theory and hypotheses

Data Analysis and Interpretation

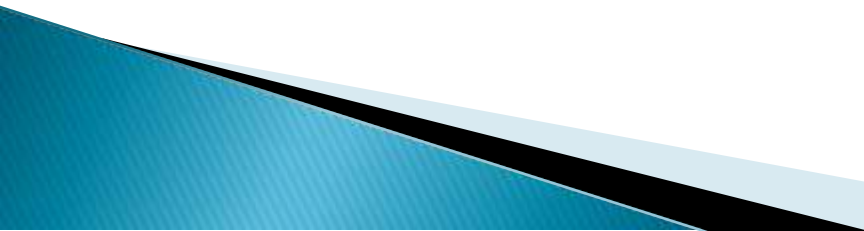
After identifying a research topic, doing a literature background research, establishing philosophical assumptions and focus problem, deciding on an appropriate research paradigm and methodology with specific purpose, designing a research plan and collecting sufficient data, the next step in the research process is data analysis and interpretation, which precedes reporting of research



Data Analysis and Interpretation

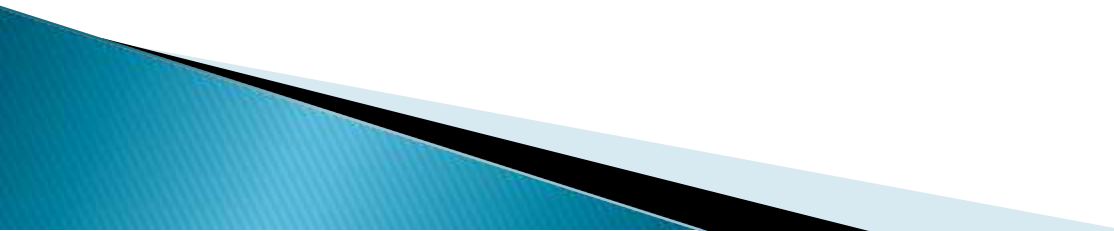
- ▶ Data analysis is, therefore, a process that involves–
 - ▶ Examining, and molding collected data for interpretation to discover relevant information,
 - ▶ Draw or propose conclusions and support decision-making to solve a research problem.
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Data Analysis and Interpretation

- ▶ This involves interpreting data to answer research questions and making research findings be ready for dissemination. Data analysis also serves as a reference for future data collection and other research activities. During data analysis–
 - ▶ *data collected is transformed into information and knowledge about a research performed*
 - ▶ *relationships between variables are explored*
 - ▶ *meanings are identified and information is interpreted.*
- 

Technique of Interpretation

The task of interpretation is not an easy job, rather it requires a great skill and dexterity on the part of researcher. Interpretation is an art that one learns through practice and experience. The researcher may, at times, seek the guidance from experts for accomplishing the task of interpretation.

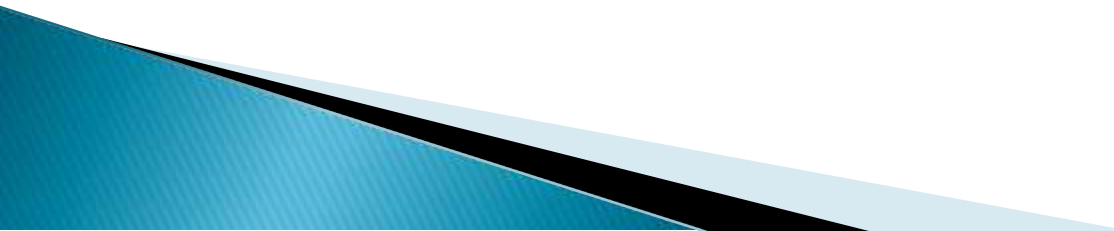


Technique of Interpretation

- ▶ The technique of interpretation often involves the following steps:

(i) Explanations and uniformity

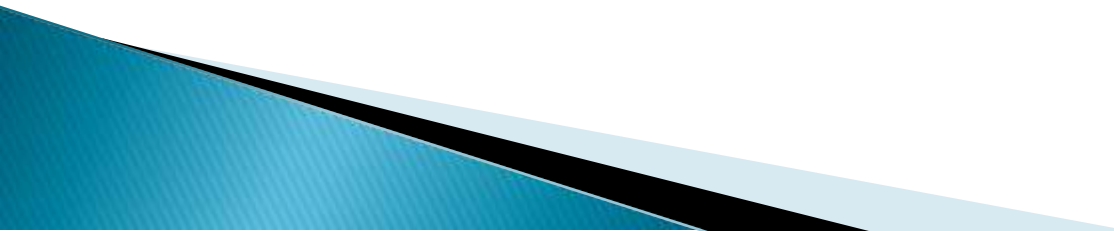
Researcher must give reasonable explanations of the relations which he has found and he must interpret the lines of relationship in terms of the underlying processes and must try to find out the thread of uniformity that lies under the surface layer of his diversified research findings. In fact, this is the technique of how generalization should be done and concepts be formulated.



