



Research Methods 1 Notes

Research Methods 1 (Katholieke Universiteit Leuven)

Research Methods 1 Exam Notes

Exam

- APA structure will be quizzed in the exam.
- Definitions won't be quizzed – rather the fundamental concepts.
- A series of questions
- There will be a paper and there will be questions on the paper
 - How to read the paper
 - What to figure out from the paper
- Looking at papers:
 - Explanatory, exploratory or descriptive
 - What was the paper about
 - What part of the course does it relate to
 - What are its limitations
- Questions
 - What are the limitations of the research
 - What didn't work

Lecture 1 - Introduction

- **Research:** the gathering of data, information and facts for the advancement of knowledge

Business Research

- **Business research** – establishing objectives and gathering relevant information to obtain the answer to a business issue
 - Shows patterns and direction
 - Create insights
 - Test concepts
 - Foster innovations
- Must create a problem definition and decision statement
- A decision statement expresses the critical question(s) the research must answer
- Problem definition has various steps
 - Understanding business issue and key elements
 - Identifying the problems caused by the issue
 - Writing the decision statement
 - Determining the unit of analysis and research variables
 - Writing the research questions or hypotheses
- Understand the business issue
 - What is the problem?
 - How could I view the problem?
 - What do I want to find out?
 - Once I find an answer, how do I proceed?

Differences between commercial and academic research

- **Academic research** is independent and is driven by curiosity to discover more
 - Doesn't focus on one thing but allows results to surface naturally
 - Results are more likely to become shared and public knowledge
 - Often lacks sufficient resources

- Small sample size
- **Commercial research** is focused and has a more specified aim
 - Done to further explore gaps in an industry or business and make improvements
 - Results are often sold or done for a client
 - Often has sufficient resources
 - Larger sample size

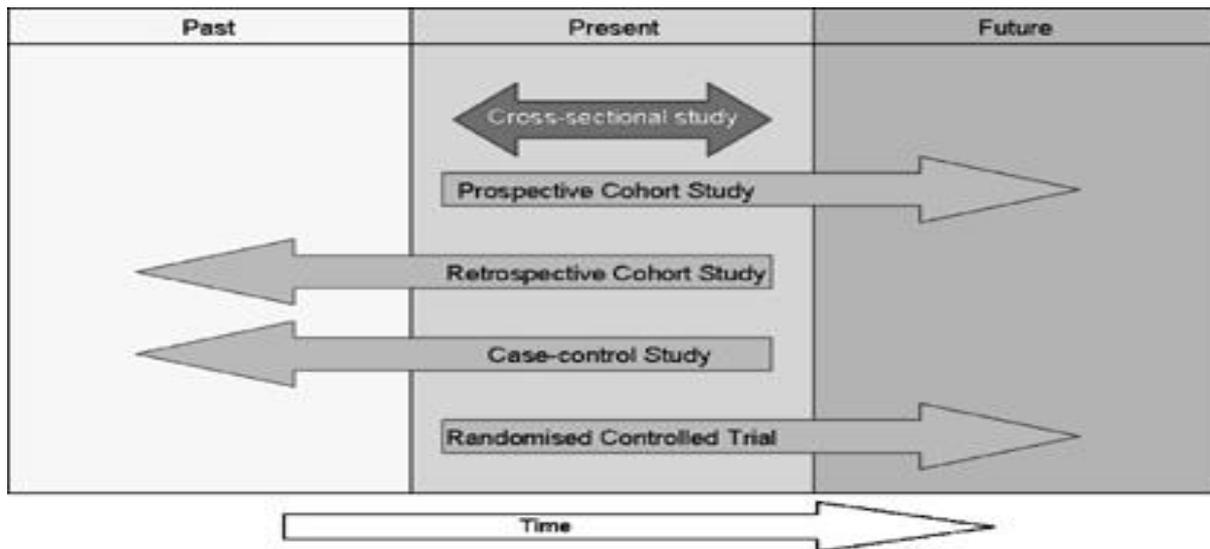
Differences between basic (fundamental) and applied research

- **Basic/fundamental research**
 - Fundamental research is not looking to solve a problem but rather to advance research in that area.
 - A systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena
 - Executed without thought of a practical end goal, without specific applications or products in mind.
- **Applied research**
 - A form of systematic inquiry involving the practical application of science.
 - Accesses and uses some part of the research communities' accumulated theories, knowledge, methods, and techniques, for a specific, often state-, business-, or client-driven purpose.

First part of the process of business research

- Problem description (research idea)
- General focus research question
- Detailed research question
- Research objectives (envisaged outcomes)
- Research design
- Literature review

Lecture 2 – Space/Time



- How we look at a problem – at a specific moment in time or over a wider time period

Cross-sectional studies

- Collection of data at one point in time
- Best for **exploratory** and **descriptive** studies
 - Example: National Census to discover citizens' primary concern
- Pros
 - Cost-efficient
 - Fewer logistic problems
- Cons
 - Tries to understand causal processes based on observations at one point in time

Longitudinal studies

- Designed to allow observations over a period of time
- Different types
 - **Trend**
 - **Cohort**
 - **Panel**
- Pros
 - Better for testing causal processes
 - Allow for more in-depth understanding of behaviour
- Cons
 - Expensive
 - Logistically more complicated and time consuming
 - Attrition (losing respondents)

Cohort study

- Concerned with charting the development of groups from a particular time point
- Age cohort - defined by an age group
 - E.G. Youth Cohort Study of Belgium 18-25 years old
- Birth cohorts – people born at a certain time
 - E.G. 1947, 1958 & 1970 birth cohorts; Millennials

Types of longitudinal studies

- **Trend** studies
 - Samples different groups of people at different points in time from the **same population** – e.g. before and 1 year after an election
- **Cohort** studies
 - Examine more specific populations as they change over time
 - E.G. Cohorts – a group of people who enter or leave an institution at the same time
 - Examining job placement success of KU Leuven graduates by the year they graduated
- **Panel** studies
 - Same set of people are interviewed two or more times over time
 - E.G. Nielsen

Comparison of Longitudinal Studies

Research topic: arrests for burglary

- Trend study: Examine shifts in burglary arrests during this time
- Cohort study: Select a group of individuals entering/leaving institution at the same time & follow over time
- Panel study: select a group of individuals and ask them questions 2+ times over time

Direction in studies

- **Retrospective** research: asks respondents to recall their past
 - Potential problems
 - Poor memory
 - Lying
 - Unavailable or incomplete records
 - Looking backward has limitations
- **Prospective** research:
 - Being with sample and follow their behaviour into the future
- Can be used within a cross-sectional framework
- Sample selection differs and plays a critical role in each approach

Choosing a study type

- Does your research question imply time?
- Can you use a snapshot of data to answer your question? Or do you need to assess your question over a period of time?
- If time is implied – is it more appropriate to look backward or forwards?
- Ultimate selection will be completed once your research design is selected (experimental or non-experimental)

Identifying a target population

- Who is the focus of your study?
- What are the characteristics that define the boundaries of your target population? → selection criteria

Units of analysis

- **Individuals-data** – derived from individuals and used to describe the individuals
- **Groups-data** – grouped into categories and compared across those categories

- **Organisations-data** – grouped by organisation and compared across those organisations
- **Social Artefacts-products** – are of social being and their behaviour is compared to identify patterns
- **Mixture**

Mistakes

- **Ecological fallacy** – applying results from group analysis to individuals
- **Individualistic fallacy** – applying results from individuals to groups of individuals

Ethical Issues

- All research is bounded and defined by professional codes of ethics
- Social science research is particularly subject to ethical codes as it almost always includes human subjects
- It is necessary to balance potential benefits from doing research against possibility of psychological, emotional, and physical harm.

Safeguards

- Written consent form
- Written list of benefits and costs of participation
- Subject must voluntarily participate
- Subject must be guaranteed anonymity or confidentiality
- Analysis of data in the aggregate
- Protection from deceit by researchers

Lecture 3 – Designing Research Questions

Steps in doing research

- Formulate research question
- Write research plan
- Review the literature
- Qualitative or quantitative
 - Methodology
 - Collect data
 - Analyse data
 - Write report
- Present your work to others

Research questions

- Does the topic have a clear link with theory?
- Are your questions clear and precise?
 - Clear research objectives
 - Possible results and their implications?
 - Do research questions fit with the wishes of the requester of the research?

Linking topic with theory

- **Theory** – an explanation about why the things you describe occur
 - I.e. A story about the cause and effect relation between two variables
 - A good research project tries to explain things instead of just describing them
 - Project should result in some new insight
 - Avoid being purely descriptive
 - Try to draw conclusions that are meaningful to managers
- Need to be aware of the current state of knowledge
- Ask questions for which the answer is not known in advance
- You be seeking to explain phenomena, analyse relationships, predict outcomes and generalize your findings
- Do rough checks
 - Related academic literature
 - Verify that the research results are relevant (read titles and abstract articles)
 - Save/write down bibliographic details

Importance of a clear and precise question

- Avoids having to drop report due to irrelevance
- Avoids run ins with information overloads

→ Have detailed research questions

→ Descriptive or Explanatory?

→ Refining! – Cause & - Consequence

Research Objectives (Envisaged Outcomes)

- Translate detailed questions into objectives
 - Objectives operationalise the corresponding questions
- Objectives are trivial if questions are not focused!

- Clear objectives help you assess the wider implications of your work
 - Do the results represent new insights?
 - External validity: results hold for other companies/countries/time periods etc...
 - Policy implications: who would be interested in your results and why?
- This will aid in the general conclusions section

What theory is NOT

- Theory ≠ loose references to articles
 - Need a coherent story that explains the phenomenon
- Theory ≠ a diagram
 - A bunch of boxes and arrows without a story that explains the causal relationship
- Theory ≠ the opposite of the 'real world'
 - Theory explains WHY things are occurring
- Theory may or may not have been tested before.

Lecture 4 – Exploratory, Descriptive and Causal research designs

Descriptive/Exploratory research

- Purpose:
 - To describe a phenomenon
 - To explore factors that influence and interact with it
- **Descriptive research**
 - Document conditions, attitudes, or characteristics of individuals or groups of individuals
- **Exploratory research**
 - Focuses on the relationships among these factors:
 - Descriptive and exploratory research
 - May be combined depending on the research question
 - Are considered nonexperimental or observational research
 - (no data manipulation)

Qualitative research

- Methods of data collection
 - Interviews
 - Observations
 - Objective v subjective
- Data and analysis interpretation
 - Data are recorded in the narrative
 - Content analysis
 - Look at content, a written document, and look for meaning
 - What is this document about, how do I categorise it
 - Themes
- “Measurement error”
 - In terms of judgements not numerical equivalency

Exploratory Research

- Purposes
 - Diagnosing a situation
 - Screening alternatives
 - Discovering new ideas
 - Produce hypotheses
- Is flexible and adaptable to changes as a result of new data and findings
- What it does NOT do
 - ...
- Types
 - Literature search
 - First step
 - In-depth interview
 - With whom?
 - Advantages
 - More confidential and personal than a focus group
 - Provide more detailed information than surveys
 - Trained interviewer

- Disadvantages
 - Time, energy and resource consuming
 - More focused than broad
 - Difficult to generalise
 - Focus groups
 - What is it?
 - Add a human dimension to impersonal data
 - Deepen understanding and explain statistical data
 - Verify or clarify results from surveys
 - Advantages
 - They are useful to obtain detailed information about personal and group feelings, perceptions and opinions
 - They can save time and money compared to individual interviews
 - They can provide a broader range of information
 - They offer the opportunity to seek clarification
 - They provide useful material
 - E.G. Quotes for public relations publication and presentations
 - Disadvantages
 - Disagreements/irrelevant discussion distract from main focus
 - Hard to control and manage
 - Hard to analyse
 - Difficult to encourage a range of people to participate
 - Intimidating or off-putting
 - Participants may feel under pressure to agree with the dominant view
 - As they are self-selecting, they may not be representative of non-users.

