Highlighted by

Research Methodology

(ENG518)

Lessons Compiled by Maha Malik

Eng518Highligted handout by frishtay

VIRTUAL UNIVERSITY OF PAKISTAN

Lesson-01

WHAT IS RESEARCH?

Topic-001: What is Research?

The course provides in-depth understanding of research methodologies. The focus is emphasize each step involved in research methodology starting from locating the research problem to designing and developing a complete research. The course will equip the students with the awareness of the distinctive concepts of research process and their varied implementation.

The course aims to:

- understand and have an overview of the fundamentals of research methods used in the field of English Language Teaching (ELT)
- critically evaluate a research problem and formulate research questions and objectives for astudy to address the issue.
- formulate (in a particular context) the major components of a research study (e.g., title, abstract, introduction, research design, discussion and conclusion)
- present a research proposal and critically argue to defend the research design

Research is a systematic inquiry that investigates hypotheses, suggests new interpretations of data or texts, and poses new questions for future research to explore (Jolla, 2015).

Research consists of:

- Asking a question that nobody has asked before;
- Doing the necessary work to find the answer; and
- Communicating the knowledge you have acquired to a larger audience.

In practice, research methods vary widely, depending upon the academic discipline's accepted standards, the individual researcher's preferences, or a particular study's needs. Research in science and engineering often involves conducting experiments in the lab or in the field. Research in the arts, humanities, and social sciences may include archival work in the library or on the internet, conducting surveys or in-depth interviews, and a wide range of creative and artistic projects- from costume design to playwriting to curating a fine arts exhibit.

Topic-002: Definitions of research

In the broadest sense of the word, research includes any formal gathering of data, information and facts for the advancement of knowledge.

Research is conducted according to the researcher's intention, their purpose, and the paradigm they are operating from within. While many people use the word "research" to loosely mean "gathering information" scientists use this word in a more specific way. The term "research" in a scientific context usually refers to the entire scientific method from start to finish.

Research adds to the scientific knowledge of the subject. According to Francis G. Cornell, it is a reliable

verifiable and exhaustive process. Research is a careful inquiry or examination in seeking facts or principles (Clifford Woody Uof Michigan), it urges for the discovery of truth (critical thinking), defining and redefining problems, formulating hypotheses (or suggesting solutions) collecting, organizing and evaluating data, making deductions and reaching conclusions.

CC Crawford says that research is simply a systematic and refined technique of thinking, employing specialized tools, instruments, and procedures; we opt for research to obtain a more adequate solution of a problem than would be possible under ordinary means. Encyclopedia of Social Science defines it as the manipulation of things concepts or symbols-generalizing to extend, correct or verify knowledge. V. Redman and A.V.H. Mory state that research is a systematized effort to gain new knowledge. Francies Rummel discussed about research as an endeavor to discover, develop and verify knowledge, an intellectual process which is developed over hundreds of years, ever changing in purpose and form and always searching for truth. According to P.M. Cook, research is an honest exhaustive, intelligent searching for facts and their meanings or implications with reference to a given problem. The product or findings of a given piece of research should be an authentic, verifiable contribution to knowledge in the field studied.

Topic-003: General Characteristics of Research

The characteristics of research are:

- The nature of research is systematic-logical- empirical-reductive-replicable.
- It gathers new knowledge or data from primary or first-hand sources.
- Emphasis upon the discovery of general principles
- Exact systematic and accurate investigation involved
- Uses certain valid data gathering devices
- Logical and objective
- Resists the temptation to seek only the data that support his hypotheses
- Eliminates personal feelings and preferences
- Patient and unhurried activity
- Carefully recorded and reported
- Conclusions and generalizations are arrived at carefully and cautiously

Topic-004: Functions of Research

Research is the name of seeking new knowledge for continuous improvement.

- Through research refinement and extension of knowledge happens, it provides baseline data or simply a picture of how things are.
- Research makes decision-making easier, concerning the acquisition of knowledge in a specific field
- It improves learning and teaching processes
- It improves various aspects of human life

Topic-005: Specific Characteristics of ELT Research

There are 50 + research journals (TESOL website) available to take guidance regarding ELT research.

Why such a huge research is there in ELT? It provides a sound philosophy, deep insight and imaginative.

It offers problem solving techniques. ELT research is both theoretical and applied. ELT research desires to make things better, improving teaching and learning. It is not as exact as physical sciences, also involves subjectivity. There is no restriction for ELT research to be held by specialists only. It is an interdisciplinary research. It can bridge Psychology [e.g., motivation and anxiety] and Sociology [e.g., cultural assimilation and social varieties].

Lesson-02

RESEARCH IN ENGLISH LANGUAGE TEACHING (ELT) [APPLIED LINGUISTICS]

Topic-006: Identifying Important Questions in ELT

First of all, identify that for whom this research is going to be? Who will be the beneficiary of the research? The following areas would be the matter of concern in ELT research:

- Understanding of language issues
- Students
- Teachers (ES/FL)
- Admin
- Parents
- Stakeholders

Massive number of questions and answers have been asked and investigated in the field of English language teaching. Anything related to language and society, learning, teaching, management, decision making and researchers can be a topic of concern in ELT research.

Topic-007: What is ELT Research About?

ELT research has vast domains of topics. There are massive questions and answers. Anything related to language, practical issues, problems related to second or foreign language, language policy are involved in the paradigm of ELT research. Applied Linguistics topics such as bilingualism, multilingualism, language education, the preservation and revival of endangered languages, assessment and evaluation, treatment of language, professional communities and cross-cultural communication are also part of ELT research.

Topic-008: Why is Research in ELT (AL) Important?

Is language important? English language teaching has major challenges regarding quality of learning and teaching to study. Consumers of ELT research are also emphasized while conducting research in ELT. Usually, there is not a single way of teaching; method of teaching varies on the basis of cultures, norms, policies, countries, languages, subjects etc. ELT research looks into all these ways of teaching. Researchers study the use of many different sets of materials to teach distinctively. The ways of conveying information are also different leads to the questions of what to teach and how to teach? Similarly, we have different methods of assessment and evaluation and different uses of technology in classrooms. Then, researchers are also keen to know learners and teachers perspectives regarding all the issues in education at (L) Linguistic levels and also (T) Identity – tech incorporation.

Topic-009: Demythologizing Research

Research has some particular elements attached to it that are for instance, searching articles and writing papers, working in labs, performing artificial experiments, experimented only by experts. There

are many more also.

A true research has following characteristics:

- Provides clear understanding of meaning
- An earnest activity
- Helps solving problems
- Carried out by skillful practitioners
- Follows a systematic research process
- Answers of 'What/why' questions
- Creates more questions
- Data is gathered, analyzed and conclusion is drawn out of it

Topic-010: Identifying Important Questions in ELT

How would we create research questions in ELT? There are some most common motivating forces like practical problems (Ferris, 1995 and Arva & Medgyes, 2000), questions in secondary sources (Textbooks/theoretical papers), primary research (sampling/design/discussions/recommendations) that lead us to locate issues and form important research questions.

Questions for research

Identify a question you have in the area of teaching or learning, the question can be identified through following sources:

- Having an experience
- Use of secondary sources (Textbooks/theoretical papers)
- Reading discussion sections of related researches
- How is that important for others?

Lesson-03

CLASSIFICATION OF RESEARCH

Topic-011: Classification of Research

Levels of research

There are two basic levels of research

- Basic
- Applied

Basic and applied research

Characteristics of Basic research

- Theoretical
- Contributing to subject knowledge
- No immediate value
- Used for broader studies

Characteristics of Applied research

- Action research
- Solving problems
- Specifying a problem

Topic-012: Major Types of Research

Types of research on the basis of research objectives

- Fundamental
- Action

Types of research on the basis of Nature of research

- Exploratory
- Confirmatory

Types of research on the basis of Data collection procedures

- Qualitative
- Quantitative

Types of research on the basis of Application of research

- Longitudinal
- Cross-sectional
- Conceptual
- Empirical

Other types of research

- Educational research
- Historical research

Topic-013: Educational Research

In educational research, the issues of influencing educational theories and practices are emphasized.

Educational problems are focused in:

- Library
- Field

Educational philosophy is studied and investigated. Educational curriculum development is achieved. Educational research also concerns regarding learning and teaching methods. It focuses on teacher education.

Influencing educational theory and practices

There are some key issues that are taken in to consideration during educational researches:

- Teacher behavior
- Educational administration and supervision
- Educational technology
- Research having educational implication
- Educational significance

Topic-014: Scientific Ways to Solve Problems

Non-scientific ways may solve your issues, but one needs to have the characteristics of tenacity, intuition, authority, rationalistic approach and experience to successfully incorporate a non-scientific research in ELT.

Scientific ways to solve problems

Scientific ways may solve your issues, by following a systematic process that consists of following steps:

- Developing the problem
- Forming the hypothesis
- Gathering the data
- Analyzing and interpreting data
- Conclusion

Topic-015: Characteristics of an Investigator

Effective investigator

The characteristics of an effective investigator/researcher are as follows:

- Full understanding of functions and activities
- Reflective thinking
- Sensitive towards job

- Creative and imaginative
- Knowledge of action research
- Insightfulness
- Scientific attitude towards studying (observing problem)
- Objectivity in thinking
- Democratic behavior
- Patience
- Knowledge of measuring tools
- Open-minded
- Excellence in job
- Frugal

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Lesson-04

ASSORTMENT OF A PROBLEM

Topic-016: Assortment of a Problem

First step in research is the selection of a problem. A problem is selected through reflective thinking towards a target issue; a careful ordered thinking is required. After selecting a problem the keen understanding and evaluation of the research problem is required.

Reflective and scientific thinking

Reflective thinking involves:

- Occurrence of a problem
- Definition
- Explanation
- Elaboration
- Collection
- Conclusion

Scientific thinking involves:

- Inductive-deductive reasoning
- Cause and effect
- Assumption/hypothesis/objective/data driven

Topic-017: Identification of a Problem

First and most crucial step

To identify a problem, a researcher needs to know about the following things:

- Exact nature and dimensions of the problem
- Research field
- Mastery of the area
- Basis for literary survey
- Priority field of study
- Definitions/analogies
- Pinpoint specific aspects

Sources of a problem

A researcher can find research problem through various resources like:

- Personal experience
- Studying available literature
- Innovation (technological changes)
- Discussions in professional circles
- Secondary sources; publications/reports

Topic-018: Criteria for the Selection of a Problem

Before selecting specific research problem, it is crucial to follow a criterion. Points to be kept in mind for selection of a problem are:

- Novelty (avoid unnecessary duplication)
- Importance for the field
- Interest intellectual curiosity
- Training and personal qualification
- Availability of data
- Special equipment and working conditions
- Approachability of the sample
- Sponsorship and admin cooperation
- Cost and return
- Time factor

Topic-019: Defining a Problem

Reaching to the core of a problem

- Need to define a research problem
  While defining a research problem, keep in mind that a research problem:
  - Sets the directions for the research
  - Reveals the methodology
  - Controls subjectivity
  - Specifies variables
  - Makes research work practicable
- Precautions to be taken in defining a research problem
  - Specific words
  - Brief but comprehensive
  - Assumptions recognized
  - Practical importance
  - Certain rationale
- Steps involved in making a research problem
  - Define the problem
  - Set the conceptual framework
  - Delimit the elements
  - Specify the elements
  - Key points

Topic-020: Statement of a Problem

A problem statement is the description of an issue currently existing which needs to be addressed. It provides the context for the research study and generates the questions which the research aims to answer.

