
UNIT 18 PRESENTATION OF RESULTS

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18.0 OBJECTIVES

After reading this Unit, you will be able to:

- grasp the value, significance and purpose of presentation of research results;
- comprehend the meaning of research reports and their different types;
- preparation of research notes as a prerequisite for presentation of research reports;
- draft a research report plan comprising the preliminaries, contents etc.;
- write the research report, using appropriate aids and tools;
- present the final product in a standard physical format; and
- get acquainted with the knowledge of printing, publishing, graphics and other related techniques.

18.1 INTRODUCTION

As the old adage succinctly puts, the proof of the pudding is in the eating, not merely in its making, the report of research work, requires to be presented in an appropriate standard qualitative form that alone would bring credibility to the research work, no matter how well the research work is done. Report writing being a very important facet of the research process, needs to be given the fullest attention to every detail. In terms of presentation of contents, the language should be simple, clear, lucid and unambiguous. The physical form of the final document must also conform to accepted quality standards that aids its use and also gets an aesthetic appeal.

This Unit deals with all aspects of report writing and the physical production of a document, which culminates a research work. The most important and an invaluable prerequisite in the preparation of the final document of research, is the research notes. As a researcher commences his work, he studies a number of documents, extracts useful, relevant and significant information from consulted documents, prepares summaries of useful ideas, consults experts and guides at different stages of his work, records his/her own thoughts and ideas as the work progresses, and a number of similar activities go along with the work. These very valuable data serve as a handy tool aiding the final preparation of the research report. These types of notes must also be properly recorded, documented, filed and stored so that the task of writing the report becomes easier. Indeed, this preliminary effort is worth taking, as it would save a good deal of tension, worry and anxiety, as the time for the final submission of the research document approaches. This aspect of work is dealt with some detail in this Unit.

The research work would culminate with the production of an M.Phil thesis, a doctoral dissertation, a research paper or a corporate research project report. Each one of these types of documents has special elements that must get the appropriate treatment.

Drafting a report is, in particular, a very highly skilled activity. A number of factors contribute to writing a good research report. These aspects are given specific attention; especially useful to research students and junior research workers.

The physical presentation of the final product is also an important aspect of the work, which contributes substantially, in obtaining a commendable impression of the work done.

All these aspects of work in the final preparation of a research report are examined in detail in this Unit.

18.2 RESEARCH REPORTS AND THEIR TYPES

“Research reports are detailed and accurate accounts of the conduct of disciplined studies accomplished to solve problems or to reveal new knowledge.” (Busha and Harter, 1988). Research reports must be complete, well organised and carefully drafted if their contents are to contribute to fields in which the research efforts are made. This is an essential means of communication to the peers in the field to judge the value of the research work done.

There are a variety of research reports. The audience to whom a research report is addressed has to be kept in view in the preparation of a research report. Some of these types are detailed below.

Research reports of students and research fellows of academic or research institutions are generally submitted to the University or other similar professional research institutions in fulfillment of conditions for the award of a research degree. The first research degree is the Master of Philosophy. If research studies are further pursued by a student, he or she would work towards the award of a degree of Doctor of Philosophy or Doctor of Science. In some universities research students could take up research work leading to Doctoral degrees without qualifying for M.Phil.

Most research complexes, learned societies and professional institutions have responsibilities for specific areas of research and development. Particularly in applied research and development, research efforts are geared to achieve targets in scientific, industrial and economic growth, technological innovations, market research, etc. with an orientation towards social goals. These research efforts are related to the country's development planning and growth targets. The outputs of these organisations appear in

the form of research papers to learned journals, research/technical reports, various forms of promotional literature with reference to technology transfer from research to commercial organisations for exploitation. Marketing of technologies developed by these research institutions have become increasingly necessary to sustain indigenous research.

Research done in research complexes and corporate institutions are usually team work and most of them may also be relay research. The team leader along with his/her colleagues would prepare this report, in most cases, one of them may be entrusted with the task of writing the first draft. This will be refined and edited before final submission.

Sponsored research most often may be done by industries, conducted by universities or specialised research institutions, to obtain results with reference to a new product or process development or solving a problem. These reports are prepared by the project team.

Research funded by governments, industries or by other bodies is also teamwork. Persons with high qualifications and research experience in different disciplines of science, technology and related social sciences like economics; sociology, etc. are involved in these R & D activities. They produce different types of research documents resulting from their research efforts. The team prepares the reports. Such research projects may be entrusted to specific bodies of research.

Research papers may be produced by researchers to announce their preliminary results through publication in research journals. The editorial office of the research journals have their own system of quality control to ensure the quality standards of the research work reported.

For research projects of long duration, interim reports or status/stage reports are also brought out to disseminate preliminary results. This will be followed a consolidated final report when the project is completed.

Self Check Exercise

1) What are research reports? List their types.

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of the Unit.

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18.3 IMPORTANCE AND SIGNIFICANCE OF RESEARCH REPORTS

Whatever may be the types of research reports, its importance and significance can never be exaggerated. They are the final product of communication of research done without which the research work done is incomplete.

Research Process

The time and effort required to produce a good outline are worthwhile; the framework can conserve energy and assist writers in preparing reports that present research in a logical manner.

The results of research and their validity are examined through a system of evaluation in the case of academic research reports like M.Phil theses or doctoral dissertations.