Technique of Interpretation

(ii) Coding of Extraneous information

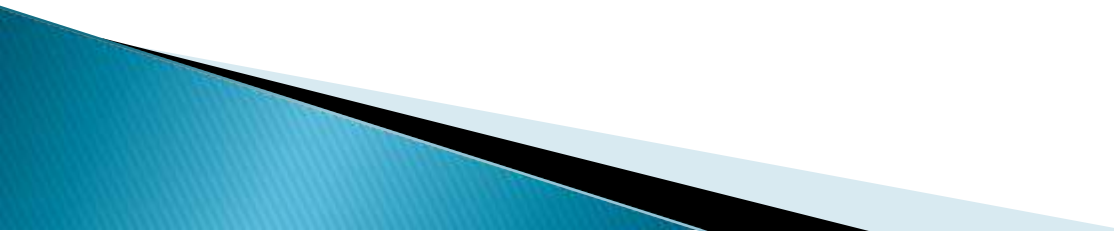
Extraneous information, if collected during the study, must be considered while interpreting the final results of research study, for it may prove to be a key factor in understanding the problem under consideration



Technique of Interpretation

(iii) Consultation with Expert

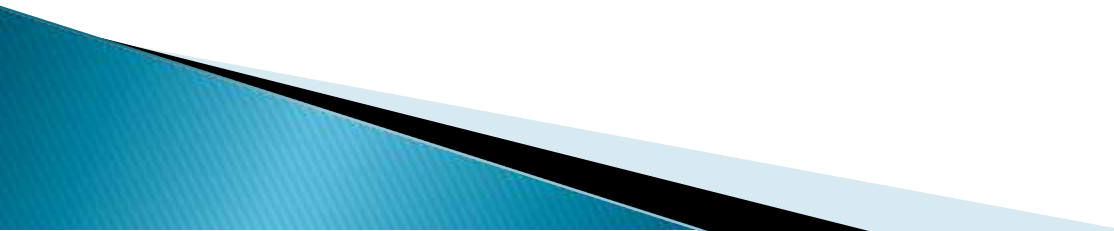
It is advisable, before embarking upon final interpretation, to consult someone having insight into the study and who is frank and honest and will not hesitate to point out omissions and errors in logical argumentation. Such a consultation will result in correct interpretation and, thus, will enhance the utility of research results



Technique of Interpretation

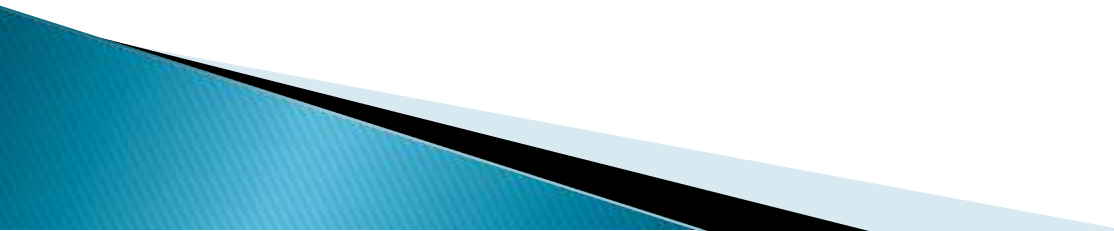
(iv) Considering all Relevant Factors

Researcher must accomplish the task of interpretation only after considering all relevant factors affecting the problem to avoid false generalization. He must be in no hurry while interpreting results, for quite often the conclusions, which appear to be all right at the beginning, may not at all be accurate.



Precautions in Interpretation

One should always remember that even if the data are properly collected and analysed, wrong interpretation would lead to inaccurate conclusions. It is, therefore, absolutely essential that the task of interpretation be accomplished with patience in an impartial manner and also in correct perspective.



Precautions in Interpretation

Researcher must pay attention to the following points for correct interpretation:

(i) Satisfaction of Researcher

At the outset, researcher must invariably satisfy himself that

(a) the data are appropriate, trustworthy and adequate for drawing inferences;

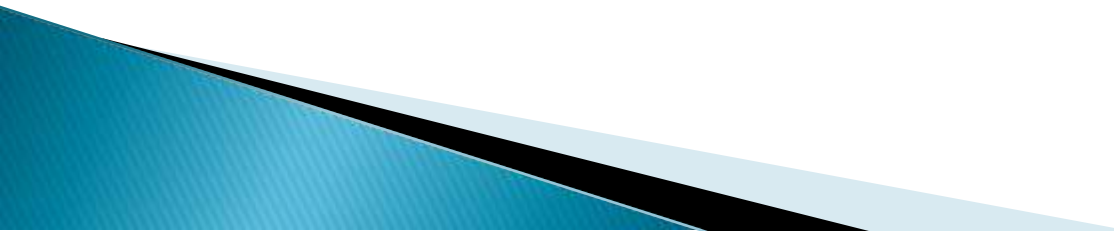
(b) the data reflect good homogeneity; and that

(c) proper analysis has been done through statistical methods

Precautions in Interpretation

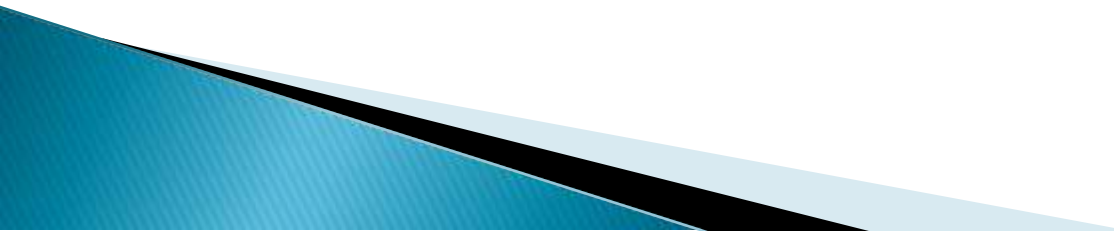
(ii) Vigilant and Cautious about the Errors

The researcher must remain cautious about the errors that can possibly arise in the process of interpreting results. Errors can arise due to false generalization and/or due to wrong interpretation of statistical measures, such as the application of findings beyond the range of observations, identification of correlation with causation and the like.



