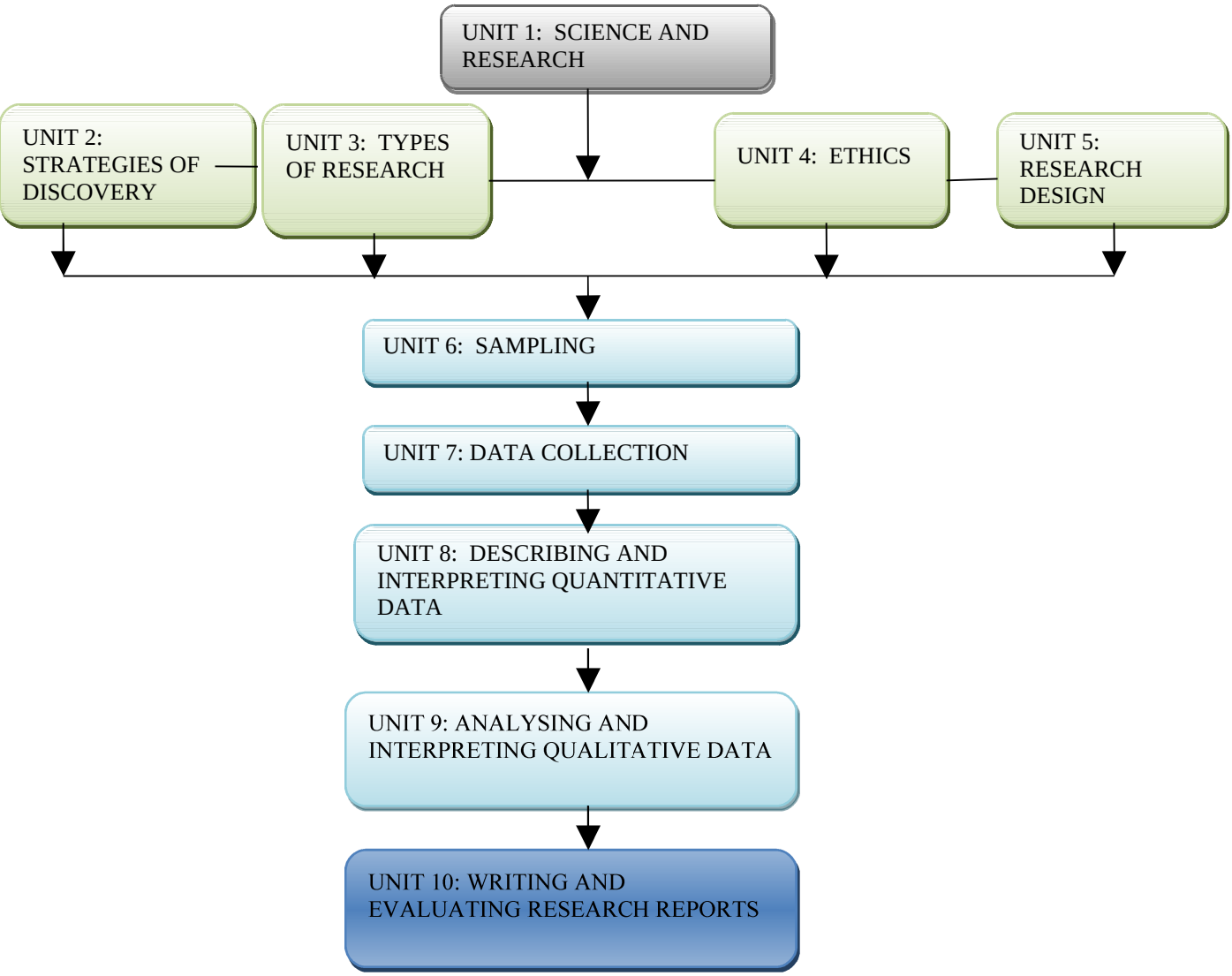
Notes for ***RSC201H***

Structure of notes: Each Unit starts with a short summary of all the important points to know about each Unit. Following the summery is all the notes on each Study Unit.

Unit structure:

UNIT 1: SCIENCE AND RESEARCH UNIT 2: STRATEGIES OF DISCOVERY UNIT 3: TYPES OF RESEARCH UNIT 4: ETHICS UNIT 5: RESEARCH DESIGN	Important thing to know about Research
UNIT 6: SAMPLING UNIT 7: DATA COLLECTION UNIT 8: DESCRIBING AND INTERPRETING QUANTITATIVE DATA UNIT 9: ANALYSING AND INTERPRETING QUALITATIVE DATA UNIT 10: WRITING AND EVALUATING RESEARCH REPORTS	Collecting, preparing and analyzing data and reports.



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UNIT 1: SCIENCE AND RESEARCH

What You Already Know about Science
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Describe Science and Research
Science: Logical, Collects Evidence and Explains Relationships between Variables. Research: Examine again and thinks about.
5 Sources of Knowledge
Tradition, Authority, Mysticism, Common Sense, Media Myths

5 Errors in Human Enquiry

Inaccurate Observation, Overgeneralization (Halo Effect), Selective Observation, Ego Involvement, Premature Closure of Inquiry

The Efforts of Science

Protects from pitfalls, but doesn't offer complete protection.

5 (6) Norms of the Scientific Community

Universalism, Organised Skepticism, Disinterestedness (Neutrality/Motives?), Communalism, Honesty, (Respect)

6 Characteristics of the Scientific Method

Empirical Inquiry (observation and measurement), Language of Science (e.g. assumptions/hypothesis), Assumptions in Science, Perceptibility, Aesthetics, Limitations

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Defining the Problem, Obtaining the Information, Analysing and Interpreting Information, Communicating Results)

Unit 1: Science and Research

- Science is a process of inquiry – physical things that need evidence or affairs of the social world that we question, e.g. temperature (physical), warm greetings (love, like, etc)
- Science uses logic, observation and theory. It is logical (makes sense), has a reference (observed evidence) and explains what we observe(theory).

- Research means to make a careful and planned study – re-search.

- ***Scientific research*** – systematically examine and think about a question

Sources of knowledge

- ***Experiential reality*** – what is known as a result of direct personal experience

- ***Agreement reality*** – what we accept as real coz we have been told it is real and everyone agrees it is real. Mostly thro theory and science
- We accept both as real.

Sources of agreed upon knowledge/agreement reality

- ***Tradition –***
  - We do not find out how the knowledge was obtained.
  - Can be positive and/or negative

- ***Authority –***
  - Accept something as true because of the status of the person who discovered the truth. Relying on authority as source of knowledge.
  - May be reliable/we may overestimate the expertise of the person

- ***Mysticism –***
  - Believing that knowledge is found in supernatural sources
  - Powers of which are inaccessible to ordinary people
  - Authority that appeals to irrational feelings using rituals, ceremonies, emotionally loaded situation and strange sounding language.
  - Asks for faith instead of evidence

- ***Common sense***
  - Ordinary reasoning/intuitive knowledge
  - It is valuable in everyday life for decision making and solving daily problems and communication
  - But it contains illogical reasoning
  - Does not consider how ideas are related to each other

- ***Media myths***
  - Following what the media says blindly tho media's main purpose is to entertain
  - Mistakes are made from ignorance
  - There is selective emphasis which leads to error

Errors in human enquiry and how scientists avoid them

- ***Inaccurate observation***
  - We may/may not see things happening before our eyes
  - Scientific observation
  - Conscious activity where events are observed deliberately
  - Use of simple and complex measurement devices to help make accurate observations

- ***Overgeneralization***
  - Using a few similar events to draw a conclusion
  - Judging something/someone on the grounds of only some aspects
  - Halo effect – looking at one very good aspect of something and basing everything else on that = overgeneralization. It causes prejudgement and distorts enquiry
  - Scientists use:

- Replication – repeating a study to check if the same results are obtained. Different results prevent overgeneralization.

- ***Selective observation***
  - Comes from overgeneralization which indicates that events follow a specific pattern.
  - Certain characteristics are emphasised and others overlooked
  - Attention is given to situations that correspond to the pattern and situations that differ are ignored
  - Science:
  - Use of research design that specifies the number and kind of observation needed to make the right conclusion

- ***Ego involvement in understanding***
  - We link our understanding of how things are to the image of ourselves that we present to others.
  - Difficult to remember all the details in a situation – subjective remembering
  - We develop a fixed view that reflects who we are and are not willing to change it or investigate it further
  - Science:
  - Tests hypotheses in a systematic manner
  - Info collected and considered objectively then made public

- ***The premature closure of inquiry***
  - Ask questions for a short time, obtain some answers then stop inquiry too soon
  - Attempt to understand something before understanding is complete
  - Evidence is inadequate
  - Science
  - Thorough review of literature on the topic under discussion
  - Expect theories to be overturned and new conclusions reached.

Efforts of Science

Science differs from everyday common sense/reasoning in two ways:

- It is conscious and deliberate into special events (things we cannot otherwise make sense of)
- It is careful and takes precautions to avoid mistakes – though it sometimes makes mistakes

Norms of the scientific community

- ***Norms – customary behaviour – what is usually done – rules.***
  - Universalism
  - Research is to be judged only on scientific merit irrespective of who did it and where.

- ***Organised Scepticism***
  - New ideas and evidence must be challenged and questioned always

- ***Disinterestedness***
  - Be neutral, impartial, and receptive and open to new ideas
  - Accept and look for evidence that challenges positions and accept findings only based on high quality research

- ***Communalism***
  - Scientific knowledge must be shared with others – public act/public property
  - The way research is conducted must be described in detail, reviewed by other researchers and made publicly available in special form and style

- ***Honesty***
  - General cultural norm – very important in scientific research.

Professional norms are **ideals** for proper conduct. Scientists check on one another to see that norms are followed by:

- Scrutinizing other scientists by publishing them in academic journals and books
- Criticizing reports irrespective of status of author
- Admitting that all knowledge is tentative – accepted until disproved
- Condemning dishonesty

Characteristics of the scientific method

- ***Empirical enquiry***
  - Relies on observation and measurement – works independently of external influence or personal position

- ***Language of science***
  - Has own accepted language called scientific rhetoric.
  - Concepts such as theories and hypotheses, research design and data analysis must reach a standard known as good scientific practice.

- ***Assumptions in science***
  - Science uses assumptions that are hidden and have the power to influence our understanding of reality.
  - Assumptions should be stated when investigating a topic as they influence the research design, measurement, interpretations of findings and questions.

- ***Perceptibility (understandability)***
  - Scientific explanations must be understood by people

- ***Aesthetics***
  - A carefully designed experiment can be called both creative and beautiful

- ***Limitations***
  - Rights of people are protected by research ethics
  - Researcher may not have resources
  - Time constraints
  - Cooperation of people
  - Communication may be limited
  - Limitations must be acknowledged and made clear in the research

Stages in research
(Four stages)

- Definition of the problem
- Obtaining the information
- Analysis and interpretation of information
- Communicating the results

- ***Definition of the problem***
  - Research design/plan
  - Research problem
  - Literature review
  - Theory
  - Assumptions
  - Hypothesis
  - Research questions

- ***Obtaining the information***
  - Sampling
  - Data collection

- ***Analysis and interpretation of information***
  - Describing and interpreting quantitative data
  - Describing and interpreting qualitative data

- ***Communicating the results***
  - Writing the research report

UNIT 2: STRATEGIES OF DISCOVERY

(Notes: The Philosophical Grounding of Research

Paradigms, Assumptions (2 in the Social Sciences), Ontology, Epistemology, Methodology, Approaches

o 5 Approaches: How Researchers View and Get to Know Social Reality: Ideal Types

Positivist, Interpretive, Critical, Feminist and Postmodern

The Theoretical Grounding

Define Theory and Concept (Reification)

o 3 Ways Theories Explain Phenomena

Causal Explanations (4 conditions which need to be met/reductionist/spuriousness), Structural Explanations (holistic), Interpretive Explanations

o Scope and Level of Theory

Scope/Range: Empirical Generalisation, Middle-Range Theory and Theoretical Perspectives
Levels of Social Reality: Micro-Level and Macro-Level Theory

2 Reasoning Processes to Develop Theory: Inductive and Deductive

- **The Relationship between Theory and Research**

Reciprocal

The Conceptual Grounding of Research

Deciding on a Topic to Research

Potential Sources of Research Ideas –personal interest, need to solve a problem, need to develop theories
3 Factors that Prevent a Trivial Topic Choice – social significance, scientific significance, researcher's interest

Conducting a Literature Review

Places the research in a broad framework. Prevents duplication, shows potential pitfalls and identifies gaps. Provides justification and foundation for research.

Specifying a Research Question

Feasibility is crucial. – specified later in qualitative research

Framing a Hypothesis

Attributes, Types of Variables: Dependent, Independent and Intervening Variables

Operationalising Concepts

Operationalisation, Conceptualization and Indicators)

Unit 2

Strategies of discovery
Research is an empirical, systematic, disciplined and self-critical activity

Paradigm:
An abstract framework/model of reality
A fundamental image of the subject matter within science
Defines what should be studied, questions to be asked, how they should be asked, and what rules to be followed in interpreting answers obtained
It is the broadest unit of consensus within a science and serves to differentiate one scientific community from another

Key issues
Assumptions:

- Ontology
- Epistemology
- Methodology
- Approaches

- ***Ontological assumptions***
  - Ontology is a branch of philosophy that deals with the nature of reality
  - It is what the researchers think exist and are real – assumptions seldom consciously questioned by researchers because they appear obvious
  - E.g. Nominalist approach on the study of groups – values, ideas and beliefs

  - Realist position on groups - groups have emergent properties of their own and need to analysed as groups
  - Ontological questions address primary issues researchers deal with.
  - Ontological questions influence all subsequent decisions made by the researcher
  - Different positions can be taken on a particular ontological question with one position not being more correct than the other

- ***Epistemology***
  - It is a branch of philosophy dealing with the nature of knowledge.
  - Epistemological questions deal with how we can know and explain something
  - It has to be decided what types of statements about social reality are permissible and what qualifies as social scientific knowledge
  - Epistemological questions identify the principles /rules that determine how social phenomena can be known and the explanations that are seen as satisfactory

- ***Methodology***
  - Methodology is the rules and procedures of research work.
  - Methodological principles
  - ensure that we can defend our findings
  - Are guidelines that researchers agree on and that they rely on to give acceptable research practices
  - These principles enable researchers to attain knowledge by providing them with the necessary tools/techniques.

- Methodology, epistemology and ontology are interlinked and a distinction cannot be rigid.

Approaches

There are three dominant approaches to social science:

- Positivist approach
- Interpretive approach
- Critical approach

Positivist approach

- Positivism – a way of doing research that emphasizes the importance of observable facts
- Believe social reality can be discovered and perceived through our senses as it exists 'out there', independent of the knower
- *Isolate a number of factors then determine the relationships between these factors*
- They believe the behaviour of human beings is determined by ***external influences*** that produce particular effects under certain conditions
- People react predictably to their environment because they are rational beings
- Social laws explain events and relationships/links
- Social laws should be treated as probabilities/chance, rather than certainties/facts.
- Social sciences should be studied the same way as natural sciences as social phenomena exist in their own right and are open to outside empirical observation
- All knowledge is based on facts – facts are empirically established by the senses
- Researchers should approach social reality in a neutral, value-free, detached and systematic way.

- Methodological tools are designed to collect evidence that is observable and hence measurable.
- Standardised/uniform procedures are followed to study particular events and learn about the interconnections.
- Detached approach ensures accurate, free from bias social reality
- Knowledge gained can then be used to predict occurrences and control events.
- Knowledge is cumulative (all current knowledge can be used)
- New knowledge is added once research is complete
- Positivists believe that knowledge of causal social laws can be used to help society progress

The interpretive approach/paradigm

- Believe social reality is inherently meaningful
- People can interpret a situation and decide how to act in response to the situation
- People attribute meaning to a situation by consciously participating in the situation
- Meaning is constructed thro human interaction and playing a central role in defining a situation to make sense of it
- Meaning is generated in the social process and shared inter-subjectively
- Patterns and regularities in behaviour emerge social conventions brought about by purposefully interacting human beings
- Patterns are implicative rather than casual
- The purpose of social research is to make social reality intelligible and reveal its inherent meaningfulness
- Meaningful actions need to be understood from within and this requires studying how it is experienced, interpreted and understood.
- There is no external social reality as it is created through conscious actions of human beings
- There is **no basis for using the same methods as the natural sciences** as they differ
- To access the meaningfulness of social reality, researchers have to be sensitive to the social context in which meaning is produced.
- A strategy to use is to pay attention to common sense as **it provides insight into human understanding** of their situation
- Values are an integral part of social reality
- Research into social reality is **justified** by its ability to demonstrate the meaningfulness of social interaction on a particular context.
- Social research must provide adequate understanding of the situation to allow communication with outsiders.