If the research work is of commendable value and meritorious, contributing to the pool of knowledge, it would become eligible for the consideration of the award /reward system, at the national or international levels.

Primary publications, which are research papers carried by research journals, specialised research reports, and such others, are stocked in libraries and cognate institutions for the use of the research communities and others.

Secondary sources, like indexes and abstracts, state-of-art reports, etc. disseminate these types of research reports which are available for those who look for specific information on research done. They are cited by other research scholars in their research papers/reports. This system of citation has led to the citation index, introducing a novel method to measure the quality of research conducted.

Individuals, who are involved in high quality research work, enhance their status and positions among the research community and become sooner or later guides and leaders of research in their respective fields of research.

In sum, the pool of knowledge gets burgeoned with new inputs of value to the already existing knowledge. Numerous primary publications are a source of information and knowledge for the research community.

The secondary sources provide access to these primary documents and also make them available for consultation.

Citation indexes providing scope for citation studies gives a new method of evaluating research work of excellence.

Persons of eminence sprout in such conditions and provide leadership to research efforts in different disciplines, heading specialised research complexes.

All these efforts contribute and eventually accrue to the benefits of the community at large in giving them better living.

Self Check Exercise

2) What are the usefulness and significance of research reports?

- Note:** i) Write your answer in the space given below.
ii) Check your answer with the answers given at the end of the Unit.

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18.4 PREPARATION OF A RESEARCH PROPOSAL

For students, pursuing higher and research studies always require financial support. Universities and research institutes also need adequate financial aids to take up research projects. While seeking funding for research projects, proposals have to be prepared with great attention so that the funding agency gets convinced about the utility of the research efforts and sanction the funds asked for. This section deals with the preparation of research proposals. A research proposal is a request for getting financial and other support for a research project. The proposal is a formally prepared document which is sent to a funding agency, requesting financial and other aids.

Agencies like the University Grants Commission and the Council of Scientific and Industrial Research and such other agencies, have a selection process enlisting fellows for research at junior and senior levels. Students, therefore, do have avenues like these to get selected for doing research in their respective fields.

There are agencies, both at the national and international levels which invite research proposals for funding research projects.

It would, therefore, be worthwhile to get some ideas in the preparation of research proposals for those who seek such financial assistance in their research careers.

Regardless of the environment in which a person functions, proposals may have to be prepared for getting research projects and programs, or obtain contracts for research projects, change a career position and improve professional prospects.

Generally a proposal is a written statement of: 1) intention, 2) willingness 3) qualifications and expertise to accomplish a particular research task within a given time frame. The most important function of a research proposal is to convince the peers to win approval and get financial and other support for tasks that the proposer wishes to make.

Proposals generally have the following components:

Letter of transmittal: A formal proposal is always accompanied by letter which usually identifies and highlights the problem and offers to work on it on mutually agreed conditions.

Title page: This gives a succinct statement of the problem, name of the organisations to whom the proposal is submitted with an identifying number, date of submission and the period during which the work would be accomplished and completed, etc.

Executive Summary: This is a brief summary of the total proposal. Busy executives seldom find time to go through detailed text of a proposal but they are the ones that approve and sanction funding. Hence the executive summary needs to be carefully drafted to get a favourable response, particularly from financial officer who approves the funding. It must be expressly stated as to who are likely to be beneficiaries of the research effort.

Table of contents: Any proposal having more than five to six pages should have a table of contents.

Statement of Request: If the proposal is in response to a request, the statement of request is sometimes given that may include the terms of reference.

Preliminary Section: States the subject of the report, scope, purpose and plan of execution.

Introduction: It should include an elaborate statement of the problem and its background. The scope of the proposal has to be spelled out in a short form but very expressively.

The body including the methodology: Contains the procedure, equipment to be used for study, analysis, results, discussions, conclusions, and recommendations that logically follow from the conclusions, etc. This explains how the work is going to be accomplished and hence is perhaps the most important section of the proposal.

Facilities: The facilities required to execute the task have to be stated unambiguously to avoid any problem at a later stage. These include equipment, machinery, literature support facilities such as books, photocopies of documents, internet services, etc. transport if the research tasks require travel, communication facilities like telephone expenses, fax, etc. and such others.

Personnel: This includes professionals and secretarial staff their quality and number, depending upon the nature of the project.

Duration: It should indicate milestones, phases and completion time of the task.

Cost and Funding: This is the most crucial aspect of the proposal. It includes salaries, capital expenditure, if any, expendable equipment, miscellaneous expenses and overheads. The estimates should be realistic and properly stated showing the approximate costs.

Summary: Busy executives would also read the summary and conclusion to assess the proposal and hence be written with utmost care and attention. The summary should reiterate the beneficiaries of the research results.

Given below are contents to go into a proposal for a library automation project of a medium size library, specialising in a set of new disciplines. The contents should be fleshed to fit into the different components suggested above.

- A vision of the future of the library in terms of users, collection, computerisation of house keeping operations, databases creation and maintenance, new and innovative services, human resources development, — in general to derive all advantages of library automation;
- A short design plan in which all aspects stated above are spelled out, with reference to the library's current status and inputs needed;
- Selection of the automation software, reasons for any particular choice and its application;
- An operational strategy to evolve a pragmatic method and to apply it in a phased manner, identifying milestones and specific targets to fit into achievable time frame;
- Identifying every component of the operational strategy and estimate requirements in terms of quality and quantity;
- Cost factors and approximate estimates for capital and recurring expenditure; and
- A workable management strategy dealing with professional personnel, operational analysis and transitional problems.