Precautions in Interpretation

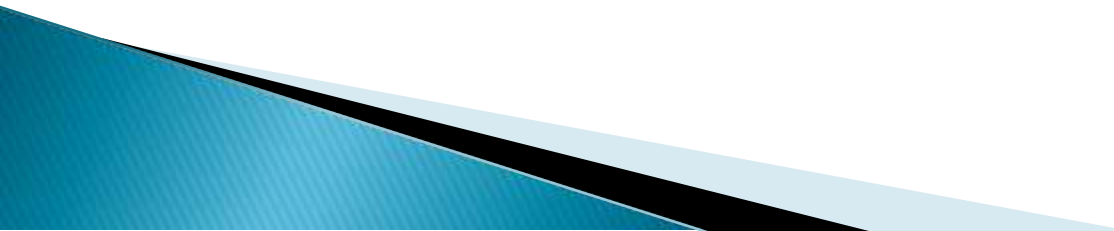
Another major pitfall is the tendency to affirm that definite relationships exist on the basis of confirmation of particular hypotheses. In fact, the positive test results accepting the hypothesis must be interpreted as “being in accord” with the hypothesis, rather than as “confirming the validity of the hypothesis”. The researcher must remain vigilant about all such things so that false generalization may not take place. He should be well equipped with and must know the correct use of statistical measures for drawing inferences concerning his study



Precautions in Interpretation

(iii) Conformity with Data Analysis

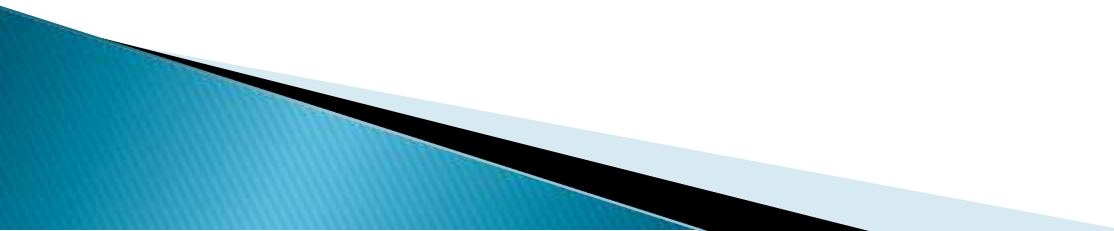
He must always keep in view that the task of interpretation is very much intertwined with analysis and cannot be distinctly separated. As such he must take the task of interpretation as a special aspect of analysis and accordingly must take all those precautions that one usually observes while going through the process of analysis viz., precautions concerning the reliability of data, computational checks, validation and comparison of results



Precautions in Interpretation

(iv) Results must be Framed within their Limits.

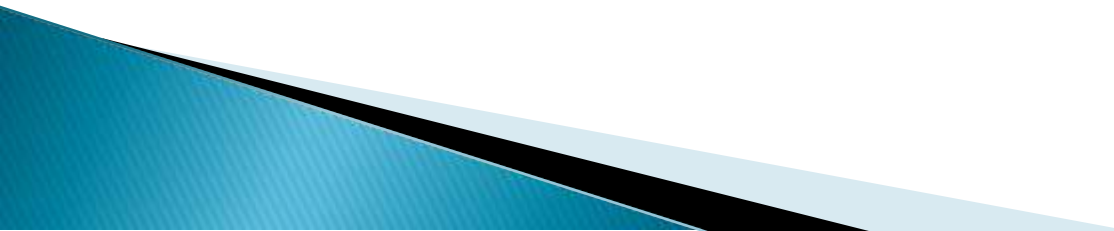
He must never lose sight of the fact that his task is not only to make sensitive observations of relevant occurrences, but also to identify and disengage the factors that are initially hidden to the eye. This will enable him to do his job of interpretation on proper lines. Broad generalization should be avoided as most research is not amenable to it because the coverage may be restricted to a particular time, a particular area and particular conditions. Such restrictions, if any, must invariably be specified and the results must be framed within their limits.



Precautions in Interpretation

(v) Interaction between theoretical orientation and empirical observation

The researcher must remember that “ideally in the course of a research study, there should be constant interaction between initial hypothesis, empirical observation and theoretical conceptions. It is exactly in this area of interaction between theoretical orientation and empirical observation that opportunities for originality and creativity lie.” He must pay special attention to this aspect while engaged in the task of interpretation.

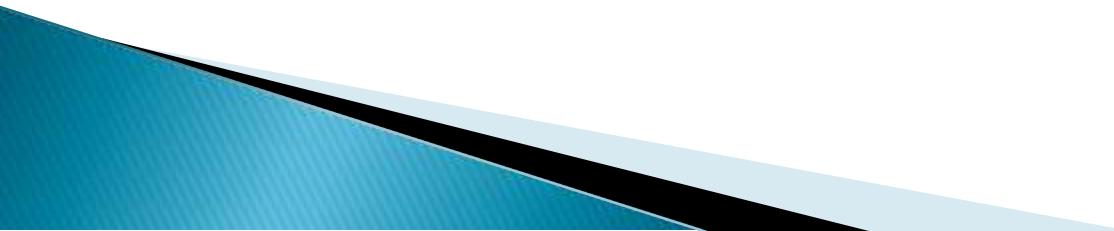


REPORT WRITING



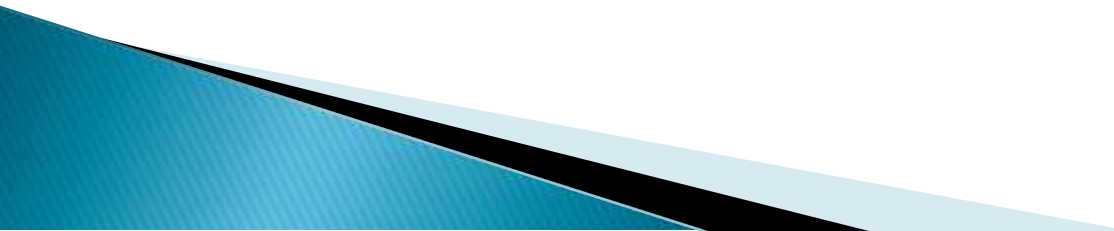
Significance of Report Writing

Research report is considered a major component of the research study for the research task remains incomplete till the report has been presented and/or written. As a matter of fact even the most brilliant hypothesis, highly well designed and conducted research study, and the most striking generalizations and findings are of little value unless they are effectively communicated to others. The purpose of research is not well served unless the findings are made known to others.