E.G: Ethnography - the scientific description of peoples and cultures with their customs, habits, and mutual differences.

- Projective Techniques
 - Word association tests
 - Sentence completion method
 - Role-playing technique
 - Thematic apperception test
 - Cartoon tests/ picture frustration
- The systematic investigation of relationship among two or more variables
- Purpose
 - To describe relationships
 - To predict the effects of one variable on another
 - To test relationships that are supported by clinical theory
- Exploratory research is guided by a set of hypotheses
 - Operational definition
 - Statistical testing

- The foundation of exploratory research is the process of:
 1. Correlation
 - a. Measures the degree of association among variables
 - b. A function of covariation of the data
 - c. The strength of this relationship is measured by a correlation statistic
 - i. Pearson Correlation r (how close the coefficient is to -1 or 1)
 2. Regression
 - a. Predicts the score on an outcome variable by knowing the values of other variables

Descriptive Research

- Purposes
 - Describes characteristics of group
 - Determine proportion of people who act a certain way
 - Make predictions
 - Determine relationships between variables
- Types
 - Cross-sectional
 - Longitudinal
 - Continuous panels
 - A fixed sample of respondents measured repeatedly over time with respect to the same variables
 - AKA true panels
 - Kroger's card
 - Discontinuous panels
 - A fixed sample of respondents measured repeatedly over time, but on variables that change from measurement to measurement
 - AKA omnibus panels
 - Land's End

Causal Research

- Purpose
 - Does a change in X cause a change in Y?
- Experiments
 - Laboratory experiments
 - Field experiments

Market Testing

- What is market testing?
 - "Controlled experiment done in a limited/carefully selected sector of the marketplace"
 - To test multiple marketing scenarios and select the most promising for expansion
 - A field experiment conducted in actual product market(s)
 - Frequently used for new products
 - Environment, timeframe and selection are controlled
 - Information being gathered is mostly responses to products

- Different information from different environments
- Key issues
 - Cost
 - Time
 - Control
- Types of market testing
 - Standard test market
 - Test the product through company's normal distribution channels
 - Pros
 - Good reflection of how the product will perform
 - Cons
 - Can't control availability of product
 - Competition automatically known product/packaging and can sabotage you.
 - Controlled test market
 - Company uses and outside research firm. They guarantee that distributor will put your product on the shelf.
 - Pros
 - It gets the product out faster most of the time
 - Can also be used in places that are harder to get into
 - Cons
 - May not represent firm's actual distribution system
 - Competition can still sabotage you
 - Simulated test market
 - Subjects are selected based on target market of test product.
 - Pros
 - Can see uptake of samples
 - Can see whether samples translate to purchases
 - Much harder for competition to sabotage you
 - Faster to do
 - Good if you want to spot a clearly weak product quickly.
 - Save yourself money
 - Cons
 - Equation they throw it into is based on assumptions and assumptions may not always be accurate.
 - No indication of how willing retailers/ distributors are to cooperate.

Lecture 5 – Literature review

Literature review

- Surveys, scholarly articles, books, journals, other dissertations etc.... relevant to your narrow topic
- Description, summary and critical evaluation of each scholarly work
- Overview of the significant literature published on the topic

Bruce (1994) identifies 6 elements of a lit review:

- A search
- A survey
- A vehicle for learning
- A research facilitator
- A report

Purpose

- Provides historical background of a topic
- Describe and compare the school of thought on an issue
- Synthesise available research
- Highlight and critique research methods
- To note areas of disagreement
- Highlight gaps in the existing research
- Justify the topic you plan to investigate

Helps you:

- Understand topic
- Develop own ideas
- Demonstrate knowledge

Characteristics of effective literature reviews

- Outlining important research trends
- Assessing the strengths and weaknesses of existing research
- Identifying potential gaps in knowledge
- Establishing a need for current and/or future research projects

- Not all of the latest topics will have literature published – some works will still be in the process of publication which isn't the swiftest process.

- Steps for writing a lit review
 - Planning
 - Plan the limits
 - This is what I'll look at, this is what I won't look at
 - Reading and Research
 - Analysing
 - Drafting
 - Revising

Why do a literature review?

- Identify gaps in the literature
- Avoid reinventing the wheel (at the least this will save time and it can stop you from making the same mistakes as others)
- Carry on from where others have already reached (reviewing the field allows you to build on the platform of existing knowledge and ideas)
- Identify other people working in the same fields (a researcher network is a valuable resource)
- Increase your breadth of knowledge of your subject area
- Identify seminal works in your area
- Provide the intellectual context for your own work, enabling you to position your project relative to other work
- Identify opposing views
- Put your work into perspective
- Demonstrate that you can access previous work in an area
- Identify information and ideas that may be relevant to your project
- Identify methods that could be relevant to your project

How to do a literature review

- Organize according to topic and themes.
- Provide context by defining or introducing the problem/issue to be discussed.
- Identify trends in publications, problems in research, conflicting theories.
- Establish your purpose in reviewing the literature.
- Group studies according to commonalities– approach, attitude, findings.
- Summarize individual studies.
- Summarize major schools of thought or perspectives.
- Evaluate the current body of knowledge.
- Conclude by explaining how your study will add to the body of knowledge.

Author is neutral	Author implies	Author argues	Author disagrees	Author agrees
comments	analyzes	contends	disparages	admits
describes	assesses	defends	bemoans	concedes
illustrates	concludes	holds	complains	concur
notes	finds	maintains	deplores	grants
observes	predicts	insists	laments	agrees
points out	speculates	disputes	warns	states

What materials are included?

- Books
- Articles from periodicals (journals & magazines) – vital up-to-date information and scholarships
 - Popular (magazines) vs. Scholarly (journals)

POPULAR	SCHOLARLY
Broad range of topics, presented in shorter articles	Specific, often narrowly focused topics in lengthy, in-depth articles
Articles offer overview of subject matter; reportage, rather than original research; sometimes contain feature articles and reports on current social issues and public opinion	Articles often contain previously unpublished research and detail new developments in field
Intended to attract a general readership without any particular expertise or advanced education	Intended for specialist readership of researchers, academics, students and professionals
Written by staff (not always attributed) or freelance writers using general, popular language	Written by specialists and researchers in subject area, usually employing technical, subject-specific language and jargon
Edited and approved for publication in-house (not peer-reviewed)	Critically evaluated by peers (fellow scholars) in field for content, scholarly soundness, and academic value
Articles rarely contain references or footnotes and follow no specific format	Well-researched, documented articles nearly always follow standard format: abstract, introduction, literature review, methodology, results, conclusion, bibliography/references
Designed to attract eye of potential newsstand customers: usually filled with photographs or illustrations, printed on glossier paper	Sober design: mostly text with some tables or graphs accompanying articles; usually little or no photography; negligible, if any, advertising; rarely printed on high-gloss paper
Each issue begins with page number '1'	Page numbers of issues <i>within a volume (year)</i> are usually consecutive (i.e., first page of succeeding issue is number following last page number of previous issue)
Presented to entertain, promote point of view, and/or sell products	Intended to present researchers' opinions and findings based on original research
Examples: <i>Newsweek, Rolling Stone, Vogue</i>	Examples: <i>American Sociological Review, Journal of Popular Culture, Sustainable Agriculture</i>

Reading and Researching

- Collect and read material
- Summarise sources:
 - Who is the author?
 - What is the author's main purpose?
 - What is the author's theoretical perspective? Research methodology?
 - Who is the intended audience?
 - What is the principal point, conclusion, thesis, contention, or question?
 - How is the author's position supported?
 - How does this study relate to other studies of the problem or topic?
 - What does this study add to your project?
- Select only relevant books and articles

Critical reflection

1st – Author and Date of Publications

- Is it a well-known author in this field?
- Is this author referred to frequently by others?
- Is the work still relevant? (Age is more important in certain fields than others)
 - Rapid development in the sciences demand more current information
 - Topics in the humanities require information written years ago
 - Some news sources now note the hour and minutes articles were posted

2nd – The Information

- Is the information covering fact, opinion or propaganda?
 - Facts can be verified
 - Opinions are evolved from interpretation of factual information
- Does the information appear to be valid and well-researched? Or is it questionable and unsupported by evidence?
 - Assumptions should be reasonable
 - Errors or omissions should be noted
- Are the ideas and arguments advanced more or less in line with other works you have read on the same topic?
 - The more radically an author departs from the views of others in the same field, the more carefully and critically you should scrutinise his/her ideas.
- Is the author's point of view objective or impartial?

3rd – The Source

- Does the work update other sources, substantiate other materials you have read or add new information?
- Does it extensively or marginally cover your topic?
- Primary vs. Secondary?
 - Primary – raw material of the research process
 - Secondary – based on primary sources
 - Scholars use primary material to generate a secondary source (historical interpretation)
 - Choose BOTH when possible

4 issues with web sources:

1. Accuracy
2. Authority
3. Objectivity
4. Currency

Citing sources:

If it is not your own – DOCUMENT IT!

- Paraphrase key ideas
- Use quotations sparingly
- Introduce quotations effectively
- Use proper in-text citation to document the source of ideas
- Maintain accurate bibliography records

AVOID:

- Plagiarism!
- Irrelevant quotations
- Un-introduced quotations

Four tasks of the literature review

1. Summarise
2. Synthesise
3. Critique
4. Compare

Summary and Synthesis

- In your own words
 - What do we know about the immediate area?
 - What are the key arguments, characteristics, concepts and figures?
 - What are the existing debates and theories?
 - What common methodologies are used?

Comparison and Critique

- Evaluates the strength and weakness of the work
 - How do the different studies relate?
 - What is new, different or controversial?
 - What issues need further testing?
 - What evidence is lacking, inconclusive, contradicting or too limited?
 - What research designs or methods seem unsatisfactory?

Evaluating adjectives:

- | | |
|--------------|---------------|
| • Complex | • Unusual |
| • Competent | • Small |
| • Important | • Simple |
| • Innovative | • Exploratory |
| • Impressive | • Limited |
| • Useful | • Restricted |
| • Careful | • Flawed |

Analysing - Putting it all together!

After summarising, synthesising, comparing and critiquing, you must consider whether these studies:

- Demonstrate the topics chronological development
 - Show different approaches to the problem
 - Show an ongoing debate
 - Centre on a “seminal” study or studies
 - Demonstrate a “paradigm shift” – a fundamental change in approach or underlying assumption
-
- What do researchers KNOW about this field?
 - What do researchers NOT know?
 - WHY should we further study this topic?
 - WHAT will MY study contribute?

Lecture 6 – Primary vs Secondary

- **Primary data – What is it?**
 - Originated by the researcher for the specific purpose of addressing the problem at hand
- **Secondary data – What is it and Where do I find it?**
 - Data collected for purposes other than problem at hand
 - Gathered and recorded by someone else prior to and for purposes other than current project
 - Historical
 - Already assembled
 - Needs no access to subjects

→ Exhaust ALL appropriate secondary data sources before proceeding to primary data.