The drafting of the proposal is a highly skilled activity which not only takes care of every idea in library automation but must indicate effectively data and information to be collected and used.

Self Check Exercise

3) What is a research proposal? State its components.

- Note:** i) Write your answer in the space given below.
ii) Check your answer with the answers given at the end of the Unit.

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18.5 RESEARCH REPORTS: PLAN OUTLINE, FORMAT AND CONTENTS

Research reports are always precluded by a plan outline, which serves as a guide in the preparation of the final product. An outline is essentially a skeletal framework upon which a report is constructed from systematically collected and organised materials. A complete outline assists the writer in recognising logical relationships between narrative elements of reports. Outlines are also useful for the construction of cohesive paragraphs and sections that are effectively connected.

Most of the research reports outlines are structured more or less on the following format, although alterations of the format may be necessary for every type of report.

Preliminaries

- Title Page with author’s name, affiliation and contact address;
- Acknowledgements, if any;
- Conspectus;
- Table of contents;
- Lists of tables, illustrations, etc.;
- Abstract/Synopsis, Executive Summary.

Introduction

- Statement of the problem;
- Explanation of the theoretical or practical context out of which the research problem originated;
- Need and Purpose of the study and research: their rationale;
- Review of the literature;

Description of the Study

- Conceptual Framework of the Study;
- Definitions of terms.
- Explanation of the Assumptions, Hypothesis of the research problem.
- Foot Notes

Collection of Data and Analysis

- Data collection, Explanation of procedures and methods;
- Data Analysis techniques.

Results

- Data tables and figures;
- Statistical presentation;
- Graphics.

Discussions

- Support or Nonsupport of hypothesis;
- Practical and theoretical implications;
- Inferences, Conclusions and Recommendations, if any.

Summary

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Preliminaries

The preliminaries are the formalities in the presentation of a document that precede the main part of the presentation, giving details of information that follow.

The first page of research report is the *title page*. The title should be crisp, concise and expressive and self-explanatory. It may sometimes have a sub-title explaining the main title if need be. The title should not claim more for the study than it actually offers.

Title indexes like Citation Index, and other types of title services, use the titles of documents, which would help users to decide to seek the original document for study or consultation. Therefore titles should be very carefully drafted to give an exact statement of the work done. The drafting of the title should never be done casually.

The details about the author, his/her affiliation and address are information that would enable a person to get in touch with the author, in case there is a need. This has become a common practice, today in practically every type of research reports.

Acknowledgements are the expression of thanks to those who have helped or assisted the author in his research work. This should include the sponsors, agency that might have financial and other supports, those that have assisted in the preparation of manuscripts, those that have provided library and information support facilities, those who have helped in the preparation of the manuscripts and others.

Conspectus of lengthy research reports is a useful aid in giving an overview of the different chapters of a research document, chapter by chapter. Conspectus is however, written for a document which has a number of chapters reporting different dimensions very extensively. It is different from a synopsis or an executive summary which gives a quick overall review of a research document. For documents of smaller sizes, a synopsis is quite sufficient. For research reports, which are sponsored, the practice is to provide an executive summary.

Executive Summary or Synopsis are meant for those who don't have the time to study the full document. Research reports of a sponsored research invariably should have an executive summary for the authorities to get a quick idea of a research report.

Table of contents may be just simple statements of the titles of each chapter or more details of the subsections of each of the chapters. It all depends upon the length of the chapters that are organised to help users to access with ease any section of the chapters.

The lists of tables, figures, illustrations, maps, photographs, etc. again provide instant access to these parts of a research document – lists of tables, illustrations, photographs, maps, etc. give an idea of additional facilities to get a total view of the document.

Introduction

The Statement of the problem taken up for research should be expressed precisely and crisply so that the rest of the write-up follows a similar pattern.

Explanation of the theoretical or practical context, out of which the research problem has originated should be exactly stated.

The need and purpose of the study and research should be expressed properly; the rationale of the study is also provided so that the inquiry can be placed in its proper setting. In addition, the scope and limitations of the study should be stated.

Review of the literature; Literature review is an important aspect of a research study. It may form part of the introduction or can be given in a separate section, depending upon its size and importance. A review of literature provides a background for the study, identifies gaps, highlighting some important work already done. It may sometimes be a state-of-art report, which gives a total picture of the area taken up for research.

Description of the Study

The real meat of the research work done, begins with this section. Not only the contents of this section should be weighty giving full explanation of the research effort but also written with absolute clarity.

Assumptions are carefully and precisely identified in this section and the general research problem is narrowed down and restated in terms of specific hypothesis or research questions. Hypothesis and questions are often discussed in terms of their relationship to objectives of the study. Operational definitions of concepts in the hypothesis or in the research problem are clearly stated to provide their meanings in the context in which they are used. If a study is not designed to test hypotheses, such as descriptive research, the overall research study has to be clearly identified. The theoretical and practical implications of the study should be discussed in this section.