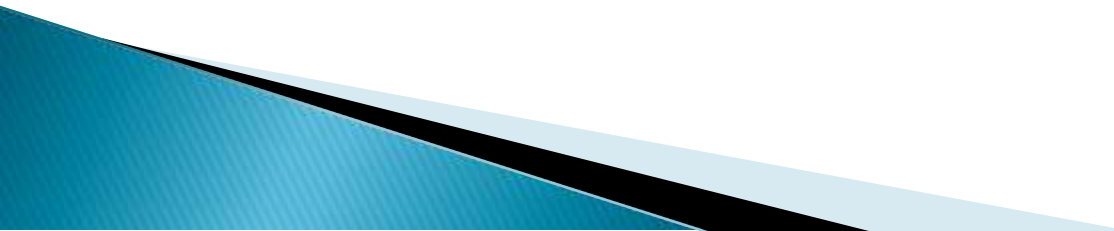
Significance of Report Writing

Research results must invariably enter the general store of knowledge. All this explains the significance of writing research report. There are people who do not consider writing of report as an integral part of the research process. But the general opinion is in favour of treating the presentation of research results or the writing of report as part and parcel of the research project



Significance of Report Writing

Writing of report is the last step in a research study and requires a set of skills somewhat different from those called for in respect of the earlier stages of research. This task should be accomplished by the researcher with utmost care; he may seek the assistance and guidance of experts for the purpose.



Different Steps in Writing Report

Research reports are the product of slow, painstaking, accurate inductive work. The usual steps involved in writing report are–



Different Steps in Writing Report

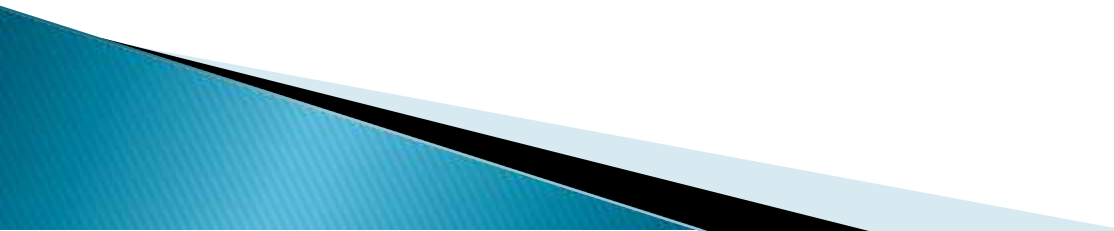
(i) Logical analysis of the subject matter:

It is the first step which is primarily concerned with the development of a subject. There are two ways in which to develop a subject (a) logically and (b) chronologically. The logical development is made on the basis of mental connections and associations between the one thing and another by means of analysis. Logical treatment often consists in developing the material from the simple possible to the most complex structures. Chronological development is based on a connection or sequence in time or occurrence. The directions for doing or making something usually follow the chronological order

Different Steps in Writing Report

(ii) Preparation of the final outline:

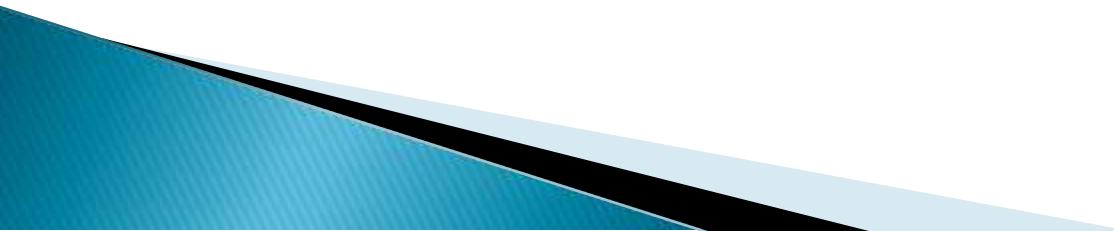
It is the next step in writing the research report “Outlines are the framework upon which long written works are constructed. They are an aid to the logical organisation of the material and a reminder of the points to be stressed in the report.



Different Steps in Writing Report

(iii) Preparation of the rough draft:

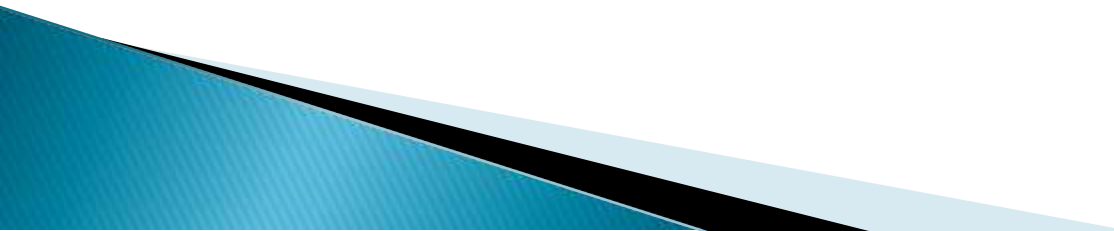
This follows the logical analysis of the subject and the preparation of the final outline. Such a step is of utmost importance for the researcher now sits to write down what he has done in the context of his research study. He will write down the procedure adopted by him in collecting the material for his study along with various limitations faced by him, the technique of analysis adopted by him, the broad findings and generalizations and the various suggestions he wants to offer regarding the problem concerned.