	Primary Data	Secondary Data
Collection purpose	For the problem at hand	For other problems
Collection process	Very involved [5 Steps]	Rapid and easy
Collection cost	High	Relatively low
Collection time	Long	Short

Uses of secondary data

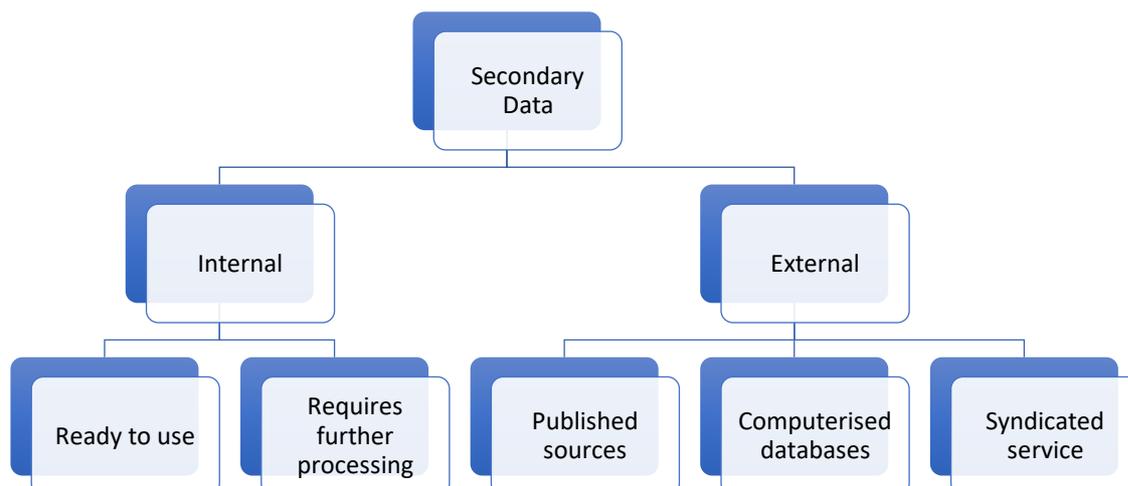
- Identify & better define the problem
- Resolve/develop an approach to the problem
- Formulate an appropriate research design
- Answering research questions and testing hypotheses
- Demand estimations
- Source new ideas
- Help define/provide better understanding of problem
- Guidance and reference for need of primary data
- Monitoring environment
- Segmentation and targeting
- Developing a business intelligence

Benefits of secondary data

- Easily accessible
- Relatively inexpensive
- Obtained quickly
 - Particularly for electronic retrieval of digitally stored data
- Sometimes more accurate than primary data
- Some information is only available from secondary sources (e.g., population of the country)
- Enhances existing primary data
- Familiarise the researcher with the industry
- Identify concepts, data and terminology

Limitations of secondary data

- Collected for another purpose
 - Is the subject matter consistent with OUR problem?
 - Does the data apply to OUR population of interest?
 - Does the data apply to OUR time period of interest?
- No control over data collection
- May not be very accurate
- Mismatching units of measurement
- Differing definitions used to clarify data
- Recentness of the secondary data
- Lack of information needed to assess credibility of the data
- Assumptions have to be made



Internal secondary data

- Data generated within the organisation for which the research is being conducted
 - Accounting data
 - Customer feedback & database
 - Annual reports
 - CRM
- Easily available and inexpensive

External secondary data

- Data generated by sources outside the organisation
 - Government publications and sponsored resources (census data)
 - Periodicals and books
 - Marketing and trade journals
 - Business magazines and newspapers
 - Academic publications
 - Syndicated data from households
 - Syndicated data on industry and business

Access methods:

- Online
- Electronic
- Hard copy
- Experts

Computerised databases

- Information made available in computer-readable form for electronic distribution

Advantages:

- Current information
- Faster data search
- Low cost
- Convenience

Syndicated sources of marketing data

- Market research suppliers who collect data regularly, with standardised procedures, which are eventually sold to different clients
 - Many information users with common information needs
 - Cost of satisfying individual users is prohibitive
 - Increasing use of scanner systems facilitates standardised sources

Applications:

- Measure products sales and market share
- Measure advertisement exposure and effectiveness
- Measure promotion effectiveness
- Estimation and evaluation of models

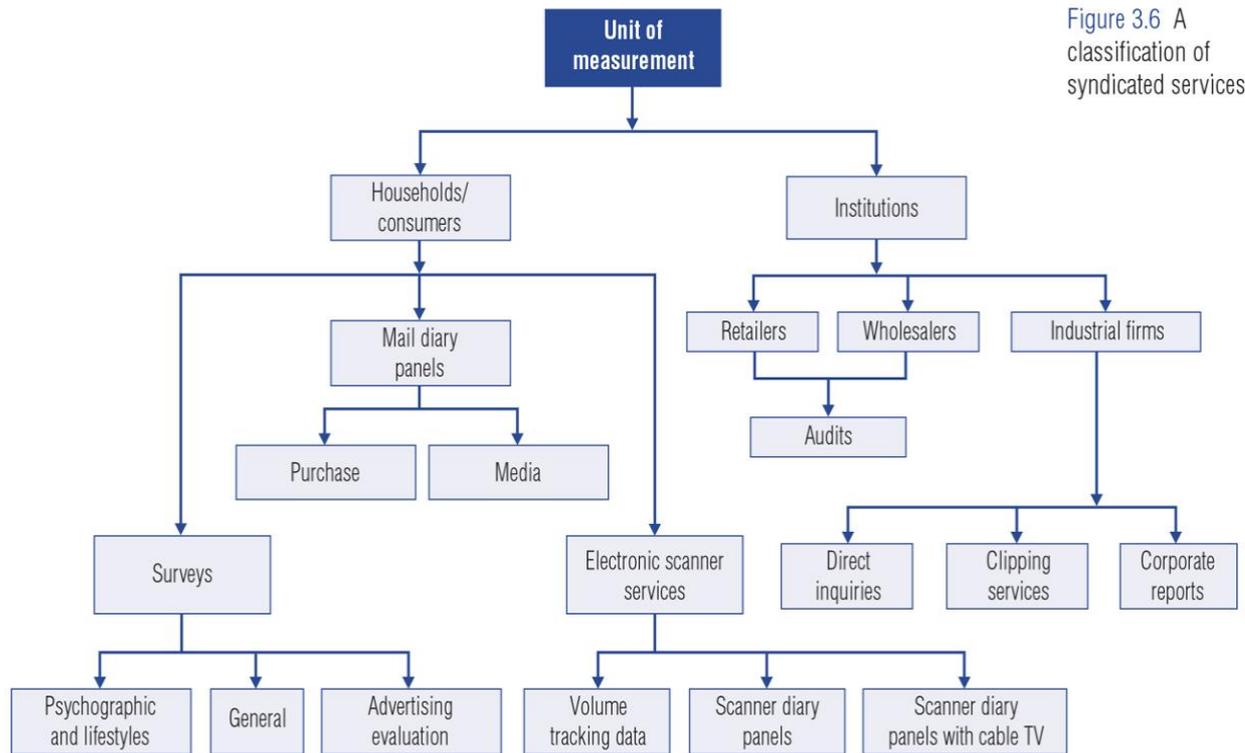


Figure 3.6 A classification of syndicated services

Evaluating secondary data

- Who collected data?
- Why was data collected?
- How was data collected?
- What data was collected?
- When was data collected?

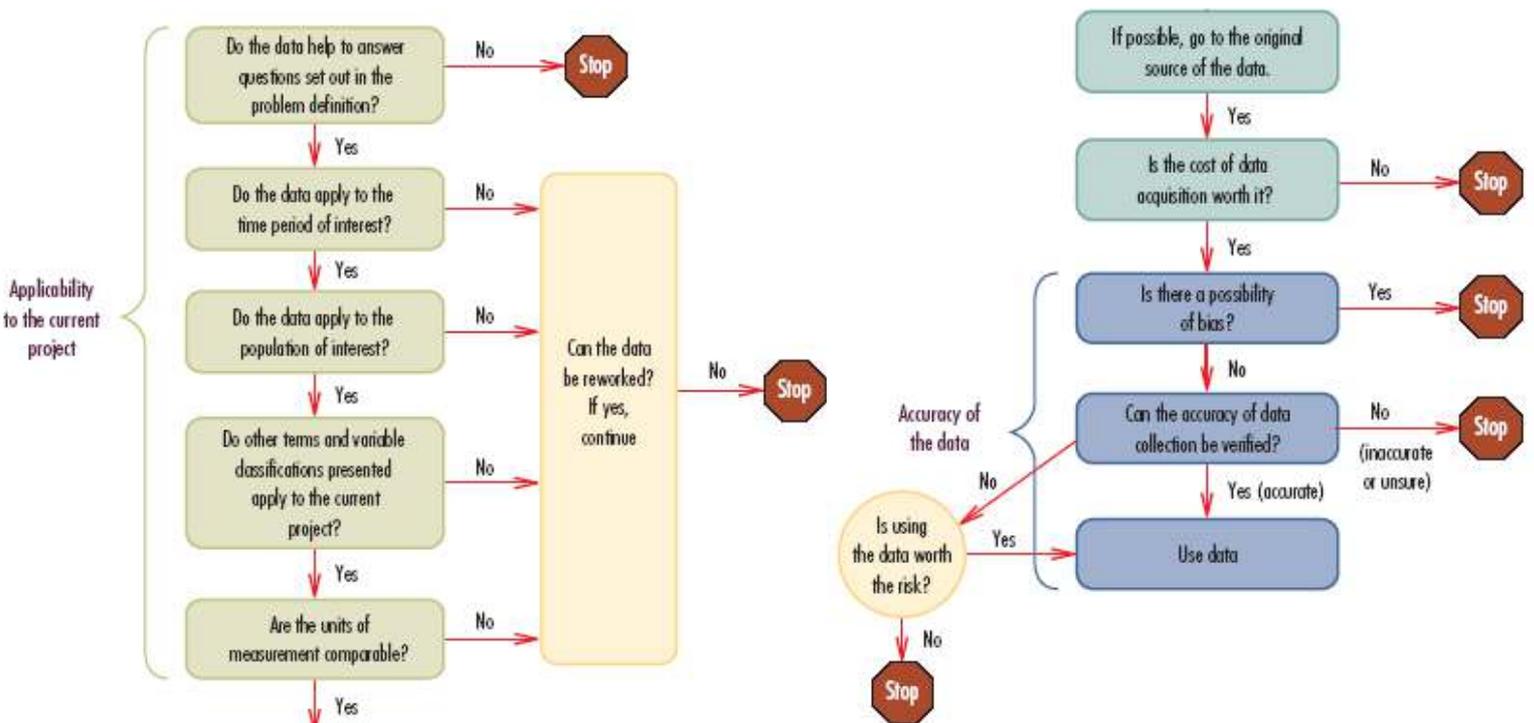




TABLE 4.1 Common research objectives for secondary data studies

Broad Objective	Specific Research Example
Fact-finding	Identifying consumption patterns Tracking trends
Model building	Estimating market potential Forecasting sales Selecting trade areas and sites
Database marketing	Enhancing customer databases Developing prospect lists

Identifying gaps in required information

Compare information with information required in research objectives

→ If objectives are met, then there is no need for further research!