Foot notes constitute information provided with references to any idea or anything that needs support evidences. Such notes are given at the bottom of the page with indicators to correlate the references. Sometimes such notes are consolidated and given at the end of the chapter or at the end of the report. These types of notes may feature throughout the body of the report also.

Data collection and Analysis

This section focuses attention on how the research problem is handled and the sources of the relevant data, including methods used in obtaining them. An exact, detailed description of all steps taken to collect data is stated; for example selection of topical headings, their location in the study, instruments of measurements and special problems pertaining to the design of the study. Adequate descriptions of procedures will facilitate

Research Process

better understanding of how the study is accomplished. When pertinent, methods used to validate and to pretest instruments are also described. In addition, sometimes, limitations in the study's methodology should be discussed in terms of actual or possible negative effects on the results of inquiry.

Data analysis includes the method of methods of analysis, statistical methods used, and other related methods. These methods should enable the data to be organised systematically for proper and appropriate interpretation.

Results

Data assembled and organised should be presented in tables which can be graphically displayed to give a visual view of the data analysis. This would enable proper interpretation of data analysis to arrive at a conclusion that may permit some generalisation. Conclusions may be formed and the possible application should also be stated.

Discussions

This section should deal with the results obtained with reference to the hypotheses formed at the beginning whether or not the results support them or reject them. This should be appropriately and convincingly argued.

If there are suggestions and recommendations for further study that should complement the research work pursued, these should be precisely and concisely stated.

Summary

Summary at the end of the research report is different from the synopsis or abstracts of research papers, which are usually given at the beginning. Summaries are at the end of a report that gives a short narrative description of the different chapters and the conclusions arrived at.

This will give a quick methodic and systematic overview of the work done.

Glossary

Glossary is a useful aid in getting clear understanding of the technical jargons or other specialised words employed in the report. It may be optional to provide a glossary, depending upon the necessity.

References and Bibliography

References are the most essential part of a research report. This should include references that are actually cited in the report with reference to the pages in which the ideas are discussed or actual quotations.

A separate section may carry bibliographical references, which are additional references to those that there are actually used and cited. This will help users to seek other sources that may contribute to the further study of the research area.

Appendix

Appendices are those items of information that would add further to the information given in main document.

Index

An index to a research report is a must whether or not the document is mimeographed or printed or in other form. An index is a summary of the document in terms of the ideas and thoughts discussed in the document. It brings together all the different aspects of an idea and maps them out in the context in

which they are discussed in the body of the report. It is totally different from the contents even if the contents are presented in detail. If possible the index may be presented in a graphical form to get the different dimensions of the ideas discussed in the document. There are national and international standards that would provide guidelines for preparing a document index. Graphic presentation of indexes is available for some of the international abstracting and indexing services which provide guidelines in the presentation of graphic indexes.

The plan for the different types of research reports will vary, although the general format model suggested above remains more or less the same. For M.Phil research, which usually, is first research degree and the time span is also of a shorter duration, the outline need not go into such details as are required for a doctoral dissertation for a PhD. programme. For other types of research reports, it depends on the institution that undertakes the research, to include its objectives and goals. The research papers should conform to the required format of the host journal in which the paper is to be published. Every report, should, therefore keep the requirements and necessarily should prepare the outline according to the situation and need.

Self Check Exercise

4) What is the function of plan outline of a research report? State its components.

- Note:** i) Write your answer in the space given below.
 ii) Check your answer with the answers given at the end of the Unit.

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18.6 PREPARATION AND ORGANISATION OF RESEARCH NOTES

One of the most important and invaluable activities in research work is note taking and recording the collected information in a standard format for consultation and reference during the course of research. A researcher consults numerous documents, many of them read intensively. Notes of different kinds get generated from this effort, which also is to be systematically recorded and filed. These may include by and large groups like:

- Bibliographical references, both directly related to the topic of research and additional references;
- Subject notes that get formulated as the research work progresses;
- Quotations, Paraphrases, Summaries, Abstracts; and
- Evaluative notes or remarks and such others.

N.B. This type of detailed notes taking would be absolutely necessary for research projects, which takes a few years to complete. For research work of shorter duration,

reference notes may be considerably small and could be easily managed even recorded in slips and properly organised and maintained for easy reference and use.

A word of caution is necessary in taking notes. Notes files should not grow in bulk, lest it would defeat its very purpose. While taking notes, the researcher should carefully weigh every note in terms of its utility and aid in the preparation of the final report.

Bibliographical References

Literature pertaining to the field of research has to be collected through effective search procedures of information storage and retrieval databases. These searches throw number of bibliographical references to be consulted for obtaining all background information and knowledge of the field of research. Many of these references may be of direct relevance to the research study and are to be read thoroughly. There are also references, which may not be directly relevant to the topic of research but may be useful as additional sources of information. These references, therefore, constitute two categories namely those that are directly concerned with the topic of research and those that are of peripheral value. It is out of these information sources notes are prepared.

These references ought to be very carefully and systematically recorded with one hundred percent accuracy for the simple reason that they are constantly referred to during the course of the research study and even later stages. They ought to be legibly written without any overwriting or just scribbled. The general tendency of most research students is take this work in a casual manner, which may create serious problems at later stages of the work when such documents need to be consulted.

The references should be recorded in standard form prescribed for bibliographic citations for books, journal articles, technical and research reports, conference papers and proceedings, and others.