The Critical Approach/paradigm

- This approach emphasizes the need to uncover hidden processes and structures within a society.
- Social reality is multi-layered – there are more dimensions than initially appear to us (Hidden Layers)
- We need to penetrate the layers and uncover underlying relationships to determine real characteristics
- This approach is interested in manifest and latent reasons for social problems
- Social reality is a human construction with more than one possibility (More then just what we see or experience)
- Although human beings have the potential to change social reality thro their actions, the structure of social reality enables or constrains these actions.
- Social reality cannot be taken only at face value
- Critical social scientists rely on theory as observable factors do not coincide with reality. Theories provide analogies that reveal the hidden structures that determine key characteristics of social reality

- Use logic and reasoning to work out the implications of the underlying hidden dynamics of social reality – this makes them able to predict how consequences of hidden dynamics reveal in observable surface structures
- **Do not reject facts**, but argue that the truth of social reality goes beyond empirical facts (Hidden layers)
- Critical social scientists claim that common sense understandings are contaminated by a false consciousness. They don't reject common sense ideas but warn that these are only partial and incomplete
- Understanding the subjective experience of humans is not the end goal of social science
- Science should examine the unexamined and critically reflect on it
- Critical and reflective researchers will actively engage with the subject matter
- Objectivity is not a goal as researchers are morally committed to challenging inequalities and domination.
- Humans need to be made aware of the underlying mechanisms that structure daily life – **this awareness will empower humans to work towards meaningful social change and transformation**
- The **key** advocacy **role of theory,** in encouraging emancipatory(to free from bondage) action is known as ***praxis*.**

Dominant approaches

Positivist social science – determinism - behavioural patterns (structure) – nomothetic – explanation and prediction

Interpretive Social Science – voluntarism – meaningful social agency/action – ideographic – understanding

Critical social science – agency and structure – praxis (transformation)

Contemporary methodological challenges

(Two approaches – *feminist research* and *post-modern research)*

Feminist research

- An approach advocating gender sensitivity in research in particular the acknowledgement of women
- ***Malestream research*** – society is presented from the male perspective
- Key is ***power*** – research is done by the powerful for their own benefit
- Male views represent the way social reality is defined and how it is known
- Emphasis on rationality is associated with patriarchal values
- Are critical of the positivist approach
- Introduces gender as a key category of social analysis. Gender rings with it division, power and subordination.
- Studies are done in an inclusionary, collaborative and non-impositional way
- Research is collaborative by allowing women to participate and voice their personal experience
- There should be a non-impositional stance to research as the researcher does not exclusively dictate what is studied.
- The balance of power is altered by acknowledging the role of subjects in the production of knowledge
- Feminist research cuts across and overlaps with interpretive and critical social science approaches

Post-modern Research

- An approach that claims there is no such thing as absolute truth and no particular theory or method is better than another at determining the truth.
- Questions the core values, goals and bases of analysis that have guided research and have been assumed to be universally valid in the past century
- Challenges the belief in rationality, certainty and progress associated with science
- There is no stable or coherent subject matter to study
- Challenges any research the claims to provide a general or better explanation of social reality
- Radical postmodernism claims that it is necessary to deconstruct the subject matter we study
- Rejects reason as a foundation of knowledge
- Celebrates diversity and fragmentation of discourses on social reality
- Makes no claims of objectivity or a universal truth
- All discourses are seen as culturally constituted in particular historical and social contexts
- Science is one of these discourses and cannot claim to give final answers
- Leads to the danger of relativism (relativism – claims that different viewpoints are all valid)
- Provides no alternatives
- Williams and May – postmodernism has had a positive impact as it has forced scientists to reflect on and be self-critical about their choices
- Postmodernism has led social scientists to be more modest about the claims they make

Conclusion

- Approaches/paradigms are ideal types (mental construction of something that emphasises or exaggerates its essential characteristics for the purposes of analysis) and are arbitrary and simplified
- Approaches/Perspectives/paradigms have a lineage/history and have evolved and become refined over time as they adapt to challenges and seek to rectify weaknesses

THEORIES

The theoretical grounding of research

- Research is grounded in theory
- Theory is a conceptual framework that provides the explanation of a particular phenomena or occurrence
- Theories consist of logically interconnected propositions
- Propositions are generalised abstractions about social reality supported by facts/evidence and rationally organized into a coherent whole
- Logically interconnected propositions provide an explanation and prevents fragmentation of knowledge by ordering and identifying a clear relationship
- Theory provides enquiry with focus by suggesting specified evidence, providing a sifting mechanism, making the evidence more manageable and preventing stimulus overload (to much information to manage). Interrelated propositions are logically rearranged and connections between previously unconnected phenomena are connected.
- The role of theory is to make visible things that were previously hidden, define patterns and give meanings to observations.
- Theory organises and generates new ideas

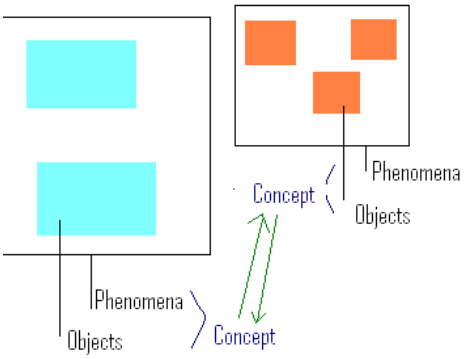
Theory as a conceptual framework

- Theory is the code through which social scientists speak to each other.

- Theories are made from concepts

Concepts

- A ***concept*** is a class of objects.
- Concepts identify and describe phenomena
- Concepts are related to each other and build sentences of theory



- Concepts used are unique to the particular theory.
- Meaning of the word concept: an abstract idea representing a real phenomenon

Concepts have **two** core features:

1) Label – the term used to represent the concept
2) Idea – an abstract idea or mental image of a phenomenon linked to a label. Though concept are abstract idea, they are related to actual phenomena in social reality.

- Scientific concepts are:
    a. Tentative (Not fully worked out; Uncertain; hesitant.)
    b. Based on agreement
    c. Useful to the degree that they capture or isolate a significant or definable item in reality
- **Concepts are representations of phenomena and not phenomena themselves –** they reflect our thinking of the phenomena
- Reification (to treat abstractions/ideas as real concrete entities) is the error committed when we treat concepts as concrete.
- Concepts must always be clarified even when their meaning seems obvious.
- ***Primordialist approach*** – existing from the beginning – naturally given

Providing theoretical explanations

Theory provides explanation for our questions by asking **why and how**

There are three ways researchers use theories to explain phenomena:

1) **Causal explanations:**

    a) Established causal relationships enable us to predict future trends. These predictions are probabilistic (may or may not happen). Predictions do not explain phenomena, explanations enable us to make predictions

b) Causal explanations are ***reductionist*** (reduce everything to one basic explanation)
c) T hese identify the cause and effect of the relationships between phenomena

- Four conditions need to be met to establish whether a causal relationship exists between phenomena:

1) There should be **a *time delay*** between the cause and the effect
2) The ***variation/change*** in the phenomena linked should occur in both the cause and the effect (Variation and change must occur in the Cause and the Effect)
3) All possible ***factors influencing the relationship*** between the phenomena linked, must be taken into consideration and ***alternatives excluded*** (All factors influencing the relationship between phenomena must be looked at)
4) The proposed relationship between phenomena - should be based on ***careful reasoning***

2) Structural explanations (how phenomena is interrelated, constitute a whole and focuses on core phenomena)

- These emphasise the way phenomena are interrelated and constitute a whole.
- They analyse phenomena in terms of the constitutive structures explained through the use of analogy or metaphor.
- Structural explanations are holistic (
- Time is irrelevant because interrelatedness is simultaneous
- A deliberate effort is made to identify core phenomena
- A study between these core phenomena is **prioritised**
- Explanatory power of the theories rests on the **structural relationship between core phenomena**

3) Interpretive Explanations (to understand any thing you need to interpret it before you can understand it)

- Focuses on the meaning given to a particular context in order to understand the same context
- Participants share subjective experiences of a particular context and researcher then gains insight into their perspective
- A description of subjective experiences makes reciprocal understanding possible
- To understand an action involves an act of interpretation

It is possible to determine the assumptions theorists make by looking at the concepts they use and the explanations they provide.

Scope and level of a theory

- The scope refers to how much the theory explains – the range of the theory's explanation.
- The range is linked to the level of abstraction achieved by the concepts in the theory
- The higher the level of abstraction, the more the theory can be generalised
- An abstract concept widens the acceptability and therefore the scope of the theory
- The scope of a theory is not limited to the number of concepts explained.
- The scope of a theory is reflected in the types of units, cases or situations to which the theory applies.
- We can distinguish between empirical generalisation, middle range theory and theoretical frameworks
- ***Empirical generalisation***
    - The first step towards abstraction tho close to the concrete information collected

  - Generalisability is limited
- ***Middle range theory***
  - Organises empirical observation in a way that it explains the relationships between them in more general terms
  - Identify specific phenomena in society and attempt to explain occurrence of these phenomena
- ***Theoretical frameworks/perspectives***
  - support or question some of its propositions

- Theories explain different levels of social reality.
- There is a distinction between micro and macro level theories on empirical grounds.
- Micro-level theories deal with small slice of time, space or numbers of people
- Macro level theories concern the operation of larger aggregates such as social institutions, cultural systems and whole societies.
- Contemporary theoretical work links these levels to each other which serve to integrate analysis of a phenomenon.
- The choice to focus on micro level or macro level phenomena reflects an ontological position

Reconsidering the relationship between theory and research

- Theory makes empirical facts understandable
- The relationship between empirical studies are reciprocal – empirical studies are based on theory and theory are bases on empirical studies

- ***Deduction*** (going from general to specific – using general principles to suggest specific outcomes) and ***induction*** (going from specific observations to formulate general principles) are two interrelated processes of reasoning used to develop theories
- ***Deduction***
  - The process of testing general ideas (theory)
  - Finding out whether abstract, logical relationships apply to concrete contexts
  - General ideas are linked to empirical evidence

- ***Induction***
  - Using specific and concrete observations to develop abstract, logical relationships between phenomena
  - The process of building theory
  - New concepts are developed and the relationships between them specified on the basis of evidence collected
  - Inductive approach/paradigm begins with specific experiences and moves towards more general and abstract statements.

- We test and build theories thro research.

Conclusion

- Theory explains actual (not imaginary) situations in social reality
- Theory is a way of systematically thinking about the phenomena we observe or experience
- Theory provides an indication of what we can logically expect in particular cases
- Theory provides a framework of interpreting and organising information collected

- Theory is evaluated through evidence and reason
- Theory deductively guides research while information gained through theory inductively builds research
- Theory and research are inseparable

The conceptual grounding of research

- How research is planned.
- Deciding on a topic
- First step in research
- Potential sources of research include:
  - We draw on the knowledge of the disciplines we study
  - We look at existing research
  - Events of personal experience or covered in the media
- Topics are often selected due to personal interest or personal values which ensure commitment to the project
- Two factors influence choice of a research topic – social and scientific significance:

1) ***Social significance***

- This is linked to the practical relevance of the topic
- The research should help solve a specific problem or explore an area that interests social practitioners or policy makers

2) Scientific significance

- Undertaken to get new knowledge, despite immediate practical usefulness

- Three broad factors influence choice of research topic
  - Personal interest
  - Need to solve a problem
  - Development of theories (scientific)
- Any research must solve a problem and contribute to theory development
- Topics geared towards problem solving rely on inductive reasoning
- Topics geared toward theory formation rely on deductive reasoning – if this, then that.
- Researcher tries to deal with significant problems and find meaningful answers to the questions they ask. Look at the practical usefulness and its contribution to the discipline.

Where to obtain sources of information

- Journals, books, dissertations, research reports and conference papers
- Government documents, policy papers and newspaper articles
- Internet
- Libraries

Specifying a research question

- When approaching a particular topic, one should not ***immediately*** formulate a ***specific*** research question as this is too limiting

- The question will emerge depending on the researcher's knowledge, aim of research and approach chosen.
- The question is specified much sooner in quantitative rather that qualitative and exploratory research
- Research questions can be made more manageable by breaking them into parts
- The essence of the research is made possible by specifying the question
- This ensures clarity and focus
- **Specifying the research problem** - enables us to think about how we will conduct the research and whether it will be possible.
- The nature of the data required (and the questions asked) determine what research methodology is used – qualitative or quantitative.

Quantitative research

- Topic is formulated as a specific research question
- Research cannot be done without a clearly constructed questions
- Propositions are refined into ***hypotheses*** (a testable statement about the relationship between variables)
- Key constructs are ***operationalised*** (procedures are followed to make abstract constructs, empirically observable)

Framing a hypothesis

- A hypothesis is a tentative statement of the relationship between two or more variables.
- It is an informed guess of what we can expect to find in our research
- When formulating testable statements, any vagueness must be eliminated
- The hypothesis is a statement related to a particular context
- It directs and focuses the researcher's attention to particular phenomena and the relationship between them – e.g. *the higher you go, the cooler it becomes (height and cold are the main concepts*)
- Hypothesis also suggests what we can expect in certain circumstances
- The proposed relationship must be testable – height and cold
- The gap between the abstract conceptual levels and the concrete observational level is overcome by converting concepts into variables
- The properties/characteristics/attributes of a concept are first identified – they define a variable.
- Attributes can change qualitatively or quantitatively – high – cold, hot-low, etc
- A variable should imply two possibilities so they can reflect some change from one case to the other
- Variables are related, with a causal relationship between them – one variable influences the other
- ***Dependent variables*** are variable that are influence or changed – the effect
- ***Independent variables*** are variables that remain the same and cause the other (independent) variable to change.
- In research hypothesis, the direction of the relationship between the variables is stated – when one decreases, one increases or high, low, hot, cold, etc
- A hypothesis only tests a specific relationship.
- A number of hypotheses are linked to each other.
- A hypothesis is either confirmed or rejected once evidence is gathered – it is never conclusively proven because science is not a closed process. It always considers alternatives
- An ***intervening variable*** (a variable that is the effect of one variable and the cause of another variable) may usually be found
- A hypothesis force a researcher to state his expectations openly

Operationalising concepts

- Conceptual clarity is crucial because concepts structure our observation
- ***Conceptualisation*** means defining the terminology used in a testable statement of the problem in such a way that there is no possibility of misunderstanding what it refers to.
- The process of operationalisation means making our defined concept measurable
- ***Operationalisation*** = making a theoretical concept into an empirical variable
- ***A variable*** = an empirical representation of an abstract concept
- Highly abstract concepts are more difficult to operationalise
- ***Indicators*** are dimension used measure concepts – e.g. family = concept, home, children, parents, love, etc are indicators of the concept family
- An indicator is an observable measure.
- Indicators that provide an accurate measurement of the variable must be specified.
- Operationalisation helps us to specify the indicators precisely
- A concept can be re-conceptualised or redefined
- How we conceptualise (positive/negative, right/wrong, etc) and measure concepts influences the way we perceive the phenomena these concepts relate to.

Conclusion

- Planning research begins by topic selection
- Researcher first has a vague idea
- Literature review plays a crucial role on what to study, developing a proposal and generating a manageable question.
- Conducting research is aided by formulating a hypothesis
- Variables researchers claim are related must be measurable thro operationalisation

UNIT 3: TYPES OF RESEARCH

Based on: Category, Methodology, Aims and Time Dimension

2 Categories (that explain what the research is used for)

Basic Research and Applied Research

o 3 Types of Applied Research

Action Research, Social-Impact Assessment and Evaluation Research

Methodology: The Approaches on which Social Scientific Research is Based

Quantitative and Qualitative Approach, Triangulation (Multiple Methods)

What Research Aims at

Exploratory Research, Descriptive Research, Explanatory Research (looks for causes)

Time Dimension

Cross-Sectional Research, Longitudinal Research (Panel Studies, Cohort Research and Time-Series Research), Case Study Research)

Study Unit 3:Types of Research

Overview of Unit 3

1) Type of Research
Basic Research
Applied Research

Applied Research
Action
Social impact assessment
Evaluation

Evaluation Research
Formative Evaluation
Summative Evaluation

2) Approaches that form the basis of scientific research
Quantitative Research
Qualitative Research
Multiple methods (triangulation)

3) Aims of research
Exploratory
Descriptive
Explanatory

4) Time dimension in research
Cross sectional
Longitudinal
Case study

Longitudinal categories
Panel studies
Cohort studies
Time series research

Classification
Classification is based on what is investigated in that particular type of research. These are:

- ***Categories*** – for what the research is used
- ***Methodology*** – the approaches on which research is based
- ***Aims*** – what the research wants to achieve
- ***Time dimension*** – length of time involved in doing the research

Different types of research can often be complimentary in nature

First step is, decide the type of research to use – basic or applied research, **second** step, decide on the approach – quantitative, qualitative, or multiple methods (triangulation), the decide on the aim by describing, exploring and explaining the problem and look at the time dimension – cross sectional (non-recurrent investigation), longitudinal and case study research (into a specific topic over a long period of time).

For what the research is used:

2 Basic Research/academic/pure research:

- To expand on fundamental knowledge –first
- Researcher first states what social phenomenon is research then describes/explains phenomenon

1) Applied research: (practical orientated and look at short tirm answers)

- Research meant for problem solving
- Problem is investigated and treated in a specific manner by applying acquired researched knowledge
- If research contributes to knowledge, it is basic in nature
- If research is practice oriented, it is more applied in nature

2) Basic research (Contribute to knowledge and used is exploratory, descriptive and explanatory research byt most in EXPLORATORY)

- Basic research is used to enhance fundamental knowledge about social reality. It tries to:
  - Support/reject theories by
  - Explaining social relationships and
  - Interpreting changes in communities
  - In order to enhance new scientific ideas/knowledge about our social world
- Basic research uses exploratory, descriptive and explanatory research but is generally applied to exploratory research
- Criticism against basic research is that knowledge acquired sometimes does not offer short-term practical solutions.
- Advantage is that it provides a basis of application of knowledge and insight to many social problems, areas of research and policies.
- Difference between basic and applied knowledge is that basic knowledge seeks answers that will have an impact on the problem for a decade or longer while applied knowledge looks for quick fix solutions and answers that are usually short term.
- Is reported in scientific-technological language as information is meant for scientists

Applied research

- Tries to solve specific problems and make specific recommendations
- Focuses on short term problems and their short term solutions – the focus is not on theory
- Is descriptive in nature
- Main advantage – it can be applied immediately after obtaining results
- Disadvantage – results not presented in a comprehensible manner and cannot be accessed by practitioners
- Disadvantage – results are sometimes not published
- Focus on immediate problems solving
- Conflict can come about while attempting to solve problems of a controversial nature

Types of applied research

- Action research
- Social-impact research
- Evaluation research

Action research characteristics:

- People/org studied take part in research
- Includes ordinary every day knowledge
- Focuses on empowerment
- Fosters/draws attention to awareness
- Directly related to political realities/policy making research

Social-impact assessment characteristics:

- Forms part of a larger impact study of the environment and aims to evaluate the consequences of the planned social change.
- Is generally used by state or government bodies for planning and choosing policy they want to adopt
- It is generally used for:
- Community service
- Social conditions (crimes against children, elderly, etc)
- Economic impact (closure of factories, etc)
- Demographic consequences (migration, etc)
- Environment (preservation, etc)
- Health
- Psychological well being

Evaluation research

- Defined as the process of establishing value judgements based on evidence
- Used over a wide spectrum
- Used to address the issues at hand - 'did it work?
- Evaluation research consists of the following types of research:
    - ***Formative evaluation***
        - Involves in built monitoring or continuous feedback on a program being evaluated.
    - ***Summative evaluation***
        - A reflective process, where the emphasis is on the outcome or end result.

Both types of research are used in evaluation research – formative for evaluating progress and summative for the end result.

<u>The approaches on which social scientific research is based</u>

Qualitative research is used in ***exploratory*** and ***descriptive*** research. It uses the ***context***, ***set-up*** and the subject's ***frame of reference***.

Differences between qualitative and quantitative research:
Differences can be seen in formalisation, external control and scope.
Qualitative research is open and broader in its approach

Qualitative	**Quantitative**
Point of departure should be self evident – phenomenon manifests itself	Use a system applied to the thing that is being investigated, e.g. structured schedule, response categories or test
Are more involved with the phenomenon – re even prepared to be a part of it	Look at phenomenon from a distance – do not accommodate thing not anticipated

Qualitative approach interviews to get perspectives whereas quantitative gets a general view and perspective of events and circumstances.

- Investigation of cause and effect of events in social sciences is achieved by using a large number of respondents (***quantitative approach***)
- Humanism, a school of thought that acknowledges the uniqueness and meaningfulness of human situations and behaviour was developed (***the qualitative approach***). The topics researched are concerned with the human spirit/soul/psyche, human behaviour and conduct, and human society.
- ***Interdisciplinary research*** – research that can be done by various departments.

Quantitative approach

- Is more formalized and controlled, with a carefully defined scope and close to the approach used by researchers in the natural sciences
- Aims at examining the generally accepted explanations of phenomena - is more structured and controlled
- The scope is more larger and more universal in nature and can be defined accurately
- Survey of a large number of people
- Points of departure:
    - Natural and social realities are observed and studied in the same way
    - Scientific knowledge should be factually based on observable things and measured by means of the senses
    - The research process should yield value-free knowledge
- Quantitative approach gives preference to the following methods and techniques:
    - Conceptualising of concepts can be operationalised through measuring instruments
    - Data-collection techniques, e.g. structured questionnaires and schedules
    - Data analysis techniques, e.g. simple tabulation to complex analysis
- The object of the research is called the ***respondent***.

