RESEARCH METHODS

WEEK-9

RESEARCH DESIGN AND THE COMPONENTS
OF A RESEARCH PLAN/PROPOSAL

WHAT IS RESEARCH DESIGN?

Research design can be considered as the structure of research it is the "Glue" that holds all of the elements in a research project together, in short it is a plan of the proposed research work. Research design is defined by different social scientists in different terms; some of the definitions are as: according to Jahoda, Deutch & Cook "A research design is the arrangement of conditions for the collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy and procedure". Research design is the plan, structure and strategy and investigation concaved so as to obtain ensured to search question and control variance". Henry Manheim says that research design not only anticipates and specifies the seemingly countless decisions connected with carrying out data collection, processing and analysis but it presents a logical basis for these decisions. Zikmund defined as "a master plan specifying the methods and procedure for collecting and analyzing the needed information". The definitions stress systematic methodology in collecting right information for interpretations with economy and procedure. In-fact the research design is the conceptual within which research is conducted:

1. The blueprint for the collection.
2. Measurement and
3. Analysis of data.

A research design should be based more or less on some methodology the research design should be made once the topic and problem of research have been selected and formulated, objectives have been properly outlined, concepts have been properly defined and the hypothesis have been properly framed. The research design should be able to provide answers of the following reserve queries: What is the study about and, what type of data is required? What is the purpose of study? What are the sources of needed data? What should be the place or area of the study? What time, approximately, is required for the study? What should be the amount of materials or number of cases for the study? What type of sampling should be used? What method of data collection would be appropriate? How will data be analyzed? What should be the approximate expenditure? What should be the specific nature of the study?

ORIGINS

Research design emerged as a recognizable field of study in the 1960s, at first marked by a conference on Design Method at Imperial college, London in 1962. It led to the founding of the Design Research Society (DRS) in 1966. John Christopher Jones founded a postgraduate Design Research laboratory at the University Manchester Institute of Science and Technology (who

initiated the 1962 conference) and L. Bruce Scher founded the postgraduate Department of Design Research at the Royal College of Art, London and became the first professor of Research Design. Some of the origin of design methods and research design lay in the emergence after the and world management decision making technique the most fundamental challenge to conventional ideas on design has been the grouching advocacy of systematic methods of problem and the development of design solutions. Herbert Simon (1969) established the foundations for a science of design which would be a body of intellectually tough, analytic, partly formalizable, partly empirical, teachable doctrine about the design process.

FEATURES

It is a plan that specifies the sources and type of information relevant to the research problem. It is a strategy specifying which approach distill be used gathering and analyzing data. It also includes the time and cost budgets since most studies are done under these two constraints. In brief research design must at least contain. A clear statement of research problem. Procedures and technique to be used for gathering data or information. The population to be studied. Methods to be used in processing & analysis data. Phases in Research Designing. The Research process proceeds in six phases:

1. Specifying the problem/topic to be studied
2. Framing research design
3. Planning a sample (probability or non-probability or combination of the two).
4. Collecting the data
5. Analyzing the data (editing, coding, processing, tailgating)
6. Preparing the report.

NEED FOR RESEARCH DESIGN

Research design is necessary because it makes possible the smooth sailing of the various research procedures, thereby creation research as professional as possible, yielding maximum information with a minimum expenditure of effort, time and money. For better, economical and attractive construction of a house, we need a blueprint (or what is a community called the map of the house) prepared by an expert architect, similarly we need a research design or a plan in advance of data collection and analysis for four research projects. Research design stands for advance planning of the methods to be adopted for collecting the relevant data and the techniques to be used in the analysis, keeping in view the objective of the research and the audibility of staff, time and money. Designing the research project may result in rending the research exercise unsuccessful. It is, therefore, imperative that an efficient and appropriate design must be prepared before starting research processes. The research design helps the investigator to organize his ideas in a shape whereby it will be possible for him to look for errors and shortages.