There are style manuals that prescribe standard practice of citations and the format for recording bibliographic references.

The libraries and other institutions from which the reference source has been obtained have also to be recorded with accuracy. The Call Number of the book, or the Journal title from which the reference has been selected and such other details for other kind of documents ought to be recorded accurately. No effort should ever be spared in doing this work.

A suggested format for bibliographical reference is given below:

- Title of the document with the author and whatever other details necessary. Edition statement, if any. Year of publication. Publisher and Place, collation, if necessary.
- Subject heading of the document.
- Name of the Library form where the reference was sought and address, if need be; Call No. of the document.
- Relevant chapter or section to which the document is related.
- Specific indication of its reference value to the researchers work.

This information is to be stored in a 4" X 6" card and filed alphabetically by title or subject, depending upon the researcher's need or choice with an index for other approaches.

Subject Notes

These are notes of ideas or thoughts that occur to a researcher at different stages of research work. These should be recorded as topical outlines or descriptive subject

description and filed according to standard subject headings with reference to the chapter(s) of the research report.

Such thoughts or ideas may arise while travelling, in the toilet, during listening to lectures, at seminar or conference discussions and at such other odd times. These are the most valuable information in the research process that would provide considerable substance to the research work. Such thoughts or ideas keep coming to the minds of active researchers who are so deeply involved in the work and are constantly or intensively thinking of their research work. The important point to be noted here is that they should be recorded immediately lest easily forgotten. Scribbling slips should always be kept at hand in readiness for recording such thoughts which ought not to be ignored as they occur at odd times.

These thoughts may arise at any stage of the research process i.e. while reviewing literature, formulating assumptions and/or hypothesis, selecting research methods, methods of data collection, their assembly in systematic order, analysis, presentation with graphic representation, interpretation, making inferences, conclusions, generalisation and possible applications of results.

Not only are these notes recorded in a systematic format, but they also are to be filed in a manner, easy for consultation. The way in which these notes are recorded or organised may vary from individual to individual, yet a few suggestions are given below for general guidance, especially for students and junior researchers.

These ideas and thoughts may be classified into two or three sets.

- 1) Ideas pertaining to a particular aspect i.e. data to provide evidences to testing hypothesis, or methods of data analysis, interrelations between different types of data and so on.
- 2) Critical comments on any aspect while reading relevant literature to be considered at the stage of discussions or to be rejected.
- 3) Points that have emerged while discussing these ideas with seniors, peers and colleagues or even students.

Suggested format: Subject Heading
Chapter reference
Topical statement(s); Descriptive subject heading
Comments
Document Reference, if any
Date/Time of occurrence of ideas
Names of persons consulted
Any other important reference

The data can be stored in 4" X 6" cards and filed subject wise.

Bibliographical References: Documents that are directly used. Documents that provide additional references.

Information that should be recorded is full bibliographical details. Name of the library/ other institution(s) at which the document was available for consultation with location details, i.e. call no. of the document and other details to identify the document when needed.

Subject heading of the document. Chapter heading(s) of the research report.

These references should be filed alphabetically or subject wise.

Research Process

Quotations, Paraphrases, Summaries, Evaluative notes are to be recorded systematically and filed with reference to chapters, under subject headings.

Quotations from the writing of outstanding authors/writers, scholars always give weightage to any serious work of any scholarly nature.

These may general ones or pertaining to the field of the researcher. The quotation should be used in an appropriate place.

Paraphrases/Summaries are usually condensed notes from long passages in a document which are written in the language of the researcher for use at an appropriate place in the report.

Evaluative comments pertain to notes that are critically examined with reference to the research aspects which may or may not be used in the final report. Yet, they may be useful to show that every aspect of the research work had been studied.

Some aspects of drafting ideas in an attractive style both in terms of contents and language may also occur to a researcher during the course of research work. It may be a few sentences or a paragraph or even longer passages of writing. Such drafts may form part of this file.

All these notes are recorded in 4" X 8" cards. The notes may be in three distinct files or in a single file with indexes for easy access. They may be profitably arranged subject wise with indexes to have approaches from any other approach as decided by the researcher.

These cards should be kept in a box for easy transportation if necessary to be carried. They should be updated at regularly intervals.

Self Check Exercise

5) What are the three kinds of notes taken for research work? State the format of notes for subject files.

- Note:** i) Write your answer in the space given below.
ii) Check your answer with the answers given at the end of the Unit.

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Foot Notes

Foot notes are citations, comments, explanations, illustrations, etc. that are placed at the end of a page of a research report, with an indication mark in the appropriate place in the body of the report. The information collected in the notes files are used for this purpose.

It is also a practice to collect them at the end of a chapter or at the end of the report along with References and Bibliography. It all depends where the author would like have them.

18.7 DRAFTING OF RESEARCH REPORTS

Drafting a research report is the communicatory stage in research. The preliminary work, as we have emphasised already, are careful outlining and notes-taking which provide the necessary outfits for drafting the final report.

Communication skills, both oral and written are indispensable for library and information professionals. Other professional skills being equal, those that have communication skills get invariably greater preference in job markets. While both writing and oral communications are equally important, we are concerned in this Unit, with writing skills.

