CAFS - research methodology study notes

Methodologies

- Research is a logical, methodical procedure for solving problems
- It is a way of gathering information, making decisions and judgments or acquiring new knowledge
- Research is a systematic in nature and focuses on a question of interest

There are three main types of research:

Descriptive research	**Explanatory research**	**Evaluative research**
Finding out of describing what exists	Explaining how or why things are as they are and using this to make predictions	Evaluation of programs and policies

Quantitative and Qualitative research

Quantitative research – for the collection and analysis of numerical data using statistics. It is used to describe existing conditions, investigate relationships between two or more variables and explore cause and effect relationships

Qualitative research – Relies on extensive observations and in-depth interviews that result in non – numerical data such as words, objects or pictures. It is often conducted in natural settings and does not control the settings it is in. Best suited to studies investigating human behavior, opinions and values.

Conducting Research:

Formulating a Research Proposal:

- A Research proposal is the presentation of an idea that you wish to pursue.
- The purpose is to persuade readers that your project is worthwhile and necessary.
- Construction of a research proposal allows the researcher to communicate the problem and the procedures that will be used in the investigation.
- It acts as a blueprint for the research project and is completed before conducting a study.

Successful proposal answers the questions:

- ***What***- What are you planning to investigate?
- ***Why***- Is the project worthwhile?
- ***How***- How will the project be carried out?

- ***When***- When will the project be carried out?
- ***Where***- Where will the data collection take place?
- ***Who***-Who will be involved?

Research methodology

Structured Interview

Description:

- Researcher poses questions along with expected answers
- It may be conducted face to face or by phone
- Questions are asked in order
- Responses are recorded on the interview guide

Uses:

- This techniques allows accurate collection of quantitative data
- Information can be gathered more quickly than by using other research methods
- The interviewer does not necessarily need to be an expert on the research topic

Unstructured interview

Description:

- No set format for questions or expected answers. Open ended questions are asked
- The interviewer needs to have a good understanding of the research topic
- Questions may be repeated for clarification
- Responses are recorded on the interview guide

Uses:

- Used to gather personal opinions
- Have valuable information

Survey using an oral Questionnaire:

Description - asking respondents a number of predetermined questions, they can be either open or closed. it is recorded on a tally sheet.

Uses - obtain information about people's attitudes, opinions, and behaviours. it is an easy analysis and can be distributed to large populations

Survey using a written Questionnaire:

description - participants recording their responses to predetermined questions. they can be either open or closed questions

Uses - obtains information on people's attitudes, opinions and behaviours, it is also an easy analysis and distributed to large populations.

Case study:

description - studying a person or event in great detail, it is a report describing what is found. it is highly organised and systematic in collecting data.

Uses - examine as many aspects of a person/s or event and to discover how they are unique, similar or different from what is normal or expected.

Case study: Involves studying a person or event in great detail and when writing a report describing what is found. They usually involve a study of a real life situation. A range of research techniques including interviews, observation, and questionnaire. Because they are detailed it can help with gaining a deeper understanding of a specific social issue especially in finding out how and why. Also however it usually requires supporting research from other sources.

Observations:

description - obtains data by examining or observing a behaviour or trait in a natural setting and recording it.

uses - difficulty obtaining accurate and honest information from subjects, for example children. it can provide valuable information about group dynamics. it is used to gain insight into behaviours relevant to a researched topic.

Literature Reviews

- Involves combining a large amount of already published literature in a manner so that the reader can understand the relevant issues related to the research topic
- Sources useful to gather literature include books, articles, websites, journals and audio or video comments
- All research must be correctly referenced

Literature reviews enable a researcher as well as other readers to gain knowledge in the area. The review establishes what is already known and helps provide ideas to formulate the hypothesis or the research question.

Planning:

Formulating your proposal

- When formulating your proposal it is important to cover questions such as what is your topic, why have you chosen these topic questions, what is the hypothesis, etc.
- Your proposal should provide an overall picture of the six focus points: what, why, how, when, where and who

Formulating your timeline

- There is no right or wrong way to create a timeline
- However for the timeline to be effective it should consist of the following:
  - a list of all specific actions required to conduct the research
  - the dates in which these actions will be completed
- Setting a timeline begins with setting goals
- You need to outline all the short term goals or actions that are necessary to achieve each of your intermediate goals
- Next is to identify the intermediate goals or actions that are required to achieve your long term goals
- Finally outline all the short term goals or actions that are necessary to achieve your intermediate goals

Collecting and Recording Data:

- The key to good data collection is to be systematic. Data should be collected from primary and secondary sources. Primary sources are more time consuming however provide a the greatest insight into the research question. Secondary sources explain what is already known about the research topic. When conducting primary research decide on the point of the research process. It should be Representative of the population you are interested in. This means that the sample involved in the study has similar ages, a mix of cultures, a mix of socioeconomic status and depending on the type of research, may need to be of one particular gender.
- It extremely important to consider the most efficient and accurate methods of recording data to avoid missing valuable information and to provide a manageable structure for data analysis. If using audio recordings, it is important to check that equipment is functioning correctly prior to beginning the data collection process.

Analysing and interpreting data: involves examining the information you have collected and recording in order to make sense of it; in other words, giving it meaning. Interpreting data means being able to translate a large amount of information into key data.