Delimiting the task and isolating specific problem

Three criteria for a good problem statement

- Clear and unambiguous
- Amenable to empirical testing

Lesson-05

FOUNDATION OF A HYPOTHESIS

Topic-021: Foundation of a Hypothesis

Formulation of a hypothesis

Second step in research

- After the development of research problem a tentative solution of a problem is devised.
- This tentative solution is formulated in the beginning.
- We can call it a presumptive statement of a proposition.
- It is a brilliant guess about the solution and temporarily accepted as true.

Topic-022: Assumption, Postulate and Hypothesis

There are specific terms in research literature that are important to know for a researcher.

- Assumptions
  - An assumption is a realistic expectation which is something that we believe to be true. However, no adequate evidence exists to support this belief. In other words, an assumption is an act of faith which does not have empirical evidence to support. Assumption provides a basis to develop theories & research instrument & therefore, influence the development & implementation of research process.
- Postulates
  - The scientific research method is based on certain basic postulates.
- Hypotheses
  - A hypothesis is a tentative statement about the relationship between two or more variables. It is a specific, testable prediction about what you expect to happen in a study.

All the above terms need to be distinguished in research process. There should be appropriate examples and analogies given in the research study and further elaborated in the work.

Characteristics of Assumptions

- Taking things for granted
- Restrictive conditions
- On logical insight
- Truthfulness observed

Characteristics of Postulates

- Working beliefs of most scientific activity
- Not proven – simply accepted at face value
- For starting working
- Discovery of other things

Characteristics of Hypothesis

- Differs from both assumption and postulates
- Presumptive statement of a proposition
- Suggested solution
- Subject to verification
- Basis for research study to be proved or otherwise
- Hypothesis testing -as an activity

Topic-023: Functions and Importance of a Hypothesis

Functions of a hypothesis

- Temporary solution
- Offers a basis for study
- May lead to formulate more hypotheses
- Preliminary and final
- Maybe objectively tested
- Delimiting the field-sensitizing the researcher
- Means for collecting data

Importance of a hypothesis

- Eyes of investigator
- Focused research
- Clear and specific goals
- Linking together
- Guiding light
- Direction to research
- Greater clarity
- Stimulating further research

Topic-024: Kinds of a Hypothesis

Hypotheses vary in form and function

Basically of two types:

- Relational
- Causal

Further types:

- Directional
- Null (ND)
- With different names (simple/complex/alternative/statistical/logical)
- Declarative
- Question

Null (ND) Zero Hypothesis

- Assertion that NO relation exists

- Statistical (testable)
- Probability framework
- More in education and psychology
- Significance (accept/reject)

Directional Hypothesis

- Expected direction
- Specific direction

Declarative Hypothesis

- Anticipated relationship
- Existing evidence examined

Question Hypothesis

- NO general consensus
- Simplest level of empirical evidence
- Question may or may not qualify as a hypothesis

Topic-025: Characteristics of a Good Hypothesis

In agreement with the observed facts, a good hypothesis should contain following characteristics:

- No conflict with universal laws
- Simplest possible form
- Permits deductive reasoning
- Clear verbalization
- Effective use of tools/tech
- Controls for verification
- Ensuring approachable sample
- Indicating clear roles for variables
- Keeping distinction among:
    - Theory
    - Law
    - Facts
    - Assumption
    - postulate

Lesson-06

RESEARCH VARIABLES

Topic-026: Variables in a Hypothesis

A variable is anything that has a quantity or quality that varies. A hypothesis is made testable by operational definitions of variables and terms.

Characteristics of Variables

- Variable – takes diff value
- Increase/decrease over time

Types of variables

- Independent
- Dependent
- Moderator – control – intervening

Variables in a hypothesis

- Operational definitions of the terms involved in a hypothesis
- Any misleading thing present in the hypothesis is defined
- Enabling to limit the meaning according to the area discussed in the hypothesis
- Specific definitions are mentioned
- Ensuring clarity of the statement
- Stick to it

Topic-027: Types of Variables

- Independent Variable
  - Provides a stimulus or gives an input
  - Measured/manipulated/selected
  - The cause of change
  - Always interested in affecting others
- Dependent Variable
  - Responsible for the response/output
  - Observed to effect
- Moderator
  - Special type of independent variable
  - Secondary independent variable
  - Modifying the relation
- Control Variable
  - A control variable in scientific experimentation is an experimental element which is constant and unchanged throughout the course of the investigation.

- Neutralized
- Factors controlled

- Intervening Variable
  - An intervening variable is a hypothetical variable used to explain causal links between other variables. Intervening variables cannot be observed in an experiment (that's why they are hypothetical).
  - All Vs can't be seen/measured/manipulated

Example:

Among students of the same age and intelligence, skill performance is directly related to the number of practice traits particularly among boys but less directly among girls.

IV: Number of practice traits
DV: Skill performance
MD: Sex
CV: Age, intelligence
IntV: Learning

Topic-028:Research Variables Combined

Variables interact among themselves. Independent, moderator and control variables interact with each other. It is in researcher's control; at least one independent variable and dependent variable in a hypothesis do interact. Intervening, extraneous and contaminating variables may interact also (Extraneous variables – These are all variables, which are not the independent variable, but could affect the results of the experiment.)

Example:

Among students of the same age and intelligence, skill performance is directly related to the number of practice traits particularly among boys but less directly among girls.

IV: Number of practice traits
DV: Skill performance
MD: Sex
CV: Age, intelligence
IntV: Learning (not stated)

Lesson-07

HOW TO LOCATE RESEARCH?

Topic-029: (HTLR) How to Locate Research?

Generating Research Questions and answers

To create research questions and answers we need to find research studies and then provide potential answers to research questions. For this purpose, a researcher can look for published primary research. There are different sources to find primary research such as;

- Educational index
- MLA/APA
- ERIC

Preliminary sources are:

- Educational Index
- MLA/APA
- CIJE
- SSI (Social Sci. Index)
- ERIC/RIE

Secondary sources can be:

- Literature reviews/position papers/books
- Tables of references/bibliographies

Topic-030:Searching Answers for Your Questions

Looking for your questions

If you are looking for answering research questions, there are some distinct search techniques in which firstly we delimit the area, and then search for it by doing advanced search. One can use delimiter (a character that marks the beginning or end of a unit of data) for advanced search. Use of specific keywords would be essential in searching for research questions. Also, read the input and results of the works for locating issues in them.

- ERIC
  - ERIC is an online library of education research and information, sponsored by the Institute of Education Sciences (IES) of the U.S. Department of Education.
  - Website to visit ERIC: www.eric.ed.gov
  - What you're interested in? On ERIC, you need to mention your area of interest and then search for it to get your desired results.
  - Keywords: Before starting searching, one should know the keywords. For instance, the question in your mind is, "What is the relationship between anxiety and language learning?"
  - Keywords for it will be: Anxiety and language learning
  - Jstor and google scholar are also useful resources to search

Topic-031: HTLR: Where to Look and What to Look For?

Main goal of primary research

Primary research Primary research is new research, carried out to answer specific issues or questions. It can involve questionnaires, surveys or interviews with individuals or small groups. It is a way to test proposed answers to research questions. There are overwhelming publications, PCs and internet that can help in conducting primary research. We can easily find what and where to look for? Now one can perform the work of hours and days work in minutes.

- PCs and Internet
  - Not going to libraries
  - Not writing
  - Not carrying books
  - Gigantic indexes
  - Looking for materials
  - Just clicking buttons
- Primary research
  - Preliminary sources
  - Secondary sources
  - Tables of References Bibliographies

Topic-032: HTLR: Preliminary Sources

Experts prepared sources

The resource materials that come from experts can help us find research. Similarly, publications also lead us to primary research. Then there are electronic databases such as;

- Storehouses
- CD – Rom
- University library
- HEC/other digital resources

Keywords are also helpful as a preliminary source. Other modes to explore are:

- Educational index
- MLA/APA
- ERIC
- CIJE
- SSI (Social Sci. Index)

Topic-033: HTLR: Secondary Sources

Secondary sources are the references and summaries; at this point primary research is accessed through the eyes of someone other the actual researchers (who did it)

Valuable places to find reference to primary researches

- Literature reviews
  - Existing literature summarized
- Position papers
  - Concepts expressed
- Books
- Tables of references and bibliographies

Lesson-08

LOCATING PRIMARY RESEARCH

Topic-034: (LPR) Locating Primary Research: Exploring Databases

Experts prepare sources to find research

Preliminary sources that experts prepare are found in bound copies in libraries furthermore, databases like educational index, MLA/APA, ERIC/RIE, CIJE/LLBA/EI and SSI (Social Sci. Index) are also available to find research.

Databases organize topics by a set of keywords and have a focus of studies. They are all available on CDs/Databases, academic search premier, PsychInfo, Sociological abstracts, JSTOR (1800s) and www.eric.ed.gov.

Topic-035: LPR II: Examples

Use the following options for locating primary research:

- ERIC
- www.eric.ed.gov
- JSTOR
- Google Scholar

Topic-036: LPR: Position Papers vs Primary Research

v.v imp

Position papers

A position paper is a written report outlining someone's attitude or intentions regarding a particular matter. It is similar to literature review. Writers argue their positions on various issues. Primary research is not included. It is used for proposing answers to research questions. It helps in generating hypothesis.

- Avoid the trap of circular reasoning
    - Generating hypothesis is okay
    - Supporting and justifying is NOT
- Position papers cannot be a substitute to you for literature review, it contains:
    - Witnessing of your own eyes
    - Focused summaries

Topic-037: LPR: Tables of References and Bibliographies

Locating primary research

To locate primary research, one should follow the following studies:

- Profitable places to find research studies
- Benchmark studies

- Studies with sparking interest of the area
- Particular issues
- Directional change regarding the area
- Use Seminal studies
- Use Tactics
    - Identify the frequency of citation
    - Important in the history of the area
    - Area of investigation
    - Go to Google scholar

Topic-038: LPR: Difference Between Primary & Secondary Sources

Primary vs secondary sources

- Primary research is the only way to find answers
- Not all primary research is equally important
- TWO criteria
    - Refereed (pass a matter to (a higher body) for a decision)
    - Blind review (This means that the reviewers of the paper won't get to know the identity of the author(s), and the author(s) won't get to know the identity of the reviewer.)

Distinguishing primary research from position papers

Primary research and position papers are different in following aspects:

- From title
- Terms and techniques
- Must be known to active researchers

Lesson-09

Exploring primary research in ELT

Topic-039: Obtaining ELT Related Research Articles

Obtaining research articles

Research articles can be obtained from following sources:

- University library
- Interlibrary loans
- Databases for small charges
- HEC digital library
- JSTOR – Google Scholar
- TESOL specific resources

Topic-040: Journals Related to ELT Research

Applied linguistics (ELT) resources v.v imp

Many research journals are available to consult for ELT research such as:

- TESOL
- AAAL
- IATEFL
- AERA
- ESP journal

Topic-041: Exploring ELT Research Journals

- TESOL – AAAL – IATEFL
- AERA – ESP journals
- Pakistani journals
- Specific journals
- Appendix C of your course book

Lesson-10

UNDERSTANDING WHERE DATA COME FROM?

Topic-042: Sampling Terminology

Population and sample

Population - the entire mass of observation (the universe). All the members of the group /objects are generalized as population. It is impossible to access all the population. Sample is the data drawn to test hypothesis. A sample can be a subject/informant/participant or one or more cases like case/inanimate objects (corpora/newspapers).

Examples of samples:

- Su (2001) 122 Chinese/English NSs
- Borg (1998) 1 teacher

Sample is where the data come from. It is the data source to answer research questions. Sample contains the characteristics of a specific group. Various attributes and features are studied through sample.

