GOVERNMENT ARTS COLLEGE (AUTONOMOUS), COIMBATORE
POST GRADUATE AND RESEARCH DEPARTMENT OF ECONOMICS
MASTER OF BUSINESS ECONOMICS- FIRST YEAR- RESEARCH METHODOLOGY
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Unit: 5 Interpretation and report writing

Interpretation refers to a Data processes. Data is reviewed for the **purpose** of arriving at an informed conclusion. The **interpretation** of **data** assigns a **meaning** to the information analysed. And it determines its signification and implications.

- Need for interpretation

1) Informed decision-making: A decision is only as good as the knowledge that formed it. Informed data decision making has the potential to set industry leaders apart from the rest of the market pack. Most decisive actions will arise only after a problem has been identified or a goal defined. Data analysis should include identification, thesis development and data collection followed by data communication.

2) Anticipating needs with trends identification: data insights provide knowledge, and knowledge is power. The insights obtained from market and consumer data analyses have the ability to set trends for peers within similar market segments. Data gathering and interpretation processes can allow for industry-wide climate prediction and result in greater revenue.

3) Cost efficiency: Proper implementation of data analysis processes can provide businesses with profound cost advantages within their industries. Yet, sound data analyses have the ability to alert management to cost-reduction opportunities without any significant exertion of effort on the part of human capital.

4) Clear foresight

The companies and institutions gain better knowledge about themselves, their processes and performance. They can identify performance challenges when they arise and take action to overcome them. Data interpretation through visual representations lets them process their findings faster and make better-informed decisions on the future of the company.

- Techniques of interpretation

There are two techniques: Qualitative data interpretation and Quantitative data interpretation

1.Qualitative data analysis can be summed up in one word – categorical. With qualitative analysis, data is not described through numerical values or patterns, but through the use of descriptive context (i.e., text). Typically, narrative data is gathered by employing a wide variety of person-to-person techniques. These techniques include Observations, Documents and Interviews.

A key difference between qualitative and quantitative analysis is clearly noticeable in the interpretation stage. Qualitative data must be “coded” so as to facilitate the grouping and labeling of data into identifiable themes. As person-to-person data collection techniques can

often result in disputes pertaining to proper analysis, qualitative data analysis is often summarized through notice things, collect things, think about things.

2. Quantitative Data Interpretation

If quantitative data interpretation could be summed up in one word (and it really can't) that word would be "numerical." There are few certainties when it comes to data analysis, but you can be sure that if the research you are engaging in has no numbers involved, it is not quantitative research. Quantitative analysis refers to a set of processes by which numerical data is analyzed. More often than not, it involves the use of statistical modeling such as standard deviation, mean and median.

- **Mean:** a mean represents a numerical average for a set of responses. When dealing with a data set (or multiple data sets), a mean will represent a central value of a specific set of numbers. It is the sum of the values divided by the number of values within the data set. Other terms that can be used to describe the concept are arithmetic mean, average and mathematical expectation.
- **Standard deviation:** This reveals the distribution of the responses around the mean. It describes the degree of consistency within the responses; together with the mean, it provides insight into data sets.
- **Frequency distribution:** This is a measurement gauging the rate of a response appearance within a data set. It has the capability of determining the number of times a specific ordinal scale response appears (i.e., agree, strongly agree, disagree, etc.). Frequency distribution is extremely keen in determining the degree of consensus among data points.

Typically, quantitative data is measured by visually presenting correlation tests between two or more variables of significance. Different processes can be used together or separately, and comparisons can be made to ultimately arrive at a conclusion. Other signature interpretation processes of quantitative data include:

Regression analysis, Cohort analysis, Predictive and prescriptive analysis

- Precautions in interpretation

1) Correlation mistaken for causation: our first misinterpretation of data refers to the tendency of data analysts to mix the cause of a phenomenon with correlation. It is the assumption that because two actions occurred together, one caused the other. This is not accurate as actions can occur together absent a cause and effect relationship. The variable leading to this interpretation should be eliminated.

2) Confirmation bias: our second data interpretation problem occurs when you have a theory or hypothesis in mind, but are intent on only discovering data patterns that provide support, while rejecting those that do not. The researcher should resist the urge to make a conclusion before data exploration has been completed. Remember to always try to disprove a hypothesis, not prove it.

3) Irrelevant data: the third and final data misinterpretation pitfall is especially important in the digital age. As large data is no longer centrally stored, and as it continues to be analyzed at the speed of thought, it is inevitable that analysts will focus on data that is irrelevant to the problem they are trying to correct. The focus should be on the data variable that answers the research questions and gives the solutions.