<u>NATURE OF GOOD RESEARCH DESIGN</u>

A good research design is regularly characterized by adjectives like flexible, appropriate, efficient, and economical and so on. Generally, the design which minimizes bias and collected & analyses is considered a good design. The design which gives the smallest experimental error in supposed to be the best design in many investigations similarly; a design which yields maximal information many different aspects of a problem is considered most appropriate and efficient design in respect of many research problems. Some of the strategies of good research design are as follows:

Theory – Grounded

Good research reflects the theories which are being investigated where specific theoretical expectations can be hypothesized these are incorporated into the design.

Situational

Good research designs make known the settings for the study, this was shown above where a specific need of teacher and administrators was openly addressed in the design plan. Similarly, demoralization, intergroup competition and competition might be accessed throughout the use of the additional comparison group who are not in direct contact with the original group.

Feasible

Good design can be implemented. The series and timing of events are cautiously throughout. Possible problems in measurement, devotion to project database construction and the like, are predictable.

Redundant

Good research designs have some flexibility built into them often this flexibility results from the repetition of essential design features.

Efficient

Good research design strikes a balance between redundancy and the tendency to over design. Where it is responsible, other, less costly, strategies for ruling out potential threats validity cure utilized.

Types of Research Design

1. Exploratory or Formulative Research
2. Descriptive Research or Statistical Research
3. Explanatory Research
4. Experimental Research or Analytical Research

Exploratory Research

It is the primary stage of research and the purpose of this research is to achieve new insights into a phenomenon. This research is one which has the purposes of formulating a problem for more

accurate investigating a problem for more accurate investigation or for developing a hypothesis. This is applied when there are few or no earlier research/studies to which references can be made for information. The focus of this research is on gaming insights and familiarity with the subject area fair more rigorous investigation later. Exploratory studies are usually more appropriate in case of problem about which little research knowledge is available, for instance, there is little knowledge available about social interaction pattern of members of a most monastery an enterprising researcher may be interested in such a problem to obtain insights in the face of little knowledge available about it.

Steps of Exploratory Research

We have already noted the exploratory research should be considered the initial step in a continuous research processes rather than a detached exercise. The following methods may be is helpful for exploratory research: -

WHAT IS RESEARCH PROPOSAL

HOW TO WRITE A RESEARCH PROPOSAL

A research proposal is intended to convince others that you have a worthwhile research project and that you have the competence and the work-plan to complete it. Generally, a research proposal should contain all the key elements involved in the research process and include sufficient information for the readers to evaluate the proposed study. Regardless of your research area and the methodology you choose, all research proposals must address the following questions: What you plan to accomplish, why you want to do it and how you are going to do it.

Why a good preparation is needed?

A good preparation for a research proposal is necessary as: o this is vital for grant application in a competitive environment. Funding is very competitive. o it assists the researcher in project formulation, planning, performance and monitoring of the research. o the quality of the proposal contributes to the evaluation outcome o a poorly prepared proposal may not be considered at all or cannot be considered fairly.

    Components of a research proposal

    o Title

    o Introduction

    o Literature review

    o Methodology

    o Plan - time frame and schedule of activities (Gantt chart)

    o Budget

    o Details of research team (signed CV)

Title The title of a research proposal should be concise and descriptive. Try to think of an informative but catchy title. An effective title not only pricks the reader's interest, but also predisposes him/her favorably towards the proposal. Introduction The main purpose of the introduction is to provide the necessary background or context for the research problem. How to frame the research problem is perhaps the biggest problem in proposal writing. The introduction typically begins with a general statement of the problem area, with a focus on a specific research problem, to be followed by the rational or justification for the proposed study. The introduction generally covers the following elements:

  o State the research problem, which is often referred to as the purpose of the study.
  o Provide the objectives of the study. The objectives identified should be general as well as specific.
  o Identify the rationale of the proposed study and clearly indicate why it is worth doing.
  o Briefly describe the major issues and sub-problems to be addressed by the research.
  o Identify the key independent and dependent variables of the study.
  o State the hypothesis of the study, if any.
  o Be aware of the limitations or boundaries of the proposed research in order to provide a clear focus.