Different Steps in Writing Report

(iv) Rewriting and polishing of the rough draft:

This step happens to be most difficult part of all formal writing. Usually this step requires more time than the writing of the rough draft. The careful revision makes the difference between a mediocre and a good piece of writing. While rewriting and polishing, one should check the report for weaknesses in logical development or presentation



Different Steps in Writing Report

(v) Preparation of the final bibliography:

Next in order comes the task of the preparation of the final bibliography. The bibliography, which is generally appended to the research report, is a list of books in some way pertinent to the research which has been done.

Different Steps in Writing Report

For books and pamphlets the order may be as under:

- 1. Name of author, last name first.*
- 2. Title, underlined to indicate italics.*
- 3. Place, publisher, and date of publication.*
- 4. Number of volumes.*

Example Kothari, C.R., Quantitative
Techniques, New Delhi, Vikas Publishing
House Pvt. Ltd., 1978

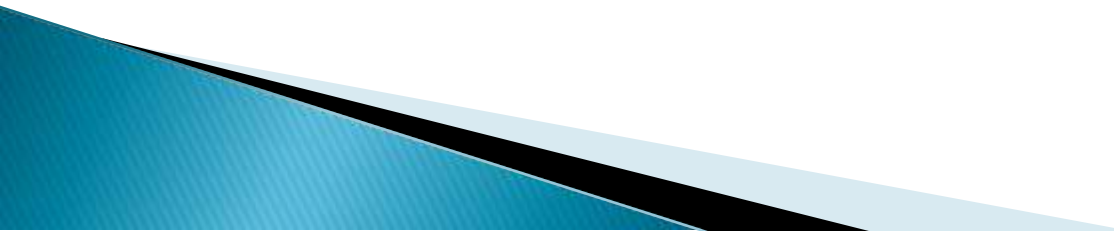


Different Steps in Writing Report

For magazines and newspapers the order may be as under:

- 1. Name of the author, last name first.*
- 2. Title of article, in quotation marks.*
- 3. Name of periodical, underlined to indicate italics.*
- 4. The volume or volume and number.*
- 5. The date of the issue.*
- 6. The pagination.*

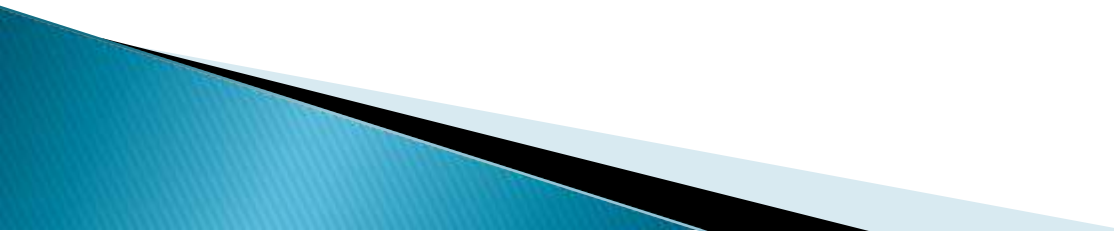
Example Robert V. Roosa, "Coping with Short-term International Money Flows", The Banker, London, September, 1971, p. 995



Different Steps in Writing Report

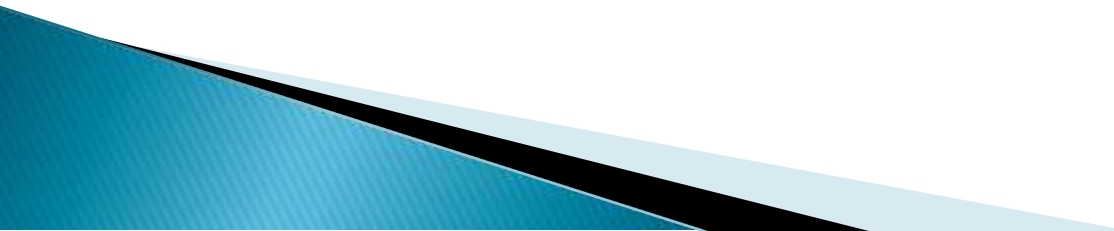
(vi) Writing the final draft:

This constitutes the last step. The final draft should be written in a concise and objective style and in simple language, avoiding vague expressions such as “it seems”, “there may be”, and the like ones. While writing the final draft, the researcher must avoid abstract terminology and technical jargon. Illustrations and examples based on common experiences must be incorporated in the final draft as they happen to be most effective in communicating the research findings to others.



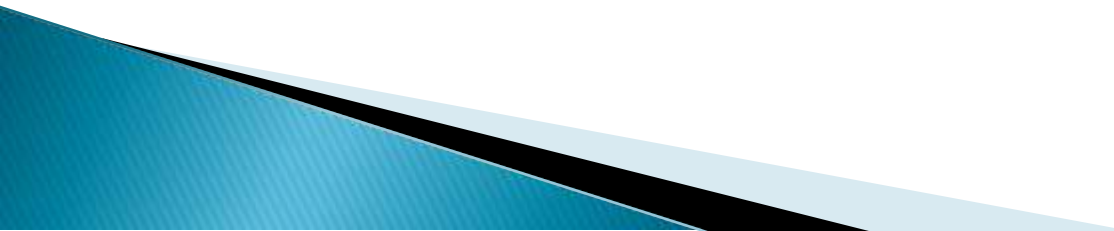
Different Steps in Writing Report

A research report should not be dull, but must enthuse people and maintain interest and must show originality. It must be remembered that every report should be an attempt to solve some intellectual problem and must contribute to the solution of a problem and must add to the knowledge of both the researcher and the reader.



Layout of the Research Report

Anybody, who is reading the research report, must necessarily be conveyed enough about the study so that he can place it in its general scientific context, judge the adequacy of its methods and thus form an opinion of how seriously the findings are to be taken. For this purpose there is the need of proper layout of the report. The layout of the report means as to what the research report should contain.