- Types of research report

  A research report is a formal statement of the research process and its results it narrates the problem studied methods used for studying it and findings and conclusion of the study. It is a technical activity, requiring considerable thought, effort, skill and penetration and overall approach .

- Types of Report

  1. Technical Report (Thesis) This is a comprehensive full report of the research process and its outcome. It is primarily meant for academic community.

  2. Popular Report This type of Report is designed for an audience of executives and other non- technical users. The format of this report may be more journalistic.

  3. Interim Report When there is a long time lag for the presentation of the final result. An Interim report contains the work done so far.

  4. Summary Report is a report of two or three pages.

  5. Research abstract is a short summary of the research report.

  6. Research Article is designed for publication in a professional Journal.

- Characteristics of a good research report
  a) The appropriatness of the title
  b) Importance of the problem
  c) Prblem formulation
  d) Review of related interacting and earlier studies
  e) Soundness of methodology
  f) Data analysis
  g) Contribution, conclusions and recommendations
  h) Presentation

- Structure and format of a report
  A Research report contain three sections viz.,
  I. Preliminaries
  II. The Text
  III. Reference Materials

  I. The preliminaries

  1. The title page
  Title page of a research report carries the title of a thesis, name of the candidate, nameand designation of the supervisor, degree for which thesis is presented, name of facility and university,
  month and year the thesis is presented
  2. Preface

Preface includes writer's purpose of the study, a brief resume of the background, scope and general nature of the research and acknowledgements., Acknowledgement recognize persons to whom the researcher is indebted for providing guidance and assistance during the study

3. Table of contents

Table of contents includes major divisions of thesis namely, introduction, chapters with subsections, bibliography, and appendix. It provides analytical over-view of the material included in study Respective page numbers are also given.

4. List of tables

List of tables gives numbers to different tables.

5. List of figures

List of figures gives numbers a different figures.

6. The text

It is the important part of a thesis. Researcher presents his argument here. It may of five components

1. Introduction

It provides the reader with background information to grasping the study. It helps to identify the central issues addressed by the study, summarise previous research and provide specific reason for the particular study conducted. It introduces the reader to the study. It also contains definition of major concepts, reference made to their books etc

2. Research procedure

It explains the methodology by which the study carried out, basic design experimental manipulations, methods of data collection, questions asked, experience of interview etc. It also explains samples used who were subjects, number of subjects, how they were selected generalisation from particular aspect etc

3. Conclusion

It contains *z* ascription of the data like means, standard deviation and statistical analysis done. It guides the redder through findings gives clear and complete information.

4. Summary

It should be concluded with brief summary, recalling the problem, procedure, major finding and major conclusions

5. References

References in the text part gives references to someone else's published work. It attempts to relate our study to the existing literature. It should give the name of author, year of publication, edition, page number.

III Reference Materials

Reference materials include two components

1. Bibliography

The bibliography lists in alphabetical order all published and unpublished references Used by the writer in preparing the report All books articles and reports and other documents may be presented in one common list in the alphabetical order of their authors. Alternatively, the bibliography may be classified into books, articles, reports and other documents and in each section relevant reference may be arranged in alphabetical order.

2. Appendices

a) Copies of data collection, instruments like interview schedules or questionnaires

b) Technical details of sampling plan

c) Complex and long primary tables

d) Supporting documents and any other evidence that may be important as backup details for the report

- Uses of foot notes, references and citations

1. Footnotes:

Footnotes are of two kinds.

Content notes and reference.
Content notes contains explanatory materials.
Reference notes serve as documentation of sources or as means for cross-references.

Uses of Foot notes, references and citations.
1. To acknowledge indebtedness - To another writer whose passage is paraphrased or whose quotation is used.
2. To amplify/clarify the ideas or information presented in the text.
3. To establish the validity of evidence.
4. To refer the reader to further sources of information on the subject under discussion.
5. To give the original version of material that has been translated in the text.
6. To provide cross-reference to various parts of the thesis.

- Bibliography
  The bibliography contains a list of references relating to a topic or subject. It is located at the main body of the report. It contains all the information found in a first footnote relating to a work. It lists in alphabetical order references used by the writer. The references in the bibliography are arranged alphabetically sometimes by topics, sometimes by geographical location or by some other plan.
  (Kindly refer to your reference study materails supplied for detailed description)