Qualitative approach

- The approach in which procedures are formalized and explained in a not so strict manner. It is less defined and the researcher does the investigation in a philosophical manner
- Point of departure is to study the man within unique and meaningful human situations or interactions
- It involves observation that generates investigation
- Not based on fixed and rigid procedures
- Provides a set of strategies to organise the research and collect, process and interpret data

Methods and techniques

- Concepts that capture the meaning, action or interaction of the research object/man
- Unstructured/open questionnaires and interviews
- Participant observation, ethnographic, and case studies
- Recording of life histories, use of autobiographies and diaries
- Analysis of collected data by means of non-quantitative frameworks and category systems

Characteristics:

- Holistic investigation done in a natural set-up – researchers try to understand a phenomenon within its social, cultural and historical context
- Man is the primary data collecting instrument. Man is observer (no measuring instrument). Additional data may be obtained by other instruments like questionnaires and documents
- Emphasis is on use of qualitative methods
- Subjects are selected in a purposeful manner
- Research makes use of inductive data analysis. First, data collection, then understand the situation, then make deductions.
- A grounded theory can be developed – a grounded theory is a theory that was developed from the data and is thought better than the pre-developed theory
- The design of the research develops as the research develops. Design and variables can be included that had not been considered before the phenomenon was observed
- The subject plays a role in the interpretation of the results and reality is reconstructed from the subject's frame of reference.
- The object of the research is called the subject
- Intuitive insights (the subject's experience of a situation) is emphasised
- Emphasis is on social processes and the meanings attached by the participants

The following research can be done using qualitative approach:

- Research that cannot be done by means of an experiment
- Research that makes in-depth inquiries into complexities and processes
- Research that relevant variables still need to be identified
- Research that tries to find out and explore shy the current policy and practice do not work
- Research about unknown phenomena

Multiple methods (triangulation)

- This happens when qualitative and quantitative methods are used in conjunction/in a complementary basis
- Multiple methods/triangulation sometimes offer partial solution due to difficulty in studying a phenomenon in its totality
- Triangulation is used by surveyors to identify the true fixed point.
- Triangulation is used by social scientists to denote use of various measuring instruments for collecting data, e.g. tests, direct observation, interviews, content analysis in order to investigate the same variable in a specific phenomenon
- Main advantage: one measuring instrument for measuring the same phenomenon means the investigation is more reliable(if identical experiments are repeated, they will yield the same results) and valid (methodological requirement for research methods – observation, research results.
- This research involved repetition in investigating the same phenomenon done by sequential and simultaneous use of quantitative and qualitative methods thus developing a hypothesis/hypotheses thro the qualitative method and testing it thro the quantitative method.
- Characteristics of multiple methods:
    - Decisions are base on assumptions that include qualitative and quantitative approaches
    - Style of research include both qualitative and quantitative methods and techniques
    - Data are used in a complementary manner

What different types of research aims at:

- Research can be exploratory, descriptive or explanatory in nature
- They can either be used separately or together
- If necessary to explore and describe, both exploratory and descriptive will be used
- One of the three will however dominate the investigation and will determine the outcome of the research

Exploratory research

- This kind of research explores. It is done in a particular field on which no research has been done or mention has been made, but has not been addressed in a scientific manner
- It investigates the WHAT of the matter but seldom gives a final answer
- There are no guidelines in accordance with which this research is done
- Can help determine what further research can be done
- Information is obtained through questions and recommendation and lays the basis for a meaningful research design to enable further research
- There is not yet a real theory or research problem to be addressed so it makes use of qualitative data
- It is aimed at:
    - Familiarising with basic facts, people and problems to be addressed
    - Develop a clear picture of events
    - Develop ideas, tentative theories and postulations
    - Determine desirability of doing additional research
    - Formulate questions and refine phenomena
    - Develop techniques and determine direction of further investigation

Descriptive Research

- Research aimed at giving specific details of a situation, social environment or relationship
- Descriptive and explanatory often overlap
- A topic should be first explored before it can be described
- A research is started with a thorough and accurate description of the topic
- A thorough description is the first step toward understanding
- Descriptive research determines how and why of the phenomenon and everyone involved
- It is aimed at:
    - Accurate profile of research group
    - Describe a process, mechanism or relationship
    - Give verbal or numeric picture
    - Generate info to stimulate new explanations
    - Provide basic background info or context
    - Compile a series of categories or classify types
    - Explain specific sequence, phases or steps
    - Document info disproving previous findings

Explanatory research

- Aimed at gaining insight into a situation, phenomenon, community or person
- It becomes necessary due to a shortage of research for basic information about a new field of interest
- It is based on exploratory and/or descriptive research
- This type of research looks for reasons why something happened or did not happen
- It is aimed at:

- Determining the accuracy of a theory or principle
- Finding the best explanation
- Promoting knowledge of an underlying process
- Combining different factors under a general statement or explanation
- Building/expanding a theory
- Providing data that proves/disproves an explanation or forecast

The time dimension in research

- Time dimension is when a research project can determine beforehand how much time it will take to obtain the necessary information.
  - ***A cross sectional study***
  - Non recurrent in nature and done at a specific point in time
  - ***Longitudinal study***
  - Done over a long period of time
  - ***Case study***

Cross sectional study

- Used when all the information on a specific topic is collected at the same time and no identical project will be done after a specific period of time. Investigation is done only once
- Limited to a given period of time and concentrates only on the here and now
- Disadvantage: in cannot include changes in the social process – only changes regarding the period during which the data were collected
- Advantage: more cost effective than longitudinal research
- Can be exploratory, descriptive and explanatory in nature – descriptive yielding the best results

Longitudinal research

- Two or more studies are done on a specific topic or phenomenon over time
- Measuring instruments should be standardised
- Study is done to determine if there was any change with groups in the course of time
- It is predominantly descriptive and explanatory in nature
- Used mainly in applied research and more specifically in evaluative research
- Makes it possible to make forecasts
- Is more complex and expensive but also more indicative of social change
- Constitutes the only way of pointing out specific characteristics as well as causal relationships between variables
- Uses a deductive method where a large number of cases are used to collect data then look for specific patterns
- The design of longitudinal research falls within three main categories:
  - ***Panel studies*** – same group, people, etc over various periods of time
  - ***Cohort research*** – category of people who had the same experience over a specific period of time – age groups, etc. The category is investigated as a whole in order to determine its most important characteristics with the emphasis on cohort/whole group and not an individual
  - ***Time series research*** – studies what happened to people over a period of time with info being collected at a specific time, e.g. 5 years after infection with disease.

Case-Study research

- Like cross sectional and longitudinal research, this also falls under time-dimension.

- In this research, the researcher tries to make an in-depth investigation into various characteristics of a small number of cases over a specific period of time.
- Data collected are more detailed, varied and comprehensive
- A social unit is investigated in its entirety
- In-depth investigations are done into one or more cases or a specific number of cases can be compared with one another
- In-depth investigation is done into interaction among factors affecting explanation of change, which are then analysed
- Makes use of logical/analytical induction – studies a specific topic then analyses info on that topic in detail
- Links micro level to the macro level (behaviour of individuals is linked to social structures and processes on a large scale)
- Focuses on the element that is typical, not unique.
- Data is collected by:
    - Observation
    - Questionnaires, psychological tests
    - Thro data in the newspapers, court, school reports, etc
- Researcher should have a thorough knowledge of existing theoretical knowledge on the topic
- Should be able to identify significant variables and isolate them from other irrelevant variables
- Use is made of grounded theory because it begins on an empirical level and ends at the conceptual level
- Only theories that converge with the data are used
- Researcher should guard against specific prejudices that post a threat to objective data collection and analysis

UNIT 4: ETHICS

Define the Meaning of "Ethics" in Research

4 Situational Factors: Methods, Purpose, Personal Motives and Consequences
Should be Regulated by the 6 Behavioural Norms of the Scientific Community (see Unit 1)
Different Ethical Issues relate to People, Approaches and Professional Capacity as Researchers

People: 3 Ethical Issues Relating to Human Rights

Do Not Harm (What is Harmful?), Obtaining Consent (Direct and Substitute - Consent Must Meet 3 Requirements: Person's Ability (Competency), Voluntariness (Coercion), Information (Hawthorne Effect/Intentional Deception)), Ensuring Privacy

Approaches: Ethical Issues

Quantitative (Control Groups, Placebos, Potential Harm, Post-Experimental Duration). Qualitative (Consent and Privacy Challenges)

Professional Capacity as Researcher: Ethical Issues

Absolutism, Antinomianism and Situationism. Integrity. Ethical Issues at Different Stages of the Research Process: Choice of Topic, Sampling, Selection of Method, Treatment of respondents, Treatment of Data, Measuring Instruments, Political land Organisational Constraints, Personal Constraints, Interpretation of Data and Reporting Findings (5 Requirements of a Research Report – Technically Correct, Useful, Feasible, Legal (promote Human Welfare) and Accurate)

Unit 4:Ethics in Research

4.1 The meaning of researce

- Ethics represent standards according to which a particular community or group regulates its behaviour
- Ethics are a code of conduct that guide, regulate and justify a professional's behaviour
- In social sciences, ethics is that which is morally justifiable
- Ethical guidelines apply to every step of the research process
- Four situational factors that apply to making judgements about ethics in research are:
- Methods used to collect, analyse and report research
- Purpose or goal of the research
- Personal motives or intentions of researcher
- Consequences or effects of research, effects on participants, researchers, and larger social or scholarly communities

- Methods, purpose, personal motives and consequences should be regulated by the following six behavioural norms:
    - ***Universalism*** – research must pass peer evaluation
    - ***Communality*** – share findings, means and ends, motives, consequences, etc freely with research community
    - ***Disinterestedness*** – personal gain should not be only incentive
    - ***Organised scepticism*** – be critical of own or others' research and honest when you spot error
    - ***Honesty*** – with selves, participant and research community
    - ***Respect*** – protect participants basic human and civil rights

4.3 Ethical issues in research relating to human rights

4.3.1 Do no harm

- This includes physical discomfort, emotional stress, humiliation, embarrassment, etc
- Ensure participation is free
- We do potential harm if we don't review perceptions, value and judgements

4.3.2 Obtain consent

- ***Direct consent*** – from participants
- ***Substitute/third party consent*** – from people not personally involved when actual persons involved do not have emotional or cognitive capacity to give consent, e.g. children and mentally retarded.
- Obtaining consent is linked with respecting participants and acknowledging their rights.
- Consent has to meet three requirements:
    - Person's ability – capacity to understand and evaluate info about the research. Competency has to do with age, where under 18s are minors and require consent of their guardians
    - Voluntariness – no force, deception, threat or coercion
    - Information – convey info in a way that determines informed consent. Make it clear that participant can withdraw any time.
- The procedure used to obtain consent depends on the data collection method
- Being properly informed has both ethical and methodological effects in that it can create the Hawthorne effect (participants knowing they are being researched hence acting in an unusual manner)

- Intentional deception can be used due to limited funds, time constraints, etc. this means stage managing a mugging, etc to enable researchers observe behaviour. This is justifiable if there is low risk of harm but should be avoided.

4.3.3 Ensuring privacy

- It is not possible to have total privacy
- The goal of research (collecting and analysing info about human beings) may be in conflict with people's right to privacy.
- We deal with this by considering:
    - Info sensitivity – is info regarded as sensitive by participants
    - Place of research – does the place represent an invasion of privacy. Choose another place
    - Publicity of research findings – confidentiality (not to link response with a particular participant). Protect anonymity (don't make participant known by name)

4.4 Ethical issues related to different research methods

Quantitative research

- Some participants receive a particular treatment – could bring about potential harm, there is lack of consent, effects that continue post-experiment.

- Control groups – where one gets experimental treatment and the other gets a placebo. Solutions could be to administer treatment after the experiment, but this doesn't resolve the problem coz medical experiments take too long.

Qualitative research

- Consent and privacy due to observation in the natural environment unknowingly – invasion of privacy
- Argument/solution:
    - Observation in a public setting needs no prior consent
    - Debriefing interview with observed and obtaining permission to use and publish data collected
- Intentional deception also involves observing people in natural environment
- Interviewing is used to collect both qualitative and quantitative data and the following can be ethically questionable:
    - Deception about true purpose of interview
    - Asking leading questions
    - Taping without permission
- In interviews, ensure confidentiality and discretion

4.5 Ethical issues related to you as a professional researcher

- ***Absolutism***(researcher may never tell a lie) and ***antinomianism*** (researcher need not observe moral laws) are two sides of an extreme and are unacceptable
- ***Situationism*** is between the two extremes
- ***Situationism*** allows principles, rules, etc to be followed and adjusted according to people and circumstances
- Integrity – trustworthiness and honesty are core.

Ethical issues relating to various stages of research include:

Choice of topic

- Researchability of topic
- Does topic merit scientific research
- Does it merit time, money, energy and people involved
- Researcher qualification and skills?
- Formulation of problem in unbiased manner
- Is data accessible

Sampling
- Accuracy of sample
- Can findings be confidently generalised

Selection of appropriate method
- Suitability

Treatment of respondents
- Respect of values, doing no harm, meeting requirements of justice (treating participants or respondents equally)

Treatment of data
- Subjectivity or personal bias

Development and application of measuring instruments
- ***Internal validity*** – does measuring instrument measure what it's intended to measure?
- ***External validity*** – can instrument measure similar research elsewhere
- ***Reliability*** – and produce same results

Political and organisational constraints
- Can the institution that pays for the research put pressure on the researcher to be less than honest – unacceptable

Personal constraints
- Lack of funds
- Language
- Age, gender, race, etc can influence a researcher's honesty

Interpretation of data and reporting findings
- Interpretations must be accurate and valid
- Data must not be fabricated, forged, trimmed or cooked
- ***Trimming*** = smoothing irregularities to achieve a better fit between actual and expected results
- ***Cooking*** – retaining and reporting only those findings that fit the hypothesis
- Interpretations must be consistent with the data
- Reports may not contain misrepresentations or plagiarism
- A research report must be:
    - Technically correct (sources, researchers, etc must be acknowledged)
    - Serve a useful function
    - Characterised by feasibility (realistic)

- Meet legal requirements and promote human welfare
- Accurate

- Research financed by public funds must be all the above as it is available to the public and should withstand public scrutiny.

Research ethics means collecting, analysing and interpreting data in a way that respects the rights of participants and respondents.

UNIT 5: RESEARCH DESIGN

Part of the Research Process

Not necessarily sequential, can be open and flexible. Must be Coherent: Coherence is influenced by: the paradigm in which they work (contain assumptions), type of research, data collection techniques must match data analysis techniques, results should add to our knowledge about the social world (basic knowledge) or solve a problem (applied knowledge)

Design Validity

2 Types: Internal and External Validity

Internal Validity

Isolate effects of other variables which may change the dependent variable. 7 Threats to Internal Validity: History, Maturation, Instrumentation, Selection, Mortality, Regression Effect, Testing Effect

External Validity

Once internal validity is controlled, need to find out if findings are true for other subjects. Selection poses a threat (must represent larger population). Research should reflect the real world. Participant's reactions (Hawthorne effect) and Researcher's expectancies may also influence the outcome.

Types of Research Designs involving Quantitative Data

True Experimental Design

Treatment, Manipulation of Treatment Conditions, Experimental Group, Control Group, Pretest, Posttest, Random Assignment. 2 Types: Posttest Only Control Group Design and Pretest-Posttest Control Group Design

Pre-Experimental Design

Quasi-Experimental Design

Examples: Time-Series Design, Single-Case Experiments and Alternative Research Design

1. Non-Experimental Research using Quantitative Data

Ex Post Facto Research and Survey Research

Types of Research Designs involving Qualitative Research Designs

Cyclical, Nonsequential, Designs are Guidelines only, Broad Framework, Flexibility, 4 Key Issues/Considerations:

2. **Scope (single event/person or broader front)**
3. **Design Flexibility *(balance between entirely open and specifying every step of the way)***
4. **Intended Outcome *(description or interpretation/reflect or change phenomena)***
5. **The Research Relationship *(objective, critical relationship or empathetic, open and unstructured?)***

Unit 5:Research design

Research design as part of the research process

- Research design comes in after formulation of the problem, research questions, hypothesis and before we start to collect data
- Design means that we decide on the type of research suitable, the persons or situations from which we will collect data, type of data and how we are going to analyse the data.

Research question – research design – data collection – data analysis – research report

- This requires drawing up a plan for the research early in the research process (as above line)
- In order to identify a cause and effect relationship, we need to control the research context – research design enables this.
- A design that is open and flexible is often more suitable when doing qualitative research – it is less orderly.
- This type of research is nonsequential (it could go either way as per bold italic plan above) which means if there are good reasons, the researcher can change the original design, and even the question, if necessary
- This type of design is suitable when the research is not theory-oriented, especially in qualitative research
- Fluid, pragmatic designs make for very demanding research since the researcher must reflect on the process and by making difficult decisions, refine and develop the research design throughout the research process to ensure valid conclusions.
- A practical issue like rural/urban area, language, literacy, etc can change a research design

Design coherence

- Research should be coherent (show unit
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- y of thought or purpose) whether it is precise/fixed or flexible.
- Research design is influenced by the paradigm the researcher follows, i.e. the researcher justifies here study, methods of data collection and analysis on the basis of the paradigm
- Researchers working with the positivist paradigm want to discover and confirm causal laws and ask questions on measurable variables, e.g. do cold weather cause fever and chills?
- Research of the positivist paradigm is therefore done in ways that ensure variables are measured accurately and the effect of other variables that could influence the hypothesised relationship is minimised – quantitative designs
- Researchers working within an interpretive or critical paradigm ask questions about the meaning of social phenomena so for coherence, have to ensure the concentrate on ways of observing people in natural settings – qualitative research designs
- The purpose and proposed use of the study influences they type of study to be done, e.g. experimental design (type of design) can help identify cause-effect relationships (purpose).
- We need to decide whether the research is meant to add to our basic knowledge (basic research) or to solve a specific problem (applied research)

- Data collection techniques should match data analysis – e.g. quantitative data = quantitative analysis.

Design validity in quantitative research

- There are two types of validity that must be considered when designing and evaluation research – internal and external validity

Internal validity

This means the extent to which a study can confirm the existence of a cause-effect relationship

- A variable is a characteristic that varies or changes from one person or situation to another. Variables can be measured
- The independent variable is the cause, e.g. violence on television, and the dependent variable is the effect, i.e. aggression, whose levels may vary depending on the person or situation.
- There could be other independent variables, e.g. home environment (for the TV example) which interfere with aggression levels. The effect of these other variables needs to be isolated so that they don't confuse the results and make interpreting the findings difficult.
- The internal validity (study which confirms the cause-effect relationship) of the results is threatened where there are alternative explanations that affect the cause and effect – called ***plausible rival hypothesis***
- Research variables that threaten the internal validity f the research results are ruled out at the design stage and by the researcher controlling the research conditions
- ***Confounding variables*** (variables that confound or confuse the interpretations) are also called ***nuisance or extraneous variables.*** The researcher can include these in the study if known beforehand
- Threats to validity include:
    - ***History*** – uncontrolled events that influence the outcome of research
    - ***Changes*** within the subject over time, e.g. maturation (physical/psychological change), e.g. age, emotion, etc
    - ***Instrumentation*** – when the instrument used to measure the dependent variable changes during the study. This is a threat if the measuring instrument deteriorates or improves over time
    - ***Selection of subjects*** could bias the study (especially when there are two or more groups) when there are important unsuspected differences between the subjects in each group
    - ***Mortality*** – drop out. When the subjects who complete the study are not the same as those who started it could influence the results
    - ***Regression effect*** – when extreme scores move towards average upon retesting
    - ***Pre-tests*** can influence the results. ***Testing effect*** makes the subject more familiar with the testing procedure of the are more aware of the issues after a pre-test, also they could remember the questions from first testing so it influences the results

External Validity

This is the extent to which results can be generalised to other populations or circumstances

- Selection poses a threat to external validity so the subjects chosen should represent a larger population
- The research should reflect the real world – a word should mean the same thing in real life
- Implementing controls tends to result in an artificial situation
- People who take part in a study tend to get clues about the hypothesis or goal of the study and this influences their perception of how they should act and behave.
- A ***reactive effect*** is the Hawthorne effect where subjects respond because they know they are being observed and receive attention
- ***Researcher expectancy*** is the situation where expectations cause a researcher to behave in a manner that makes the unexpected event more likely to occur.