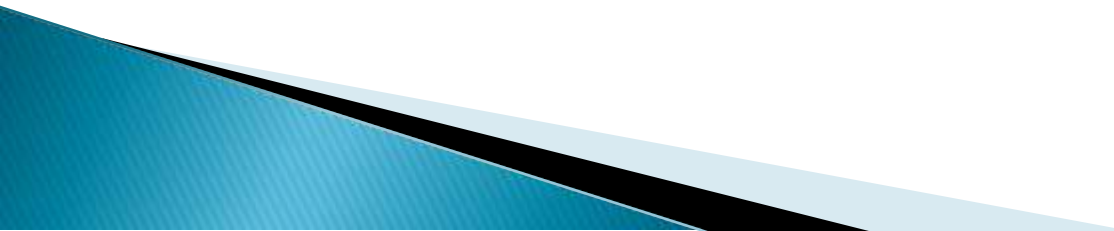


Layout of the Research Report

A comprehensive layout of the research report should comprise–

(A) Preliminary Pages-

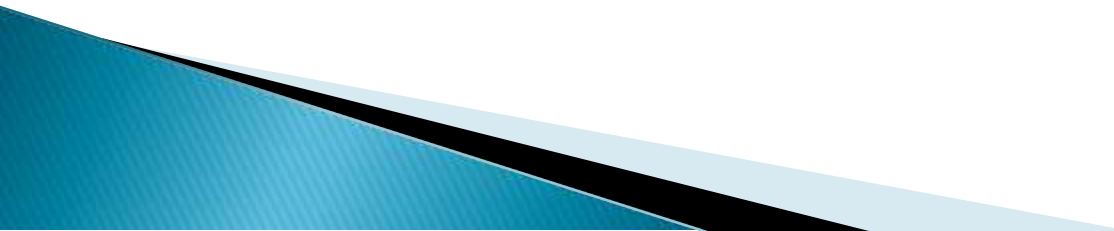
In its preliminary pages the report should carry a title and date, followed by acknowledgements in the form of 'Preface' or 'Foreword'. Then there should be a table of contents followed by list of tables and illustrations so that the decision-maker or anybody interested in reading the report can easily locate the required information in the report.



Layout of the Research Report


(B) Main Text-

The main text provides the complete outline of the research report along with all details. Title of the research study is repeated at the top of the first page of the main text and then follows the other details on pages numbered consecutively, beginning with the second page.



Layout of the Research Report


Each main section of the report should begin on a new page. The main text of the report should have the following sections:

- (i) Introduction;*
 - (ii) Statement of findings and recommendations;*
 - (iii) The results;*
 - (iv) The implications drawn from the results;*
and
 - (v) The summary*
- 

Layout of the Research Report

(C) End Matter-

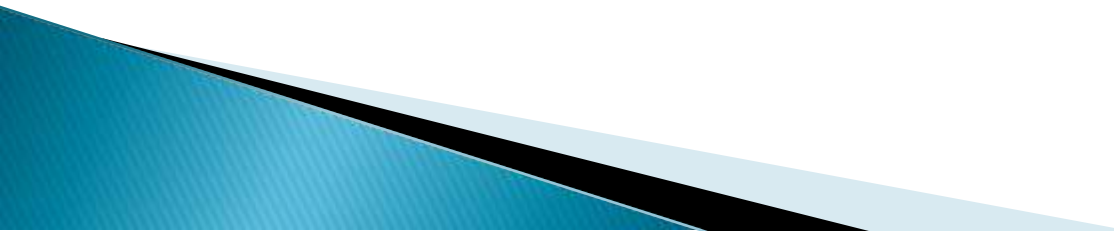
At the end of the report, appendices should be enlisted in respect of all technical data such as questionnaires, sample information, mathematical derivations and the like ones. Bibliography of sources consulted should also be given. Index (an alphabetical listing of names, places and topics along with the numbers of the pages in a book or report on which they are mentioned or discussed) should invariably be given at the end of the report. The value of index lies in the fact that it works as a guide to the reader for the contents in the report.



Types of Reports

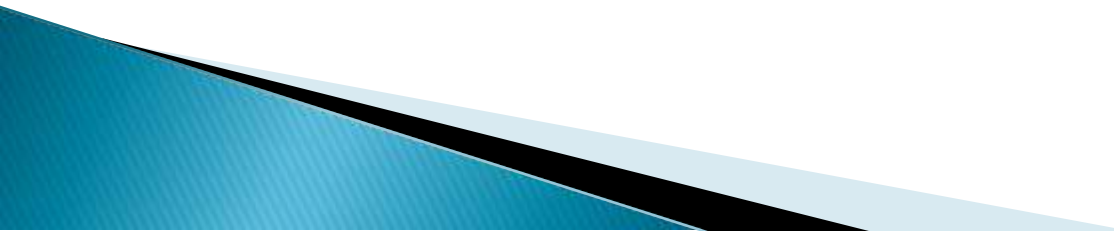
(A) Technical Report-

In the technical report the main emphasis is on (i) the methods employed, (ii) assumptions made in the course of the study, (iii) the detailed presentation of the findings including their limitations and supporting data



Types of Reports

A general outline of a technical report can be as follows:

1. **Summary of results:** A brief review of the main findings just in two or three pages.
 2. **Nature of the study:** Description of the general objectives of study, formulation of the problem in operational terms, the working hypothesis, the type of analysis and data required, etc.
 3. **Methods employed:** Specific methods used in the study and their limitations. For instance, in sampling studies we should give details of sample design viz., sample size, sample selection, etc.
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Types of Reports