Any type of writing is a skill acquired through cultivation. It takes fairly a long time to be a consummate writer. Picking up skills in writing requires a great lot of reading. In fact writing and reading go hand in glove. Writing abilities stabilise only through repeated attempts at writing in the form of general articles and professional papers. Good writing stems from extensive reading of the works of outstanding authors. Extensive reading over a range of topics for breadth of background and intensive reading on selected themes for analytical, evaluative purposes are desirable for research students. (Good and Scates, 1954). Reading should be much wider than reading professional literature. While research reports are not classed as creative writing, yet they are results of creative work and therefore should also reflect the effects of creative writing.

In writing one should always be very clear as to whom the writing is meant for. In other words who are the potential readers of the writer. Research reports are for those who are peers in the field, research colleagues, students and those that are likely to use the report findings for their possible applications and such others. This important factor should always be kept in mind while drafting a research report.

Self Check Exercise

6) What constitutes good writing? How is it cultivated?

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of the Unit.

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18.7.1 Language and Grammar

The hall mark of good writing is its lucidity and ease of understanding of the contents. Keeping this as a fundamental principle, the language employed has to conform to all other attributes of writing like style, diction, semantics and syntactic and rules of grammar.

Style is a natural ability to write in a captivating manner. This requires perfect understanding of the subject written about, a flair for writing, command of the language and a clear vision of those who are likely to read the output. This skill can also be acquired by reading excellent research reports/technical written eminent research scholars some of whom have great writing capabilities.

Research Process

Diction refers to the choice of words, their arrangement and the force, accuracy and distinctions with which they are used. Need less to say that choice of words and phrases are to be in a form that helps a reader to get a clear idea of the contents of any writing. Apt words and phrases greatly enhance readability. This skill will have to be cultivated through extensive reading and constant writing.

Semantics deals with different meanings of words. English language is full of synonyms and the choice of a word should be selected from among the shades of differences in the meaning of a word which perfectly represents the correct sense, the writer wishes to convey. There are excellent dictionaries which not only provide the meanings of a word but also the meanings of all its synonyms and their usage. In many examples are also given. Roget’s thesaurus of synonyms and antonyms of words in dictionary form is a valuable tool that could be very effectively used for good writing. This natural language thesaurus gives for every word its synonyms as nouns, verbs, adjectives and adverbs.

Syntactics deals with the pattern of structure of the word order in a sentence or phrase to convey ideas effectively. While diction pertains choice of appropriate words and phrases, the syntax fixes the chosen words and phrases in a meaningful order in a sentence. This skill again comes through reading and writing.

Grammar provides the basic principles for writing good prose in the form of a set of rules. Although grammar is learnt even at the school stage, correct writing has to be cultivated. Some elementary rules such as sentences must use correct form of verbs tenses. They should agree in number with the subjects of sentences. Pronouns should agree with their antecedents. Prepositions should be used very carefully to connect words. The rules of grammar for sentence formation for simple, compound and complex must be carefully adopted. Although these are very simple rules, quite often not much attention is paid to these aspects, particularly at the student level which invariably hampers readability.

Self Check Exercise

7) What aspects of language would ensure quality writing? Explain Syntactics.

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of the Unit.

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Organisation of the Report

Keeping in view all these aspects of language and grammar and the framework for the preparation of research reports, two types of drafting outlines viz. sentence outline or topical outline may help in the presentation of the theme(s) of the research report, pertaining to any section i.e. from Introduction to Interpretation, Discussion and Summary. The sentence outline consists of statements that can be expanded in each

section of the report. The topical outline, on the other hand, is a list of topics and sub-topics that are covered in the report.

Illustrative examples of the two types of outlines for drafting are given below. The examples pertain to using information technology for various library operations and information support services to optimise the use of collections in a library and at providing the best possible information support systems and services, attending maximally to users' information needs with speed and efficiency.

A drafting sentence outline for a library automation project with building up systems and services for optimum use of the collections is as follows:

Drafting sentence outline for a Library Automation Research Project

The hypothesis of this research project may be 'Optimal facilities and best users' systems and services can be provided in a modern library, only with the use of information technology with collection development oriented towards the needs of users. The modern library should renovate at periodical intervals to keep the system and services alive and dynamic to changes.'

Sentence Outlines According to the Fifth Law of Library Science of Ranganathan, "A Library is a Growing Organism." This implies that a library is ever changing due to various environmental developments and advances in technology. Currently libraries are switching to automating their operations with the applications of special software systems, making use netting soft wares and also availing Web and internet services.

- I) So a self-renovating library has to respond to changes in all dimensions. If not, the problems likely to arise are:
 - Hampered growth in size, the quality of service getting poorer and poorer;
 - Undue delay in every service, increasing waiting time for getting any required material;
 - Shelf failures becoming numerous, failing to locate even oft used items;
 - The library catalogue too often fails to respond to requests;
 - Circulation counter getting slower in operation and services;
 - Few meetings of reference staff and library leaders;
 - Mechanical operations with no human element in each and every service.
- II) If this condition is allowed to continue, it results in huge fall in standards and the entire facility becoming obsolete;
 - Collection grow without adequate shelving facilities, resulting hampering easy movement of collections;
 - Browsing becomes almost impossible, in open access systems;
 - Stacking areas encroach on reading areas;
 - Less facilities for user service, readers getting very little space;
 - Financial allocations get imbalanced, attention given to provision for space for stacks, budgets for collection getting reduced;

Research Process

- III) The only alternative is to choose alternatives that will arrest the unmanageable and undesirable growth and yet maintain high quality of service.
- Automate library operations with a soft ware that provide a highly user oriented services'
 - The collection development should totally concentrate on active areas of knowledge and should be highly oriented towards to user needs;
 - Acquire alternate forms of materials to print materials;
 - Use more and more networking facilities for providing items;
 - Adopt a vigorous policy for weeding and wherever possible digitizing technology;
 - Use extensively internet facilities for accessing data bases and providing user services;
 - Employ professional staff with considerable knowledge in subjects handled by the library with high skills in computer operations, systems and services.