Research designs involving quantitative data

True experimental design

- The aim of experimental research is to show a cause-effect relationship between variables
- This is done by manipulating the conditions we believe to cause the effect
- The researcher creates a condition that changes an existing situation
- This deliberate action of the researcher is called a ***treatment***
- ***Treatments*** are any intervention that changes or modifies a situation, including counselling, showing a video, using specific teaching strategies, etc
- Treatment condition refers to whether a particular group receives the treatment or not and what kind of treatment it receives – e.g. was it medicated, did it receive counselling, etc
- True experimental design are research studies where the researcher manipulates the treatment condition (decides who receives which treatment)
- The values or categories of the independent variable determine the treatment condition.
- These values are called the ***levels of the independent variable***, e.g. independent variable is counselling, one level could be receiving counselling while the other level is not
- The ***receiving group*** = experimental group, while the group not receiving = ***control group***. The groups are then compared in terms of outcome or response to treatment/no treatment
- In an experiment, the dependent variable can be measured more than once (before intro of the treatment = ***pre-test***, after treatment = ***post-test***)
- Researchers often draw a sample or subset from the population (from schools, people, towns, etc). These are the ***elements*** that make up a sample

Characteristics of true experimental design

- Researchers manipulate the treatment conditions – one group is receiving while the other is control
- Random assignment – sampling units are randomly assigned to treatment conditions or groups

- In order to compare two or more groups who differ with regard to the independent variable, the people should be similar to each other with regard to other variables.
- Random assignment to treatment conditions ensures every subject has equal chance of being assigned to any treatment condition
- It ensures that the group of subjects assigned to each condition will be equivalent to all variables except the independent variable.
- Randomisation prevents the research from influencing which subjects are assigned to which groups.
- Systematic techniques for selecting include coin flipping (which can be difficult when there are more than two groups), or random number tables – these determine which subject falls in which group
- Random assignment is not the same as random selection.

True experimental designs

The purpose of an experimental design is to control factors that may influence internal validity.

Posttest only control group design

- This is a design which includes an experimental and a control group, a treatment and a posttest
- The researcher has only one experimental group and a control group
- Groups are evaluated in terms of the dependent variable after the treatment (posttest)
- Random assignment is done – similar groups only that experimental group receives the treatment
- Differences in the posttsest are attributed to the treatment or independent variable

Posttest control group design

Experimental group	X(treatment)	Y
R(randomly assigned)		
Control group		Y

Note: there is not treatment or X in the control group.

Pretest-posttest group control group design

- This is a group where subjects are measured before and after treatment
- Results are compared before and after the treatment
- The presence of a control group ensures that certain threats to internal validity due to repeated measures are controlled and if one threat, e.g. history or instrumentation affects the experimental group, it should influence the control group the same way.

The Pretest-posttest group control group design

	Experimental group	Yb(before)	X	Y(a) after
R				
	Control group	Y(b)		Y(a)

Preexperimental design

- This design does not control for alternative interpretations of the results and should be avoided.
- They may or may not involve manipulation of treatment conditions and do not include randomisation.
- There is only one research group and subjects are not assigned on a random basis if two or more groups are used.
- This design can be improved by measuring the behaviour of the group of subjects before and after the treatment
- It can however not be known if the observed changes in behaviour are caused by the specific treatment or something else that occurred between the pretest and posttest stages due to no control group (leading to no random assignment)
- Working with only one group using pretest and posttest leads to a number of threats to the internal validity – selection, regression effect, testing effect, etc.

Quasiexperimental designs

- A true experiment is characterised by the degree of control the researcher has over the subjects and conditions, i.e. thro manipulation of treatment conditions and random assignments.
- Quasiexperimental designs resemble true experimental designs in that the researcher aims to establish cause-effect relationships
- These designs are better than preexperimental designs for identifying causal relationships.
- The do not involve randomisation because for practical and ethical reasons it is not always possible to randomly assign subjects to certain conditions
- Time-series designs are an example of quasi experimental designs
- Researcher studies a single group and measures outcomes at regular time intervals before the treatment is introduced

- Results are compared with outcomes measured at time intervals after the treatment. This is called ***time-series design***
- Time-series = a series of measurements over time. The time series is interrupted by the intervention (treatment)

Single-case experiments

- These are similar to time-series designs but involve only one sampling unit, often a single human/animal. Unit may also be a group, e.g. a class or sports team.
- Behaviour is observed before the intervention for a long enough time to obtain a behavioural baseline against which later behaviour can be compared
- Treatment is introduced and observations made during intervention
- Treatment is withdrawn and behaviour is again observed to see if subject's behaviour returns to baseline.
- If effect is desirable, treatment is repeated after withdrawal phase.
- Researcher can then evaluate the effect of the treatment

Nonexperimental research involving quantitative data

- Difference between existing groups that have been classified according to fixed levels onf an independent variable = classification factor, e.g. gender
- Ex post facto (after the fact) research deals with relationships between two or more variables without planned intervention.
- The researcher has no control over variables, and he only records the outcome of events that are beyond his control
- ***Survey research*** is a method that is used to obtain information on social and behavioural variables and the relationships between these variables
- In survey research a sample or subgroup of people is selected and asked questions.
- The answers to these question are regarded as describing opinions, attitudes, etc of the whole populations the sample was chosen from/results are generalised to the population.
- There is no actual manipulation of conditions – control is achieved statistically
- Survey researchers measure variables that represent alternative explanations and statistically examine the effect of these variables to rule out alternative explanations
- Cross sectional surveys – information is collected at one point in time – during the day or over a few weeks.
- Longitudinal study – information is collected over different times over a long period.

Qualitative research designs

- This research involves using more open materials and techniques
- Qualitative research focuses on meaning, experience and understanding
- The design give an opportunity for interaction with participants
- Information is collected thro interviews conducted in a way the participants feel they can speak freely
- It is non-sequential (does not go by sequence)
- It is cyclic, not linear
- It is in the form of general guidelines, not rigid definitions
- The design is a broad framework allowing the researcher flexibility but preventing from losing the way later
- Decisions on data collection and analysis techniques should be based on what one is trying to achieve
- This research values detail and depth of understanding

- ***Basic principle*** – set up situations that make you familiar with the topic you're studying as it occurs in its natural setting
- Remember these four issues
- Boundaries/scope – participant observation, personal interviews
- Qualitative research designs involve more flexibility and closer relationship between the players

- ***Scope*** = degree to which studies can be generalised to other settings/people thro indepth study(description and interpretation) or observation, analysis and interviews (to bring certain forms of info together across a broader front)
- Approaching the study from different angles increases chances of finding useful/correct information

Design flexibility

- Balancing between rigidity (specifying each step) and leaving research route open
- Be clear from the outset about how much and shat sort of design flexibility you will allow
- Flexibility allows openness to the dynamics of a situation
- It influences how you collect data and what analysis techniques are used
- Certain approaches work best with flexible designs while others can be used with highly structured designs

Research relationship

- Qualitative research is closely associated with interpretive and critical research paradigms
- The researcher chooses the research relationships (distant or close) depending on the participants
- If you believe the participants will hold back, you may choose a different kind of research relationship which you are a participant observer

Intended outcome

- Research is undertaken with a variety of outcomes in mind.
- Qualitative researchers usually want to provide a description and interpretation – these are two different processes
- Decide how much the study tends to pure description and how much it attempts to interpret/explain the social, political, etc mechanisms underlying the phenomenon
- Another problem is whether the study will reflect on, or change the phenomenon
- Social science research does not attempt to change the phenomenon
- Action research is when researchers use their research to change social situations
- This involves implementing interventions, evaluating its impact, modifying the intervention, then implementing a modified form of the intervention.

Examples of applications of the principles of qualitative designs

- Description
- Scope
- Flexibility
- Relationship
- Outcome
- Quantitative and qualitative research can be combined in one study by doing a survey, collective quantitative data, using simple statistical techniques to analyse the data and describe, then generalising results. Open questions can be included.

- In experimental research, the focus is on control and there are different ways of designing a study to ensure different levels of control
- Qualitative design are more flexible that quantitative.

UNIT 6: SAMPLING

Concepts/Terms

Population, Element, Parameter, Sample, Sampling Frame, Representative Sample, Sampling Error (2 Types: Chance Factor and Bias in Selection), Sampling Bias (Sources: Language Used, Personal Views, Time and Place of Data Collection)

Essentials of Sampling

2 Important Considerations: How Homogeneous is the Population? And the Degree of Precision with which the Population is Specified

Sampling Approaches/Procedures/Methods or Plans

2 Basic Approaches: Probability (Random) and Non-Probability

Probability Sampling

4 Common Methods:

6. Simple Random Sampling

Various random Selection Techniques: Lottery or Fishbowl and Random Number Table

7. Systematic Sampling

Interval Sampling – Divide the population size by the size of the sample to work out the interval.

8. Stratified Random Sampling

Homogeneous Subgroups (strata) then random sampling. Various characteristics of a population require stratified sampling (age, sex, education, race etc). 2 ways to determine the number of elements sampled from each stratum: Proportional Stratified Samples and Disproportional Stratified Sampling

9. Cluster Sampling

Heterogeneous Groups. No Sampling Frame available. Takes place in Stages. General to Specific. Less costly if Geographically defined.

Non-Probability Sampling

Population may not be accurately represented. Saves time and money. Sampling Error cannot be determined. Reduce disadvantages by working with homogeneous populations or enlarging samples. 4 Techniques:

10. Convenience Sampling

Easily accessible group

11. Snowball Sampling

Participants are difficult to identify, hard to locate or socially devalued

12. Purpose or Judgment Sampling

Study a group based on particular characteristics

13. Quota Sampling

Researcher has hypotheses about different strata or sub-populations

Sample Size

Important Factors in Choosing a Sample Size: Accuracy Needed, Size of Population, Type of Research, Nature of Research Design, Methods of Data Analysis, Heterogeneity, Methods of Data Collection, Research Hypothesis, Financial Resources, Attention Rate.)

Unit 6

Sampling

- Samples involve obtaining information from a few cases and then drawing conclusions about a number of cases
- Since it is impossible to examine every single person in a group, we select units of analysis from the group or event – we select a sample
- A population and sample need to be defined
- A sample is easier to supervise and keep active records
- A study of an entire population is called a census
- The strategies for choosing a sample will influence both the results and researcher's interpretation of the results

Key words in sampling:

- ***Population –***
- Entire group of persons or set of objects and event to be studied
- Contains all variables to be studied
- Can also be called target population or universe
- Has to be defined and described carefully and the criteria included
- Criteria are also called eligibility criteria, inclusion criteria or distinguishing descriptors
- Another way to define a population is to give an operational definition of the population, e.g., study on children suffering from malnutrition – any person under 10 years with an illness directly related to malnutrition like, kwashiorkor, etc – hence results are only limited within that framework

- ***Element –***
- The unit or case about which information is obtained
- May be objects, events, social groups, organisations, documents, or nation states
- All elements together constitute a population
- Also called a unit of analysis

- ***Parameter –***
- Specific characteristic obtained by studying all the elements of a population, e.g. mean ages,
- A measure or value collected from a population that describes a particular characteristic of the whole population

- ***Sample***
- A sample is part of a whole, a subset of measurements drawn from the population
- A selected group of elements from a defined population

- ***Sampling frame***
- A comprehensive list of all the units or elements in the target population

- An adequate sampling should not exclude any element of the population – to sample the population's activity in sport, take a sample of all members of the population, including the old, children, sick, etc to get a adequate sample

- ***A representative sample***
- A sample that represents the population in as many ways as possible and allows the researcher to accurately generalise the results
- Should be similar to the population is approximately the same proportion as they occur in the target population, e.g. if 60% of the population is female, the females in your sample should constitute 60%

- ***Sampling error***
- These are the differences between the sampling parameters (e.g. average age of the population - 40) and sample statistics (average age of sample = 34)
- Large sampling error – sample is not representative of the population
- Error more likely to occur when sample is very small
- A sampling error is almost always present, though it must be reduced to as little as possible
- ***Two types of error:***
- Due to chance factors
- Due to bias in selection

- ***Due to chance factors***
- One element may have been included rather than another – this can be calculated statistically

- ***Due to bias in selection***
- Faulty technique – may or may not be deliberate
- Fail to take into account a specific criterion, e.g. educational level, etc
- May over or under represent – e.g. 50%each black and white population in SA is under representing blacks and over representing whites

- ***Non-response error***
- When an element does not respond to a measurement instrument
- May be due to personal issues, e.g. language, illness, or refusal to give info
- The elements must be excluded from the sample, leading to change in representiveness of the sample

- **Sampling bias**
- A biased sample is not representative of the population – not carefully selected
- Caused by failure of researcher to consider relevant population criteria
- Sources of sampling bias:
- *Language* used – maybe not understood
- *Personal views* can influence
- *Time* of data collection – were all present?
- *Place* where data was collected – in a hospital, school, etc

- Sampling bias is over-representation or under-representation of a part of the population that impacts research questions

The essentials of sampling

Two factors:

Similarity and dissimilarity of population

- Similar/homogenous – smaller sample can be used and it will be representative, but if any of the characteristics that make the population homogenous changes, the group becomes heterogeneous.

Degree of precision with which the population is specified

- The population needs to be very carefully defined
- The defined population from which the sample is drawn is called the sampling frame
- When a sample is drawn from a poorly defined population, it is likely to be biased

Sampling approaches/methods

Two basic approaches

- Probability/random sampling
- Non-probability sampling

- **Probability sampling**
- Each person/element has an equal chance of being chosen in the sample
- Equal chance=non-zero chance
- Based on some form of random procedure
- Methods include: simple random sampling, systematic sampling, stratified random sampling and cluster sampling

- ***Simple random sampling***
- Population identified, sampling frame is drawn, and each element has equal chance of being included in sample

- ***Random sampling techniques:***
- *Fishbowl/lottery technique* – papers are mixed in bowl and drawn
- *Random number table* – numbers written in random way in rows or columns, and picked.

- Computers also do random selection

Systematic/interval sampling

- Elements are selecting at equal intervals, say every 7th element
- Quick and simple method but has limitations as it relies on availability of full population list (sampling frame)
- It works as follows: total population divide by size of sample gives the interval (1000/100=10)
- All conditions have to be met to classify it as probability sampling

Stratified random sampling

- The population is divided into different groups or subgroups called strata, and each element belongs to one group/stratum
- Some characteristics of a group need stratified sampling, e.g. age, sex, edu level, etc
- Two ways of determining the number of elements selected from each stratum – proportional and disproportional

- ***Proportional stratified sampling –***

- Number of elements selected from each stratum is proportional to the size of the stratum in the population – e.g. 14 year olds are 20% in each stratum so must, they should be 20% of the sample
- Advantage of stratified random sampling – it makes representativeness of a particular segment of the population possible
- Disadvantage – requires good knowledge of population parameters and complete list of total population

- ***Disproportional stratified sampling –***
- Occurs when the number of elements in each stratum is not proportional to the number of elements in each stratum within the population
- It is less efficient for determining population characteristics.
- Can be used when generalisation of research findings is not being done.

- ***Cluster sampling***
- Population is divided into groups or clusters
- Elements of the population are grouped in heterogeneous clusters
- Used when a complete list of elements (sampling frame) is not available, e.g. departments in a company
- Can be used when there is no time or money to get element's/people's names but has a list of departments, divisions, etc
- All workers in a cluster can be sampled or random selection of same number of workers from each cluster can be chosen
- Only the elements in the selected clusters are listed
- Used by large scale surveys
- Takes place in stages – starts by sampling a general population, e.g. a city, then progresses to inclusive sampling units – due to this successive method cluster sampling is also called ***multistage sampling***.
- Contains more sampling errors but more economical and practical when the population is large

Non-probability sampling

- The population may or may not be accurately represented as probability for inclusion is not the same for each element
- Some elements have no chance of being included in the sample
- Less desirable if the objective of the research is to generalise
- Used only when probability sampling is very expensive or when generalisation will not take place or if a population cannot be defined because no sampling frame is available
- Used for generating theory and understanding of social processes
- *Problem* – there is no formal procedure for generalising from the sample to the population since the researcher cannot determine sampling error
- *Advantages* – saves time and money
- *Techniques*: convenience/accidental, quota, purposive/judgemental and snowball sampling

- ***Convenience or accidental/availability sampling***
- Researcher selects element he can easily access until he reaches desired size, e.g. first twenty people.
- Serious bias because certain elements in the population may be underrepresented or overrepresented
- Generalisation based on this sample is extremely risky

- ***Quota sampling***
- Similar to stratified sampling except final selection of elements is not random

- Requires that each stratum be represented in the sample in the same proportion as in the total population but the sampling procedure relies on convenience or accidental/availability choice

- ***Purposive/judgemental sampling***
- Researcher selects a sample that can be judged to be representative of the total population – the judgement is based on the basis of available info or the researcher's knowledge of the population
- Relies on subjective considerations rather than scientific criteria – e.g. first three days of the month
- Commonly used in qualitative research and governed by the need to develop additional theories in social science
- Researcher doesn't know in advance how many subjects are needed

- ***Snowball sampling***
- Research respondents obtain other respondents
- Few respondents are identified, and they identify others who qualify for inclusion, and the new persons are interviewed, etc
- Useful for sensitive or hidden populations, e.g. sex workers, gays, etc)
- Useful with research where people are afraid of making their identities known

Sample size

- Number of elements/people, in a sample.
- Research purpose, design and the size of the population determines the sample size
- The larger the sample, the more valid and accurate the study – except for case studies
- Researcher can use a smaller sample if the population is homogenous
- Sample size is unique only to that research – cannot be used in another study
- Quantitative studies – large sample
- Qualitative study – small sample
- Determinants of sample size are:
- Accuracy of the sample
- Population characteristics
- After a certain size is reached, increasing the sample will not make the research more accurate
- Too small a sample does not provide the required info and may be scientifically useless
- The more heterogeneous a population, the larger the sample must be to properly represent the characteristics of the population
- The larger the population the bigger the sampling ratio has to be
- Smaller population – under 1000 – need a sampling ratio of about 30%
- Large population – about 10000 need a sampling ratio of about 10%

Important factors in choosing a sample size

- *Accuracy* – increase in sample (up to a point)=increase in accuracy
- *Size of population* – increase in population – smaller number of subjects
- *Type of research* – survey designs – larger number of subjects
- *Nature of research design* – qualititative – fewer, quantitative – more
- *Methods of data analysis* – minimum 30 pax to apply statistical techniques to results
- *Heterogeneity* – variability increase, more subjects are needed
- *Methods of data collection* – if methods are imprecise, larger sample is needed
- *Research hypothesis* – when slight differences are expected, a larger sample is required

UNIT 7: DATA COLLECTION

Measurement

Giving data numerical value – must be valid and reliable

4 Levels of Measurement

14. Nominal Level of Measurement: Must be discrete, mutually exclusive and exhaustive. Numerals assigned have no quantitative value
15. Ordinal Level of Measurement: Must be discrete, mutually exclusive, exhaustive and ranked (interval between categories is not equal
16. Interval Level of Measurement: Must be discrete, mutually exclusive, exhaustive and ranked categories, but intervals can be measured on a quantitative instrument
17. Ratio Level of Measurement: Highest level. Must include discrete, mutually exclusive, exhaustive, ranked, measured intervals and an absolute zero point.