Topic-043: Sampling Paradigms

Basically, there are two sampling paradigms, depending upon the nature and purpose of the study.

1. Information rich paradigm
2. Representative sampling paradigm

Information rich paradigm

- Uncover the information
- It requires in-depth analysis
- Mainly in qualitative research
- Views – feelings – holistic small sample size
- Less generalizable

Representative sampling paradigm

- Replica of a larger group
- Generalizable
- Large samples (Questionnaire etc.)

Topic-044: The Information-Rich Paradigm

Qualitative sampling

- Maximizing information
- Small sample size (1 to large)
- Emphasis on the quality of information
- NOT generalizing
- Borg (1998) took one teacher as a sample

Two guidelines

1. Very good example of the small sample
    - Borg (1998) took one teacher
2. Examples of large samples
    - Guardado (2002) six families
    - Spanish children in Canada

Topic-045: Representative Sampling Paradigm

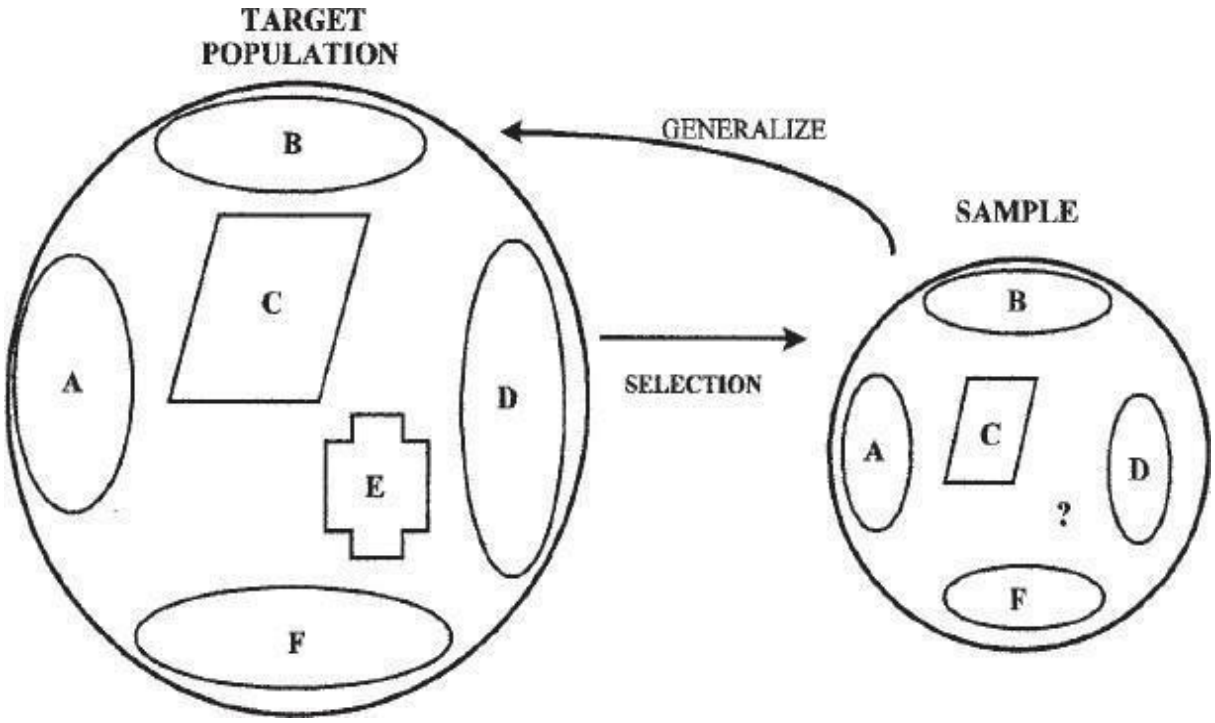
Sample as true representatives

Goal of sampling is to generalize the findings. Access to whole population is impossible.

For example

"EFL learners of English as students of English medium universities"

In the above given case, it is impossible to take the whole population to study larger populations however, the more sample size– the better it would be (the rule of game). It should highlight the important features. The attributes of the population must be found in the selected samples.



Topic-046: Ethics in Sampling of Human Participants

Several ethical issues related to human participants

Protection of the rights and privacy of human beings is a matter of serious concern in research. US commission in 1974 and Belmont Report 1979 devised ethics for taking humans as sample. Some organizations work for the regulation of human participants' protection.

Researchers should know the rights and exemptions before sampling. These type of issues can be avoided through reading and discussing, taking the informed consent with study staff, answering any questions, voluntary participation, taking all sorts of information and also knowing about the study's

procedures, risks and benefits. There can be exemptions (in some cases) like educational/public behaviour or public benefit/service.

Lesson-11

RESEARCH PLANNING AND SAMPLING

Topic-047: Research Planning and Sampling

Crucial step in social studies research

Mapping strategy and sampling techniques are crucial step in social studies research. Sampling procedure consists of making choices while answering your research questions. The researchers need to select mandatory design components. Firstly, to select a population, secondly, go for true sampling and then choose suitable techniques and procedures. Design components are based on class of enquiry and the model to be utilized.

Following are the components and steps involved in research planning:

- Devise research objectives and sampling
- Research strategy + tools and techniques
- Analyzing data
- Reporting the results
- Selecting qualitative & quantitative procedures
- A valid and reliable research design must be selected

Topic-048: Meaning and Definition of Sampling

Sampling as an indispensable technique

- A portion of a larger population
- Research is impossible without sampling
- Total population is impossible to be selected
- Limitations of time, energy, money are considered
- Research design is based on sampling
  - Economical
  - Accurate
- Fundamental to all statistical methods
- Sample should contain maximum information about population
- Generalizability of research data is drawn from it

Topic-049: Sampling Techniques

There are a lot of sampling techniques which are grouped into two categories as

Probability Sampling
Non- Probability Sampling

Probability Sampling

This Sampling technique uses randomization to make sure that every element of the population gets an equal chance to be part of the selected sample. It's alternatively known as random sampling.

- Simple Random Sampling
- Stratified sampling
- Systematic sampling
- Cluster Sampling
- Multi stage Sampling

Non-Probability Sampling

It does not rely on randomization. This technique is more reliant on the researcher's ability to select elements for a sample. Outcome of sampling might be biased and makes difficult for all the elements of population to be part of the sample equally. This type of sampling is also known as non-random sampling.

- Convenience Sampling
- Purposive Sampling
- Quota Sampling
- Referral /Snowball Sampling

Topic-050: Sampling Designs

A sample design is made up of two elements.

Sampling method

Sampling method refers to the rules and procedures by which some elements of the population are included in the sample. Some common sampling methods are simple random sampling, stratified sampling , and cluster sampling .

Estimator

The estimation process for calculating sample statistics is called the estimator. Different sampling methods may use different estimators. For example, the formula for computing a mean score with a simple random sample is different from the formula for computing a mean score with a stratified sample. Similarly, the formula for the standard error may vary from one sampling method to the next.

The "best" sample design depends on survey objectives and on survey resources. For example, a researcher might select the most economical design that provides a desired level of precision. Or, if the budget is limited, a researcher might choose the design that provides the greatest precision without going over budget.

Topic-051: Characteristics of Good Sampling

True representative of the population

A sample should be a true representative of the population. v.imp
Characteristics of a sample:

- Free from bias
- Objective
- Maintains accuracy
- Comprehensive in nature
- Economical
- Approachable
- Sample size
- Makes work more feasible
- Practicability
- Having maximum possible features and attributes of the population
- Free from errors

Lesson-12

AVOIDING ERRORS IN SAMPLING

Topic-052: Avoiding Errors in Sampling

Sample is not always representative

A sample is not necessarily always a true representative of population. There can be errors occurred in sampling. Two types of errors:

- Random error
- systematic error

Sampling errors and errors of measurement

- Four ways of classification (random – constant / sampling –measurement)
- Can be avoided through solid sampling design, large sample and multiple contacts

Topic-053: Avoiding Errors: Size of Sample

Sample size – crucial problem

By carefully choosing the sample size can avoid sampling errors. Sampling size depends upon total no. of subjects/ participants present and precision of the research. Before selecting the sample size we estimate the population parameter, there is no single rule for it. The researcher should try to reach as large as a sample as possible.

For example, 30 n= in each group of population. Larger the sample – the smaller would be the standard error. Sample should cover 10-20 % of the population. Usually in descriptive research, larger size samples are taken. In pure experimental studies, different groups of equal sizes are preferred as sample units.

Topic-054: Internal Validity

Avoiding errors in sampling: internal validity

Internal validity refers to how well an experiment is done, especially whether it avoids confounding (more than one possible independent variables acting at the same time). The less chance for confounding in a study, the higher its internal validity is.

Therefore, internal validity refers to how well a piece of research allows you to choose among alternate explanations of something. A research study with high internal validity lets you choose one explanation over another with a lot of confidence, because it avoids (many possible) confounds.

There are two types of validity. Validity determines that how sound is your research design? Internal validity is critically very important. Internal validity is concerned with the effects observed in the dependent variables are only due to independent variables. It also defines the causal relationship between independent variables and dependent variables.

Extraneous variables affect the internal validity because they are not controlled and have lower internal validity. Very difficult/impossible to replicate the extraneous variables also, cannot check the reliability of findings.

Credibility of sampling in Qualitative research methods

- Maturation is required
- Sample size matters
- Confounding
- Testing method
- History

Topic-055: External Validity

Avoiding errors in sampling: external validity

External validity refers to how well data and theories from one setting apply to another. This question is usually asked about laboratory research: Does it apply in the everyday "real" world outside the lab?

External validity determines the degree of generalizability. Can the findings of the study be generalized to the whole population? External and internal are not limited of each other. It depends upon transferability to situation.

Threats to external validity

- Participant characteristics should be studied keenly
  - True representative
  - Does the sample have all the characteristics of the population
- Relating to the setting of the study
- Timing of the study

Lesson-13

CLASSIFYING RESEARCH DESIGNS

Topic-058: Classifying Research Designs

Research design: overall plan

Research design is the blue print of your study, there can be more than one possibilities in selecting research design for the study. The step wise study framework is given below:

Problems (Variables) – Research Questions – population → sample Research Designs

We have to choose a specific type of research design that can be selected from the following:

- Basic-Applied
- Qualitative – quantitative
- Exploratory – confirmatory

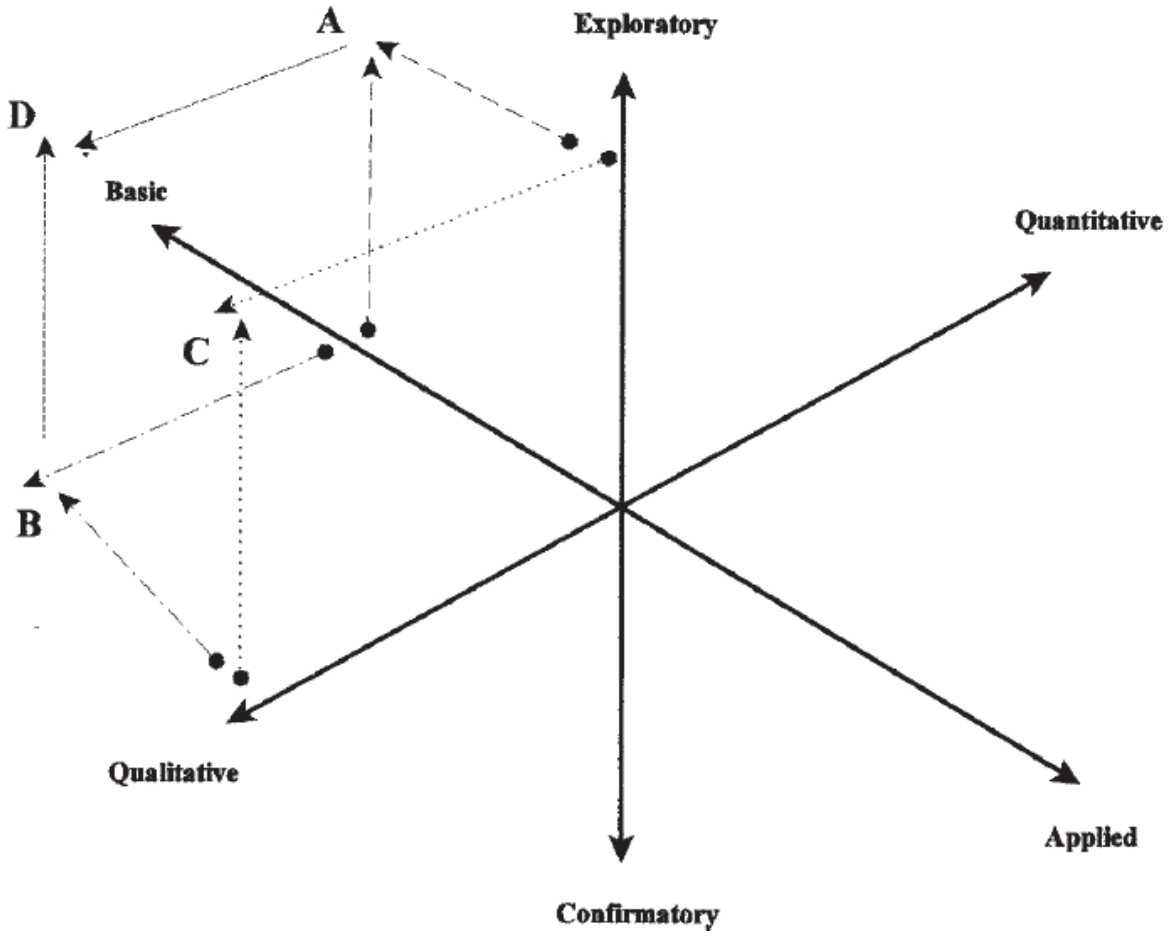
Characteristics of a Research Design

- Research design must be the plan that can guide the strongest plan for your research.
- Research design should be the most efficient structure to provide data for your study.
- Research designs must be the most useful plan to answer research questions.
- A poor research design is a house full of problems.
- Mapping strategy through critical planning can help for a systematic research process.

Topic-059: CRD: Three Continua

Three continua to classifying research designs

- Basic - Applied
- Qualitative – quantitative
- Exploratory – confirmatory



Topic-060: CRD: Three Continua

Classifying research designs: the basic-applied continuum

Basic Research or otherwise called as pure or fundamental research, is one that focuses on advancing scientific knowledge for the complete understanding of a topic or certain natural phenomenon, primarily in natural sciences. In a nutshell, when knowledge is acquired for the sake of knowledge it is called basic research.

Basic Research is completely theoretical, that focuses on basic principles and testing theories. It tends to understand the basic law.

Basic Research deals with generalization and formulation of theory about human behaviour. It is aligned towards collecting informationthat has universal applicability. Therefore, basic research helps in adding new knowledge to the already existing knowledge.

- Highly theoretical
- Hypothetical

- Broader studies

Applied research

Applied Research can be defined as research that encompasses real life application of the natural science. It is directed towards providing a solution to the specific practical problems and develop innovative technology.

In finer terms, it is the research that can be applied to real-life situations. It studies a particular set of circumstances, so as to relate the results to its corresponding circumstances.

Applied research includes research that focuses on certain conclusions experiencing a business problem. Moreover, research that is aligned towards ascertaining social, economic or political trends are also termed as applied research.

Characteristics:

- Solving problems
- Very practical

Comparison Chart

Basis for Comparison	Basic Research	Applied Research
Meaning	Basic Research refers to the study that is aimed at expanding the existing base of scientific knowledge.	Applied Research is the research that is designed to solve specific practical problems or answer certain questions.
Nature	Theoretical	Practical
Utility	Universal	Limited
Concerned with	Developing scientific knowledge and predictions	Development of technology and technique
Goal	To add some knowledge to the existing one.	To find out solution for the problem at hand.

Topic-061: CRD: The Qualitative - Quantitative Continuum

The qualitative - quantitative continuum is the center of focus (last 30 years). They were two schools of thoughts initially depending upon different data collection procedures. Quantitative and qualitative are two ends of a continuum having separate designs and methodologies.

Quantitative data collection v.imp

Quantitative research is a form of research that relies on the methods of natural sciences, which produces numerical data and hard facts. It aims at establishing cause and effect relationship between two variables by using mathematical, computational and statistical methods. The research is also known as empirical research as it can be accurately and precisely measured.

Characteristics:

- Psychology
- Statistics (generalize)
- To larger populations
- Large scale researches

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Qualitative data collection v.imp

Qualitative research is used to gain an in-depth understanding of human behaviour, experience, attitudes, intentions, and motivations, on the basis of observation and interpretation, to find out the way people think and feel. It is a form of research in which the researcher gives more weight to the views of the participants. Case study, grounded theory, ethnography, historical and phenomenology are the types of qualitative research.

Characteristics:

- Anthropological – Sociological research
- Verbal description
- Uncover information-rich
- Natural setting
- Concentrated contact
- Patterns-comparisons-contrast

Topic-062: CRD: The Exploratory - Confirmatory Continuum

Confirmatory Research:

Confirmatory research is where researchers have a pretty good idea of what's going on. That is, researcher has a theory (or several theories), and the objective is to find out if the theory is supported by the facts.

- Confirming something
- Whether the study is going to find evidence
- Supporting a hypothesis
- To confirm

Exploratory Research:

An exploratory design is conducted about a research problem when there are few or no earlier studies to refer to or rely upon to predict an outcome. The focus is on gaining insights and familiarity for later investigation or undertaken when research problems are in a preliminary stage of investigation. Exploratory designs are often used to establish an understanding of how best to proceed in studying an issue or what methodology would effectively apply to gathering information about the issue.

Characteristics:

- Exploring a phenomenon
- Prior to developing a Ho
- Doesn't test a hypothesis
- What is happening?

Lesson-14

QUESTIONS AND RESEARCH DESIGNS

Topic-063: Questions and Research Designs

Research Questions – basic determining points

- Research designs are based on your research questions
- Understanding your research designs in the light of your research questions
- Gathering – analyzing and concluding data
- Two generic questions are asked in the process:
  - Why?
- Examples of 'What questions':
  - What phenomena are important?
  - What simple relationships exist between phenomena?
- Examples of 'Why questions':
  - Why do some people learn languages better than others?
  - Why do certain variables relate with one another?

Topic-064: Q&D: The WHAT Questions

Characteristics

- Explain phenomenon
- Describe nature
- Description of philosophy
- State function(s)
- For example
  - What is important about it?
  - What relationship exists?
  - What is phonological memory
  - What is influence of bilingualism
- Information not known previously
- No hypothesis to confirm
- Studies mainly based on what questions are primarily exploratory
- Could be both quantitative and qualitative or basic and applied

Topic-065: Q&D: The WHAT Questions (Examples)

- What phenomena are important?
- What simple relationships exist between phenomena?

- About personal experiences of ethnic and language of pre-service teachers
    - It can be studied through following given research designs:
        - Qualitative
        - Exploratory
        - Applied
- What simple relationships exist between phenomena?
- The relationship among previous knowledge, topic interest and L2 reading (Carrel & Wise, 1998)
    - It can be studied through following given research designs:
        - Quantitative
        - Exploratory
        - Applied
- Influence of bilingualism on learning a third language (Sanz, 2000)
    - It can be studied through following given researchdesigns:
        - Quantitative
        - Exploratory

Topic-066: Q&D: The WHY Questions

- After WHAT (Phenomenon + Relation) between variables, 'Why questions' asked
- Why questions show causation
- Discovering why independent variable affect dependent (at least one)
- Used in
    - Relationships and correlations
    - Causal comparative studies
    - Experimental and quasi experimental
    - Exploratory – Confirmatory
    - Could be both quantitative and qualitative
    - Basic and applied

characterstics of why question?

Topic-067: Q&D: The WHY Questions (Examples)

Why Qs and their examples

- Why some variables influence others?
- Why simple relationships exist between phenomena?
- For example: Kobayashi (2002) studied;
    - Method Effects on Reading Comprehension Test Performance: Text Organization and Response Format.
- Show causation (one or more relationships)
- Other terms: impact, influence, improve, change, role of:
    - Qualitative - quantitative

  - Exploratory - confirmatory
  - Applied - basic
- Causal Qualitative Studies
  - (Wesche & Paribakht, 2000), Why a particular enhanced reading method works better than reading only for learning vocab?
- Qualitative-exploratory-applied studies
- Causal-Comparative Designs (effect, impact, influence)
- Experimental and Quasi-Experimental Designs

Lesson-15

Q&RD: EXTRANEOUS FACTORS TO AVOID

Topic-068: Q&RD: Extraneous Factors to Avoid

Internal and external validity

Any variable that you are not intentionally studying in your dissertation is an extraneous variable that could threaten the internal validity of your results. We try and control these extraneous variables so that they do not become confounding variables. When an extraneous variable changes systematically along with the variables that you are studying, this is called a confounding variable.

Extraneous factors are research minefield. Extraneous factors may contaminate your data affecting internal as a well as external validity as internal and external are not mutually exclusive. If the results (in DV) are not only due to IV – it's not generalizable.

Topic-069: EFTA: History & Maturation

- The factor of history includes events taking place at different points in time.
- Longitudinal studies are more vulnerable and may be affected by such factors.
- Studies on the basis of natural changes (society) and physical changes (personality) may influence the results of the study

History as extraneous factor

- External events (pre-test/post-test) may influence the results

Maturation (internal) factor (natural process)

- Physical - emotional -cognitive structures
- For example:
    - L2 of young learners using methods
    - Independent Variable (Teaching Method) – Dependent Variable (Imp L2)

Topic-070: EFTA: Control Group Contamination

Control group in studies

- Experimental group is treated differently
- Control group may influence the results because the treatment
- Control group may influence in four directions

1. Control group rivalry (John Henry effect)
    - Trying to outdo the Target Group
    - When explicitly labelled as Control Group
    - Group identities secret
2. Experimental treatment diffusion (Compromise)
    - Treatment conditions
    - In close proximity
    - Possibility to discuss the kind of treatment

3. Compensatory equalization of treatments
    - Extra material or special treatment (Control Group)
    - Difference of Control Group and Experimental Group distorted
4. Demoralization (boycott) of the control group
    - Potential contaminator
    - Special treatment of Experimental Group – lower their performance

Topic-071: EFTA: Testing

Five ways the results may be spoiled

1. Instrumentation
    - Pre (MCQs) Post (essay)
    - For English proficiency
    - Parallel testing
2. Measurement–treatment interaction
    - Same instrument for all types of variables
    - Teaching grammar in an EFL (MCQs – not Essay type)
3. The pretest effect
    - Another group
4. The posttest effect
    - The click of comprehension effect
5. Time of measurement effect
    - Immediate testing
    - But results are not lasting
    - Idea about long term effects is misleading
    - Test after a week or so without warning

only reading that's topic

Topic-072: EFTA: Avoiding Various Factors

Ways in measuring DV (s) distort the study results

- Pygmalion effect
    - Researcher's effect – perception of participant's behavior
- Hawthorne effect
    - Participants behave differently
    - Being aware of their participation
- Treatment intervention
    - Novelty and disruption
- Accumulative treatment effect

  - Counter balanced designs
- Treatment fidelity
- Treatment strength–time interaction
  - Teaching methodology

Lesson-16

DATA COLLECTION PROCEDURES

Topic-073: Data Collection Procedures

Who and what is used to collect data?