Presenting data

Graphs, tables, presenting key data

Use the right type of graph to present your statistics. Several types of graphs:

- Bar graph: Compare data values across a small number of categories.
- Pie chart: Proportion of a circle. Useful for small amounts of data expressed as a percentage. Key can be used and is coloured or shaded. Clearly labelled with a title, key, categories and percentages.
- Line Chart: Describing events over time. Allows trends to be easily identified. Use different colours for each line if more than one is being represented.
- Histograms: Area of the bar, rather than the height, represents the frequency. Important when categories are not a uniform width. Enables trends to be shown and comparisons to be made.
- Pictograms: Pictures to represent information. Visually appealing but be accurate in depicting information. (pictures need to be correct mathematical proportions).

Report writing and presentation

reference: includes any sources you used in your report, eg books, websites.
bibliography: includes all sources you looked at but don't have to be in your report.

Appendix:
“ contains info relevant to a report, but too long to include in the body”.
* E.g. Interview, questionnaires, surveys or long tables
* Each is labelled separate and numbered accordingly
* As it is mentioned in your report it should be numbered
* You don’t need to include all transcripts, as they will be reported in the results section

Sources of Data
Primary data is info that you collect by doing your own research.
Secondary data is info that you collect from another researcher or sourc eg, article, website etc.
Sources of data will vary depending on your research topic , sample group and methodologies.
sources of data can include **P**eople, **E**lectronic sources, **O**rganisations, **P**rinted sources and **L**ibraries = **PEOPL**

People and individuals: people can be sources of primary data- surveys, case studies, observations examples:
people in context- work, school, home, sporting
A range of all different people
People involved in a particular situation- celebration, a community event, conflict, parenting and caring.
Libraries: Vast amounts of information, convenient access, may not be able to borow easily if not a member. For example, school, state, university.

Organisations and groups: Govt, community orgs, telelphone, child care, universities, schools, community health services
* may be difficult to establish a contact in larger orgs
* familiar with requests for info from the public

Electronic Sources: electronic databases, Internet, videos, CDs and DVDs
- easily accessible. lots of information is available quickly
- need to be discriminating in the source of the information provided
- important not to simply plagiarise existing research

Print sources: Encyclopedias, books, current journal articles, newspapers, autobiographies and biographies, re-ports published by relevant organisations and associations.
- May be time consuming to review
- Specialist research is often recorded in print sources
- Provide data that can be reviewed at your leisure

Research terminology

Bias

In research, bias is any influence, condition or set of conditions that distort the data. Bias can occur at any stage of the research process in a number of ways:

- the researchers personality
- the respondent's personality
- sampling bias is a tendency to favour in the selection of a sample population people that have particular characteristics that support a researcher's theory.
- processing bias may occur if a researcher manipulates statistics to support their own viewpoint, rather than accurately reporting their results

Reliability:

- If a research process is consistent and stable, making it predictable and accurate, it is said to be reliable. That is, if measurements taken under constant conditions give the same results, then the process is reliable.
- Factors affecting reliability include the wording of questions, sampling strategies, the physical setting where research occurs, the researchers mood and the respondent's receptiveness.

Sampling:

Is the process of selecting participants who are representative of a larger population – gain an understanding of a larger population

Population include business, transport systems or health care services

Different types of samples a researcher can use:

- A **Convenience Sample** results when the sample is easy to study
- A **Quota Sample** takes into consideration known characteristics of the population and repeats the same proportions in the sample.
- A **Random Sample** is the least sophisticated of all sampling designs. The sample is chosen by random selection, whereby every member if the population has an equal chance of being selected.
- A **Cluster Sample** divides the population into subgroups and then takes the sample from representatives of each subgroup. (Suited to a population that is spread out over a large area)
- A **Stratified Random Sample** takes into consideration layers from the overall population.
- A **Systematic Sample** is obtained by selecting one person on a random basis, and then choosing additional people at evenly spaced intervals until the desired number of units has been obtained.
- A **Convenience Sample** is obtained by randomly selecting people from the population who are easy to access. u

Validity:

- *Valid: Research process measures what the researcher intends to measure.*
- *Questions need to be planned carefully to establish validity. Appropriate sampling techniques, research methodologies, accurate data analysis and good background*

knowledge is necessary to increase validity of the process.

Hypothesis

- Research is guided by a specific research problem, question or hypothesis. A hypothesis is a logical and educated prediction. It provides a tentative explanation for a phenomenon under investigation. In research, a hypothesis is accepted if the data that is collected supports it. If not, then the hypothesis needs to be modified or the data collection process scrutinised for its reliability and validity.
- **For example**: “The number of food allergies in the Australian population is increasing every year”.

Ethics In Research

- Privacy
- Respect for subjects of research
- Integrity of researcher
- Integrity of data

Ethics play a viral role in any research activity. Without having knowledge of ethics and ethical procedures, you may unintentionally break the law or show disrespect to those involved in your research.

Respect for subjects of research

To show respect for your research participants you need to remember the following principles.

- Voluntarily participation; people must not be forced or pressured into participating in your research.
- Informed consent; potential research participants must be fully informed about the procedures and risks involved in your research, and must give their consent to participate.
- Risk of harm; you must not put participants in a situation where they might be at risk of harm, either physically or emotionally, as a result of their participation.