2 Sources of Measurement Errors

1. Systematic Errors: Bias occurs constantly and distorts the measurement.
2. Random Errors: Measurements vary for numerous reasons (tiredness, ill, threatened, equipment malfunction, lapse in concentration etc.)

Using Existing Data

Print and Non-Print. 3 Advantages: unobtrusive, practical and accuracy can be confirmed

Sources of Existing Data

Primary, Secondary and Tertiary Data

Authenticity and Credibility of Existing Data

Establish how authentic/genuine the data or event is and then determine credibility/believable status. Ask numerous questions to do this.

Survey vs Field Research

Survey = large number of respondents at a particular point in time over a large geographical area vs Field Research = collection of primary data in their natural environment.

Interviews (in both surveys and Field Research)

1. Types

1. Structured (specific questions) and Unstructured (reactions to general issues without specific questions)
2. In-Depth Interviews (unstructured). Particularly useful in Field Research.
3. Focus Group Interviews (semi or unstructured). Variety of opinions, but may be less honest and more conforming. Can be combined with other data collection methods

2. Types of Questions

1. Closed-ended Questions (fixed number of answers)
2. Open Questions (encourages expressions of emotions, ideas, opinions for e.g. Free-narration Questions (tell his/her own story) and Role-playing Questions (invited to play a role and respond from that position)
3. Follow-up Questions (probe for more info)

3. Conducting an Interview

Numerous questions must be asked before conducting an interview: who conducts it, what issues influence it, who else should be there, who should be interviewed? Then ask: individuals or groups, is the setting

appropriate, is the time convenient? Need advance planning: interview guide/schedule, purpose must be made clear, start with broad or open questions and difficult ones in the middle, conduct a pilot test on a small sample (10) with corresponding demographics and practise using any recording devices.

4. 8 Advantages and 4 Limitations

5. Advantages and Limitations of Telephonic Interviews

Questionnaires (in both Surveys and Field Research)

Self-Administered

1. Wording of Statements and Questions

1. Avoid Double-Barreled Questions (or, and, therefore, either, both)
2. Loaded Language
3. Leading Questions (pressure to agree)
4. Questions which will lead to having one logical answer (can, might)
5. Negative Items (not – can be interpreted positively)
6. Incomplete Questions
7. Reference to Vague Agents of Action
8. Lengthy Questions
9. Unwarranted Assumptions
10. Avoid Abbreviations, Acronyms, Jargon, Slang
11. Use Everyday Language
12. Use Unambiguous Language
13. Ask One Question at a Time

o Types of Items Included in Questionnaires

- Statements, Questions, Scales
- Examples of Closed-ended Questions: simplest, paired comparison questions, contingency questions, ranking questions, inventory questions, mcq's
- Scales: height, weight etc. have a zero-point. Stress, anxiety etc. doesn't. Types of self-report measures are: Likert Scale, Semantic Differential Scales (both are ordinal measurements).
- Ordering of items: No fixed rules, guidelines are: begin with broad and become more specific. Group items logically. Begin with Neutral questions and place sensitive questions in the middle. Avoid hostility.

• Properties of Scales

Usefulness depends on reliability and validity

- **Reliability**: Degree of consistency. 3 empirical methods can be applied:

1. Test-Retest Method - Stability
2. Split-Half Method - Consistency
3. Equivalent Forms Method – Equivalency
4. Inter-Coder Reliability

- **Validity:**

1. Predictive Validity (measure and predict eg IQ tests)
2. Concurrent Validity (attitude scale and criterion measure are administered together)
3. Content Validity
4. Construct Validity

1. Conducting a Survey

Flexible steps: Construct a measuring instrument, pilot test it, test the reliability and validity, carefully consider the timing to avoid a low response rate. For self-administered questionnaires also: include a self-addressed, stamped envelope, short covering letter conveying legitimacy, value and credibility of the survey, send a follow-up letter.

2. Advantages and Limitations of Questionnaires

Saves time and money, reaches geographically dispersed respondents. Cheaper via Internet, Self-administered are particularly useful with personal/sensitive issues (stay anon. Or don't respond). Postal has a low response rate, slow response rate and lacks control of responses. Group administered has a high response rate, short data collection time, can verbally explain, but can't probe further or ask follow-up questions. Also not a representation of a diverse population.

Observational Techniques (in Field Research)

5 Conditions must be met: Guided by a purpose (Hypotheses/research question), guided by a scientific theory, procedures must be carefully planned, everything recorded (including deviations from the plan), where possible observations must be checked. [Not all observation types/forms – this could lead to premature closure]
3 Factors influence observations: selective attention, bias and the researcher's intentions

3. Forms of Field Observation

1. Participant (overt) vs Nonparticipant Observation
2. Ethnographic Research: 2 Types: Audience Ethnography and Street Ethnography
3. Reactive Observations vs Nonreactive Observations: Hawthorne effect, Unobtrusive Observation (present, but purpose unknown), Concealed Measurement, Partial Observation (conceals who or what is being observed – limits reactivity) and Nonreactive Observation (observer – totally removed from the social interaction)

4. Conducting Field Observations

Structured or unstructured. 2 Questions must be answered: What is observed? And How are observations recorded?

- *What is observed*? Depends on research design and theoretical assumptions. Also on units of analysis and setting. Uncontrolled behaviour may be more realistic than controlled behaviour. There are 4 categories where the researcher exerts no control over behaviour:

1. External/Physical signs (clothing, hair, jewelry, tattoos etc)
2. Kinesis (facial expressions, gestures, non-verbal communication etc)
3. Proxemics (status, control in social interactions, spatial communications, esp. distance between people (4: intimate, personal, social and public), linguistic insulation (jargon not understood by others)
4. Language Behaviour (what people say, stuttering, slips of the tongue, silences, duration of speech, who speaks to whom, paralanguage (not verbal ie rate, volume, rhythm, vocalizations (hmm) etc.)

- *How are observations recorded?*

First, operationally define categories and then devise instruments to observe, measure and analyse data.

1. Classification: Assign a category or apply a scale. Labels given to categories must reflect: what is to be observed, how the measures will be recorded and how the variables will be measured. It is important to give operational definitions before doing observations: specify what is to be observed, it provides exact guidelines how to measure and record observations and they minimize measurement errors and interpret objectively.
2. Instruments: Hardware Instruments (tapes, cameras, videos, clocks, infrared photo's, 2-way mirrors). These can be used on their own or with Software Instruments (measurement scales, notebook and pencil, interview schedules, questionnaire forms, classification schemes)

1. Advantages and Limitations of Observational

- Advantages depend on: difficulties in gaining entry to the setting, whether the behaviour/phenomena observation. Advantages: may be more valid in nonreactive observation (but is deception ethical?), they enable researchers to study deeper values and beliefs and subtle nuances of attitudes and social interactions.
- Limitations: Biggest limitation is to achieve external validity. Recording devices make one feel uneasy, they are limited to a particular group and represent nonprobability samples and therefore can't generalize findings to a wider population)

Unit 7: Data collection

Measurement

- Measurement is used to find accurate answers to social problems and research questions
- Measurement is when we record or register the value of a particular variable. This enables us to describe the variable
- Measurement is a process which follows certain rules and has to meet certain criteria
- Measurement and scales must be varied and reliable

Levels of measurement
Nominal, ordinal, interval and ratio levels of measurement

Nominal level of measurement
Categories are:

- Discrete
- Mutually exclusive
- Exhaustive

A category is ***discrete*** when it is distinct and separate from other categories, e.g. pregnancy – one cannot be a little pregnant
A category is ***mutually exclusive*** when they measure something not measured by other categories
Exhaustive if they make provision for all possible responses, variables and attributes

Numerals are usually assigned to each category for the purpose of classification – numerals have no quantification but are only used to identify the qualitative attributes when entering data into a computer

Ordinal level of measurement

- Used when a researcher wants to put his observation or data in a certain order of importance
- Discrete, mutually exclusive and exhaustive can also be used in ordinal scales but they **must** allow data to be ranked in order of importance
- Enable researchers to rank preference or intensity – (least to most) or extent (always to never).
- The distance between categories ranked next to each other are not equal
- Used to measure behaviour, attitudes, opinions and preferences

Interval level of measurement

- Categories correspond – mutually exclusive, exhaustive and discrete
- Measure the interval or distance between two points on a **quantitative** instrument (e.g. a thermometer)
- Numbers are meaningful as numbers
- Can be used to perform simple arithmetical calculations
- Interval level of measurement does not have an absolute zero point – this point is arbitrarily determined

A score is based on precise calculations, with known intervals between them

Ratio level of measurements

- Highest level of measurement as categories include all the categories in the other levels of measurement
- Has an absolute zero point
- Used when variables like weight, length and time are measured – not used to measure attitudes or perceptions as the lowest possible length and weight are zero and there is no zero point (absence) in human qualities

- Difference between interval and ratio levels is that there is an absolute zero in ratio, while there is no absolute zero in interval

The level of measurement determines what statistical procedures can be applied

Measurement errors
Two sources of measurement error
- Systematic error
- Random error

Systematic error
People give a favourable impression of themselves and this desire to be socially acceptable can bias responses, leading to researchers failing to measure what they intended to measure
Respondents don't give their true opinions

Random errors
Occur when measurements vary

Factors influencing measurement consistency:
- Tired/ill respondents
- Presence of researcher is seen as threatening
- Momentary lapse in concentration
- Equipment (tape, video) malfunction

Using existing data
- Found in written document, non print media, etc
- Literature survey – drawing on some sources of existing data
- Research – fully based on analysing existing data
- The purpose of the research and the nature of the problem determine whether and which existing data should be used and how it will be used
- Positivist researchers – content analyses of sources
- Interpretative researchers – life histories, letters, personal diaries, etc

Three advantages to collecting and using existing data
- ***Unobtrusive*** – no direct involvement or need to respond, measurement is not influenced
- ***Practical*** – less time and cost
- ***Accuracy*** can be confirmed

Sources of existing data
Primary sources
Secondary sources

Primary data comes from original sources, e.g. interviews – info collected at original source
Secondary data comes from someone other than the original source – someone else's interpretation. From a source not involved in original investigation

Tertiary data – interpretation or comments based on secondary sources – e.g. research based on newspaper accounts of crime.

Authenticity and credibility of existing data
Documents – can be established by laboratory tests and analysing handwriting

Questions relating to authenticity of the person as a source:
- Near the source
- Perceive the event clearly
- Data clarity – intellectual ability to perceive and describe event
- Credibility?
- Pressurised?
- Significance of the report?
- Reluctance to share info?
- Personal interest – reporting style?

Establish authenticity of the actual data/event?
- Info clear, concise and intelligible
- Religious, cultural and social norms that applied at the time
- Time between even and writing
- Supported by other sources or evidence

Credibility of sources
- Signs of bias
- Core message
- Hidden meanings
- Ambiguity
- Believability
- Verification by other sources
- Purpose
- Who recorded the info

Journals
Association the published
Are articles refereed?

Surveys versus field research
- Survey research is a systematic collection of specific information obtained through asking a sample of respondents the same questions at a particular point in time
- Involves investigating a large number of people who are geographically spread out over a wide area, e.g. Kenya.
- Smaller segments are sampled on a random basis
- A specific set of questions or statements are drawn up – with responses applying to a specific geographical area and specific time period
- Surveys can be conducted in person, via telephone or questionnaire
- Emphasises comparison and generalisation and requires standardisation

Field research

- Observing events and people in their natural settings
- Focuses on developing an understanding of and fully describing an event or issue

Interviews
Uses personal contact and interaction between an interviewer and interviewee wither face to face or via telephone

Structured and unstructured interviews
Interviews can be highly structured, semi-structured or completely open and unstructured

Choice on structured/unstructured interview depends on:
- Knowledge and familiarity of topic
- Purpose of interview
- Nature and sensitivity of topic
- Actual respondents
- Setting
- Relationship between the interviewer and interviewee

Structured interviews
Specific lists of questions are asked
Wording similar to questionnaires
Used mainly for surveys to collect answers, opinions, motivations or emotions

Unstructured interviews
Respondents give their own reactions to general issues in the absence of specific questions
May be face to face or over the phone
Two types of face to face interviews: in-depth and focus groups

In-depth interviews
These are also called intensive interviews, unstructured, or conversational interviews, ethnographic interviews, focused interviews
Meant to obtain detailed information
Used to get reasons behind the answers, opinions or emotions given in a survey
Mostly used in field research

Focus group interviews
6-12 people interviewed together at the same time
Semi-structured or totally unstructured and guided by an instruction leader or moderator
Disadvantages:
Responses may be less honest and therefore less reliable
Influence by others
Feel need to conform
May not always protect confidentiality or prevent adverse effects of group participation
Advantage: Researcher can obtain different opinions on a certain issue

Focus group interviews with other data collection methods
A focus group can be used to explore the content and format of questions that will be asked in in-depth interviews, e.g. studying the effects of internet on family life

A focus group interview can be conducted after conducting observations of behaviour (field research) – this can be done with a few participants who were observed to verify interpretations of observations
Used to pre-test a measurement instrument (e.g. a self administered questionnaire) used in a survey by assessing wording of questions and checking clarity of instructions

Types of questions asked in interviews
Close-ended questions –
Question with a fixed number of answers
Used in a limited way
Should not include too many options

Open questions:
Used in interviews and questionnaires
Encourages expression of responses, attitudes, emotions, etc
Useful when unsure of type of responses we may get

Free narration questions
Are open questions
Respondents tell his/her own story

Role-play questions
Variation of open questions
Plays a role and responds from the perspective of the role

Follow-up questions
Used in interviews
Follow on from the respondent's answers to a closed/open question
Probing questions (why, what, how, where, when, etc) are asked

Conducting an interview

Before conducting interview:

Before interview, ask:

- Who should conduct the interview?
- Will issues such as differences in gender, age, race, physical appearance or language influence the interview? If so, what can be done to minimize these differences?
- Besides the interviewer, should others be present (e.g. someone to keep a record of responses, or someone who is a confidant of the respondent)?
- Who should be interviewed? Apart from requirements such as sample representativeness (discussed in study unit 6), this question is best answered by reconsidering the original research questions asked, and the circumstances of the interviews.

Next ask:

- Should the interviews be conducted with **individuals or groups**?

- Is the **social setting** (i.e. place) where the interview is conducted appropriate? For example, parents may find a school intimidating and prefer to be interviewed at home.

- Is the **time** chosen for the interviews convenient for respondents?

A successful interview depends on advanced planning:

First compile an interview guide/schedule and leave enough space on it to take notes

Any follow up questions must be included in the schedule

- Purpose must be clear at the beginning of the interview
- Start with a broad and open question,
- More difficult questions should be in the middle of the interview
- Start with non threatening questions
- Once type of interview is decided on, do pre-test / pilot test which:
    - Draws small sample which corresponds with demographics of actual sample
    - Conduct interview in similar setting to research settings
    - Practise use of equipment

Advantages and limitations of conducting interviews.
Interview is a social interaction between 2 or more people

Advantages of interviews:

- Flexible
- Unclear questions can be clarified during dialogue
- Additional information can be obtained with follow-up questions
- Establish rapport or personal relationship – enables contact at a later stage
- Respondents don't have to be literate
- Nonverbal communication can be noted
- Random samples can be drawn
- Way questions asked can be standardised.

Advantages of telephone interviews

- No travelling, accommodation, duplication, postage expenses
- Data can be collected QUICKLY
- More accurate – no time to re-think answers
- Responses more accurate, no time to formulate considered reply
- Interview can be monitored.

Limitations of both face-to-face and telephone interviews

- **Bias (1)** – race, gender, age. Etc Bias is when interviewer shows approval/disapproval
- Lack anonymity (face-to-face) could result in dishonest responses
- Face-to-face **costly (2).**
- Need **training in skills (3)** to interview
- Cannot interview large sample **(4)**

Limitations for phone interviews only

- Sampling bias due to phone listings
- Limit info due to speaking to an unknown person
- 5% lower response rate
- Cannot observe respondent's nonverbal behaviour
- Cost of phone calls restrict duration of calls

Interviewing is an interactive process

Need practice to stay calm, ask questions, track responses and ask appropriate follow-up questions.

QUESTIONNAIRES (IN SURVEY AND FIELD RESEARCH)

A questionnaire is a printed document that contains instructions, questions and statements that are compiled to obtain answers from respondents

In a questionnaire respondents fill in without researchers' help.

Are usually distributed by mail or given to a group in one venue or computer disks

The wording of statements and questions

Avoid the following:

- **Double-barrelled** questions = a question that contains two parts; in other words, a question that is two questions in one – uses 'and', either, or, both, etc
- **Loaded language** = phrases that contain misleading implications. Contains a position for or against the topic
- Loaded language leads to **Leading** questions "do you agree support ..."
- **One logical answer** questions, e.g. Can education TV increase learning skills?
- **Negative items** = e.g. should you not fulfil a public relations portfolio? Can miss "not". Question can be misread or a negative can be answered positively by mistake
- **Incomplete** questions = "should we spend more on social welfare? Confusing- not enough detail e.g. what part of social welfare.
- **Agents of action** = Questions are incomplete or ambiguous – what do you think about welfare facilities
- **Lengthy questions** must be avoided
- **Avoid Abbreviations** and **acronyms** (word made up of the initial letters of other words)

DO the following, use:

- **Everyday language** not technical jargon
- **Unambiguous** questions/statements
- Ask **one question at a time**.

Types of items included in questionnaires

- Open and close ended questions
- Open ended similar to interviews

- Close-ended = 2+ responses - also called standardised questions, fixed-alternative questions, highly structured questions.

Types of questions:

- **Paired-comparison** question
  - A question that offers two options
  - Selects one answer but must think about options compare meanings
  - Takes into consideration purpose of research
  - I.e. What hypothesis are we testing
  - Options included show research working with certain ASSUMPTIONS.
- **Contingency** questions (like filter questions) = only apply to some respondents, must include clear instructions.
  - Depends on answer to previous questions,
  - E.g. Have you....? If yes.....?
- **Ranking** questions = closed ended questions where respondents ranks or order the options from the least to the most or vice versa according to preferences (e.g. what do you think is sweetest and in what order – honey – 1, sugar – 2, sweetener 3)
- **Inventory** questions = not limited to selecting ONE option
  - Purpose is to get comprehensive overview of all possible options that could apply to each respondent. E.g. tick all sources that apply to you....
- **Multiple-choice** questions
  - Good to collect demographic data e.g. your age , a)18 – 21, b)22-24,

Scales that measure weight, height, length can be accurate.