Objectives of the study

  o Should be stated clearly
  o Be clear and concise
  o Must be measurable and feasible

Literature Review

The aim of the literature review is to provide adequate background information on the research being proposed, especially on: o the prevalence or incidence of disease or health problem o the current status of selected research topic It should be brief, and indicate relevant related research that had or is being conducted (references should be included). The review committee is normally aware of the various projects going on. The literature review serves several important functions: o Gives credits to those who have laid the groundwork for the proposed research. o Demonstrates your knowledge of the research problem. o Demonstrates your understanding of the theoretical and research issues related to your research question. o Shows your ability to critically evaluate relevant literature information. o Indicates your ability to integrate and synthesize the existing literature. o Provides new theoretical insights or develops a new model as the conceptual framework for your research. o Convinces your reader that your proposed research will make a significant and substantial contribution to the literature (i.e., resolving an important theoretical issue or filling a major gap in the literature).

Methodology
The Methodology section is very important because it tells your Research Committee how you plan to tackle your research problem. It will provide your work plan and describe the activities

necessary for the completion of your project. For quantitative studies, the method section typically consists of the following sections:

- o Study design -Is it a questionnaire study or a laboratory experiment? What kind of design do you choose (descriptive, cross-sectional, case-control)?
- o Selection of research location

  Subjects or participants - Who will take part in your study? What kind of sampling method / procedure do you use? You will need to decide on the inclusion and exclusion criteria
- o Sample size – you need to calculate your sample size based on the type of study you are conducting. There are several formulas for sample size calculation.
- o Study instruments - What kind of measuring instruments or questionnaires do you use? Why do you choose them? Are they valid and reliable?
- o Data collection - How do you plan to carry out your study? What activities are involved? How long does it take?
- o Data analysis and interpretation – this includes plans for processing and coding data, computer software to be used (eg Statistical Package for Social Sciences / SPSS, EPI-INFO, etc), choice of statistical methods, confidence levels, significance levels etc. It is also convenient to provide dummy tables for the data you plan to analyse from your study.
- o Ethical considerations – It is necessary to submit your research proposal to the Ethical Committee where you work and also where you plan to conduct your research. Depending where you are working and the type of research you are planning to conduct, you are required to submit the Ethical Committee Application Approval Form, together with the research proposal, patient information sheet, patient consent form, etc. Special ethical considerations are required if there are invasive procedures for human subjects, or animal use.

Plan

Planning for the research proposal should include the time frame and activity schedule for the proposed research. The time frame should include time for: o purchasing and obtaining relevant consumables and facilities needed to conduct the study o conduct of study o analysis of data o writing up of project report The time needed for publication need not be included here. The activity schedule is essential for effective monitoring of project. It should list the time frame for major activities, and include milestones. A most effective way of plotting the activity schedule is by using the Gantt Chart.

Budget

It is essential to request for an adequate budget for the study you are planning to conduct:

o Provide a total and yearly breakdown of the budget needed

o Follow the guidelines provided by the sponsors where you plan on obtaining the grant from

o Give appropriate estimates of costs depending on the different areas, eg: travel and transportation, consumables, salaries, services, rentals, equipment, utilities, repairs, etc.

o Provide adequate justification, especially for costly items

Research team:
o Identify all expertise required for your research
o Include the curriculum vitaes (CVs) of all key researchers
o Obtain agreement of participation by team members in writing
o Ensure adequate expertise and spell out responsibilities of each of the researchers

Components of a Research Proposal

Krathwohl (2005) suggests and describes a variety of components to include in a research proposal. The following sections – Introductions, Background and significance, Literature Review; Research design and methods, Preliminary suppositions and implications; and Conclusion present these components in a suggested template for you to follow in the preparation of your research proposal.

Introduction

The introduction sets the tone for what follows in your research proposal – treat it as the initial pitch of your idea. After reading the introduction your reader should:

- understand what it is you want to do;
- have a sense of your passion for the topic; and
- be excited about the study's possible outcomes.

As you begin writing your research proposal, it is helpful to think of the introduction as a narrative of what it is you want to do, written in one to three paragraphs. Within those one to three paragraphs, it is important to briefly answer the following questions:

1.   What is the central research problem?
2.   How is the topic of your research proposal related to the problem?
3.   What methods will you utilize to analyze the research problem?
4.   Why is it important to undertake this research?
5.   What is the significance of your proposed research?
6.   Why are the outcomes of your proposed research important? Whom are they important?