Lecture 7 – Qualitative v Quantitative

Operationalising concepts

A concept is ‘a mental image we use as summary device for bringing together observations and experiences that seem to have nothing in common [...] they do not exist in the real world, so they can't be measured directly" Babbie, 1989

Conceptualisation is the process of specifying the vague mental imagery of our concepts by sorting out the kinds of observations and measurements that will be appropriate for our research” Babbie, 1989

Measuring a concept requires translating the concept into something measurable, an indicator or a set of indicators.

An *indicator* is a method of measuring a concept. The process of making a concept measurable, the process in which the researcher chooses the particular indicator or sets of indicators to measure the concept is called *operationalisation*. It is "the development of specific research procedures (operations) that will result in empirical observations representing those concepts in the real world" Babbie 1989

- A set of choices regarding the following:
 1. Units of analysis
 - Individuals (residents, workers, voters, parents, students)
 - Key term - population
 - Groups (gangs, families)
 - Characteristics may be derived from characteristics of individuals → age, ethnicity, education of the head
 - Organisations (corporations, churches, colleges, army divisions, academic departments)
 - Their characteristics may be derived from facts like no. of employees, revenue, contracts, etc...
 - Social artefacts (automobiles, clothes, buildings, pottery, jokes, scientific discoveries)
 2. Points of focus
 - Characteristics
 - Sex, age, height, marital status ...
 - Orientations
 - Attitudes, beliefs, personality traits ...
 - Actions
 - Striking, dropping out of school, going to church ...
 3. Treatment of the dimension of time
 - Cross sectional
 - Descriptive and exploratory
 - Longitudinal
 - Permitting observations over an extended period of time
 - Trend, cohort and panel studies → same set of people
 4. Nature of measurement
 - What range of variation to consider
 - What levels of measurement to use
 - Whether to depend on a single indicator or many

Qualitative research

- Examines a concept from the perspective of the individual experiencing it
- Research purpose range from preliminary description of a concept or phenomenon to development of a theory or model of a process or pattern
- Useful
 - When little knowledge exists about an area of research
 - When the nuanced perspective/personal experience of a particular group/population is needed
 - When research aims require an individualised and less structured interview approach

Characteristics

- Focuses on 'meaning' from the research participant's point of view
- Uses an inductive approach that is not informed by existing theory but rather builds theory from observations or interview data
 - Contrasts to quantitative approaches that test specific hypotheses derived from existing theory or empirical data.
- Acquires data in a naturalistic environment that facilitates open discussion
- Places few controls on other variables that may influence the data
 - Viewed as an essential part of the context in which the phenomenon is being examined

Frequently Used Qualitative Approaches

- **Grounded Theory**
 - Stems from sociology
 - Aims to generate explanatory models of human social behaviour
 - Avoids use of pre-existing theory that limits researcher's ability to be open-minded
 - Uses interviews, observations and field notes to collect data
 - Involves simultaneous collection and analysis of data where hypotheses are generated and tested with new data as it is acquired
- **Ethnography**
 - Stems from anthropology
 - Examines concept through participants' narratives about their lives and the perspective of their surrounding culture
 - Studies people and how they behave
 - Uses interviews, observations and field notes to collect data
 - Encourages researcher to spend time or live with group to better understand
- **Phenomenology**
 - Stems from philosophy
 - Describes the concept or phenomenon as it is experienced by the person
 - How it impacts people
 - Multiple in-depth conversations with participants and detailed examples from their experience as source of data
 - Encourages researcher to avoid preconceptions, presuppositions, assumptions or interpretation

Methods of Data Collection

- Interviews
 - Open-ended questions
 - Probe responses for more depth
- Observations
 - Recordings
 - Systematic descriptions
 - Notes (during and after)
 - Observer may be a participant as well as an outsider
- Focus groups
 - Group interactions
- Case studies
 - Individuals, events, programs or organisations as ‘cases’
 - Interviews
 - Observations
 - Documents
 - Audio-visual or archival records
- Narrative
 - In-depth interviews
 - Journals
 - Letters
 - Stories

Purposive vs Probability Sampling

- Quantitative → probability sampling
 - Sample is representative of the composition/profile of entire population being studied
- Qualitative → purposive sampling
 - Participants and other data sources are selected to best meet needs of study
 - Identifies initial participants based on particular demographics or experiences
- **Theoretical sampling** may occur as the study progresses to include participants with specific views/experiences that are identified as important from emerging data

Sampling Units vs Sample Size

- Quantitative → sample size
 - Way to assure that statistical tests have enough power to test hypotheses
- Qualitative → sampling units
 - Represent the number of times participant is interviewed or no. of observations
- More data from each participant = less participants needed
- **Saturation/redundancy** in the data is used to determine whether more participants or interviews/observations are needed

Data Analysis

Transcribed records of interviews, field notes or other documents are reviewed to identify:

- Categories
- Themes
- Models reflected in the data

All approaches involve comparison of transcripts with original audio-records or input from the person conducting the interviews/observations to assure accuracy of the transcript.

Summary

- **Qualitative analysis** aim is a complete detailed description.
- **Quantitative research** classifies features, count them and construct statistical models in an attempt to explain what is observed.
- Either way, the design emerges as the study unfolds. All aspects of the study are carefully designed before data is collected. And the researcher is the data gathering instrument.
- Researcher uses tools (questionnaires or equipment) to collect data.
- Data is in the form of words (interviews), pictures (videos), or objects (artifacts).
- Data is in the form of numbers and statistics.
- Qualitative data is richer, time consuming, and less able to be generalized.
- Quantitative data is more efficient, able to test hypotheses, but may miss contextual data.

Lecture 8 – Strategies, Methods and Approaches

Why the study of research methodology?

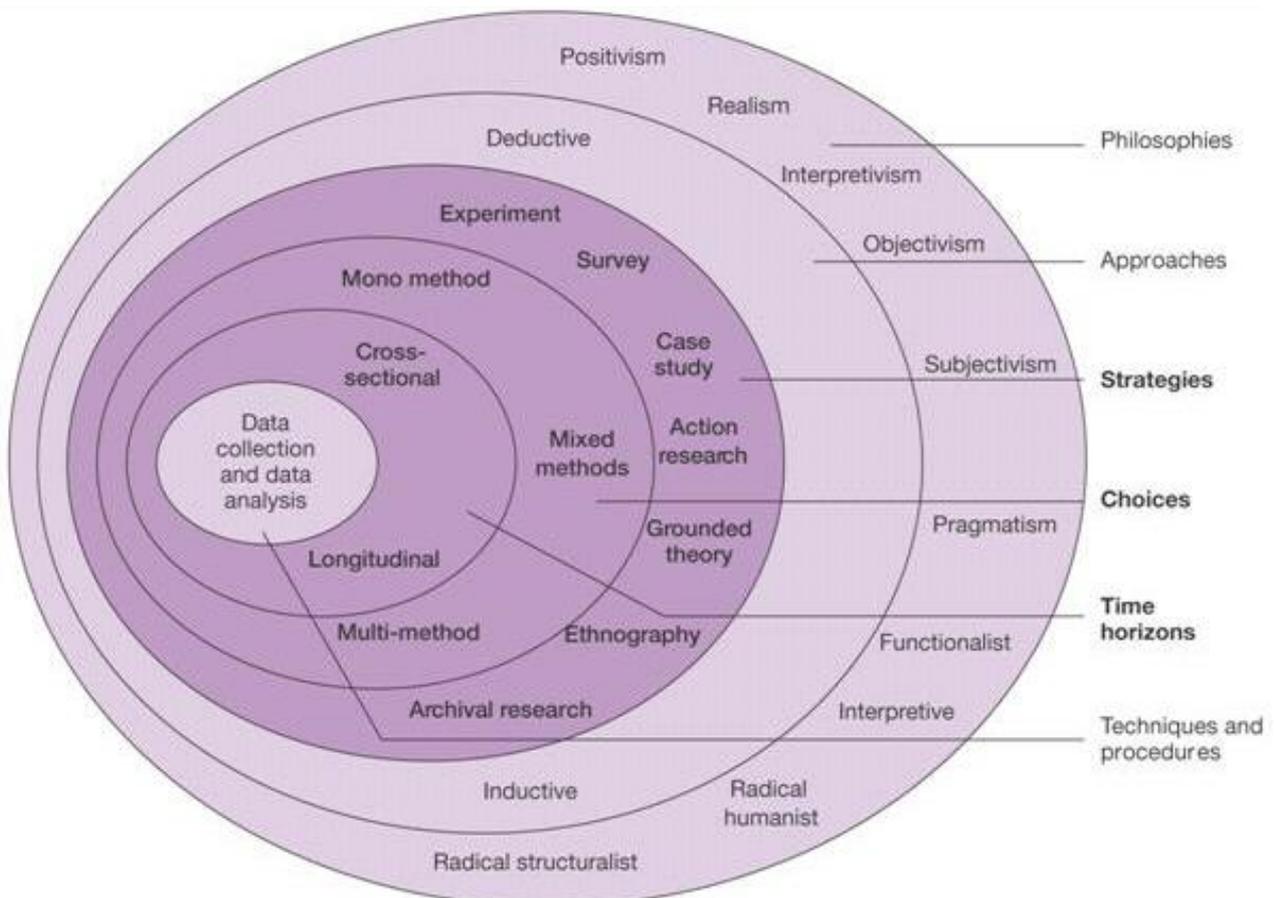
- Need for formal, focused attention within the economics disciplines on how to organise and conduct research in applied economics
- 2 central objectives
 - Overview of the conceptual and philosophical basis of research methodology in economics
 - Procedural guidelines on planning, designing and conducting research projects
- The manner in which we approach and execute functions or activities
 - Consists of approaches or guidelines, not specific details of how we do the task (those are methods)
- Within a discipline, there are accepted rules of evidence and reasoning

Difference between research methodology and research methods

- **Methodology** – general approaches or guidelines
- **Methods** – specific details and/or procedures to accomplish a task

Research onion

- Philosophy
- Approach
- Strategy
- Choice
- Time horizons
- Techniques and procedures (data collection and analysis)



Research strategies

- **Exploratory research** (How? What?)
 - Finding out ‘what is happening’, seeking new insights, assess phenomena in a new light, ...
 - Literature Research, interviews with experts, focus interviews
- **Descriptive research** (What?)
 - To portray an accurate profile of persons, situations, phenomena,
 - “Very interesting, but “so what” ...?”
 - Is a means to/ a step to
- **Explanatory research** (Why?)
 - Study of a phenomena, situation, problem, to explain the causal effect between two variables.
 - Quantitative / qualitative

Inductive vs deductive

- **Deductive** reasoning starts with a general theory, statement, or hypothesis and then works its way down to a conclusion based on evidence.
 - Top down
- **Inductive** reasoning starts with a small observation or question and works its way to a theory by examining the related issues
 - Bottom up

Research strategies

- **Experiment**
 - Goal = detection of a causal effect of an independent variable X on a dependant variable Y
 - More difficult in business and management life
 - To prove that if X happens, then also Y and if X doesn’t, neither does Y
- **Survey**
 - Goal = assemble a large amount of data in a highly economical matter of a sizeable population
 - Popular use in business and management life
 - Answers ‘who, where, what, how much’ questions
 - Deductive method
 - Exploratory and descriptive
 - Questionnaire, interviews,
 - Standardised, easy to compare
 - Provides data for quantitative research
 - If correct sampling: able to generalise
 - Special attention to representativeness, quality of the questionnaire, response rate, ...