Scales that measure stress, bereavement, anxiety can't be consistent, accurate.

They are self-report measures

Likert scales

- Most frequently used.
- Used to measure attitudes
- Number of statements are related to the attitude or behaviour being measured are constructed i.e. strongly agree, agree, neutral, strongly disagree, disagree.
- ***Scoring can be reversed***; the answer that researchers expect the respondent to answer most is scored higher, e.g. strongly disagree (5) means the research expects respondents to respond negatively.
- The respondents' response and subsequent scoring depends on the phrasing of the question.
- Numbers are important because it is a ***summative scaling procedure***, i.e. numbers added.

Guttman and ***Thurstone*** scales are also used to measure attitudes, etc. but too elaborate for this module.

Semantic differential scale

- Seven-point spaces which have opposite adverbs/adjectives.
- E.g. Honest x x x x x x x Dishonest
- Include bipolar options – two extreme poles
- Response bias = errors due to individual responses not being truthful.
- To prevent response bias, positive and negative adjectives alternated.
- This forming of an answering pattern (i.e. Marking 2nd x all the time) = response set.
- Provides an effective measurement of people's attitudes on certain things.
- Obtains measures which are more realistic than Yes/No, etc

Both ***Likert*** and ***semantic differential scales*** rely on ordinal levels of measurement.

Ordering of questionnaire items

- Begin with general broader questions and proceed to more precise – funnel technique/pattern
- Grouping should follow a logical pattern – general questions= warm up. Questions should be 1st the past, 2nd the present, 3rd the future.
- Sensitive questions in the middle

Properties of scales

Properties = qualities, characteristics, attributes
Correlating = measuring the match between one thing and another.
Scales must be reliable and valid – these two are their properties

The requirement of reliability

RELIABILITY = the degree to which a scale yields consistent results/scores. I.e. if identical investigations are repeated, similar research results will be obtained.

Three EMPIRICAL methods test reliability:

TEST-RETEST method

- Correlating (measuring match between one thing and another) one scale to the same group at different times with intervals in between that vary from a week to a year
- Only one scale is used – tested and then retested
- Reliability estimated by correlating the two sets of scores
- ***Advantage*** – one scale used (no unreliability due to different/many scales used)
- ***Disadvantage*** – (1) respondents might remember answers. (2)Attitudes may change between tests

Suitable for determining the ***stability*** component of reliability.

SPLIT-HALF method

- Scale is split into two halves

- Each half scored separately, i.e. All odd numbers and all even numbers, or random selection
- Reliability estimated according to correlation between scores of two halves.
- Suitable for determining the ***internal consistency*** among items.

EQUIVALENT-FORMS method

- Also called ***alternate-forms*** method
- Compiling ***two*** forms that have same items that measure same phenomenon(any event or experience)
- Reliability depends on the degree of ***equivalence*** between forms.
- Suitable for determining ***equivalency*** component of instruments' reliability. I.e. used when researchers rely on multiple indictors to measure construct.

Intercoder-reliability

- Differs because asks "Do different people interpret (or rate) things in the same way:" referring to researchers, interviewers.
- Depends on the extent to which 2+ coders (researchers) are in agreement.

The requirement of validity

Validity – The degree to which a scale measures what it is supposed to measure.

Four ways to estimate instrument's validity:

PREDICTIVE validity - instruments ability to measure and predict.

- E.g. IQ will accurately predict how students will perform.
- Criterion measure is administered at **future** appropriate **time** and compared to predicted scores.
- Degree of validity measured by degree of correlation between two sets of scores.
- Predictive validity can be determined by comparing results of one test with another test. E.g. Distribution of demographics can be validated by comparing it to a census bureau.

CONCURRENT validity similar to predictive validity

- EXCEPT concurrent validity measured by administering attitude scale and criterion measure at about the **SAME time**.
- ***Disadvantage*** – one data collection activity can influence the other

Predictive and concurrent validity are estimated by measuring how accurately we can predict future behaviour on an external criterion also called **criterion** validity

Content validity – to what degree does the content of the items agree to the content of the domain (problem, area, field or discipline) being researched.

Items can have content validity BUT the scale may not have content validity

To determine is there is content validity need to use subjective procedure

Steps:

- Judge if content of individual item relates to the domain being researched.
- Judge if total set of items represent all the aspects of the domain being researched
- Use ***expert-jury*** validity. (use experts in specific domains to judge content of the scale independently)

Construct *validity* – focuses on WHAT is being measured

- "concerned with the nature of reality and the nature of properties being measured"
- Look at CONVERGENCE between associated indicators and DIVERGENCE between negatively associated indicators.
- Construct validation estimates the extent to which subjects possess "the characteristic presumed to be reflected by a particular scale or test"
- Can use multiple measurements of same concepts:
  - E.g. People's attitudes to the death penalty
    - Self-administered questionnaires
    - Then face-to-face interviews
    - Then observe actual behaviour.

Conducting a survey

Must follow steps, but steps are not fixed.
Following are broad guidelines:

- Construct a measuring instrument, e.g. telephone interview guide, or self-administered questionnaire
- Conduct a pilot test of the instrument
- Test the reliability and validity of the instrument
- Consider the timing of the survey.

Self-administered questionnaires (posted to respondents) require the following 3 additional guidelines:

- Self-addressed, stamped envelope
- Covering letter endorsing LEGITIMACY and CREDIBILTY and value of survey
- Follow-up letter to remind about survey.

Advantages and limitations of using questionnaires

ADVANTAGES	**LIMITATIONS**

MAIL	
1. Cost and time saving	1. Can't secure representative sample
2. Can reach geographically dispersed people.	2. Slow response
3. Via internet and electronic, cheaper if all respondents have access. Very useful if doing whole institution.	3. Low response
	2. Lack of control over respondents responses
GROUP ADMINISTRATION	
1. high response rate	1. not allow follow-up questions
2. data collection time short	2. not easy to arrange diverse population to meet at one place and time
3. purpose of survey can be verbally explained	
4. Questions can be answered.	
POSTAL QUESTIONNAIRES	
	Low response rate – about 20%
	Slow response rate
	Lack of control over responses

Self administered questionnaires are useful if the purpose is to investigate topics that are very personal or sensitive due to anonymity and confidentiality

Observational techniques in Field research
How we watch our friend's behaviour and responses, etc
To make observations scientific in most cases of field research need to:

- To have specific purpose, specified by hypothesis/research question
- Be related to and guided by scientific theories
- Procedures to be followed must be systematically planned
- Procedures followed and any deviations must be systematically recorded.
- Observations must be checked.

The above is not used in every form of field observation. In participant observation researchers are encouraged to be defocusebd and follow a more inductive instead of a deductive approach. Theories and concepts are premature too early in the observation process

Three factors that influence researchers observations:

- Selective attention – due to age, gender, culture, education level, etc Find out if selective attention is intended as part of observations
- Bias – e.g. separate and observe men and women
- Intentions – spell out intentions and draw inferences

Inferences = making deductions based on, for example, what is observed.

See SG pg. 197

Forms of field observation

Field observation means that a researcher observes people's behaviour in their natural environment

Participant observation versus non-participant observation

- Participant observation (field work) – researcher involved in social activities, i.e. Joins in meals, dancing etc.
- Non-participant – research tapes, records activities.

Ethnographic research

- Specific type of participant-observation
- Researcher describes a particular group's way of life from group's perspective and point of view
- Researcher uses recording devices are used, field notes taken, interviews conducted
- Two forms of ethnographic research:
    - ***Audience ethnography*** – aim-describe how audiences experience radio or TV programmes in social context of everyday life
    - ***Street ethnography*** – takes place in certain settings, such as streets, shelter, hostel, studies lives of people like sex workers, drug addicts, etc. Problem experienced by researchers is getting access to these groups

Reactive versus non-reactive observations.

- Observations that influence the behaviour of those being observed are called REACTIVE observations – participants change behaviour while they are being observed which threatens validity and reliability
- Observations that don't influence the behaviour are called NONREACTIVE observations.
- Non-reactive observations = non-participant observations and onlooker observations – overt non-participant observation can have reactive effects
- Non-participant observation that is OVERT can have a reactive effect
- If purpose of researcher's presence not known = UNOBSTRUSIVE observation. This is when group knows researcher there but not why. This is usually more objective
- If hidden recording devices used in non-reactive observation = ***concealed measurement***
- Variation called = ***partial observation*** = Status of researcher is known but what/who observed is concealed. This limits reactivity.

Conducting field observations

- Whether they are reactive or non-reactive ***structure*** of observation may vary.
- If researcher knows in advance what is to be observed can structure the observations by formulating operational definitions and devising classification systems and measurement scales
- Devising a classification system and measurement scales

What is observed

- Depends on research design and theoretical assumptions. E.g. If experimental design = observations can be structured and controlled.
- Also depends on the units of analysis and setting
- Four categories of observation in the field in which the researcher exerts NO control over behaviours:
    - ***External /physical signs.*** E.g. Clothing, jewellery, beards, tattoos
    - ***Kinesics*** = facial expressions, gestures and bodily position as nonverbal communication.
    - ***Proxemics*** = study of spatial communication and specifically the distances between two or more people
        - Proxemics signifies status, ownership or control in social interactions.
        - Can use linguistic insulation to enforce ownership of space
    - ***Language behaviour*** = stuttering, slips of tongue, silence, who speaks to who, who speaks first. Paralanguage = 'hhhmmmm' 'sshhh' 'uh-uh', etc. Vocal characteristics

How are observations recorded?

Classification

- We assign persons and behaviours to particular categories or apply a scale as a measuring instrument
- Labels given to categories must be operationally defined to ensure that they clearly reflect:
    - What is to be observed
    - How the variable to be observed will be measured
    - How the measures will be recorded.
- Operational definitions of the categories used in classification must meet the discrete, mutually exclusive and exhaustive criteria.
- It is important to give an operational definition before doing observation because:
        - Operational definitions specify what is to be observed.
        - Makes it easier to replicate research
        - Operational definitions provide exact guidelines on how to measure and record our observations.
        - Operational definitions minimise measurement errors and help us to interpret data more objectively.

Instruments

Select an instrument to observe measure and analyse data.

- Hardware instruments: audio tape recorders, film cameras, videotapes, clocks, stopwatches, infrared photography, two-way mirror electronic eyes.
- Software instruments: notepad and pen, interview schedule, classification schemes, check-lists, questionnaire forms. These may contain measurement scales.

Advantages and limitations of observational techniques.
Advantages depend on the following:

- Difficulties which the researcher may experience to *gain entry* to the setting
- Whether the phenomenon or behaviour being researched occurs with sufficient *frequency* to make the observation worthwhile.
- The *technique* selected to record the observations.

- Because field observations are limited to particular groups (street children in Sea Point, village elders in Rateng, etc) they represent non-probability samples
- ***Non-probability samples*** mean findings cannot be generalized to a wide population, e.g. all village elders in Kenya, all street children, etc.

Biggest ***limitation***/disadvantage of field observations is to ***achieve external*** validity, i.e. degree to which our findings can be generalised to other similar circumstances.

Advantages of non-reactive observations are that you get more valid information as there are no "false" answers. I.e. subjects not aware they are being observed.

Field observations are ***advantageous***, because researchers can study behaviour as expressions of deeper values and beliefs and subtle nuances of attitudes. SG. Pg 203

UNIT 8:DESCRIBING AND INTERPRETING QUANTITATIVE DATA Descriptive Statistics

Mechanical techniques used to see underlying patterns of data. Procedure used to organize, summarize and visualize quantitative data. Not conclusive of an argument.

Tables and Graphs

1. Frequency Distribution Tables

Frequency Distribution, Grouped Frequency Distribution and Cumulative Frequency

2. Percentages

Divide frequency by number of cases and multiply by 100. Cumulative Percentages

3. Graphic Presentation of Frequency Distributions

1. Bar Charts – X and Y-axis. Frequency distribution of categorical data (nominal level of measurement)
2. Histograms – X and Y-axis. Frequency distribution of successive scores or class intervals
3. Polygons – x and Y-axis. Frequency of class intervals is connected by straight lines. Assumes that all cases are concentrated at the midpoint of the interval. Histograms are uniformly distributed.
4. Pie Charts – represent categorical data

4. Skewness and Kurtosis

- Positively skewed (asymmetrical at the low end), Negatively skewed (asymmetrical at the high end) and Normal (symmetrical).
- Kurtosis = flatness/peakedness. Leptokurtic = more peaked, Platykurtic = flat distribution, Mesokurtic = symmetrical bell shape.

Measures of Central Tendency

Represents all the scores in a sample. 3 Measures:

1. Mode: Score which occurs the most often (greatest frequency). If they are two that are successive, you use the average of both. If not then there will be 2 ie Bimodal. Not a good indication of central tendency – useful for frequency (nominal data).
2. Median: Value or score that half the observations fall above it and half below it. Must arrange scores in ascending/descending order first. The Median falls right in the middle. Odd number of observations, the median will fall in the middle, even number – fall over 2 scores (use the average of those two). Mode and Median can be used for ordinal data, median is preferred because it takes into account frequency and rank order of scores.
3. Mean: Sum of the scores divided by the number of scores. Use the midpoint in grouped frequencies. Takes into account particular values and can be used for mathematical calculations. More accurate and stable. Scores that differ greatly may skew the mean and then the median is preferred.

Measures of Variability

The degree to which scores in a sample differ.

1. Range: simplest form. The difference between the highest and lowest scores. Calculated using only two scores.
2. Variance and Standard Deviation: Methods used where the variability is calculated by determining the degree to which each score differs or deviates from the mean. To determine variability you could add the deviation scores. You can get rid of positive and negative values by squaring them before adding them up. Variance is therefore a statistic in squared units. Calculate the square root in order to return to the original measurement unit.

Relationships

Where two or more variables exist there will be a relationship between them. A positive or direct relationship means relatively high scores on one variable are associated with relatively high scores on the other variable. An inverse or negative relationship means high scores on one variable and low scores on the other. The statistic used to describe the relationship between two variables is called the correlation coefficient. It can range in value from –1 (a perfect negative correlation) to +1 (a perfect positive correlation). Values close to 0 indicates a weak correlation and 0 indicates no correlation.. Size = strength. +/- is the direction.

STUDY UNIT 8 DESCRIBING AND INTERPRETING QUANTITATIVE DATA

INTRODUCTION

- Information often presented in form of numbers although non numerical data can also be represented in numerical form by coding or assigning certain numbers to the categories or a variable e.g. for male, mark 1 and for female mark 2 – this is a pre-coded questionnaire. Coding enables us transform raw data into a format that can be used for computer analysis.
- Quantitative is the same as numerical data

DESCRIPTIVE STATISTICS

- Procedures used to organise, summarise, visualise quantitative data are called descriptive statistics
- ***Descriptive statistics*** = mathematical techniques used to see underlying patterns of data.
- Can be used to support claims/arguments
- Must be verifiable by other researchers.
- Statistics used in popular literature, scientific articles.
- Not conclusive
- Can be abused.
- To stop abuse: clear how data and statistics based on these data have been obtained.
- Also contain sufficient information for other researchers to interpret the statistics and reach own conclusions. SG. Pg 211

Tables and graphs

- Procedures used to compile various descriptive statistics
- **Used to summarise data**

Frequency distribution graphs.

- Frequency distribution is a grouping of raw data
- **Frequency distribution** = table or graph indicating how observations are distributed.
- Frequency distribution table:
  - 1st column = ordered list of all possible scores/relevant categories
  - 2nd column = tally (strike through with the 5th mark)
  - 3rd column = total frequency, sum of frequency should = number of samples (SG pg. 213-214)
- **Grouped frequency table** = scores are grouped into so-called class intervals.
- **Grouped frequency table**: frequency distribution table with a limited number of categories.
- **Cumulative frequency** of a class interval is the number of cases in the specified interval plus all the cases in the previous intervals – the number of cases falling below the limit of the next interval

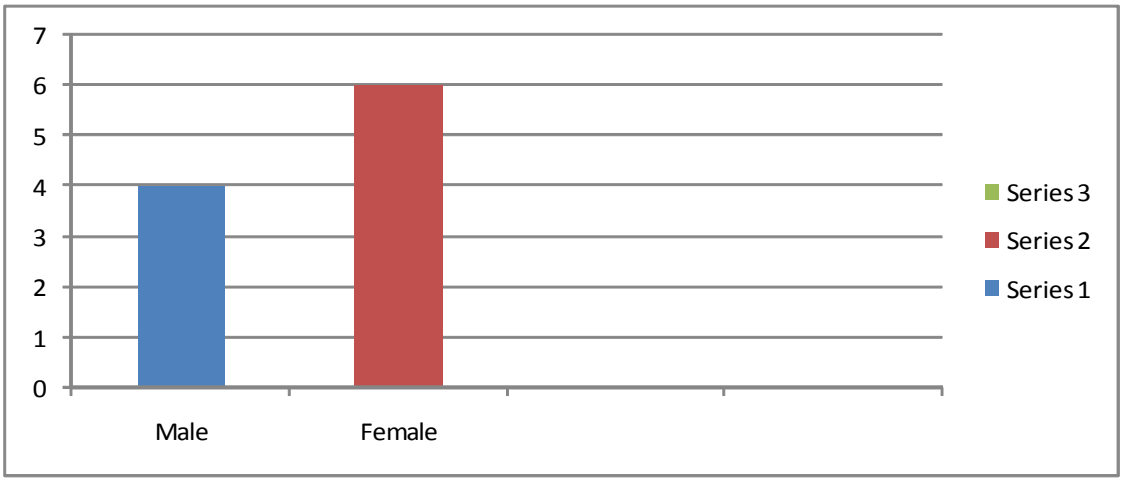
Percentages

A numerical figure out of 100 – 100% represents whole (SG. Pg. 215-216)

Graphic presentation of frequency distributions

- Graphic representations like pie charts, bar graph, etc
- Graphs make it easier to obtain the overall impression of the data – horizontal or x axis is called ***the abscissa*** and the vertical or Y axis is called the ***ordinate***
- Categories or scores go to the X axis while the number of scores (frequency) appears on the Y axis
- Data can be presented graphically
- Overall impression
- BAR CHARTS

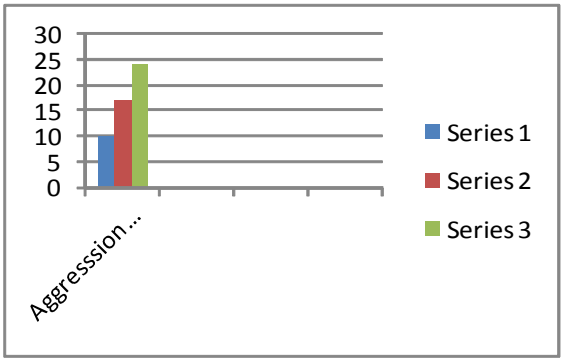
- Horizontal line = X axis/abscissa = categories/score values
- Vertical line = Y axix/ordinate = number of scores/frequencies
- BAR CHART = GRAPH REPRESENTING THE FREQUENCY DISTRIBUTION OF CATEGORICAL DATA.
- Reflects DISCRETE data



See SG. Pg. 217

Histogram

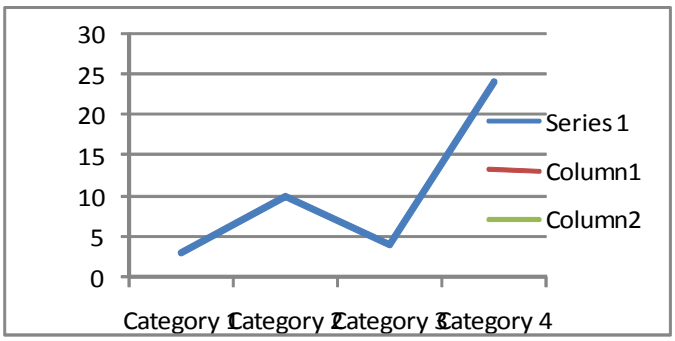
- Histogram = graph representing the frequency distribution of successive scores or class intervals
- Data is measured on a data/ration interval level
- Used for continuous data
- Scores/midpoint of each class interval are marked on the X axis, above which a bar is drawn
- Y axis is the figure for the frequency or number of cases for that particular score
- Bars represent successive scores or class intervals NO SPACE between them.
- The total of the frequencies (Y axis) is the number of cases in our sample.
- Assume class intervals evenly distributed over the range of the interval.