You may be asked by your instructor to include an abstract with your research proposal. In such cases, an abstract should provide an overview of what it is you plan to study, your main research question, a brief explanation of your methods to answer the research question, and your expected findings. All of this information must be carefully crafted in 150 to 250 words. A word of advice is to save the writing of your abstract until the very end of your research proposal preparation. If you are asked to provide an abstract, you should include 5 to 7 key words that are of most relevance to your study. List these in order of relevance.

Background and significance

The purpose of this section is to explain the context of your proposal and to describe, in detail, why it is important to undertake this research. Assume that the person or people who will read your research proposal know nothing or very little about the research problem. While you do not need to include all knowledge you have learned about your topic in this section, it is important to ensure that you include the most relevant material that will help to explain the goals of your research.

While there are no hard and fast rules, you should attempt to address some or all of the following key points:

1.   State the research problem and provide a more thorough explanation about the purpose of the study than what you stated in the introduction.

2.   Present the rationale for the proposed research study. Clearly indicate why this research is worth doing. Answer the "so what?" question.

3.   Describe the major issues or problems to be addressed by your research. Do not forget to explain how and in what ways your proposed research builds upon previous related research.

4.   Explain how you plan to go about conducting your research.

5.   Clearly identify the **key** or **most relevant** sources of research you intend to use and explain how they will contribute to your analysis of the topic.

6.   Set the boundaries of your proposed research, in order to provide a clear focus. Where appropriate, state not only what you will study, but what will be excluded from your study.

7.   Provide clear definitions of key concepts and terms. Since key concepts and terms often have numerous definitions, make sure you state which definition you will be utilizing in your research.

Conceptual categories generally reveal themselves only after one has read most of the pertinent literature on the topic at hand. It is not uncommon to find that one is continually adding new themes or revising themes already discovered

Literature review

This key component of the research proposal is the most time-consuming aspect in the preparation of your research proposal. As described in Chapter 5, the literature review provides the background to your study and demonstrates the significance of the proposed research. Specifically, it is a review and synthesis of prior research that is related to the problem you are setting forth to investigate. Essentially, your goal in the literature review is to place your research study within the larger whole of what has been studied in the past, while demonstrating to your reader that your work is original, innovative, and adds to the larger whole.

As the literature review is information dense, it is essential that this section be intelligently structured to enable your reader to grasp the key arguments underpinning your study. However, this can be easier to state and harder to do, simply due to the fact there is usually a plethora of

related research to sift through. Consequently, a good strategy for writing the literature review is to break the literature into *conceptual categories* or *themes,* rather than attempting to describe various groups of literature you reviewed. Chapter 5 describes a variety of methods to help you organize the themes.

Here are some suggestions on how to approach the writing of your literature review:

1.   Think about what questions other researchers have asked, what methods they used, what they found, and what they recommended based upon their findings.
2.   Do not be afraid to challenge previous related research findings and/or conclusions.
3.   Assess what you believe to be missing from previous research and explain how your research fills in this gap and/or extends previous research.

It is important to note that a significant challenge related to undertaking a literature review is knowing when to stop. As such, it is important to know when you have uncovered the key conceptual categories underlying your research topic. Generally, when you start to see repetition in the conclusions or recommendations, you can have confidence that you have covered all of the significant conceptual categories in your literature review. However, it is also important to acknowledge that researchers often find themselves returning to the literature as they collect and analyze their data. For example, an unexpected finding may develop as you collect and/or analyze the data; in this case, it is important to take the time to step back and review the literature again, to ensure that no other researchers have found a similar finding. This may include looking to research outside your field.

This situation occurred with one of this textbook's authors' research related to community resilience. During the interviews, the researchers heard many participants discuss individual resilience factors and how they believed these individual factors helped make the community more resilient, overall. Sheppard and Williams (2016) had not discovered these individual factors in their original literature review on community and environmental resilience. However, when they returned to the literature to search for individual resilience factors, they discovered a small body of literature in the child and youth psychology field. Consequently, Sheppard and Williams had to go back and add a new section to their literature review on individual resilience factors. Interestingly, their research appeared to be the first research to link individual resilience factors with community resilience factors.