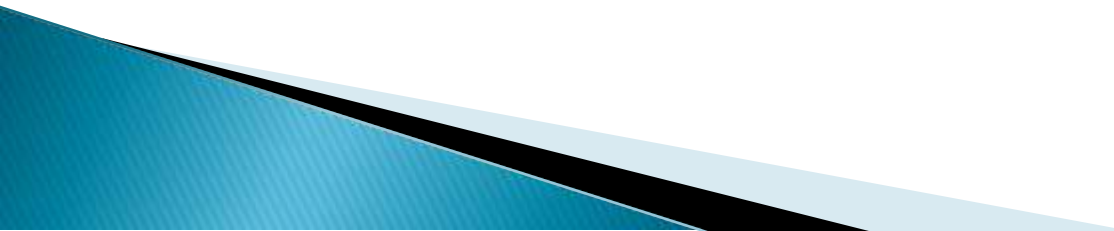
4. Data: Discussion of data collected, their sources, characteristics and limitations. If secondary data are used, their suitability to the problem at hand be fully assessed. In case of a survey, the manner in which data were collected should be fully described.

5. Analysis of data and presentation of findings: The analysis of data and presentation of the findings of the study with supporting data in the form of tables and charts be fully narrated. This, in fact, happens to be the main body of the report usually extending over several chapters.

6. Conclusions: A detailed summary of the findings and the policy implications drawn from the results be explained.




Types of Reports

7. **Bibliography:** Bibliography of various sources consulted be prepared and attached. 8. **Technical appendices:** Appendices be given for all technical matters relating to questionnaire, mathematical derivations, elaboration on particular technique of analysis and the like ones.
9. **Index:** Index must be prepared and be given invariably in the report at the end.
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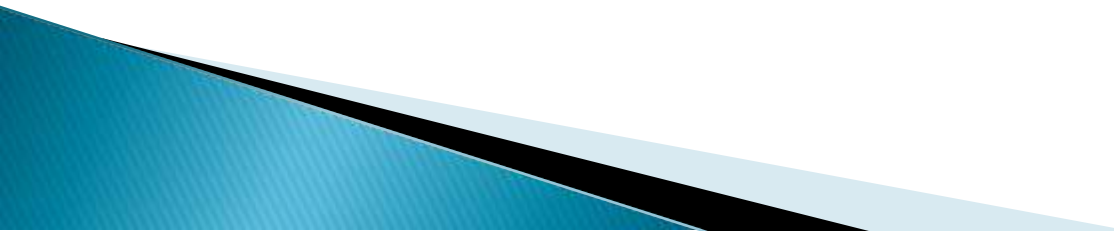
Types of Reports

(B) Popular Report


The popular report is one which gives emphasis on simplicity and attractiveness. The simplification should be sought through clear writing, minimization of technical, particularly mathematical, details and liberal use of charts and diagrams. Attractive layout along with large print, many subheadings, even an occasional cartoon now and then is another characteristic feature of the popular report. Besides, in such a report emphasis is given on practical aspects and policy implications.



Types of Reports

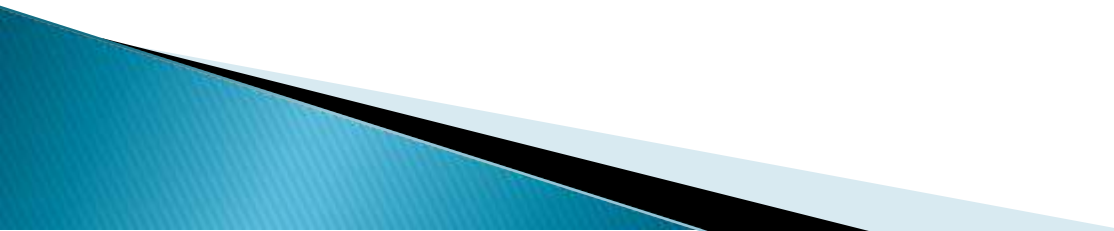
1. **The findings and their implications:** Emphasis in the report is given on the findings of most practical interest and on the implications of these findings.
 2. **Recommendations for action:** Recommendations for action on the basis of the findings of the study is made in this section of the report.
 3. **Objective of the study:** A general review of how the problem arise is presented along with the specific objectives of the project under study.
- 

Types of Reports

4. **Methods employed:** A brief and non-technical description of the methods and techniques used, including a short review of the data on which the study is based, is given in this part of the report.
 5. **Results:** This section constitutes the main body of the report wherein the results of the study are presented in clear and non-technical terms with liberal use of all sorts of illustrations such as charts, diagrams and the like ones.
 6. **Technical appendices:** More detailed information on methods used, forms, etc. is presented in the form of appendices. But the appendices are often not detailed if the report is entirely meant for general public.
- 


Oral Presentation

At times oral presentation of the results of the study is considered effective, particularly in cases where policy recommendations are indicated by project results. The merit of this approach lies in the fact that it provides an opportunity for give-and-take decisions which generally lead to a better understanding of the findings and their implications. But the main demerit of this sort of presentation is the lack of any permanent record concerning the research details and it may be just possible that the findings may fade away from people's memory even before an action is taken.