These outlines should be used at the appropriate sections to expand the ideas they carry, justifying the changeover to renovating the library.

Topical Outlines

- A library is a growing Organism;
- Goal to provide high quality service;
- Problems of disjointed growth;
- Collections, Shelf Space, Readers facilities, staff and others.
- Fall in standards; Disproportionate allocations of funds;
- Services and staff;
- Alternatives:
- Library automation
- Collection development –user oriented.
- Services development using network systems;
- Alternative forms to print material;
- Highly professional and computer skilled personnel;
- Use of Internet and Web services.

The sentences outline generally is rather difficult to formulate, unless there is a clear vision of the renovated library. But once they are formed, it helps drafting the sections with greater ease and connecting coordinating and coordinating the ideas logically and convincingly.

The topical outline is easy to draft but requires considerable skill in expanding them. It also requires a high degree of organising skill in fleshing ideas with an excellent vision of a renovated library.

Self Check Exercise

8) What are the aids that help drafting a research draft?

- Note:** i) Write your answer in the space given below.
ii) Check your answer with the answers given at the end of the Unit.

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18.8 PHYSICAL PRODUCTION

Two aspects need careful attention in the production of the final Copy of the Research Report viz. 1) Preparation of the manuscript and 2) the physical production including printing.

18.8.1 Preparation of Manuscripts

Manuscript here refers to the researcher’s final draft of the research report which goes to the typesetter for the final production of the research report. For theses and dissertations which are lengthy, the preparing the final draft should be given careful attention so that the typesetting work does not get into any unnecessary and avoidable problem. If the draft is prepared using Micro Soft Word processor, it can provide a clean and accurate copy of the final draft for typesetting using a Desk Top Publishing Software. In fact, if the researcher has training and experience in using MS Word, it would considerably save time and an assurance of accuracy of the draft. It is highly desirable for a library and information professional to cultivate and acquire expert skills in word processing.

The composition and page layout and related organization of the manuscript for the physical production of the Research Report is a specialist job who may not have any idea of the contents of the Research Report. Hence the researcher has to give clear instructions to the typesetter for every detail e.g. Fonts and sizes of letters, headings and sub-headings, footnotes, their format and fonts, size, words in bold, or in italics or underlined, graphics to be placed at the right places, tables and figures at the appropriate places and similar other instructions. A Style Manual would give the right format for bibliographical citations for every type document, footnotes, graphics and illustrations, tables and figures and to many other details in the preparation of the final copy. Spell Check facilities available in Software should be utilized to correct any error which had come inadvertently or by oversight.

Self Check Exercise

9) State the two steps of physical production.

- Note:** i) Write your answer in the space given below.
ii) Check your answer with the answers given at the end of the Unit.

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18.8.2 Final Phase of Physical Production

Once the final copy of the manuscript is ready, the physical production of the manuscript is taken up. This involves four operations viz.

- Composing the matter
- Page layout of the composed matter
- Production of the final document
- Binding and final finish
- Publishing aspects, if the report is published.

Composing

Advances in information and communication technology are changing the entire process of writing and publishing scenario. The emergence of personal computers with a number of features of DTP facilities, have virtually enabled an author to become a publisher too. The results of these facilities brought about amazing speed in the processes of composing, layout of pages, printing and binding. All these have also ensured excellence in quality of the final product.

The standard features of most word processing software packages with reference to text formatting and text editing. The former provides for setting left, right, top and bottom margins, line spacing, justification, page size, page numbering, centered and shoulder headings, etc. The latter facilitate deletion of words, blocks of texts or move sentences or blocks to any other place desired or move to another file, types of founts and their sizes, facilities for insertion of tables and figures, graphics, appending text from a floppy file, insertion of new text, global search and replacement of occurrence of one word with another and easy movement backwards and forwards, and the like. Latest versions of MS Word and other similar software packages handle graphic images, spell checks, thesaurus, indexing, calculations, etc. Top range softwares such as Word Perfect offer features close to Desktop publishing in addition to all the features mentioned here.

Page Layout of Composed Matter

Desktop Publishing (DTP) software is user friendly package that enables documents to be produced with a quality approaching that of documents produced by professional printing. An important feature of DTP is that it includes text formatting, page layout, features of word processing, spread sheets (Excel) for tables and some graphics, insertion of graphics and illustrations in the body of text and such others.

Production of the final document

The physical production of the final Research report depends on a clean and errorless manuscript and detailed instructions to the typesetter on every aspect of the production. Print-outs obtained by computer printers, depends very much on their quality. Laser printers are the best choice. Expensive models of laser printers provide for storage for a range of founts and type sizes for Roman scripts and English and other scripts of languages.