Research design and methods

The objective of this section of the research proposal is to convince the reader that your overall research design and methods of analysis will enable you to solve the research problem you have identified and also enable you to accurately and effectively interpret the results of your research. Consequently, it is critical that the research design and methods section is well-written, clear, and logically organized. This demonstrates to your reader that you know what you are going

to do and how you are going to do it. Overall, you want to leave your reader feeling confident that you have what it takes to get this research study completed in a timely fashion.

Essentially, this section of the research proposal should be clearly tied to the specific objectives of your study; however, it is also important to draw upon and include examples from the literature review that relate to your design and intended methods. In other words, you must clearly demonstrate how your study utilizes and builds upon past studies, as it relates to the research design and intended methods. For example, what methods have been used by other researchers in similar studies?

While it is important to consider the methods that other researchers have employed, it is equally, if not more, important to consider what methods have not been but could be employed. Remember, the methods section is not simply a list of tasks to be undertaken. It is also an argument as to why and how the tasks you have outlined will help you investigate the research problem and answer your research question(s).

Tips for writing the research design and methods section:

Specify the methodological approaches you intend to employ to obtain information and the techniques you will use to analyze the data.

Specify the research operations you will undertake and the way you will interpret the results of those operations in relation to the research problem.

Go beyond stating what you hope to achieve through the methods you have chosen. State how you will actually implement the methods (i.e., coding interview text, running regression analysis, etc.).

Anticipate and acknowledge any potential barriers you may encounter when undertaking your research, and describe how you will address these barriers.

Explain where you believe you will find challenges related to data collection, including access to participants and information.

Preliminary suppositions and implications

The purpose of this section is to argue how you anticipate that your research will refine, revise, or extend existing knowledge in the area of your study. Depending upon the aims and objectives of your study, you should also discuss how your anticipated findings may impact future research. For example, is it possible that your research may lead to a new policy, theoretical understanding, or method for analyzing data? How might your study influence future studies? What might your study mean for future practitioners working in the field? Who or what might benefit from your study? How might your study contribute to social, economic or environmental issues? While it is important to think about and discuss possibilities such as these, it is equally important to be realistic in stating your anticipated findings. In other words, you do not want to delve into idle speculation. Rather, the purpose here is to reflect upon gaps in the current body of

literature and to describe how you anticipate your research will begin to fill in some or all of those gaps.

Conclusion

The conclusion reiterates the importance and significance of your research proposal, and provides a brief summary of the entire proposed study. Essentially, this section should only be one or two paragraphs in length. Here is a potential outline for your conclusion:

Discuss why the study should be done. Specifically discuss how you expect your study will advance existing knowledge and how your study is unique.

Explain the specific purpose of the study and the research questions that the study will answer.

Explain why the research design and methods chosen for this study are appropriate, and why other designs and methods were not chosen.

State the potential implications you expect to emerge from your proposed study,
Provide a sense of how your study fits within the broader scholarship currently in existence, related to the research problem.

Citations and references

As with any scholarly research paper, you must cite the sources you used in composing your research proposal. In a research proposal, this can take two forms: a reference list or a bibliography. A *reference list* lists the literature you referenced in the body of your research proposal. All references in the reference list **must appear** in the body of the research proposal. Remember, it is not acceptable to say "as cited in …" As a researcher you must always go to the original source and check it for yourself. Many errors are made in referencing, even by top researchers, and so it is important not to perpetuate an error made by someone else. While this can be time consuming, it is the proper way to undertake a literature review.

In contrast, a *bibliography*, is a list of everything you used or cited in your research proposal, with additional citations to any key sources relevant to understanding the research problem. In other words, sources cited in your bibliography may not necessarily appear in the body of your research proposal. Make sure you check with your instructor to see which of the two you are expected to produce.

Overall, your list of citations should be a testament to the fact that you have done a sufficient level of preliminary research to ensure that your project will complement, but not duplicate, previous research efforts. For social sciences, the reference list or bibliography should be prepared in American Psychological Association (APA) referencing format. Usually, the reference list (or bibliography) is not included in the word count of the research proposal. Again, make sure you check with your instructor to confirm.