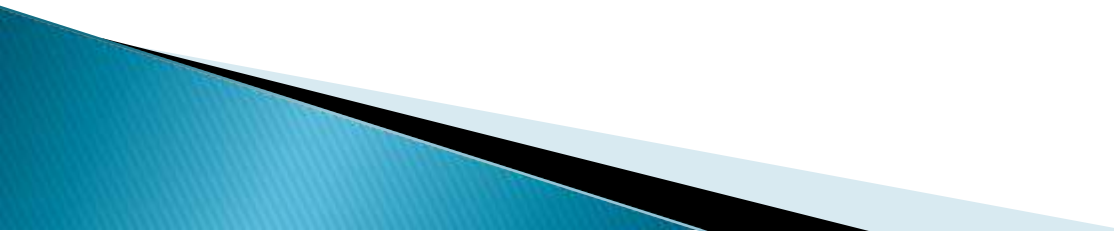
Oral Presentation

In order to overcome this difficulty, a written report may be circulated before the oral presentation and referred to frequently during the discussion. Oral presentation is effective when supplemented by various visual devices. Use of slides, wall charts and blackboards is quite helpful in contributing to clarity and in reducing the boredom, if any. Distributing a board outline, with a few important tables and charts concerning the research results, makes the listeners attentive who have a ready outline on which to focus their thinking. This very often happens in academic institutions where the researcher discusses his research findings and policy implications with others either in a seminar or in a group discussion



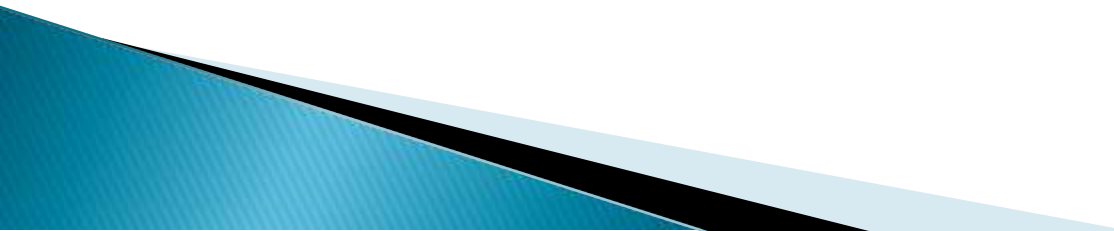
Mechanics of Writing A Research Report

There are very definite and set rules which should be followed in the actual preparation of the research report or paper. Once the techniques are finally decided, they should be scrupulously adhered to, and no deviation permitted. The criteria of format should be decided as soon as the materials for the research paper have been assembled. The following points deserve mention so far as the mechanics of writing a report are concerned:



Mechanics of Writing A Research Report

1. Size and physical design: The manuscript should be written on unruled paper. If it is to be written by hand, then black or blue-black ink should be used. A margin of at least one and one-half inches should be allowed at the left hand and of at least half an inch at the right hand of the paper. There should also be one-inch margins, top and bottom. The paper should be neat and legible. If the manuscript is to be typed, then all typing should be double-spaced on one side of the page only except for the insertion of the long quotations.



Mechanics of Writing A Research Report

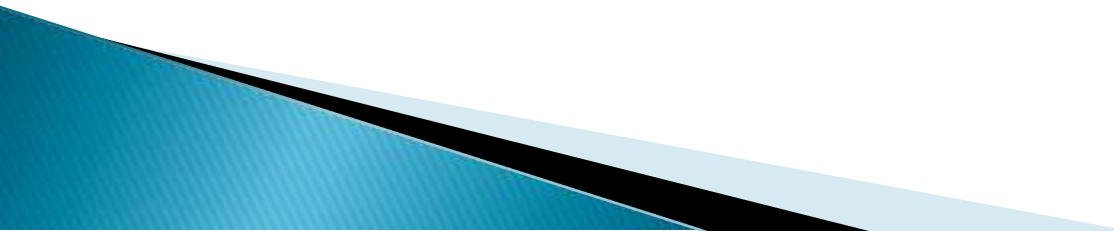
2. **Procedure**: Various steps in writing the report should be strictly adhered.

3. **Layout**: Keeping in view the objective and nature of the problem, the layout of the report should be thoughtful, decided and accordingly adopted.



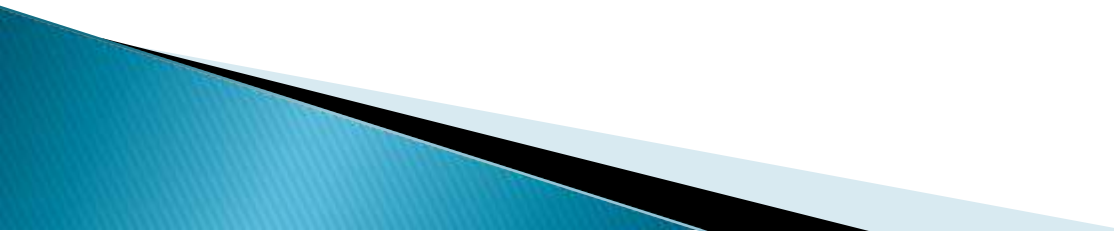
Mechanics of Writing A Research Report

4. Treatment of quotations: Quotations should be placed in quotation marks and double spaced, forming an immediate part of the text. But if a quotation is of a considerable length (more than four or five type written lines) then it should be single-spaced and indented at least half an inch to the right of the normal text margin.



Mechanics of Writing A Research Report

5. The footnotes

- (a) The footnotes serve two purposes viz., the identification of materials used in quotations in the report and the notice of materials not immediately necessary to the body of the research text but still of supplemental value.
 - (b) Footnotes are placed at the bottom of the page on which the reference or quotation which they identify or supplement ends.
- 

Mechanics of Writing A Research Report

- (c) Footnotes should be numbered consecutively, usually beginning with 1 in each chapter separately
- (d) Footnotes are always typed in single space though they are divided from one another by double space



Mechanics of Writing A Research Report

6. **Documentation style-** Regarding documentation, the first footnote reference to any given work should be complete in its documentation, giving all the essential facts about the edition used. Such documentary footnotes follow a general sequence

7. **Punctuation and abbreviations in footnotes**



Special Thanks to C.R. Kothari Ji

This PPT has been prepared From–

*C.R. Kothari, Research Methodology-
Methods and Techniques (New Age
International (P) Limited, Publishers
4835/24, Ansari Road, Daryaganj, New
Delhi – 110002, 2nd ed. 2004)*