- Once research designs are decided, we need to select the data collection procedure.
- There are many ways for data collection
- The value of data collection procedure is how well it provides answers to the research questions
- Commonly used data collection procedure in applied linguistics:
- Observational DGP
  - Participant observation
  - Non-participant observation
  - Judges - raters
- Instrumental DGP
  - Questionnaires
  - Closed-open

Topic-074: DCP: Observational Procedures

Data gathering procedures based on observation

- Many possibilities
- Self (intro-retro)
- Others – participant (full-non- partial)
- Interviewers
- Judges-raters

Data-Collection Procedures

Method	*Potential Strengths*	*Potential Weaknesses*
Observational procedures	Discover new phenomena, flexible	Time-consuming, observer effects
Self	Firsthand information, inner thoughts	Possible bias
Introspection	Immediate access, accesses inner states	Intrusive, difficult to validate
Retrospection	Not intrusive	Memory loss
Outside observer		
Full participant	Elicits natural behavior, not intrusive	Possible bias, deceptive, memory loss
Partial participant	Not deceptive	Possible bias
Nonparticipant	Objective	Disruptive
Interviewer	Ability to probe, monitors comprehension, 100% feedback	Needs training, standardization, handling data
Judges/raters	Expert opinion	Subjectivity, fatigue, halo effect, ambiguous rubrics

Topic-075: DCP: Observational Procedures-Examples

Data gathering procedures based on observation

- Through visual observation
- Human observation for data gathering
- Self as observer - using participants as observers of their own behavior
- Protocol analysis (their own internal cognitive states – introspection/retrospection
- Outside observers -others are observing
    - Full participants
    - Partial participants
    - Non-participants
    - Ethnographic studies – conversational analysis
- The interviewer
    - Observation under highly structured conditions
    - Paper-and-pencil data recording
    - Structured-semi-un-

Topic-076: DCP: Instrumental Procedures

Data gathering procedures based on instrumentation

- Many possibilities

- Questionnaires
- Closed - form
- Open - form
- Tests
- Discrete items
- Constructed response

Instrumental procedures	Large coverage, time-efficient	Inflexible
Questionnaires		
Closed-form	Objective, broad coverage, easy to interpret	Restrictive, low returns
Open-ended	Information revealing	Subjective
Tests		
Discrete item	Objective scoring, broad coverage, easy to score	Guessing, difficult to construct
Constructed response	Allows for individuality, limits guessing	Limited coverage, subjective scoring, training of scorers

Topic-077: DCP: Instrumental Procedures -Examples

Data gathering procedures based on instrumentation

- Range of devices – questionnaire s- tests
- Maximum participants
- Very economical ways
- Surveys – open and closed
- Standardized tests
- TOEFL (ETS) – IELTS (UoC)
- Questionnaires
    - Yes-No Qs
    - Agree-disagree Qs

- Likert scale

- Examples:
  - First Certificate in English (FCE)
  - Comprehensive English Language Test (CELT)
  - McArthur Communicative Development Inventory (CDI)

Lesson no. 17

QUALITIES OF GOOD DATA-GATHERING PROCEDURES

When many people think of research, they imagine numbers and statistics. However, the numbers that are gathered are based on various data gathering techniques as outlined in Section 1 of this chapter. The quality of these procedures is determined by the caliber of the data-gathering strategy. To sharpen our ability to discern between weak and strong research, we must give attention to this aspect of research when evaluating the worth of a study. The purpose of this section is to provide an overview of these qualities and give examples of how they have been applied in research. My goal is for you to be able to use these qualities as criteria to evaluate the quality of the research that you read in a discerning manner. The two most important qualities of any data-collection technique that have traditionally been considered essential are reliability and validity. The strong consensus in the measurement community is that the level of confidence we can put into the findings of any given research is directly proportional to the degree to which data-gathering procedures are reliable and valid. I begin by discussing reliability, followed by validity. Some research methodology books place their section on validity before reliability. However, because validity relies heavily on reliability, I discuss the latter first.

Reliability readout all

Reliability has to do with the consistency of the data results. If we measure or observe something, we want the method used to give the same results no matter who or what takes the measurement or observations. Researchers who use two or more observers would want those observers to see the same things and give the same or similar judgments on what they observe or rate. Likewise, researchers utilizing instruments would expect them to give consistent results regardless of time of administration or the particular set of test items making up those instruments. The most common indicator used for reporting the reliability of an observational or instrumental procedure is the correlation coefficient. A coefficient is simply a number that represents the amount of attribute. A correlation coefficient is a number that quantifies the degree to which two variables relate to one another. Correlation coefficients used to indicate reliability are referred to as reliability coefficients. I do not go into the mathematics of this particular statistic, but I want to give enough information to help in understanding the following discussion. Reliability coefficients range between 0.00 and +1.00. A coefficient of 0.00 means there is no reliability in the observation or measurement. That is, if we were to make multiple observations/measurements of a particular variable, a coefficient of 0.00 would mean that the observations/measurements were inconsistent. Conversely, a coefficient of 1.00 indicates that there is perfect reliability or consistency. This means that the observation/measurement procedure gives the same results regardless of who or what makes the observation/measurement. Seldom, if ever, do reliability coefficients occur at the extreme ends of the continuum (i.e., 0.00 or 1.00). So, you might ask, “What is an adequate reliability coefficient?” The rule of thumb is,

the higher the better (Wow, that was a no-brainer!!!), but better depends on the nature of the measurement procedure being used. Researchers using observation techniques involving judges are happy with reliability coefficients anywhere from 0.80 on up. Yet achievement and aptitude tests should have reliabilities in the 0.90s. Other instruments such as interest inventories and attitude scales tend to be lower than achievement or aptitude tests. Generally speaking, reliabilities falling below 60 are considered low no matter what type of procedure is being used (Nitko, 2001). There are a number of different types of reliability coefficients used in research. The reason is that each one reveals a different kind of consistency. Different measurement procedures require different kinds of consistency. Table 6.2 lists the different types of reliability coefficients, what kind of consistency is needed, and the corresponding measurement procedure. The first one listed, interrater or interobserver reliability, is required any time different observers are used to observe or rate participants' behavior. Researchers typically determine the reliability of the observers/raters by either computing a correlation coefficient or calculating a percentage of agreement. The study discussed in chapter 5 by Bejarano et al. (1997) used two independent raters for their observational procedures. They reported interrater reliabilities for the three variables as 0.98, 0.86, and 0.96. These figures reveal high agreement among the raters, which I am sure pleased the researchers.

TABLE 6.2
Reliability Coefficients Used in Research

Name of Coefficient	*Consistency Over*	*Measurement Procedure*	*Statistic Used*
Interrater/observer	Different raters/observers	Observation of performance: oral, written	Correlation, percentage
Intrarater/observer	Different times for same rater	Same as above	Same as above
Test–retest	Different times of testing	Standardized tests and inventories	Correlation
Alternate form	Different sets of test items and different times of testing	Multiple forms of the same instrument	Correlation
Split-half (odd/even) Kuder-Richardson 20 & 21 Cronbach alpha	Internal consistency of items within a test	Instruments using discrete items and Likert-type items	Correlation, Spearman-Brown, Alpha, KR20, KR21

Also related to the use of observers/raters is intrarater reliability. The type of consistency this addresses relates to observers/raters giving the same results if they were given the opportunity to observe/rate participants on more than one occasion. We would expect high agreement within the same person doing the observing/rating over time if the attribute being observed is stable and the observer/rater understood the task. However, if the observer/rater is not clear about what s/he is supposed to observe/rate, there will be different results, and

correlations or percentages of agreement will be low. Although this is an important issue, I have not seen many recent studies report this type of reliability. One example I did find was Goh's (2002) study, mentioned in chapter 5, which used both inter- and intrarater reliability. Recall that her study looked at listening comprehension techniques and how they interacted with one another. She had two participants read passages with pauses. During each pause, they were to reflect on how they attempted to understand the segment they heard. These retrospections were taped and transcribed. The transcriptions were analyzed by Goh, identifying, interpreting, and coding the data. Commendably, she checked the reliability of her observations by enlisting a colleague to follow the same procedures on a portion of the data and computing an interrater reliability coefficient (r = 0.76). In addition, she computed an intrarater reliability coefficient (r = 0.88) to make sure there was consistency even within her own observations. As expected, she agreed with herself (intrarater) more than she agreed with her colleague (interrater). The remainder of the other types of reliabilities in Table 6.2 are used with paper-and-pencil or computer-administered instruments, whether questionnaires or tests. Test–retest reliability is used to measure the stability of the same instrument over time. The instrument is given at least twice, and a correlation coefficient is computed on the scores. However, this procedure can only work if the trait (i.e., construct) being measured can be assumed to remain stable over the time between the two measurements. For example, if the researcher is assessing participants' L2 pronunciation abilities, administering the instrument 2 weeks later should produce similar results if it is reliable. However, if there is a month or two between testing sessions, any training on pronunciation may create differences between the two sets of scores that would depress the reliability coefficient. However, if the time between the two administrations is too little, memory of the test from the first session could help the participants give the same responses, which would inflate the reliability coefficient. A study that reported a test–retest reliability (Camiciottoli, 2001) was mentioned in Section 1 of this chapter. Camiciottoli used a 22-item questionnaire to collect data on both independent and dependent variables. To measure test–retest reliability, she gave 20 participants from the larger group the same questionnaire 6 weeks later. She then correlated the results from the first administration with that of the second and found a reliability coefficient of 0.89. This is considered fairly high reliability. Another type of reliability estimate typically used when a test has several different forms is the alternate-form procedure. Most standardized tests have multiple forms to test the same attribute. The forms are different in that the items are not the same, but they are similar in form and content. To ensure that each form is testing the same trait, pairs of different forms are given to the same individuals with several days or more between administrations. The results are then correlated. If the different forms are testing the same attribute, the correlations should be fairly high. Not only does this procedure test stability of results over time, it also tests whether the items in the different forms represent the same general attribute being tested. For example, if researchers were to use the Cambridge Certificate in Advanced English (CAE) test battery5 in a research study, they would need assurance from the test publisher that, no matter what form was used, the results would reveal a similar measure of English language proficiency. Again researchers

should report the alternate-form reliability coefficient provided by the test publisher in his or her research report.

The assumption cannot be made by researchers that those who read the study will know that a particular standardized test is reliable even if it is well known. No matter what test is used, the reliability should be reported in any study where applicable. A practice that you will no doubt see in your perusal of research is that of borrowing parts of commercially produced standardized tests to construct other tests. It seems that researchers doing this are under the assumption that, because items come from an instrument that has good reliability estimates, any test consisting of a subset of borrowed items will inherit the same reliability. This cannot be taken for granted. Test items often behave differently when put into other configurations. For this reason, subtests consisting of test items coming from such larger, proven instruments should be reevaluated for reliability before using them in a study. Rodriguez and Sadoski (2000), mentioned earlier, in addition to developing their own 15-item Spanish test, took 15 items from the Green and Purple Levels of the Stanford Diagnostic Reading Test for use in their English test. It would have been helpful if they had reported the reliabilities for these smaller tests. If reliability information were not available from the test publishers, they could have calculated their own reliabilities. Without knowing the reliability of a test, there is no way to know how consistent the results are. The last three methods of estimating the reliability of a test are concerned with the internal consistency of the items within the instrument. In other words, do all the items in an instrument measure the same general attribute? This is important because the responses for each item are normally added up to make a total score. If the items are measuring different traits, then a total score would not make much sense. To illustrate, if a researcher tries to measure participant attitudes toward a second language, do all of the items in the survey 6 contribute to reflecting their attitude? If some items are measuring grammar ability, then combining their results with those of the attitude items would confound the measure of attitude.