- **Case study**
 - Goal = intensive study of a phenomenon in one or multiple research units in real life situation
 - Context ↔ context of the experiment and survey
 - Exploratory and explanatory
 - Single (unique) ↔ Multiple (able to generalize)
 - 1 versus multiple companies
 - Holistic ↔ Embedded
 - Organisation as a whole or analysing sub-units

- **Action research**
 - Goal = research “in action” instead of “about action” – solve problems in a company
 - Together with employees of the company
 - Iterative process: Diagnosing, planning, action and evaluation
 - Results (can) exceed the project/ transfer to another context
 - Researchers → development of theory
 - Consultants → transfer of knowledge to other situations

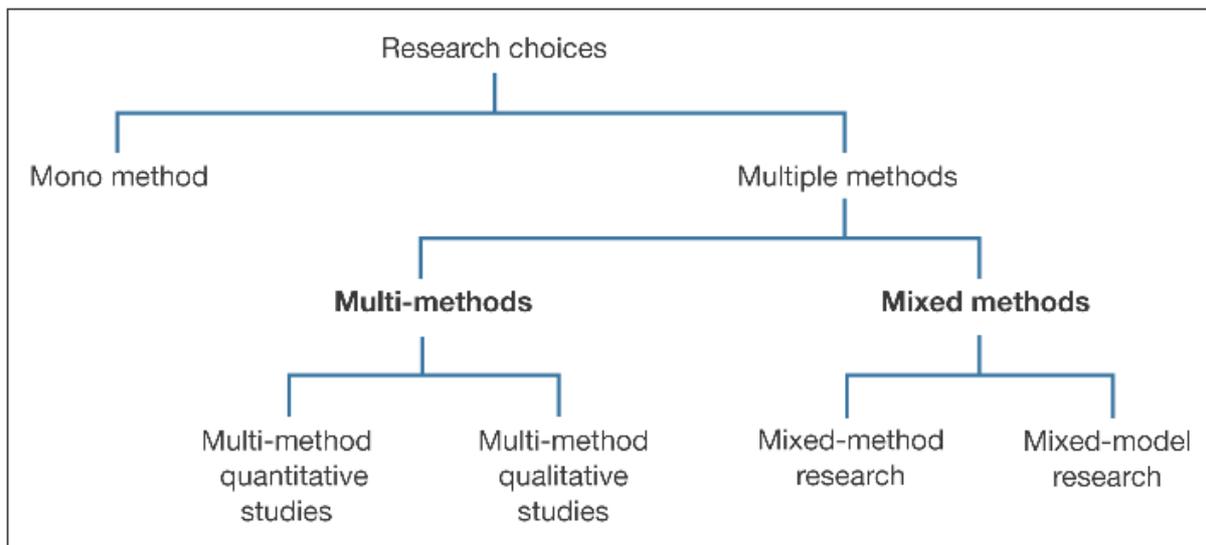
- **Grounded theory**
 - Goal = conduct research that predicts/explains behaviour to develop/build a theory
 - Begin with a research situation
 - Try to understand what happens and how the actors play their role.
 - Through: observation, conversation, interview
 - Collect the data
 - Make predictions
 - Test the data to the predictions
 - Inductive/deductive approach

- **Ethnography**
 - Goal = describe/explain social world of research objects as they would themselves
 - Example: life as a foreigner in Belgium
 - Inductive research
 - Participative observation: observe + participate
 - Observe: collect information in the field
 - Participate: participate in daily activities

- **Archival research**
 - Explore administrative records and documents
 - Use secondary sources of data (assembled for other goals)
 - For research questions about the past and through time.
 - Limited by the nature of the data (general statistics, missing data...)

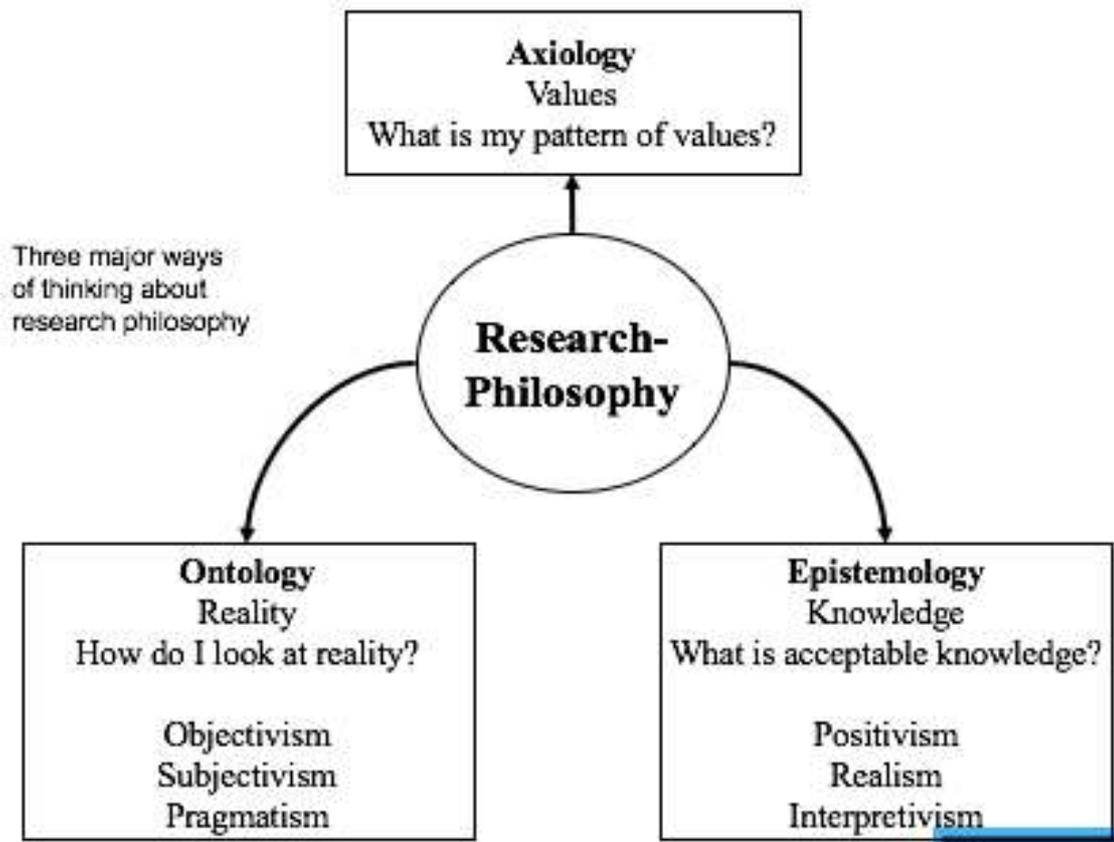
Research choices

- Every method
 - to collect data
 - to analyse data
- Uses/generates:
 - Not-numerical data → qualitative method.
 - Numerical data → quantitative method.



Research philosophy

- Development of knowledge (in a particular field) and nature of that development.
- Contains important assumptions about the way in which you view the world.
 - Underpin research strategy and methods chosen for this strategy.
- Research is embedded in its values and experiences, knowledge
 - ↔ value free research
- Experience cannot be separated from research
- Researcher must be conscious about these circumstances.



Pragmatism – the most important determinant of the epistemology, ontology and axiology is the research question

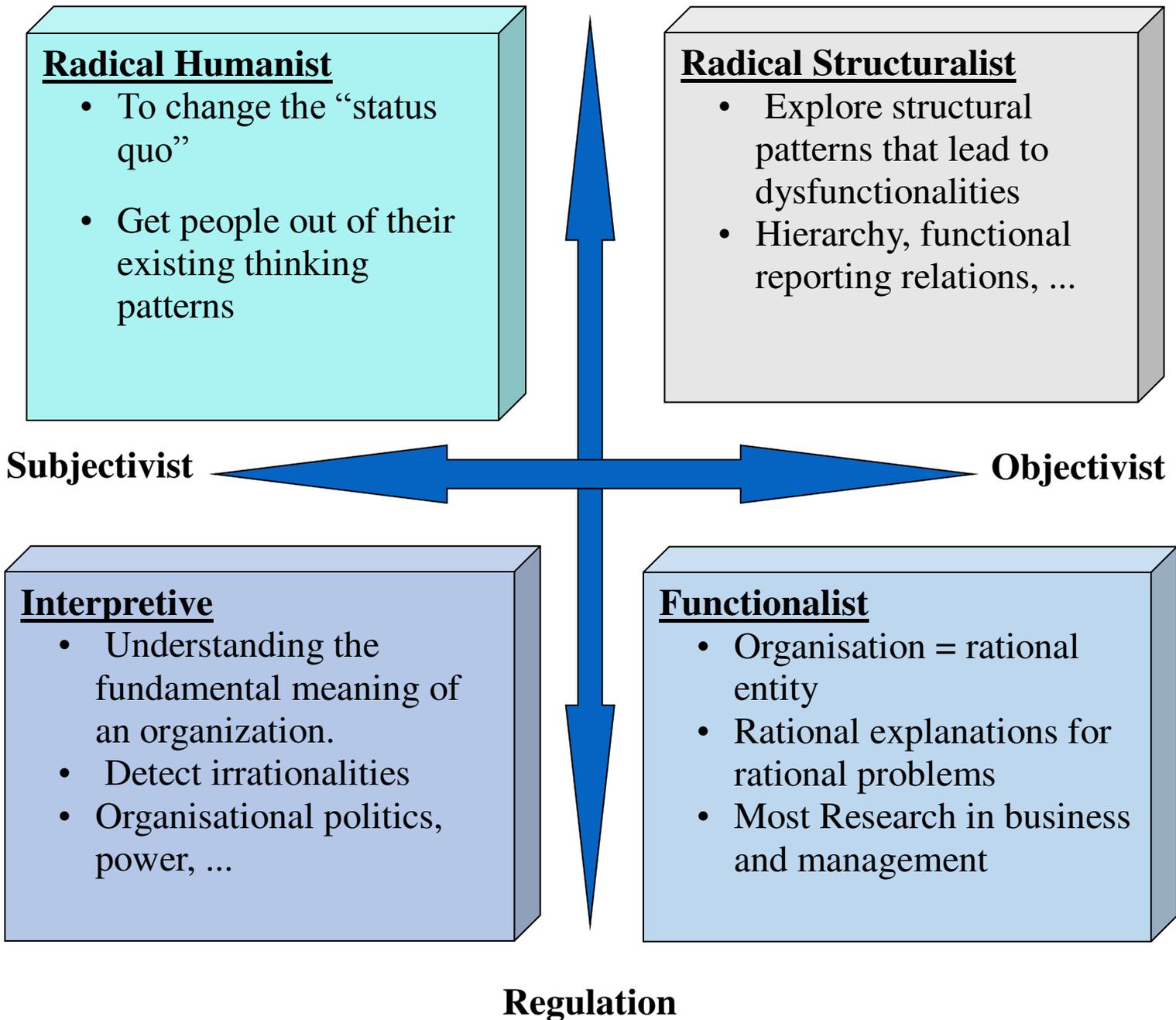
- Continuum instead of opposites: do you have to adopt a position? ☺