See SG. Pg 218

Polygon

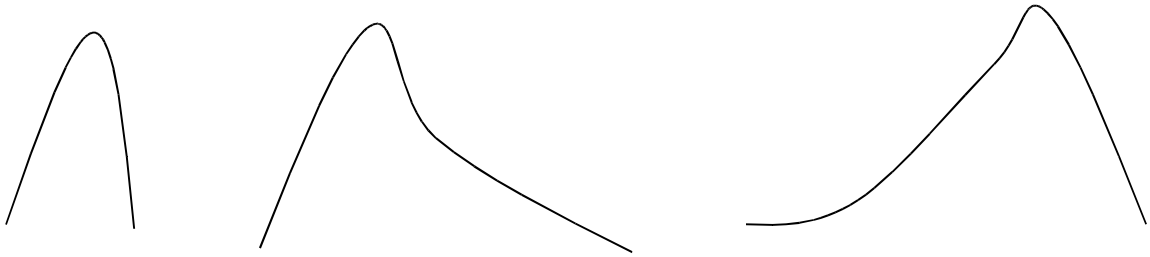
- Polygon = frequency polygon = graph in which the frequencies of class intervals are connected by straight lines.
- Marks joined with straight lines.
- Assume that cases are concentrated at the midpoint interval.
- Can accommodate more class intervals than the histogram



See SG. Pg. 219

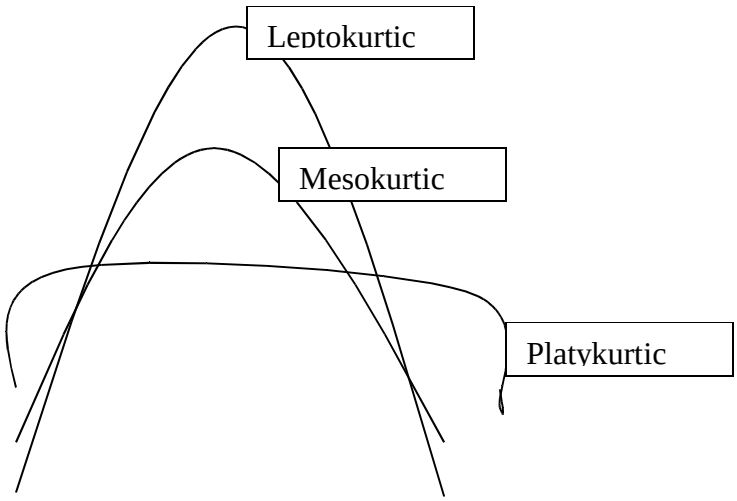
Skewness and kurtosis

- Distributions of data differ in ***central location, variation and skewness.***
- **SKEWNESS** = symmetry/asymmetry, i.e. Distribution on either side of peak.
- Symmetrical = same shape on both sides of midpoint.
- If larger frequencies focused on lower end (right) of the variable said to be ***positively*** skewed.
- If larger frequencies focused on the higher end of the variable said to be ***negatively*** skewed.
- Smooth curves used, especially in large populations.
-



NORMAL POSITIVELY SKEWED NEGATIVELY SKEWED

- **Kurtosis** = refers to the flatness or peakedness of the distribution.
  - Symmetrical, bell shaped distribution = ***mesokurtic***
  - More peaked distribution = ***leptokurtic***
  - Flatter distribution = ***platykurtic***



MEASURES OF CENTRAL TENDENCY

Used to determine which score or value is ***CENTRAL t***o the distribution and can be used to summarize ***entire distribution***.

- Score or value used to represent all scores in sample is called ***measure of central tendency.***
- Three measures of central tendency:
  - ***Mode: score*** *in a sample of scores* ***that occurs with the greatest*** *frequency****.***
  - ***Median****: value or score such that* ***half the observations fall above it and half fall below it.***
  - ***Mean- also called average:*** *sum of a sample of scores divided by the number of scores in the sample.*
- **Mode:**
  - If 2+ successive scores have highest frequency, then take average
  - If 2 values, not following each other, have highest frequency, then sample has two modes. = bimodal
  - Bimodal scores ***not good indicators of mode of central tendency***.
  - In grouped frequency distribution = mode = to the midpoint of the class interval with the highest frequency.
  - Mode is the only measure of central tendency that can meaningfully be used for **nominal data.** SG. Pg. 220
  - Only the frequency of occurrence of each category is taken into account when calculating the mode

- **Median:**
  - Arrange scores in ascending/descending order.
  - Median falls in the middle.
  - If uneven number easy.
  - If even number: median is average between the two scores between which the median falls. SG. Pg. 221, e.g. 22, 34, 37, 39 – then the median is the average of 34 + 37
  - Both **median and mode** can be used with ordinal data, median preferred because takes into account frequencies AND RANK order.
- **Mean**:
  - Is the arithmetic midpoint of the scores and represents all the scores in the sample.
  - To calculate:
    - Add all the scores
    - Divide by total number of scores in sample.
    - X refers to raw scores
    - N refers to number of scores in distribution
    - Mean formula = see pg 221 SG
  - Mean can be calculated by using frequency distribution
  - Done by multiplying each value of X by the number of times it occurs; these products are added together and divided by the total number of measurements.
    - SG. Pg. 222
  - All the values of the variable are used in the calculation of the mean, therefore more appropriate measure of central tendency for interval and ratio data.
  - Can be used in mathematical calculations, mode and median cannot.
  - More accurate and stable estimate of population
  - BUT if 2+ scores differ greatly from rest, will affect the mean, then median preferred
  - H=skewed distribution
  - The mean, median and mode of a symmetrical frequency will coincide.

All three measure of central tendency can be used in the case of interval and ration data- ***but the mean is usually chosen***

Measures of variability

- **Variability of scores** = the extent to which scores in a sample differ, that is, how spread out they are.
- **Range** = difference between the highest and the lowest. Range is the simplest measure of variability
- Disadvantage of the range of the distribution as a measure of variability is that it uses only 2 scores in the whole sample

- Another approach = determine the degree to which each score differs (deviates) from the mean of the sample.
- This can be used as an index of the variability of the scores in the sample.
- ***Measures of variability*** = ***variance*** and ***standard deviation***, based on above, i.e. average difference between each score and the mean is used to express the variability of a sample of scores.
- Mean is the index of central tendency that best represents the scores in the sample
- If we see how much each score differs from the mean, then we have an indication of the extent to which they differ from each other.
- Can therefore determine the variability by ***subtracting*** the mean of the sample from each raw score in the sample.
- The difference is called the ***deviation score***. Represented by x.
- This score indicates the extent to which each raw score deviates from the mean.
- To determine the variability could add u p the deviation scores but some of the will be minus and some will be plus – this means that the sum of deviations will be ZERO.
- A way to get rid of negative values is to ***square the deviations from the mean before we add them up.***
- The variance of a sample is calculated by:
    - Dividing up the sum of the squared deviation scores by the number of scores to obtain an average of the squared deviation scores.

Formula : SG. Pg. 223

- Note : the sum of the squares is divided by : n-1 NOT n
- ***Variance is a statistic in squared units***.
- Interpret the meaning of the variability of a set of scores in terms of the original units of measurement.
- Therefore calculate the square root of the variance and this is know s as the standard deviation of a sample of scores:

Formula: SG. Pg. 224

- ***Standard deviation***: index of variability that is expressed in the same units as the original measurement.
- Both variance and standard deviation indicate the average extent to which scores in a distribution differ from one another.
- Because standard deviation expressed in same units as original measure, researchers prefer it.

RELATIONSHIPS

All above pertains to single variable.

Now discuss relationship between two variables.

- If relationship between two variables, it means that the persons' position on one variable is related to his position on the other variable.

- ***Direct/positive relationship*** means: relatively high scores on one variable are associated with relatively high scores on the other variable; low scores on one variable associated with low scores on other variable.
- ***Inverse/negative relationship*** means: high scores on one variable associated with low scores on the other variable and vice versa.
- Statistical relationship between two variables is the CORRELATION.
- Statistic used to describe this called CORRELATION COEFFICIENT.
- Can range from -1,00 to +1,00
- Value close to 0 = weak relationship.
- 0 means no relationship
- Numerical size of a correlation coefficient indicates the strength of the relationship.
- Sign + or – indicates the direction of the relationship.
- Positive correlation means that an increase in one variable is associated with an increase in the other.
- A correlation between two variables does not necessarily mean that one variable causes the other.

CONCLUSION

- Two types of statistical methods:
    - **Descriptive** used to:
        - Organise
        - Summarise
        - Visualise the data
    - **Inferential**
        - Tables, graphs and calculation of a single representative number make data easier to understand and helps identify underlying patterns.
        - Use evidence in sample to make generalisations/inferences about the population.

UNIT 9: ANALYSING AND INTERPRETING QUALITATIVE DATA

Describing Qualitative Data

[Quantitative: Enumerated, structured, systematic, formal causal regularities, worked deductively, tend to be Nomothetic (Natural Sciences), linked to positivism, linear, uses reconstructed logic]. Qualitative: Idiographic (Humanities), subjective experience, meaningfulness, linked to interpretivism, uses words, intuitive, in-depth inquiry, detailed description, field work, open questions, unstructured interviews, defocus, general to specific, more flexible, close engagement with research subjects, data used inductively, non-sequential, cyclical process – logic in practise etc.

1. 6 Characteristics in Research that Yield Qualitative Data

Social context, everyday events, one/few cases, uses grounded theory (constructs theory inductively on the basis of the data provided), meaningfulness, integrity crucial

Recording Qualitative Data

Text-based: unstructured, nonquatitative, open. 5 Types:

1. Jotted Notes: briefly, memory joggers, circumstances don't allow detailed notes
2. Direct Observation Notes: comprehensive, detailed, provide raw data for the report. Must be complete and accurate.
3. Research Inference Notes: Conclusions drawn by the researcher. New concepts and connections, Records researcher understanding development. Separation from Direct Notes prevents premature closure.
4. Analytic Notes: Contain methodological instructions/theoretical reflections. Key role in moving the research from the descriptive stage to the analysis stage.
5. Personal Notes: Researchers feelings and subjective impressions – reflective and invaluable.

Unstructured Interviews yield similar notes (transcription = direct observation notes)

Analysing Qualitative Data

Requires rigour and coding. Label = most basic. Indexing (cross-sectional or non). Grouping concepts. Open-coding (makes allowance for the development and refinement of categories). Axial coding (refining of patterns). Selective Coding (links a core category to a number of related ones). Cross-Sectional Coding (compare specific themes from the data set/s). Non-Cross-Sectional Coding (one specific/unique case)

Interpreting Qualitative Data

Successive Approximation: Refining the interpretation each time the data is reworked – gradual process.
No set procedures. Must rely on Data Saturation. Description on its own answers the "what" and "how", also need interpretation to answer the "why". This involves Abstraction (drawing inferences/mental images from the data). Researcher also tries to give explanations of the process by building an analytic framework. It must show that alternative explanations were considered, revised and modified in order to be credible. Data must be of good quality (can be undermined by misinformation, evasions, lies and fronts – close contact helps, but does not ensure validity). Analytic Comparison = constantly comparing across the data set for disconfirming evidence.

Using Computers

5 Programs assist storage and analysis of data:

1. Word Processing Packages: text-based, rudimentary manipulation
2. Text Retriever Systems: Boolean searches – searches for key concepts and enables researchers to determine co-occurrences
3. Relational Database Management Systems: Manage text – often a matrix. Requires more structured data and therefore does not suit the needs of many qualitative researchers.
4. Code and Retriever Software: Especially tailored for qualitative research. Allows for revision and development in coding, more flexible. Keywords are attached to meaningful chunks of data and then retrieved by using codes or combinations of codes.
5. Theory and Network Builders: Most ambitious program for qualitative analysis. Purpose is to develop higher order classification systems at a conceptual level. Meta-concepts and meta-codes are built and networks of nodes and links identified.

Benefits: higher accuracy in coding, improved data retrieval, more systematic, easier access to codes and text, better manipulation of data, quicker reproduction, ability to manage larger volumes (but only a tool – cannot fix poor quality data)

Criticisms: Qualitative research is a craft and cannot be mechanized. Leads to a shallow understanding when not considered in a broader context. Not sensitive to the constructed nature of the data.)

STUDY UNIT 9
ANALYSING AND INTERPRETING QUALITATIVE DATA

INTRODUCTION

Analysis = the process of using specific procedures to work through data collected.
Interpretation = the process of making sense of the data analysed.

Qualitative data = information expressed non-numerically in words, pictures or diagrams.

DESCRIBING QUALITATIVE DATA

- ***Nomothetic*** = verifying universal patterns.
- ***Idiographic*** = specifying unique characteristics
- ***Enumerated*** = expressed in numbers.
- ***Formalised*** = following set conventions and procedures.
- Choice between quantitative and qualitative data influenced by particular assumptions about the nature of reality (ontology) and nature of knowledge (epistemology).
- Choice of explanation most crucial decision in research.
- Research that gives us quantitative data is linked to positivism while qualitative data is linked to interpretivism
- Qualitative data can be nomothetic or idiographic
- Quantitative data often used to confirm causal regularities.
- Qualitative researcher does not have to decide between nomothetic and idiographic explanation
- Definitive characteristic of qualitative data is ***use of words***
- For qualitative researchers: knowing about social reality is rooted in understanding which comes from shared meaning generated by experiencing social reality.
- Qualitative data emphasis is on intuitive and feeling related (subjective) dimension of qualitative
- Qualitative data is generated by an in-depth inquiry that gives us detailed descriptions
- Qualitative research – knowledge in social reality is rooted in understanding which flows from shared meaning generated by experiencing social reality.
- Field research, unstructured interviews and open question used
- ***Defocusing*** - being open-ended and receptive
- ***Rapport*** – forging a friendly relationship
- ***Unstructured methods:*** = methods lacking predetermined prescriptions and specific guidelines on what to collect information about.
- Qualitative research more flexible, less structured
- Researcher play active role = close engagement
- Flexibility of design, unstructured behavioural methods
- Primary aim = get 1st hand experience
- Data captures character of naturally occurring human behaviour.
- The unique aspect is emphasised = idiographic explanation
- Use of inductively build theory by:
    - Developing concepts to describe happenings in context

        - They are linked to each other = theory based
- Neuman – 6 characteristics that yield qualitative data:
    - ***Social context –*** *develop an understanding of events/action – contextual info gives better understanding*
    - ***Process and sequence of everyday*** events = understand how events unfold
    - ***Case study*** because 1 or few get holistic view
    - ***Grounded theory*** = research process open
    - ***Interpretation*** = expose meaningfulness of situation, provide coherent synthesis – giving subjective experiences a voice
        - 1st order interpretations = personal
        - 2nd order interpretations = outsiders'/researchers' understanding
    - ***Integrity*** of researcher relies on clients' direct quotes.
- ***Grounded theory*** = an approach that constructs theory inductively on the basis of the data provided.
- ***Third- order interpretation*** = determining the general theoretical significance of data
- ***First – order interpretation*** = participants' or respondents' own narratives or responses
- ***Second – order interpretation*** = outsiders' or researchers' understanding.
- ***Reconstructed logic*** = used by quantitative researchers - a research process formally planned in terms of a number of sequential steps.
- ***Qualitative research -*** is usually non-sequential
- ***Logic in practice*** = a flexible research process with recurring and overlapping steps.

Recording qualitative data

Participation and observation enable subjective experience of situation through watching and listening, unstructured interviews, etc

- Primary information storage for qualitative data is text based
- ***Non-quantitative*** = not expressed in numbers.
- Primary storage format is text-based.
- ***Neuman*** = 5 types of field notes for analysis, interpretation and write-up of data:
    - ***Jotted notes*** – brief/memory jogger notes
    - ***Direct observation*** – comprehensive notes – provide descriptive details, provide substantive content/ raw data for research report
    - ***Research inference*** – conclusions of researcher from data, new concepts developed and connections between the concepts – provides a picture of how process has developed
    - ***Analytical notes*** – written at any stage in the research process; contain methodological instructions (methodological notes focus on the collection and management of data) or theoretical reflections. Includes ideas, hunches, leads and plausible connections. Contents play a key role in the organisation of new theory
    - ***Personal notes*** – personal feelings, thoughts. Contain reflective account of research and are used to assess it.

Unstructured interviews differ from field research but are often recorded and video taped and transcribed for analysis

Transcription of interview gives substantive content same as direct observation notes in field research – transcription = direct observation notes

Analysing qualitative data

- ***Coding*** = assigning or grouping segments of data together (label all text based data and supplementary forms of data collected). Data collection and purpose of research are determining factors in design of the coding scheme
- ***Data set*** = a collection of all the data obtained in a study
- ***Cross-sectional*** = using coding categories uniformly across a data set.
- Order/structure
    - Similar to library catalogue
- Data set
    - 1st label all text-based and supplementary data

- Qualitative coding is the process of conceptualising data.
- Researcher has to develop categories and assign data to them
- Coding facilitates understanding as it suggests a way for data to be organized
- Maintaining contextual meaning is CRUCIAL

- Qualitative analysis emphasises meaning in the social context
- Everyday concepts are insightful
- Concepts are developed by grouping similar meanings together
- Organising qualitative data means looking for ideas, actions or events that describe the data
- These concepts are used as codes
- Concepts are found by finding main themes
- Indexing identifies essence of content

Grouping labelled chunks of data:

- Condenses it
- More manageable
- Can then link items
- ***Open coding*** = makes allowances for development and refinement of categories used.
- ***Inclusive coding*** = includes all relevant data when data retrieved.
- Categories analytically logical and can be used cross-sectionally
- Grounded (grounded means emerging from reality) categories emerge from categories tested against data from context studied
- Coding focuses research

- Coding intimately linked to analysis
- Cyclical movement between data collection and analysis is continual and concurrent -not linear
- ***Axial coding*** = data is combined and connection between categories is explored

- ***Selective coding*** = number of related categories are linked to the core category. Essential for developing new theories. Data on social reality is arranged in a framework of concepts which give an

understanding of what it going on. Selective coding is grounded because it evolves from a particular setting

- ***Cross-sectional coding*** = compares specific themes from items in a data set/s
- ***Non-cross-sectional coding*** = study particular case, emphasizes uniqueness of a particular case.