The first of these three methods presented is known as split-half (odd/even). It is the easiest of the three methods to compute. As the name suggests, the items in the test are divided in half. Responses on each half are added up to make a subtotal for each half. This can be done by simply splitting the test in half, which is appropriate if the second half of the items is not different in difficulty level or the test is not too long. The reason that length is a factor is respondents might become tired in the latter half of the test, which would make their responses different from the first half of the test. To get around these problems, the test can be divided by comparing the odd items with the even items. The responses on the items for each respondent are divided into two subtotals—odd and even. That is, the odd items (e.g., Items 1, 3, 5, etc.) are summed and compared with the sum of the even items (e.g., Items 2, 4, 6, etc.). The odd/even method is preferred because it is not influenced by the qualitative change in items that often occur in different sections of the instrument, such as difficulty of item or fatigue.

Factors that affect reliability are numerous. One of the major factors is the degree to which the instrument or procedure is affected by *subjectivity* of the people doing the rating or

scoring. The more a procedure is vulnerable to perceptual bias, lack of awareness, fatigue, or anything else that influences the ability to observe or rate what is happening, the lower the reliability. Other factors that affect reliability are especially related to discrete-point item7 tests for collecting data. One of these is *test length*, which can affect reliability in two different ways. The first involves not having enough items. Instruments with fewer items will automatically produce smaller reliability coefficients. This is not necessarily due to the items being inconsistent, but rather is a simple mathematical limitation inherent to correlation coefficients. However, there is a correction formula known as the *Spearman-Brown prophecy formula* (Nitko, 2001), which is available for use. This is used to project what the reliability estimate would be if the test had more items. When researchers use the split-half reliability coefficient (cf. Table 6.2), they usually report the Spearman-Brown coefficient because the test has been cut into halves, creating two short tests. Garcia and Asencion (2001) followed this procedure in their study, which looked at the effects of group interaction on language development. They used two tasks for collecting data: a text reconstruction test and a test of listening comprehension. The first test was scored using two raters who were looking at the correct use of three grammar rules. They reported interrater reliability with a correlation coefficient of 0.98: very high. For the listening test, which only consisted of 10 items, they used the split-half method along with the Spearman-Brown adjustment for a short test (r = 0.73). This appears to be moderate reliability, but remember that it was a short test. So, in fact, the correlation is not bad.

The second way that the length of an instrument can affect reliability is when it is too long. Responses to items that are in the latter part of the instrument can be affected by fatigue. Respondents who are tired will not produce consistent responses, which will lower reliability coefficients. When developing an English language test battery for placing students at the university where I teach, my development team and I noticed that the reliability of the reading component was lower than expected. This component was the last test in the battery. On further investigation, we found that a number of items in the last part of the test were not being answered. Our conclusion was that the test takers were running out of time or energy and were not able to finish the last items. We corrected the problem, and the reliability of this component increased to the level we felt appropriate. This is also a problem with long surveys.

The final factor I mention is the *item quality* used in an instrument. Ambiguous test items will produce inconsistent results and lower reliability. Participants will guess at poorly written items, and this will not give an accurate measure of the attribute under observation. Items that have more than one correct answer or are written to trick the participant will have similar negative effects. Scarcella and Zimmerman (1998), for example, dropped 10 items from their Test of Academic Lexicon because these items lowered the Cronbach alpha coefficient. For some reason, these items were not consistently measuring the same attribute as the rest of the instrument. This left them with 40 real-word items, which they considered adequate. There are other factors that influence reliability coefficients, but they relate to correlation coefficients in general. I raise these issues in the next chapter when discussing correlation coefficients in greater

detail. However, to emphasize how important knowing what the reliability of an instrument is, I introduce you to the *Standard Error of Measurement* (SEM; Hughes, 2003; Nitko, 2001). Don't let this term make you nervous; it is not as bad as it looks. I will attempt to explain this in a nonmathematical way. The reliability coefficient is also used to estimate how much error there is in the measurement procedure—error is any variation in the instrument results due to factors other than what is being measured. By performing some simple math procedures on the reliability coefficient, an estimate of the amount of error is calculated, referred to as the SEM. If there is perfect reliability (i.e., $r = 1.00$), there is no error in the measurement; that is, there is perfect consistency. This means that any difference in scores on the instrument can be interpreted as true differences between participants. However, if there is no reliability (i.e., $r = 0.00$), then no difference between participant scores can be interpreted as true difference on the trait being measured. To illustrate, if I used a procedure for measuring language proficiency that had no reliability, although I might get a set of scores differing across individuals, I could not conclude that one person who scored higher than another had a higher proficiency. All differences would be contributed to error from a variety of unknown sources.

Validity

reading

As with reliability, the quality of validity is more complex than initially appears. On the surface, people use it to refer to the ability of an instrument or observational procedure to accurately capture data needed to answer a research question. On the other hand, many research methodology textbooks distinguish among a number of types of validity, such as *content validity*, *predictive validity*, *face validity*, *construct validity*, and so on (e.g., Brown, 1988; Gall et al., 1996; Hatch & Lazaraton, 1991). These different types have led to some confusion. For instance, I have heard some people accuse certain data-gathering procedures of being invalid, whereas others claim that the same procedures are valid. However, when their arguments are examined more closely, one realizes that the two sides of the debate are using different definitions of validity. Since the early 1990s, the prior notions of validity have been subsumed under the heading of *construct validity* (Bachman, 1990; Messick, 1989). These types of validity are now represented as different *facets* of validity under this global title. They are summarized in Table 6.3.

TABLE 6.3
Multiple Facets of Construct Validity

FACETS	*Criterion Related*		*Content Coverage*	*Face Appearance*
Trait accuracy	Capacity to succeed	Current characteristics	Cognitive/behavioral/affective change	Consumer satisfaction
Utility	Predictive	Diagnostic, placement	Achievement of objectives	Public relations
Procedures				
Types	Aptitude tests	Language proficiency tests, attitude scales	Tests, quizzes, performance assessments	All
Examples	MLAT	TOEFL, IELTS	Exercises to test treatment effects	All

In the upper half of Table 6.3 in the left column, validity is shown to be comprised of two main facets: trait accuracy and utility. *Trait accuracy*, which corresponds with the former *construct validity*, addresses the question as to how accurately the procedure measures the trait (i.e., construct) under investigation. However, accuracy depends on the definition of the construct being measured or observed. Language proficiency, for example, is a trait that is often measured in research. Nevertheless, how this trait is measured should be determined by how it is defined. If language proficiency is defined as the summation of grammar and vocabulary knowledge, plus reading and listening comprehension, then an approach needs to be used that measures all of these components to accurately measure the trait as defined.

However, if other researchers define language proficiency as oral and writing proficiency, they would have to use procedures to directly assess speaking and writing ability. In other words, the degree to which a procedure is valid for *trait accuracy* is determined by the degree to which the procedure corresponds to the definition of the trait. When reading a research article, the traits need to be clearly defined to know whether the measurements used are valid in regards to the accuracy facet of validity. These definitions should appear in either the introduction or methodology section of the article. To illustrate, in their search for factors contributing to second language learning, Gardner et al. (1997) defined *language anxiety* as "communication apprehension, test anxiety, and fear of negative evaluation" (pp. 344–345) based on the Foreign Language Classroom Anxiety Scale developed by Horwitz, Horwitz, and Cope (1986; cited in Gardner et al., 1997). This practice of defining traits by using already existing instruments is common among researchers. In effect, the instrument provides the operational definition of the trait. Regarding the second main facet of validity, *utility* is concerned with whether measurement/observational procedures are used for the right purpose. If a procedure is not used for what it was originally intended for, there might be a question as to whether it is a valid procedure for obtaining the data needed in a particular study. If it is used for something other than what it was originally designed to do, the researcher must provide additional evidence that the procedure is valid for the purpose of his or her study.

For example, if you wanted to use the results from the TOEFL to measure the effects of a treatment over a 2-week training period, this would be invalid. To reiterate, the reason is that the TOEFL was designed to measure language proficiency, which develops over long periods of time. It was not designed to measure the specific outcomes that the treatment was targeting. Note in Table 6.3 that there are three other facets that further qualify the main facets of trait accuracy and utility: criterion related, content coverage, and face appearance. These used to be referred to as separate validities: criterion-related validity, content validity, and face validity (e.g., Brown, 1988). However, within the current global concept of construct validity, they help define the complex nature of validity. *Criterion related* simply means that the procedure is validated by being compared to some external criterion. It is divided into two general types of trait accuracy: *capacity to succeed* and *current characteristics*. *Capacity to succeed* relates to a person having the necessary wherewithal or *aptitude* to succeed in some other endeavor. Typically, this involves carefully defining the aptitude being measured and then constructing or finding an instrument or observational procedure that would accurately obtain the needed data. The *utility* of identifying people's *capacity to succeed* is usually for prediction purposes. For instance, if a researcher wants to predict people's ability to master a foreign language, s/he would administer a procedure that would assess whether the examinees had the necessary aptitude to succeed.

Predictive utility is determined by correlating the measurements from the procedures with measurements on the criterion being predicted. I do not go into further detail about how this is done; suffice it to say that you can find more about this from any book on assessment (e.g., Nitko, 2001). A number of measures have been used over the years to predict the success of students in acquiring a second language. One of the most well-known standardized instruments that has been around for many years is the Modern Language Aptitude Test developed by Carroll and Sapon (1959). They developed this test for the purpose of predicting whether people have an aptitude for learning languages. Steinman and Smith (2001) presented evidence in their review of this test that it is not only valid for making predictions, but it has become used as an external criterion for validating other tests.

Lesson no. 18

Understanding research results

Some people think that numerical data are more scientific—and therefore more important—than verbal data because of the statistical analyses that can be performed on numerical data. However, this is a false conclusion. We must not forget that numbers are only as good as the constructs they represent. In other words, when we use statistics, we have basically transferred verbally defined constructs into numbers so we can analyze the data more easily. We must not forget that these statistical results must again be transferred back into terminology that represents these verbal constructs to make any sense.

Common Procedure

In almost all studies, all of the data that have been gathered are not presented in the research report. Whether verbal or numerical, the data presented have gone through some form of selection and reduction. The reason is that both verbal and numerical data typically are voluminous in their rawest forms. What you see reported in a research journal are results of the raw data having been boiled down into manageable units for display to the public. Verbal data commonly appear as selections of excerpts, narrative vignettes, and quotations from interviews, and so on, whereas numerical data are often condensed into tables of frequencies, averages, and so on. There are some interesting differences, however, which I describe in the following two sections.

SECTION 1: PRESENTATION AND ANALYSIS OF VERBAL DATA

only

Presentation of verbal data and their analyses appear very much intertwined together in Results sections of research reports. That is, separating the data from the analysis is difficult. Numerical data, in contrast, are presented in some type of summarized form (i.e., descriptive statistics) and followed with the analysis in the form of inferential statistics.

Consequently, the analysis of verbal data is not quite as straightforward as the analysis of numerical data. The reason is that analysis of verbal data is initiated at the beginning of the data-collection process and continues throughout the study. This process involves the researcher interacting with the data in a symbiotic fashion. Literally, the researcher becomes the "main 'measurement device' " (Miles & Huberman, 1994, p. 7). Creswell (1998, pp. 142–143) likened data analysis to a "contour" in the form of a "data analysis spiral," where the researcher engages the data, reflects, makes notes, reengages the data, organizes, codes, reduces the data, looks for relationships and themes, makes checks on the credibility of the emerging system, and eventually draws conclusions.