Research paradigms – way of examining phenomena, to understand and explain them

- Objectivist ↔ Subjectivist
- Radical change ↔ Regulation
 - Radical change: critical perspective on how organisational life should be and suggestions for fundamental (radical) change
 - Regulation: explains the 'regulations' (working) of an organisation, with suggestions for improvement within the existing state

- ❖ Choices impact what you see and how you see it
- ❖ Different problems require different approaches

Radical change

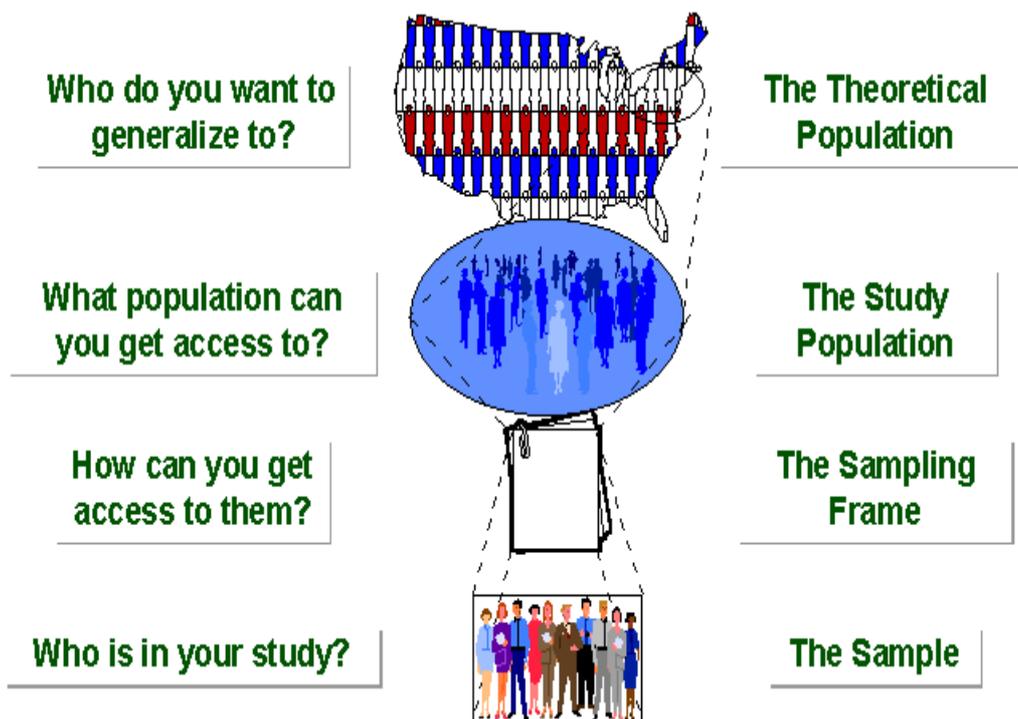


Lecture 9 – Sampling and validity

- **Sample** – smaller collection of units from a population used to determine truths about that population
- Why?
 - Resources and workload
 - Gives results with known accuracy that can be calculated mathematically
- **Sampling frame** – list from which potential respondents are drawn
 - Registrars' office
 - Class rosters
 - Must assess sampling frame errors
- **Sampling frame errors** – changing class rosters, university vs personal email address

Sampling

- What is your population of interest?
 - To whom do you want to generalise your results?
 - Doctors
 - Children
 - Indians
 - Women aged 15-45 etc.
 - Can you sample the entire population?
- 3 factors that influence sample representativeness
 - Procedure
 - Size
 - Participation (response)
- When might you sample the entire population?
 - Population very small
 - Extensive resources
 - Don't expect a high response



Population definition – including all people or items with the characteristic one wishes to understand

- Rarely ever enough time or money to gather information from everyone or everything, goal becomes to find a representative sample (subset)

NOTE: population taken from sample may not be the exact population of your study.

- Might be an overlap between the two groups due to frame issues.
- Might be entirely separate
 - Study rats to understand human health better
 - Study record of birth records in 2008 to make predictions of 2009 births

Types of samples

- **Probability (Random) Samples**

- All elements (e.g., persons, households) in the population have some opportunity of being included in the sample, and the mathematical probability that any one of them will be selected can be calculated.
- When every element in the population does have the same probability of selection → EPS (equal probability of selection)
 - Self-weighting because all sampled units are given the same weight
- Simple random sample
 - Best with a small, homogenous and readily available population
 - All subsets are given equal probability
 - Provides greatest number of possible samples
 - Estimates are easy to calculate
 - Simple random sampling ALWAYS = EPS, but EPS ≠ simple random sampling
 - Table of random number or lottery system is used to determine which units are selected
 - Disadvantages
 - If sampling frame is too large → method is impracticable
 - Minority subgroups may not be in sufficient numbers for study
- Matched Random Sampling
 - Assigning participants to groups in which pairs are first matched according to characteristics and then individually assigned to groups at random
 - IQ measurements
 - Pair of identical twins
 - Attributes/variables are measured twice in different circumstances → repeated measures
- **Systematic sample**
 - Arranging population in an order
 - Random start

- Select elements at regular intervals
- EPS method \neq SRS
- Pros:
 - Sample easy to select
 - Suitable sampling frame can be easily identified
 - Sample spreads over entire population
- Cons
 - Difficult to assess precision of estimate from one survey
 - May be biased if hidden periodicity coincides

E.G. Selecting every 10th name in a phone book \rightarrow sampling with a skip of 10

○ **Stratified sample**

- Divides population into smaller 'strata' groups
- Randomly selected
- Different sampling approaches can be applied to each stratum
- Using simple sampling ensures proportionate representation
- Pros
 - Adequate representation of minorities can be ensured
- Cons
 - Sampling frame of entire population has to be prepared separately for each stratum
 - Stratifying variables may be related to some, but not others \rightarrow further complicating design and potentially reducing utility of the strata
 - Can potentially require a larger sample
- Post-stratification
 - Implemented due to lack of prior knowledge of an appropriate stratifying variable
 - When experimenter lacks necessary information to create satisfying variable
 - Uses SRS
 - Used to implement weighting \rightarrow improves precision of estimates.

○ **Multistage sample**

- Adds extra stages to cluster sampling narrowing down population size
- Complex form of cluster sampling in which two or more levels of units are embedded one in the other
 - 1st \rightarrow random number of chosen districts in all states
 - 2nd \rightarrow random number of talukas, villages
 - 3rd \rightarrow units will be house (these are then surveyed)
- Process of taking random sample of preceding random samples
 - Not as effective as true random sampling, but solves problems from TRS.
- Banks on multiple randomisations \rightarrow extremely useful
- By avoiding the use of all sample units in all selected cluster, this avoids the large costs associated with traditional cluster sampling
- Pros
 - Cost and speed that the survey can be done in
 - Convenience of finding the survey sample

- Normally more accurate than cluster sampling for the same size sample
 - Cons
 - Not as accurate as SRS if sample is same size
 - More testing is difficult to do
- **Multiphase sample**
 - Information is collected from the whole sample as well as additional information from sub samples of the entire sample
 - I.E. Some units provide more information than others
 - Pros
 - It leads to inferences of predetermined precisions based on a number of observations.
 - It reduces the error
 - Cons
 - It is time consuming & costly
 - It's planning & administration is complicated
- **Cluster sample**
 - Often used to evaluate vaccination coverage in EPI
 - One stage
 - All elements within selected clusters are included in sample
 - Two-stage
 - A subset of elements within selected clusters are randomly selected for inclusion in sample
 - First stage a sample of areas is chosen
 - Second stage a sample of respondents within those areas is selected
 - Population divided into clusters of homogeneous units, usually by location
 - Sampling units are groups rather than individuals
 - A sample of clusters then selected
 - All units for the selected clusters are studied
 - Pros
 - Cuts down on cost of preparing a sampling frame
 - Reduces travel and other admin costs
 - Cons
 - Sampling error is higher for a random sample of same size

Difference between clusters and strata:

BOTH → non-overlapping subsets

STRATA → all are represented in sample

CLUSTERS → only a subset are in sample

Best survey results = When strata are internally homogeneous

When clusters are internally heterogeneous

- **Oversampling**
 - Choice based sampling is one of the stratified sampling strategies
 - A sample is taken from each stratum so that rare target classes will be more represented

- Model is then built upon this biased sample
 - The results usually must be adjusted to correct for the oversampling
- Non-Probability Samples
- ❖ Any sample method where some elements of population have NO chance of selection (out of coverage/unrecovered), or where probability of selection cannot be accurately determined
 - Involves selection of elements based on assumptions → forms criteria for selection
 - **Convenience/accidental sample**
 - Sample drawn from population close at hand → most convenient & readily available
 - Cannot scientifically make generalisations about total population though
 - Some members of the population have no chance of being sampled, the extent to which a convenience sample – regardless of its size – actually represents the entire population cannot be known
 - Drawn from part of population which is readily available/convenient
 - **Purposive/judgmental sample**
 - Researcher chooses sample based on who they think would be appropriate for the study
 - Used primarily when there is a limited number of people that have expertise in the area being researched, or when the interest of the research is on a specific field or a small group
 - **Panel Sampling**
 - First select group of participants through random and then asking group for the same information several times over a period of time
 - Each participant is given same survey/interview at two or more time points → data collection = wave
 - Chosen for large scale or nation-wide studies
 - Gauges changes in population (illness, job stress, weekly food expenditure etc...)
 - Used to inform researchers about within-person health changes (age)
 - Help explain changes in continuous dependent variables (spousal interaction)
 - **Quota**
 - Segmented into mutually exclusive sub-groups, just as in stratified sampling.
 - Judgement is used to select the subjects or units from each segment based on specified proportions
 - E.G. an interviewer may be told to sample 200 females and 300 males between the age of 45 and 60.
 - This is what makes it non-probability sampling
 - Selection is non-random
 - Risk of samples being biased because not everyone is selected → greatest weakness!

- **Snowball**

- Finding a small group of initial respondents and using them to recruit more respondents
- Particularly useful in cases where the population is hidden or difficult to enumerate

✚ Since nonresponse effectively modifies each elements probability of being sampled, nonresponse effects may turn ANY probability design into a nonprobability design if characteristics are not well understood.

Sampling schemes may be without replacement (WOR) – no element can be selected more than once, or with replacement (WR) – an element may appear multiple times in one sample
E.g. catching fish, measuring them, throwing them back → might catch the same fish = WR. BUT if you do NOT throw it back = WOR

Event Sampling Methodology (ESM)

- New form of sampling
- Allows researchers to study ongoing experiences and events that vary across and within days in its naturally-occurring environment
- Addresses shortcomings of cross-sectional
 - Can now detect individual variances across time

Probability proportional to sampling size

In some cases, the sample designer has access to an "auxiliary variable" or "size measure", believed to be correlated to the variable of interest, for each element in the population. This data can be used to improve accuracy in sample design. One option → use auxiliary variable as basis for stratification.

Another option → probability-proportional-to-size ('PPS') sampling - the selection probability for each element is set to be proportional to its size measure, up to a maximum of 1. In a simple PPS design, these selection probabilities can then be used as the basis for poisson sampling (each element of the population is subjected to an independent Bernoulli trial which determines whether the element becomes part of the sample)

→ Drawbacks of variable sample size and different portions of the population may still be over- or under-represented due to chance variation in selections.