Scanners can be very useful to capture data from printed pages, images of various kinds. These have to be inserted in appropriate pages along with the text and well laid out.

If the document has to be printed and a great number of copies are to be produced, modern printing technology offers several alternatives.

Binding and final finish of the physical production should also be given considerable attention for their aesthetic value which always creates a feeling of pleasure in using a well brought out document.

If the report is to be published, the researcher does well to discuss the publisher and act according to the suggestions given by the publisher with reference to the manner of publication and marketing.

Self Check Exercise

10) What are the four operations involved in the final production of a research report?

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of the Unit.

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18.9 SUMMARY

This section deals with last major step in the conduct of a research project. Effective reports of completed research should communicate the procedures and results of research studies both to peers, scholars and professionals and students. This requires a clear understanding of the different types reports, their importance and significance. Research projects that need financial support, a research proposal has to be prepared which is outlined. The research Outline is discussed in detail and a model outline is suggested for the different types of research reports. The Note taking is an important aspect of research studies. This is explained in detail and the different categories notes file are given as a guide, particular for students and junior research fellows. The preparation of the manuscript and the production aspects are explained.

18.10 ANSWERS TO SELF CHECK EXERCISES

1) Research reports are detailed and accurate accounts of the conduct of disciplined studies accomplished to solve problems or to reveal new knowledge.

Research reports include 1) Research degrees: M.Phil. P.hd. ,etc. 2) Research reports of projects funded/sponsored by research institutions and industries 3) Research reports which are in the nature of technical reports and 4) Research papers published by research journals.

2) The usefulness and significance of research reports are:

The pool of knowledge gets burgeoned with new inputs of value to the already existing knowledge. Numerous primary publications are a source of information and knowledge for the research community.

The secondary sources provide access to these primary documents and also make them available for consultation.

Citation indexes providing scope for citation studies gives a new method of evaluating research work of excellence.

Persons of eminence sprout in such conditions and provide leadership to research efforts in different disciplines, heading specialized research complexes.

- 3) A research proposal is a formal document with a letter of transmittal sent to a research funding agency, applying for financial and other aids for a research program.

Its components are: Letter of Transmittal, Title page, Executive Summary, Table of contents, Statement of Request, Introduction, Preliminary section, The body and methodology, Facilities, Personnel, Duration, Cost and Funding, Summary.

- 4) An plan outline of a research report is essentially a skeletal framework upon which a report is constructed from systematically collected and organized materials. A complete outline assists the writer in recognizing logical relationships between narrative elements of reports. Outlines are also useful for the construction of cohesive paragraphs and sections that are effectively connected.

The components include: Preliminaries, Introduction, Description of study, Collection of data and analysis, Results, Discussion, Summary, Glossary, References, Appendix, Index.

- 5) Bibliographical references, both directly related to the topic of research and additional references; Subject notes that get formulated as the research work Progresses; Quotations, Paraphrases, Summaries, Abstracts, Evaluative notes or remarks and such others.

The subject notes file may have the following format:

Subject Heading

Chapter reference

Topical statement(s); Descriptive subject heading

Comments

Document Reference, if any

Date/Time of occurrence of ideas

Names of persons consulted

Any other important reference

- 6) Good writing is a communication process, keeping the target audience in mind. It should be lucid, simple, logical and organized to help understanding the contents by those for whom it is written. Good writing stems from extensive reading of the works of outstanding authors. Extensive reading over a range of topics for breadth of background and intensive reading on selected themes for analytical, evaluative purposes are desirable for research students. Reading should be much wider than reading professional literature. While research reports are not classed as creative writing, yet they are results of creative work and therefore should also reflect the effects of creative writing.
- 7) The aspects that contribute to good writing are Style, Diction, Semantics, Syntactics, Rules of Grammar. Syntactics deals with the pattern of structure of the word order

in a sentence or phrase to convey ideas effectively. While diction pertains choice of appropriate words and phrases, the syntax fixes the chosen words and phrases in a meaningful order in a sentence. This skill again comes through reading and writing.

- 8) The aids that help drafting are the two types of drafting outlines viz. sentence outline or topical outline may help in the presentation of the theme(s) of the research report, pertaining to any section i.e. from Introduction to Interpretation, Discussion and Summary. The sentence outline consists of statements that can be expanded in each section of the report. The topical outline, on the other hand, is a list of topics and sub-topics that are covered in the report.
- 9) The two steps involved in the final production of a research report are:
 - 1) Preparation of the Manuscript, and 2) the physical production including printing.
- 10) This involves four operations involved in the final stage of production of a research report are:
 - Composing the matter
 - Page layout of the composed matter
 - Production of the final document
 - Binding and Final finish

18.11 KEYWORDS

Creative Writing : Original writing with a flair for writing, induced by intuition and ability to imagine events dramatically.

Desktop Publishing : Publication using computer software packages to manage or create data to be printed, as well as that used to make up the pages of a final document. Word processors, spreadsheets and database packages are, therefore, an essential part of DTP. As most routine publications can be produced literally on the top of a desk using a computer, it is known as desktop publishing.

Peers : Persons who are equal or above to another in position, abilities, qualification and experience.

Target Readers : Readers for whom a particular writing is meant.

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