However, when we read published qualitative research, we seldom are given a clear description of how this data analysis spiral transpired. In Miles and Huberman's (1994) words, "We rarely see data displays—only the conclusions. In most cases we don't see a procedural account of the analysis, explaining just how the researcher got from 500 pages of field notes to the main conclusions drawn" (p. 262). If the researcher is working alone during the data analysis spiral, serious questions arise concerning the credibility of any conclusions made. First, there is

the problem mentioned in chapter 6 regarding possible bias when gathering data through observation and other noninstrumental procedures. However, because analysis begins during the data-collection stage in qualitative research, analytical biases become a possible threat to the validity of conclusions. Miles and Huberman (1994) identified three archetypical ones: holistic fallacy, elite bias, and going native. The first has to do with seeing patterns and themes that are not really there. The second is concerned with giving too much weight to informants who are more articulate and better informed, making the data unrepresentative. The third, going native, occurs when the researcher gets so close to the respondents that s/he is "co-opted into [their] perceptions and explanations" (p. 264).

Creswell (1998) provided eight verification procedures that he and a colleague extrapolated from a number of differing types of qualitative studies. Three of these overlapped with Miles and Huberman's (1994) list—triangulation, negative evidence, and member checks (i.e., informant feedback)— leaving five that I have incorporated into the list in Table 7.1. Two relate to evaluating data quality (2 & 3). The third, peer review (10), is useful for checking whether the perceived patterns are credible, although also useful for evaluating explanations. The last two, rich/thick descriptions (16) and external audits (17), are powerful tactics for evaluating explanations. Each of these tactics is further explained next. Few studies use all 17 of these tactics to enhance credibility. However, the more a study has in each category, the more evidence is put forward for strengthening the credibility of the results.

TABLE 7.1
Evaluation Tactics for Verbal Data

Checking for . . .	*Tactics*
Data Quality	
1. Representativeness	
	Respondents
	Events
2. Prolonged engagement and persistent observation	
3. Clarifying researcher bias	
4. Check for researcher effects	
	Researcher on persons/events
	Persons/events on researcher
5. Weighting the evidence	
	Informants' access and proximity
	Circumstances:
	behavior observed firsthand
	adequate exposure
	informal settings
	trusted field workers
	continuous vigilance in checking for various biases
Patterns and Themes	
6. Triangulation	
7. Outliers and extreme cases	
8. Surprises	
9. Negative evidence	
10. Peer review	
Explanations and Conclusions	
11. Spurious relationships	
12. If–then tests	
13. Rival explanations	
14. Replicating findings	
15. Informant feedback	
16. Rich/thick description	
17. External audits	

Evaluating the Quality of Data

As with numerical data, verbal data cannot be taken simply at face value. The researcher should provide evidence that the data s/he has used in his or her study are dependable enough to

analyze. The researcher has at least five strategies to choose from to support the quality of the data. They are as follows:

1. Representativeness: This is not referring specifically to whether the sample is representative of the population. This is more to do with whether the veracity of the information is being influenced by the choice of respondents or events (i.e., internal validity or credibility). Related to the elite bias mentioned earlier, information coming from one particular segment of a larger group of people can be misleading. The most accessible and willing informants are not usually the best group to provide the most appropriate data.

In addition, the researcher needs to give evidence that the events on which generalizations are based are the most appropriate. A researcher might not be present at all times for data collection. If not, the consumer must ask about the proportion of time the researcher was present. If only a fraction of the events were observed, were they typical of most events? The ultimate question for the consumer is whether the researcher has provided evidence that data have come from observing an adequate number of events to ensure that subsequent inferences and conclusions were not based on the luck of the draw.

2. Prolonged engagement and persistent observation: The researcher needs enough time to interact with the respondents and/or the event to gather accurate data. This allows the researcher time to gain personal access to the information being targeted. However, if too much time is spent on the research site, there is the possibility one of the researcher effects discussed in Item 4 will set in.

3. Clarifying researcher bias: Every researcher has his or her own set of biases. Because the analysis of data in a qualitative study begins and continues during the collection of data, knowing the researcher's particular biases can help the consumer discern why the data are being gathered and interpreted a certain way. Therefore, the researcher should disclose any biases that may have an impact on the approach used and any interpretations made on the data. This helps the consumer determine how the researcher arrived at his or her conclusions.

4. Researcher effects: These were discussed in chapter 5 under threats to internal validity. In that chapter, the influence was mainly looking at the unidirectional effect of the researcher on the behavior of the persons from which data were being collected. However, Miles and Huberman (1994) pointed out that there is a reciprocal relationship between the researcher and the persons/events being observed. In one direction, the researcher's presence or actions influence the behavior being observed. In qualitative work, for example, respondents might change their behavior in the presence of the data gatherer to meet perceived expectations and/or hide sensitive information. Miles and Huberman warned that a researcher "must assume that people will try to be misleading and must shift into a more investigative mode" (p. 265). To avoid this, they suggested such strategies as: the researcher spending as much time as possible on site to become unnoticed, using unobtrusive methods, having an informant who monitors the impact the researcher is making, and using informal settings for some data gathering.

When evaluating the data collected in qualitative research, the consumer should look for ways the researcher tries to control for, or be aware of the effect s/he might have had on the people or the situation and vice versa. This does not simply mean the effect on the product, in the form of the data, but also on the analysis process. If such care is taken and reported, the researcher deserves kudos, and the credibility of findings has been enhanced.

5. Weighting the evidence: Miles and Huberman (1994) pointed out that some data are stronger (or more valid) than others. They laid down three principles for determining the strength

of data. I have summarized them here in the form of questions that the consumer can use to evaluate the strength of the data:

a. What information does the researcher provide about the access and proximity of the informants to the targeted data? The closer to the data, the stronger.

b. To what extent do the data consist of actual behavior, observed firsthand, after adequate exposure, in informal settings, by trusted field workers? The more, the stronger.

c. What effort did the data gatherer(s) make toward checking for various biases (as outlined above) during the data-gathering process? The greater, the stronger.

Evaluating explanations and conclusion

smj kr ayk bar read kr

Spurious relationships: Not all things that appear to be related are directly related. For example, lung cancer and the number of ashtrays a person owns are related. However, this relationship is spurious (i.e., misleading). Another variable directly related to each of these—amount of cigarettes smoked—produces an indirect relationship between ashtray and lung cancer. So when a researcher proposes a direct relationship between constructs, s/he should provide a convincing argument that there are no other variables producing this relationship.

If–then tests: These tests "are the workhorse of qualitative data analysis" (Miles & Huberman, 1994, p. 271). In the fuller version an if–then test is a conditional sentence in the form of, If the hypothesis is true, then there should be a specific consequence. Every explanation based on data is a type of hypothesis, usually in the form of relationships among variables, underlying principles, or processes. The researcher tests his or her hypothesized explanation by predicting that some consequent would occur with a novel sample of people or set of events. The next two methods are much related to the if–then test.

Rival explanations: Eliminating competing explanations is a powerful way to add weight to a theoretical conclusion. The researcher formulates at least one plausible competing explanation and repeats the if–then test. The explanation that best explains the data is the most plausible. The researcher can then report how the weaker explanations could not compete.

However, the consumer must beware that the competing explanations offered are not straw men; that is, explanations that were not plausible in the first place—easy to refute. This might occur if the researcher is so bent on her or his own explanation that s/he does not address more plausible hypotheses, but still wants to give the appearance that s/he has used this technique to gain credibility.

Another caveat for the consumer is to not conclude that, just because the ompeting explanations were not as robust as the one proposed by the researcher, the proposed one is the best one. There might still be a better explanation than the one proposed, but it has not been discovered as of yet. In other words, the last person standing may not be the strongest. On a more practical note, the researcher must provide evidence that not only his or her explanations are better than the competition; they are also good in themselves.

Replicating findings: This strategy is recognized by both qualitative and quantitative researchers as an excellent way to support hypotheses and theories. The more often the same findings occur despite different samples and conditions, the more confidence we can have in the conclusions. Hypothesized relationships that can only be supported by one sample of individuals in only one setting have little use in the practical world. Occasionally, a researcher will report several replications of the study in the same report. This is a good way to provide evidence for the robustness of his or her explanations.

Informant feedback: This relates to the reactions that the informants have to the conclusions of the study. Such feedback can be used to check the plausibility of patterns perceived by the researcher. The researcher needs to take care here, however, due to possible researcher effects. Respondents may simply agree with the researcher just to please the researcher, or the researcher may give the informant a final report that is too technical. This could result in agreement to hide the embarrassment from not understanding or produce a negative response based on misunderstanding. In either case, the researcher needs to inform the consumer of the report regarding the manner in which the feedback was obtained. The more effort the researcher reports to have made to facilitate the understanding of the informant, the more weight the consumer can give to the feedback.

Rich, thick description: This involves a detailed description of the participants, context, and all that goes on during the data-gathering and analysis stages. The purpose is to provide the reader of the study with enough information to decide whether the explanations and conclusions of the study are transferable to other similar situations. If the description is vague with a lot of detail missing, it is impossible to know where to apply these findings. Therefore, the consumer should ask him or herself whether enough detail has been given to be able to identify similar contexts to which the conclusions can be applied.

External audits: A seldom used but powerful method (Creswell, 1998) to increase the credibility of the interpretations of a study is to hire an outsider to evaluate the study. Typically, this is not done due to the added cost. However, a well-funded research project may want to employ such a person to add credibility to the findings and conclusions. Any study that reports using such a person has gained many points on the credibility scale.

BOX 7.1
Summary of Harklau's (2000) Study

Variable of concern: Institutional representations of ESL learners.

Participants
1 Turk
2 S.E. Asians
Upper level/college-bound students
Lived in U.S. 6 to 10 yrs.
A teacher chose the student participants
Teachers: no information given

Data Sources
30–50 min. taped interviews
50 formal interviews with students and instructors
25 informal interviews with instructors
Informal visits with students
10 days of high school classroom observations
50 hours of CC classroom observations
5,000 pages of written materials collected over the year

Institutions
The high school
Ethnically mixed (60% Black, 30% White, 10% other)
45 out of 950 were in ESL program (predominantly S.E. Asian)

The 2-year community college
State-sponsored
Commuter campus
Over 13,000 student body
ESL program 250 international students (predominantly S.E. Asian and Eastern European)
Mainly coming from socially and educationally privileged backgrounds
Mostly new arrivals to the States
Course content: language + acculturation

Lesson 19

Understanding research results-II

Presentation and Analysis of Numerical Data

Many researchers try to answer their research questions by first converting their ideas and constructs into some form of numerical data before analysis. The main reason is that numerical data are generally easier to work with than verbal data. Not only are there a number of statistical procedures available to quickly identify patterns and relationships in large sets of data, they are also able to estimate whether the findings are greater than random chance. The purpose of this section is to introduce you to some of the most common procedures used to analyze numerical data and some of the basic concepts that underpin them.

I believe there are two things that turn a lot of people off about statistics: math formulas and a lot of technical jargon. Fortunately, understanding statistical formulas is not necessary for the consumer of research. Instead the important things to know are whether an appropriate statistical procedure was used for answering the research questions and whether the results of the study were interpreted correctly. After reading this section, I trust that you will be able to make these decisions.