Solution → PPS may be combined with a systematic approach

Process

- Define population of concern
- Specify sampling frame, set of items or events to measure
- Specifying sampling method
- Determining sample size
- Implement sampling plan
- Sample and collect data
- Reviewing the sampling process

Reliability vs Validity

- Reliability
 - The degree to which an assessment tool produces stable and consistent results
 - Quantitative studies:
 - Assumption of repeatability
 - Qualitative studies:
 - Reframe as dependability and confirmability
 - Measurement = reliable when results produced are consistent over repeated testings
 - “How well are we measuring whatever we are measuring, regardless of whether or not it is the right quantity to measure”
 - Does not imply value judgment
- Validity
 - Refers to how well a test measures what it is supposed to measure
 - Quantitative studies:
 - Measurements, scores, instruments used, research designs
 - Qualitative studies:
 - Ways that researchers have devised to establish credibility: member checking, triangulation, thick description, peer reviews, external audits
- Why do we bother?
 - Quantitative: R & V are treated as separate terms
 - Qualitative: R & V are often all under another, all-encompassing term
 - Semi-reciprocal relationship

“Reliability and validity are tools of an essentially positivist epistemology. While they may have undoubtedly proved useful in providing checks and balances for quantitative methods, they sit uncomfortably in research of this kind, which is better concerned by questions about power and influence, adequacy and efficiency, suitability and accountability. ” – Watling, Simco & Warin, 1997

Reliability



Validity

Reliable



Valid



Not Valid

Not Reliable



Not Valid

Classical Test Theory (CTT)

- Single definable trait or skill is measured
- All items on test measure the same trait or skill
- Formula determines reliability
- Test is made MORE reliable by making it longer
- Limitation: reliability depends upon sample group and is not a characteristic of the test itself

Generalisability Theory (GT)

- Based in analysis of variance
- Allows for multiple sources of error (Unlike CTT)
- Designed to account for factors that researchers predict will influence scores
- Can compute multiple estimates of reliability

Item Response Theory (IRT)

- Measure a single trait or skill (Like CCT)
- Relationship between score on an individual test item and the skill/trait CAN be measured
- “Adaptive tests” – tests can be customised to individual test-taker
- Does not use traditional concept of reliability

Lecture 10 – APA

Plagiarism – whenever you adopt or copy your own work or the work of another author (ideas, text structures, images...) in the exact same way or with small changes without accurate referencing

How to avoid it → ALWAYS obliged to clearly indicate from which source you got your information with the use of references

- No matter which type of source you use
- No matter what you copy or use from your source
- No matter how you display or use the information

When in doubt → REFERENCE!

EXCEPT:

- Commonly known facts
 - Computer stores information on a hard drive
- Generally accepted theorems
 - Gravity
- Your own ideas and results

But Why?

- Legally obliged
- Indicated which ideas are yours and which are borrowed from other authors
- Reader can check if the research is based on relevant and trustworthy
- Guide your reader towards relevant sources on topic
- KU Leuven can (and will) check your research with the use of Turnitin (gives % of non-authentic content)

But What?

- Sources you actually read and used during your research
 - Not enough to only have read the abstract and introduction of the source
 - Reference in a paper is not enough to use in your own research without reading and using it

But Where?

- In the text, after the sentence or paragraph in which you use or copy (part of) the source that you read and processed
- You 'repeat' all these references in alphabetical order at the back/end of the paper in a bibliography or reference list with the necessary characteristics to identify the used source
- Only include references used in the text
 - EVERY reference in your texts needs to be in your bibliography & vice versa

Citing

- Placed between “double quotes”
- Followed by correct reference between brackets (NOT between quotations)
- When copying part of a text → mention page number
 - “.....” (Gardner, 1973, p. 41)

Paraphrasing – describing the ideas or text of another author in our own words

Summarising – reproducing relatively large passages and ideas from another author in a concise manner

Did you use your own words?

- YES
 - You are copying an idea
 - Paraphrase with reference
- NO
 - You are copying literally
 - Cite with the use of “...” and add reference

Where can I find legitimate sources?

- Scientific sources
 - LIMO (Uni Library) [bib.kuleuven.be]
 - Helps you search ALL sources available in uni library
 - Physical collection
 - Databases, e-books, e-journals
 - Books and articles from Lirias
 - Electronics publications that are indexed in Primo Central (index of ALL articles and books available in open access repositories)
 - [open access: research output free of access and use restrictions]
 - Search engines (Google, Google scholar, Yahoo...)
 - Google = all types of webpages
 - Google Scholar = more scientific content
 - Wildcard 1 character → ?
 - Wildcard 1 or more characters → *
 - Word groups → “...”
 - Lirias (digital repository of KU Leuven) [lirias.kuleuven.be]
 - ‘Wie is Wie’
 - Other libraries (Scientific library of the National Bank of BE,...) [nbb.be → collections → catalogue]

But How? → **APA** style from American Psychological Association

DOI: Digital Object Identifier → unique number of a journal article, online traceability

Journal article

- With DOI (Digital Object Identifier)
 - Author, A. (year). Title of the article. *Title of the journal, volume(issue)*, pp-pp. doi: xx.xxxxxxxxxx
 - In text: ... (Author, year). OR Author (year) claims ...
 - Fairchild, A., Baker, P., Pater, J. (2010). E-Accessibility and Municipal Wi-Fi: Exploring a Model for Inclusivity and Implementation. *International Journal of Information Communication Technologies and Human Development*, 2 (2),52-66. doi: 10.4018/jicthd.2010040104
- Without DOI and retrieved from the internet
 - Include URL, no retrieval date necessary
 - Author, A. (year). Title of the article. *Title of the journal, volume(issue)*, pp-pp. Retrieved from <https://www.xxxx>
- Without DOI not retrieved from the internet
 - Author, A. (year). Title of the article. *Title of the journal, volume(issue)*, pp-pp.
- No changes for in text references

Year and author problems

- When there is no year/date of publication available
 - Replace the year by “n.d.” (no date) or “s.d.” (sine die)
 - Author, A. (s.d.). Title of the article. *Title of the journal, volume(issue)*, pp-pp. doi: xx.xxxxxxxxxx
- When you have the same author for two sources
 - Add letter a, b, c, ... for the first, second, third, ... reference (alphabetically)
 - Author, A. (year). Title of the article. *Title of the journal, volume(issue)*, pp-pp. doi: xx.xxxxxxxxxx
- Same changes in text reference

More than one author

- Reference list
 - Author, A. (year). ...
 - Author, A., & Author, B. (year). ...
 - Author, A., Author, B., & Author, C. (year). ...
 - Author, A., Author, B., Author, C., & Author, D. (year). ...
 - ...
- When you have more than seven authors something changes!
 - Author, A., Author, B., Author, C., Author, D., Author, F., Author, E., ... Author, Z. (year). ...

<u>Number of authors</u>	<u>First reference</u>	<u>Next reference</u>
<u>1 author</u>	<u>Author (year)</u>	<u>Author (year)</u>
<u>2 authors</u>	<u>Author and Author (year)</u>	<u>Author and Author (year)</u>
<u>3 authors</u>	<u>Author, Author and Author (year)</u>	<u>Author et al. (year)</u>
<u>4 authors</u>	<u>Author, Author, Author and Author (year)</u>	<u>Author et al. (year)</u>
<u>5 authors</u>	<u>Author, Author, Author, Author and Author (year)</u>	<u>Author et al. (year)</u>
<u>6 or more</u>	<u>Author et al. (year)</u>	<u>Author et al. (year)</u>

Newspaper article

- Newspaper article
 - Author, A. (year, month day). Title of the article. *Title of the newspaper*, pp. xx, xx.
- Online retrieved newspaper article
 - Author, A. (year, month day). Title of the article. *Title of the newspaper*. Retrieved from <https://www.xxxxxxx>

Book and book chapter

- Published book
 - Author, A. (year). *Title of the book*. Location: Publisher.
 - Author, A. (year). Title of chapter. In A. Editor & B. Editor (Eds.). *Title of the book* (pp. xx-xx). Location: Publisher.
- E-book
 - Author, A. (year). *Title of the book*. Retrieved from <https://www.xxx>
 - Author, A. (year). Title of chapter. In A. Editor & B. Editor (Eds.). *Title of the book* (pp. xx-xx). Retrieved from <https://www.xxx>
- Editor instead of author
 - Editor, A. (Ed.). (year). *Title of the book*. Location: Publisher.
 - Author. (year). Title of chapter. In A. Editor & B. Editor (Eds.). *Title of the book* (pp. xx-xx). Location: Publisher.
 - When author = editor use the term ‘author’ not the name

Reports and conferences

- Governmental report
 - Author or Organisation. (year). *Title of report* (Type of report No. xx). Retrieved from <https://www.xxx>
 - When report number not available, don’t include ‘No. xx’
- Conference abstract online
 - Presenter, A. (year, month). *Title of paper or poster*. Paper/Poster session presented at the meeting of Organisation name, Location. Abstract retrieved from <https://www.xxxxxxx>
 - You choose the correct option: paper or poster.

- Conference presentation or poster
 - Presenter, A. (year, month). *Title of paper or poster*. Paper/Poster session presented at the meeting of Organisation name, Location.
 - Huysegoms, L. (October, 2015). *Review of Decision Support Tools for Sustainability Assessment of Site Remediation*. Paper presented at the meeting of Contaminated Site Management in Europe, Brussels.

Master's thesis or doctoral dissertation

- Unpublished
 - Author, A. (year). *Title of the master or doctoral thesis* (Unpublished doctoral dissertation/master's thesis). Name of institution, Location.
- From an institutional database
 - Author, A. (year). *Title of the master or doctoral thesis* (Doctoral dissertation/master's thesis). Retrieved from <https://www.xxxx>
- From the web
 - Author, A. (year). *Title of the master or doctoral thesis* (Doctoral dissertation/master's thesis, Name of institution). Retrieved from <https://www.xxxx>

Review and video

- Review
 - Reviewer, A. (year). Title of the review article [Review of the book, *Title of the book*, by A. Author]. *Journal of review article*, volume(issue), pp-pp. doi: xx.xxxxxxx
 - When review is on another source change 'book' to correct source
- YouTube video
 - Author, A. [Screen name] (year, moth day). *Title of the video* [Video file]. Retrieved from <https://www.xxxxxx>
 - When author (person who posted the video is not known use the screen name (without brackets)

Dataset and manuscript of an article

- Dataset
 - Rights holder, A. (year). *Title of the dataset* [Data file]. Retrieved from <https://www.xxxxxx>
 - Rights holder can also be an institution
 - Always indicate the form(s): data file, data file and code book, ...
 - Manuscript in progress or submitted for publication
 - Author, A. (year). *Title of manuscript*. Unpublished manuscript / Manuscript submitted for publication / Manuscript in preparation.
 - Choose correct description

TIP

- When writing your bachelor/master thesis → Use bibliography software! (Zotero, Mendeley)
 - Does the work for you!
 - Stores your articles and other sources
 - Add-in for word makes for easy referencing
 - IT IS FREE

Lecture 11 – Reporting and Reading

After the experiment is over → time to analyse collected data → draw conclusions → report results

- Researchers will either find something to support their original hypothesis or original research statement
- Or find new data and form a new opinion
- What does Success look like though?
- If results do NOT support the hypotheses, it does NOT mean the research was worthless
 - Even results that do NOT show a relationship between two or more variables can provide valuable information

Reviewing your research

- What was the reason you undertook the research in the first place?
 - Helps organise data and focus your analysis
 - E.G. If you wanted to improve a program by identifying its strengths and weaknesses, you can organise data into program strengths, weaknesses and suggestions to improve the program.
 - If you wanted to fully understand how your program works, you could organise data in the chronological order in which customers or clients go through your program.
 - If you are conducting a performance improvement study, you can categorise data according to each measure associated with each overall performance result, e.g., employee learning, productivity and results.