- ***Axial coding*** = subsequent refining of categories
- ***Non-cross-sectional coding*** = coding that is specific to a data item

Interpreting qualitative data

Organising and collecting data occurs concurrently and is cyclical
Interpretation is immediate but refined at each stage
Interpretation is reflecting the possible meaning of the data, exploring themes and hunches. Process of interpretation intensifies after researcher has collected data

- ***Successive – approximation*** = refining concepts and interpretations by reviewing the data set.
- ***Saturation*** = when nothing new can be learned from collecting more data
- ***Abstraction*** = forming a mental image by identifying common qualities – drawing general inferences from data
- ***Analytic comparison*** = comparing data and actively seeking exceptions to refine and test an explanation. Comparing across the data ser and searching for negative and disconfirming evidence

- ***Interpretation*** = reflecting on possible meaning of data
- Exploring particular themes
- Ensuring adequate data collected to support researchers' interpretation
- This called ***successive approximation***.
- Process of interpreting intensifies once the researcher has collected his data.
- Always some work to do
- Only ends with data saturation i.e. subsequent data collection simply reconfirms the researchers' current knowledge. SG. Pg. 247.

- ***Central concern*** = description of the setting is a faithful representation of the context studies.
- Description close to raw data = still selective because it identifies KEY elements.
- Premise that materials 'speak for themselves' questionable.
- Research cannot simply be anecdotal.
- Data has to be reflected upon (interpreted)
- Interpreting data is an example of reflection

- **Description** is necessary for interpretation
- ***Description*** = how and why questions
- ***Interpretation*** = answer why
- ***Abstraction*** = inferences drawn

- Explanations must be credible

- Done by demonstrating alternative explanations considered
- Identify exceptions and contrary evidence.
- Process is constantly comparing across the data set and searching for "negative or disconfirming evidence" is known as ***analytic comparison***. SG. Pg. 247

- Check data is of good quality. i.e. True.

Using computers

In qualitative research computers are used to categorise data by isolating segments of the text then analysing them

- Boolean searches = relying on logical operators such as "and", "or", "not"
- Matrix = a grid in which data is placed.

- Classification of computer programs:
  - ***Word processing*** packages = text-based data, very elementary
  - ***Text retriever*** systems = search key concepts
    - BOOLEAN SEARCH
    - Tries determine co-occurrences – e.g. where two things occur, e.g. women and violence, children and disease, etc
  - ***Relational database management*** systems = managing the text
    - Organised in a ***matrix***
    - Rows = cases
    - Columns = fields, categories
    - Link one data set to another
    - But must have one common element
    - Data has to be standardised and formalised
    - Therefore not ideal for qualitative research

- ***Code and retrieve software*** = specially tailored for qualitative researchers
  - Flexible
  - Allows writing of inference and analytic notes and uses these programs to move between notes and data
  - Allows revision and development in coding
  - Advanced versions automise changes to the coding scheme and keep record of how coding scheme evolved.
  - Keywords are attached to chunks of data
  - Then retrieved by using the codes or a combination of these codes

- ***Theory and network builders*** = most ambitious
    - Develop more complete representation of the connections between categories of data
    - Purpose = develop higher-order classification systems at a conceptual level.
    - Meta=concepts and meta-codes are built and networks of nodes and links identified.

Specific benefits are:

- Higher accuracy in coding
- Improved data retrieval
- More systematic organisation of data
- Easier access to codes and text-data for comparison purposes
- Better manipulation of data
- Quicker reproduction of data
- Ability to manage larger volumes of data
- Conduct more complex analyses of this data

Criticisms:

- Qualitative data = craft, can't automate
- Can lead to shallow understanding
- Danger that research rely too much on computer programmes' settings

Conclusion

- Qualitative data = tends to enhance data
- Qualitative data is interpretative
- Quantitative data = tends to condense data to reveal general patterns.

UNIT 10 WRITING AND EVALUATING RESEARCH REPORTS

Functions and Characteristics of a Research Report

3 Functions: Communicates data to an audience, contributes to the general body of scientific knowledge and stimulates and directs further inquiry. 2 Requirements: Reporting and Accuracy (parallels scientific and ethical norms, esp. sharing and honesty). Characteristics: a record, a summary (need to be selective), in quantitative research you must include enough for replication by others. Researcher is responsible for archiving the data.

6 Types of Reports

1. Written Assignments: Follow various steps, but not too detailed
2. Presentation: Usually oral (seminar/conference). 10-15 minutes. Findings most important. Use visual aids and graphics to sharply focus conclusions. Method not too important. Q and A sessions afterwards. Often expected to make hard copies.
3. Journal Articles: Succinct. Raw data not normally included. Economise and eliminate. Editors often have formats that must be adhered to. Audience is your peers. Theory, method and techniques of analysis and interpretation are important.

4. Commissioned Research: Normally applied research – policy, evaluating current practices and resolving problems in the workplace. Suggestions should be given at the end. Use simpler terms. Exclude sampling, method, lit. review (can appendix if need be). Begin with an executive summary. Can be given verbally.
5. Dissertation and Thesis: Post-grad studies. Demonstrate research skills. Provide as much detail as possible on research process, research design, method of interpretation and format of the report. Thesis is a higher level of complexity than a dissertation. Often the longest report.
6. Mass Media: Short, basic facts. Omit collection, measurement and lit. review. Emphasis on findings. Don't use jargon. Include what is most interesting to a wider audience. Can use graphics. Apply journalistic principles

Organisation of Report

Preparing a report should parallel the research work and is done at the same time, and although it is the last stage of the research process, it includes all the preceding ones. Intro and Conclusion = last impressions. Body = planning, structuring and process of your research. 4 Broad areas should be included in your report:

1. Defining the Problem: Research Problem (drives the research) and The Literature Review (conceptual framework and establishes boundaries)
2. Obtaining the Information: Data Gathering (sampling), Method (data collection and measuring instruments), Reliability and Validity
3. Analysing and Interpreting the Information: Results (description of your analysis and description of findings) and Interpretation (analytical) and Discussion (deep understanding: summarise the main findings, discuss the implications of your interpretation, report any limitations and make suggestions for future research)
4. Making Known the Results: a) Introduction (state the problem – aims/concepts defined, explain and justify the theoretical framework, justify the research (crucial theoretical issues, practical values, methodological values) and indicate the aim of the research), b) Conclusion (make it clear something has been said. Include a summary of findings and any recommendations (applied research)) and c) The Abstract (short summary 100-150 words in journal/thesis, published in abstract databases eg Dissertations Abstract which makes your work accessible to other researchers)

Technicalities

Good report requires good English. Formal style of writing (avoid abbreviations, slang, contractions etc). Write in the 3rd person. Don't vary tenses unnecessarily. Methods, results, descriptions = past tense. Format depends on the purpose (may need to comply with certain conventions). Be parsimonious (use no more words than is strictly needed). Plug identifies 5 stylistic characteristics of good scientific writing:

1. Write systematically (outline)
2. Write clearly (avoid ambiguities)
3. Write precisely (avoid repetition, use words accurately)
4. Write directly and simply (balance long and short sentences)
5. Write concisely (focus, don't ramble)

Other aspects that should not be ignored are: layout, quotations, summaries, bibliographies, grammar, spelling, gender-inclusive language

Evaluating a Report

Done by a panel of referees who reject or publish your work. Keeps high standards. Often make recommendations for alterations. Normally anonymous and look at the following:

- Definition of the Problem: Is the title clear? Appropriate? Does the intro fulfill its purpose? Is it limited in length? Is the research problem clearly stated? Etc. etc.
- Obtaining the Information: Are the methods described in enough detail? Rationale for the method given? Appropriate method used? Are variables operationally defined? Etc. etc.

- Analysing and Interpreting the Information: Is the data depicted accurately? Is it executed correctly? Have alternative interpretations been considered? Are the conclusions valid and important? Etc. etc.
- Technicalities: Is the report organised logically? Style conventions followed? Length acceptable? Abstract accurate? Figures and tables clear? Punctuation? Spelling? Bibliography? Etc. etc.)

STUDY UNIT 10 WRITING AND EVALUATING RESEARCH REPORTS

Introduction

- Main research goal = make work known to others
- In this study unit discuss:
    - Functions and characteristics of a research report
    - Different types of reports
    - Organisation of a research report
    - Briefly look at technicalities
    - Guidelines on evaluating a research report.

Functions and characteristics of a research report

- Main goal of preparing a research report is to make your work known to others
- Babbie (1992) –
- 3 primary functions of a research report:
    - Communicates scientific data and ideas to an audience
    - Contributes to the general body of scientific knowledge
    - Stimulates and directs further inquiry.
- Research report must report accurately
- How much reported depends on nature of research
- Structure report so readers know what, how and why you did research
- Research report is a record, and a summary of findings
- Provide sufficient info to allow your research to be replicated/repeated
- Put in report argument and reasons supporting finding
- If ***quantitative*** –
    - Need enough info to replicate
    - Must be reliable, valid and objective
- Archive
- Report = concrete way of putting forward arguments and reasons (empirical and theoretical) to support findings.

6 types of research reports

- Wimmer and Dominick (1994)
- First step - ***clearly identify audience***.
- ***Types of research reports***
    - **Written assignments**

- academic career

- **Presentations**
  - Oral at seminar/conference
  - findings important aspect of presentation
  - audio-visual aids, graphic formats
  - not necessary to discuss methods
  - followed by question and answer session
  - distribute hard copies afterwards

- **Journal Articles**
  - Research mainstay of academic journals
  - Key – write succinctly (brief, to the point)
  - Make short and compact
  - Reason – time and expense
  - Raw data not included
  - Information should be accurate, easy to find, relevant and comprehensive
  - If submit to academic journal check format.
  - Format is laid down by editor – must conform

- **Commissioned research**
  - Applied – practical problem needs to be solved.
  - Agency or organisation commission research
  - Not limited to policy – used to evaluate current practices and resolving problems in workplace.
  - Need to offer suggestions after research completed
  - Usually in-house for management, there simpler terms
  - Exclude details about sampling, methodology and literature review
  - Begin with executive summary of key findings and recommendations of research
  - Presentation is more flexible than other types of research reports

- **The dissertation and the thesis**
  - Post-graduate studies
  - ***Dissertation*** – demonstrates research skills and proves that can successfully undertake research independently
  - ***Thesis*** –
    - Expected to make significant contribution to knowledge of subject
    - Strong emphasis on as much details as possible
    - Give details of:
      - Precise nature of the research process (eg. Literature review)

- Research design (e.g. Sampling, methods used for data collection
- Method of interpretation used
- Format of the report

- Thesis higher level than dissertation

- Dissertation and thesis longest type of report because of need for detail

- **Mass media**
  - For general public
  - After more specialised reports published.
  - Give most basic facts, e.g. Size/nature of sample, possible margins of error
  - Make interesting to public
  - Use journalistic principles
  - Avoid jargon
  - Data collection techniques, measurement techniques literature review omitted.

ORGANISATION OF A REPORT

- Done at same time as research
- Four distinct stages:
  - Definition of the problem
  - Obtaining information
  - Analysing and interpreting this information
  - Making known the results.
- First step is to identify your intended audience.
  This influences type of report written.
  This also influences the format, style and organisation of your report
- Effective introduction and well-written conclusion very important

- Body is for developing research argument - describe planning, structuring and process of your research.

- ***Four broad areas that should be included:***
  - Defining the problem
  - Obtaining the information
  - Analysing and interpreting the information
  - Making known the results.

Stage 1 - Defining the problem

- ***The research problem***
  - Drives the whole process
  - Description of problem very important
  - Core concepts need to be clearly defined and explained

- ***The literature review***
  - Summarises work already done in that field
  - Establishes boundaries for your work
  - Helps design research plan
  - Wimmer and Dominick (1994) two important aspects to consider when writing literature review:
    - ***Accuracy*** = careful, precise report of different studies for your review
    - ***Relevance*** = discuss relevance of previous studies to the study at hand.

Stage 2 - obtaining the information

- ***Data gathering***
  - Sample
  - Sample size – includes how you selected your sample
  - Sample characteristics = description of sample in terms of demographics, lifestyle, other identifying characteristics
  - Mention representativeness of sample and events that could influence the drawing of that sample

- ***Method***
  - How research was undertaken
  - Intended audience determines amount of detail
  - Logical order, describe your method in same order as you actually did research
  - Refer to data collection and measuring instruments. E.g. Questionnaire

- ***Reliability and validity***
  - Depends on report:
    - Journal article – 1-2 sentences
    - Dissertation/thesis – more detail (in an appendix)
    - Newspaper report – exclude – general public don't understand

Stage 3 - analysing and interpreting the information

- **Results**
  - Research findings
  - Three elements to consider
    - ***Illustrating your findings***
      - Charts, tables, figures, graphics use sparingly if for journal.
      - If for commissioned research then appropriate
    - ***Description of your analysis***

- Quantitative research = mention statistical method.

- ***Description of findings***
  - Must relate directly to your initial problem
  - Also to your research questions/hypothesis
  - Need to ask self if findings confirm your hypothesis and answer research questions.

- **Interpretation and discussion**
- Always include interpretation and discussion
  - ***Interpretation*** = "an analytical process in which you examine your research in order to develop a conceptual understanding of it" SG.pg 264
  - ***Discussion*** = "moves beyond interpretation and provides a deeper understanding of the data gathered in relation to the supporting theory, research problem, hypothesis or research questions and explains what has emerged from your research." SG pg. 264
  - Discussion can link interpretation to conclusion to make a cohesive whole
  - Main objective of this part of report is to consolidate your research.
  - Need to :
    - reflect back on what you did
    - re-examine data you gathered in research process
  - have to explain concisely what the results of research mean without repeating self
  - need to be selective and select most appropriate examples to illustrate interpretations
  - Wimmer and Dominick (1994) say 4 following elements should feature in discussion:
    - Summarise main findings
    - Implications
    - Limitations and practical problems
    - Suggestions for future research

Stage 4 - making known the results

- **The introduction**
  - Forms part of fourth and final stage of research process
  - Function – lead reader into report
  - State outline, goals and particular point of view about research
  - Wimmer and Dominick (1994) three aspects found in report:
    - **State the problem**
    - **Explain the theoretical framework that you used to explain your findings**
    - **Justify the research**
    - **Indicate the aim of the research** SG. Pg. 265

- The introduction briefly indicates what can be expected in the body of the report – intro is the most difficult part of the report and best done once you've composed the body

- **The conclusion**
  - Research report should end not just stop
  - Make it clear you said something important
  - Brief summary of your essential findings

- **The abstract**
  - If intended for academic journal, dissertation, thesis must provide short summary (150-500 words) highlighting key points in research work.
  - Abstracts are published in databases, e.g. *Dissertations abstracts*, useful for making your work accessible to other researchers.

Technicalities

- Most important = ***good English/language***
- Formal style of writing
- 3rd person
- Stick to a tense
- Format depends on purpose of report
- Ultimate length also depends on certain factors, e.g. Line spacing, etc.
- **Conventions** = a general agreement regarding certain rules

Use of tenses in a research report		
Present tense	Describing accepted knowledge	"public service broadcasting is in a crisis."
Present tense	Referring to information in your paper	"the results are summarized i table 1"
Present tense	Discussing findings and conclusions	"these findings imply ...."
Present perfect tense	Describing events that have occurred over an unspecified period of time in the past up to the present	"several researchers have evaluated this model."
Past tense	Describing events that occurred at a specific time in the past	"collins (1994) analyzed the content..."
Past tense	Describing your methods and your	"the content was coded into twelve

	results	categories." Category a had a score of 27%"

- Plug (1993) identifies five stylistic characteristics for good scientific writing:
  - Write *systematically – logical flow*
  - Write *clearly- avoid ambiguities*
  - Write *precisely- clearly define concepts*
  - Write *DIRECTLY and SIMPLY*
  - Write *concisely – feeo focused*
- Be *parsimonious*
- ***Parsimony** = using no more than is strictly needed.*
- Other aspects not for this course SG. Pg 270-271

Evaluating a report

- **Definition of the problem**
- Is the **title** clear and appropriate?
- Does the **introduction** establish the **purpose** of the research?
- Does the introduction **justify the need** for the research?
- Does the **introduction outline** what is **to follow** in the report?
- Is the **introduction limited** in length?
- Is the **research problem clearly stated**?
- Are research **questions and/or hypotheses given**?
- Are the hypotheses **clear, testable and specific**?
- Does the **literature review** critique **relevant previous studies**?
- Is **relevant knowledge** presented in the **literature review**?
- Has the researcher **adequately discussed relevant literature**?
- Does the research **identify gaps in knowledge**?
- Are the **theoretical aspects** of the research work clearly described?
- Does the **theory fit the study**?
- Have **key constructs** been **identified** in the literature review?
- Does the **research build** on that discussed in the **literature review**?
- Is there **evidence** that the **research** was **properly planned**?
- Are **key concepts clearly explained**?

Obtaining the information

- Are the **methods** described in enough **detail to allow replication**?
- Is a **rationale** given **for** the **methods** selected?
- Is the **research design appropriate** for resolving the research problem?
- Are **variables operationally defined**?
- Is the **sampling procedure described**?
- Is the **sample size adequate**?
- Is the **sample representative** of the defined population?
- Is the **reliability** of the study clearly **explained**?
- Was any **form of validity established**?
- Is this **validity adequate**?

Analyzing and interpreting the information

- Is the **data depicted accurately**?

- Is the **data analysis appropriate** and **correctly executed**?
- Have **alternative interpretations** of **findings** been **considered**?
- Is the **discussion of the findings relevant** to the **problem** being investigated?
- Are the **findings explained in terms of any particular theory**?
- Is this **theory adequate for explaining the findings**?
- Are the **conclusions valid and important**?
- Does the **conclusion correlate with the introduction**?

Technicalities

- Is the **report** organised **logically**?
- Does the report **comply** with the **style conventions** for this **type** of **report**?
- Is the **length** of the report **acceptable**?
- Is the **abstract** an **accurate reflection** of the research?
- Are **tables and figures clear and understandable**?
- Is the **statistical test appropriate** for the type of data collected?
- Is the use of **punctuation** correct?
- Are all **quotations suitable** and **correctly acknowledged**?
- Are **sources correctly referenced**?
- Is there a **bibliography**?
- Are the **words and jargon** used **appropriate**?
- Does the report contain **grammatical** error?
- Are there **spelling** mistakes
- Can't pass judgment on an evaluation,
- Language of report important, i.e. how it is written

CONCLUSION

- Looked at characteristics of research report
- Looked at 6 different types of research report
- Looked at different formats for each
- Explained that these formats depend on audience, purpose and complexity of research concerned
- Conclude with why it is important to have research report evaluated, and how to evaluate a research report.
- Publishing concludes research process but public nature of report lets it be continually discussed and argued.