Reporting Results

- The level and scope of content depends on to whom the report is intended
 - Funders/Bankers,
 - Employees
 - Clients/Customers
 - The Public, etc.
 - Be sure employees have a chance to carefully review and discuss the report. Translate recommendations to action plans, including who is going to do what about the research results and by when. (WBS)
 - Be sure to record the research plans and activities in a research plan which can be referenced when a similar research effort is needed in the future.
- Reporting results to grants organisations
- Funders & Bankers will likely require a report that includes an executive summary
 - A summary of conclusions and recommendations, NOT a listing of what sections of information are in the report (Table of contents)
 - Description of the organisation and the program, product, service, etc., under evaluation
 - Explanation of the research goals, methods, and analysis procedures
 - Listing of conclusions and recommendations
 - Any relevant attachments
 - Research questionnaires
 - Interview guides etc.

- The funder may want the report to be delivered as a presentation, accompanied by an overview of the report. Or → may want to review the report alone.

Writing an academic paper

- Introduction
 - Provides background information on the problem to be investigated
 - Should describe current state of knowledge of the problem
 - Conclude with a clearly stated study hypotheses and its experimental expectations
- Methods
 - Describes the procedures used in testing the study hypothesis
 - Should describe procedures in sufficient detail so that they can be repeated by others
 - Materials, equipment, analytical and statistical procedures should all be described in detail here
- Results
 - Summary of the experimental outcome of the study
 - Should include a concise verbal description of the outcome as well as tables and figures, showing statistical results and experimental error
 - Tables and figures should include legends explaining what they are summarising.
- Discussion
 - Where results are interpreted and conclusions are drawn
 - Should also compare the results to those of other studies and give the general significance of the findings
 - Study limitations, sources of error future work plans are presented here

When presenting commercial research → Try to accommodate both data & evidence AND images & imagination

How to read a scholarly article

Scholarly articles are made up of:

- Abstract & The Title
 - o Indicates information found in article (menu description)
- Introduction
 - o Summarises the whole piece (road map)
 - o Present main idea
 - o Tells us why we should care
- Literature Review
- Main Body
 - o Methodology
 - o Results
 - o Date etc
- Discussion
 - o Recaps the entire study
 - What authors meant to prove and how the experiments ended
- Conclusion
 - o Restates the introductions to better understand article
 - o Where authors point out limitations and errors
- Bibliography

1st – Abstract

2nd – Discussion & Conclusion

3rd – Introduction

4th – Main Body

5th – Literature Review

6th – Reread entire article in chronological order 😊

Ask yourself these question:

- What specific topic is the researcher studying?
- What is already known about this topic?
- Do I agree with what the author is saying?
- Does what the author says agree with other information I have found on this topic?

→ Improves comprehension & help you think critically about the topic

Take Notes!

- Main purpose of article
- Key questions or thesis that the author is asking
- Finding (facts & data that support the author's argument)
- Conclusion

The title gives you clues! Not relevant? → DO NOT READ!

Bibliography! → Helps you track down more relevant sources for your research

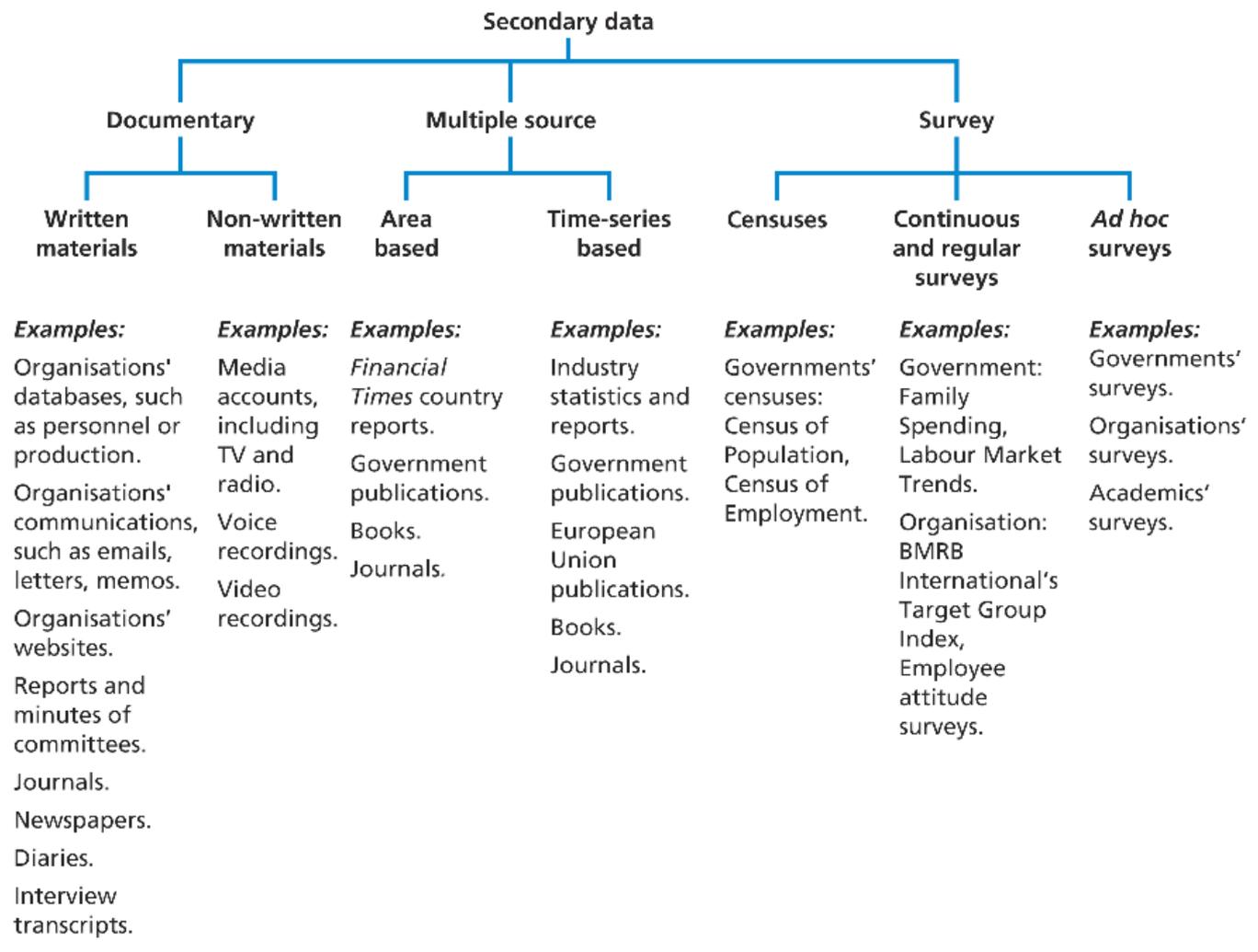
Figuring out the main argument is THE KEY to reading the text effectively and efficiently!

Lecture 12 – Uses of secondary data

- **Secondary data** – data that has already been collected for other purposes

Types of secondary data

- **Documentary**
 - Used in research projects that also use primary data collection methods
 - Can also use them on their own or with other secondary data
- **Surveys**
 - Data collected using a survey strategy, often questionnaires
 - Have already been analysed for their original purpose
- **Multiple**
 - Both documentary and surveys
 - Data sets combined to form another data set prior to your accessing the data



Multiple source secondary data

- Time series for longitudinal studies
 - Extract and combine selected comparable variables from a number of surveys or surveys repeated a number of times to provide time series of data to undertake a longitudinal study
- Cohort studies
 - Compiled over time using a series of ‘snap shots’ to form cohort studies (same geo basis)
- Area based data sets
 - Data can also be combined, if they have the same geo basis, to form area based data sets

Finding data – two stages

- Establishing that secondary data is available
- Locate it

Availability of secondary data

- Sources
 - References in publications (books, journal articles)
 - Within organisations (unpublished sources)
 - Tertiary literature (indexes and catalogues in archives or online)
- Finding secondary data
 - References in published guides
 - Data held by organisations
 - Data on the Internet
- Advantages
 - Fewer resource requirements
 - Unobtrusive
 - Longitudinal studies may be feasible
 - Provision of comparative and contextual data
 - Unforeseen discoveries may occur
 - Generally permanent and available
- Disadvantages
 - Purpose of data collection may not match the research needs
 - Access may be difficult or costly
 - Aggregations and definitions may be unsuitable
 - No real control over data quality
 - Initial purpose may affect data presentation
- Ensure that data sources:
 - Enable the research question(s) to be answered
 - Enable research objectives to be met
 - Have greater benefits than their associated costs
 - Allow access for research

1 Assess overall suitability of data to research question(s) and objectives

Pay particular attention to:

- measurement validity
- coverage including unmeasured variables

2 Evaluate precise suitability of data for analyses needed to answer research question(s) and meet objectives

Pay particular attention to:

- validity
- reliability
- measurement bias

3 Judge whether to use data based on an assessment of costs and benefits in comparison to alternative sources

If you consider the data to be definitely unsuitable, *do not* proceed beyond this stage

Suitability of secondary data

- Overall
 - Precise suitability, including reliability and validity
 - assessment of collection methods
 - clear explanation of collection techniques
 - Measurement validity
 - Measurement bias and deliberate distortion
 - Coverage and unmeasured variables
 - ensure exclusion of unwanted data
 - ensure sufficient data remain for analysis
 - Costs and benefits

Benefits

- Even reanalysis by a researcher of data that he/she previously collected qualifies as secondary analysis if it is for a new purpose or in response to a methodological critique
- Thanks to the data collected by social researchers, governments and organisations over many years → secondary data analysis has become the research method used by many contemporary social scientists to investigate important research questions

So why secondary data?

- Data collected in previous investigations is available for use by other social researchers on a wide range of topics
- Available datasets often include many more measures and cases and reflect more rigorous research procedures than another researcher will have the time or resources to obtain in a new investigation
- Much of the groundwork involved in creating and testing measures with the dataset has already been done
- Most important, most funded social science research projects collect data that can be used to investigate new research questions that the primary researchers who collected the data did not consider
- Content analysis → similar to secondary data analysis in its use of information that has already been collected
 - Can be called an “unobtrusive method” → does not need to involve interacting with live people
 - Most content analyses, like most secondary data analyses, use quantitative analysis procedures and you will find some datasets resulting from content analyses in collections of secondary datasets
 - Can even be used to code data collected in surveys → can find content analysis data included in some survey datasets
 - However, content analysis methods usually begin with text, speech broadcasts, or visual images, not data already collected by social scientists
 - The content analyst develops procedures for coding various aspects of the textual, oral (spoken), or visual material and then analyses this coded “content”

Summary

- Evaluation of secondary data should include reliability and any measurement bias
- Costs and benefits of using secondary data should be evaluated and compared with alternative sources
- Although secondary data may contain some bias, it can help to answer your research question
- Remember to check the research project assessment regulations regarding the use of secondary data