The second hurdle that people must cross when dealing with statistics is the jargon statisticians use. This is not as easy as it should be because different terms are used for the same thing depending on the discipline in which the statistician is working—as you see later, alpha () does not always mean a Cronbach . Population is the entire number of people to which the researcher wants to generalize his or her conclusions. The sample is a subgroup of that total number. Statistics are quantities (or numbers) gathered on a sample. They are estimates of what would be found if the whole population were used. Quantities that are gathered directly from the entire population are referred to as parameters. Parameters are the true values. They exactly describe the population. Because we are almost always dealing with samples, we use statistics rather than parameters. However, when statistics (i.e., estimates) are used, we have to make inferences about what exists in the population. As with any inference, mistakes can be made.

Using statistics helps us understand what chance we are taking of making a mistake when inferring from the sample to the population. (Now if you understand what you have just read, you are well on your way to grasping a useful understanding of statistics.) Statistics can be divided into two main categories: descriptive and inferential. As the name implies, descriptive statistics are those that describe a set of data. They are the fuel used by inferential statistics to

short q

forms of numbers, they also provide information that determines whether researchers can generalize their findings (i.e., the descriptive statistics) to a target population.

Understanding statistics of data

There are three basic concerns that should be addressed when using descriptive statistics to describe numerical data: the shape of the distribution, measures of average, and measures of variation. The first is regarding the shape of the data. The concern is whether the data are symmetrically distributed and approximate a normal curve. The importance of knowing this directly relates to the researcher's choice of the statistics used in his or her study, both descriptive and inferential. This is seldom mentioned in most research articles, but it is

important. Suffice it to say here that if a distribution of data is severely skewed (i.e., lopsided), rectangular (i.e., no curve at all), or multimodal (i.e., more than one cluster of data; cf. Table 7.3), certain statistics should not be used.

Based on the shape of the data, the second concern is which statistic to use to describe average. There are three: mean, median, and mode. Briefly defined, the mean is computed by adding up all the scores and dividing by the total number of scores. The median is the middle point in the distribution of data that divides the number of people in half. The mode is the most frequent score. For research purposes, the mean is the most common estimate of average used by researchers for numerical data. However, on the occasion that the data distribution does not approximate a normal distribution, other indicators of average more accurately represent the data distribution.

The third concern, also affected by the shape of the data, is what statistic to use to indicate how much the data vary (i.e., the variance). There are also three different measures of variation: standard deviation, semi-interquartile range, and range. The first, related to the mean, is the average deviation of scores from the mean. The second, related to the median, estimates where the middle 50% of the scores are located in the data distribution. The third is the distance from the lowest to the highest scores in the distribution. However, because the standard deviation (SD) is the one most commonly used in research, it gets more treatment in the following discussions. Similar to the use of the mean, the SD is only appropriate for describing data if the distribution does not vary too much from normalcy.

Understanding Inferential Statistical Procedures I began the section on statistics with a discussion of how researchers attempt to infer their findings to a population based on a sample of participants/objects. This inferential process is where inferential statistics play a crucial role. The main goal for the remainder of this chapter is to describe the various inferential statistical procedures that are commonly used, explain why they are used, and provide examples from research published in applied linguistics that have used these procedures. However, before going on to these various procedures, I must first discuss the meanings of null hypothesis and statistical significance. In my opinion, the need for the consumer to understand these two concepts is more important than remembering the names of the statistical procedures that are described afterward.

The Null Hypothesis

The notion of statistical significance directly relates to the testing of the null hypothesis. Therefore, I first discuss this famous hypothesis that all studies test when using inferential statistics, regardless of whether they say so, followed by the meaning of statistical significance. In essence, inferential statistics procedures can be boiled down to answering two types of questions: are there relationships between variables or are there differences between groups of data? The null hypothesis, as the word null suggests, states that there is either no relationship or that there is no difference between groups. Regardless of whether there is a research hypothesis, the null hypothesis is always there to be tested. In exploratory studies, for instance, where there are no stated hypotheses, behind every relationship being studied there is a null hypothesis that states there is no relationship to be found. For every study that explores whether there is a difference between groups of data, there is a null hypothesis that voices there is no real difference between the groups.

Few published studies in applied linguistics journals explicitly state their null hypotheses these days. Yet whether stated or not, they are always lurking in the background. A good

example of a study where a number of null hypotheses are clearly stated without any stated research hypotheses is one by Tsang (1996). She stated five null hypotheses, one being "There is no significant main effect for nature of program . . . as a factor in writing performance of secondary students" (p. 215). The phrase "no significant main effect" means that there are no differences between different programs when it comes to effect on writing performance.

Now why would someone want to state his or her hypothesis in the null form? Why not state the hypothesis in the positive, such as, "There will be a significant difference between programs . . ."? In practice, many researchers state their hypotheses in the positive. However, it is more accurate to state the hypothesis in the negative because it is this hypothesis that inferential statistics test, not the positively stated hypotheses. Be that as it may, the answer to my question lies in making valid logical arguments.

Statistical Procedures

There seems to be no end to all the statistical procedures available for analyzing numerical data. To describe them all would take several large volumes. For this reason, I have selected the most common statistical procedures that are presented in the applied linguistic literature in this section. The procedures presented look at several more layers of the statistical onion, but there are others that lie deeper.

Inferential statistics can be divided into two general categories: nonparametric and parametric (cf. Fig. 7.3). Nonparametric statistics are used for analyzing data in the form of frequencies, ranked data,8 and data that do not approximate a normal distribution. Parametric statistics are used for any data that do not stray too far from a normal distribution and typically involve the use of means and standard deviations. Scores on tests and surveys usually fit these criteria. As previously mentioned, the objectives of most researchers are to find relationships between variables or differences between groups. Under each of these objectives, there are both nonparametric and parametric procedures for analyzing data.

Relationships between Variables

Nonparametric procedures. Under There are two procedures that are frequently seen in published research: chi-square and Spearman rank correlation. There are several others, but they are less commonly used. All of them have to do with assessing whether a relationship exists between at least two variables. The Pearson chi-square (pronounced Ky-square and portrayed with the Greek symbol, is the procedure of preference when dealing with data in the form of frequencies (or relative frequencies in the form of percentages). In its simplest form, the chi-square procedure compares the observed frequency (or percentages) of the different levels of a variable with what would be expected if no relationship existed (i.e., the null hypothesis).

For example, if a researcher asks the question, "Is there a relationship between gender and success in learning English as a foreign language?", s/he would compare a random sample of males and females on their success rate. Note that the null hypothesis would be: There is no relationship between gender and success rate, therefore there will be no difference between the number of males and females who pass or fail. If this were true, then the expected frequency should be 20/20 for each sex, which is indicated by the numbers in parentheses. However, in our fictional data, the researcher found that 27 females versus 17 males passed as opposed to 13 females versus 23 males failed. Can the researcher conclude that there is a relationship?

Although the frequencies appear to differ, do they differ from what would be expected if the null hypothesis were true? Rather than rely on an "eyeball" analysis, the researcher would do a chi-square analysis.

	Passed	Failed	Total
Males	17 (20)	23 (20)	40
Females	27 (20)	13 (20)	40

FIG. 7.5. Comparison of males versus females who passed and failed in frequencies.

Lessons compiled by Maha Malik

Lesson-20

WRITING DISCUSSION OF YOUR RESEARCH

Topic-092: Discussion: main goals and writing approaches

Discussion and conclusion – together or separate

- The format varies
- The most read part of a research study
- Interpret findings
- Practical application
- Check for valid interpretation
- Provide an overview:
    - of the study
    - of the findings
    - relation of the findings with previous studies

Topic-093: Discussion: what is important?

Ingredients for discussion and conclusion

- An overview of the study
- Overview of the findings
- Relation of findings
- Attention to limitations
- Possible applications
- Future possibilities

Topic-094: Discussion and conclusion: summarizing your key points

- Do the findings logically answer the research questions or support the research hypothesis?
- Does the nature of the study remain consistent from beginning to end?
- Are the findings generalized to the correct population or situations?
- Are the conclusions consistent with the type of research design used?
- Are the findings and conclusions related to theory or previous research?
- Are any limitations of the study made clear?
- Is there consistency between the findings and the applications?

Topic-095: Discussion and conclusion: defending your answers and their significance

Discussion vs. conclusion

- Interpret your results or relate important findings
- Know the difference before drafting your manuscript
- Discussion; hardest, think
- After results; answering RQs – what do they mean?
- D: Interpret results
- D: Compare with previous
- D: Discuss limitations
- D: Unexpected results?
- D: How they add value?
- C: Restate your hypothesis
- C: Important findings
- C: Highlight limitations
- C: Overall significance
- C: State future directions

Make your discussion very effective

- Put the most important findings front and center
- Contextualize the meaning
- Most effectively demonstrate your ability
- Highlight the importance of your study
- Don't be apologetic – repress your doubts – convey confidence!

Lesson 21

WRITING YOUR CONCLUSION

Researchers vary in the format they use to wrap up their studies. Some only have a Discussion section, whereas others have both Discussion and Conclusion sections. You might also see additional subheadings, such as Summary and/or Implications. Some attach their Discussion section to their Results section, labeled something like Results and Discussion followed by a final Conclusion. Regardless of the format they use, they usually include the following components in the Discussion/Conclusion section of their paper:

An overview of the study: The purpose of the study is restated, the questions under investigation are summarized, and any propounded hypotheses are reiterated.

Overview of the findings: The researcher should show how the findings address the research question and/or support or fail to support any hypothesis being proposed.

Relation of findings: The researcher should relate the findings of his or her study to previous research findings and theoretical thinking.

Attention to limitations: The researcher should evaluate his or her own study and point out any weaknesses and/or limitations regarding the study.

Possible applications: The researcher should suggest in his or her conclusions how the results can be applied to practical situations.

Future possibilities: The researcher should suggest topics for future research.

QUESTIONS EVERY CONSUMER SHOULD ASK

When evaluating the Discussion/Conclusion section of a study, there is a set of questions that the consumer should address:

1. Do the findings logically answer the research questions or support the research hypothesis? Here is where the consumer must be wary. Many, if not all, researchers have their biases and would love to find answers to their questions or support their hypothesis from the results of their studies. Because this final section gives the researchers the right to conjecture about what the findings mean, it is easy to unintentionally suggest things that the results do not support.

2. Does the nature of the study remain consistent from beginning to end? My students and I have noticed that some studies begin as exploratory studies, but end up as confirmatory ones. In such cases, the introduction sec- tion has one or more research question with no specific hypothesis stated. However, in the Discussion section, we suddenly read, “and so our hypothesis is confirmed by the results.” Another variation of this is that the researchers generate a hypothesis in the Discussion section—which is their right—but then go on to suggest that their results now support the hypothesis. This is circular reasoning. We cannot use the same data to support a hypothesis from which it has been formulated. A new study must be made to test this hypothesis.

3. Are the findings generalized to the correct population or situations? Most studies, in fact, cannot be generalized to a broadly defined population. The reason is that most samples are not randomly selected, nor are they typically large enough to adequately represent a target population. Consequently, results of such studies are suggestive at most and need to be followed up with a number of replications. If the same findings are repeated using different samples from the target population, then we can have more assurance that we are on the right track. A well-written Discussion section will be careful to warn readers of this problem.

4. Are the conclusions consistent with the type of research design used? The main concern here is whether causation is being inferred from research designs that are not geared to demonstrate this effect. Having an idea of the type of design being used will help the consumer know whether this error is made when reading the Discussion and Conclusion. Non-experimental designs such as descriptive or correlational ones cannot be used to directly show causation. Yet, especially in the latter case, some researchers have slipped into concluding that their findings indicate that one variable influences another. When researchers apply their findings, they are often tempted to recommend that people manipulate one variable to cause changes in another. Unless their research design warrants this application, they have made a logical error.

5. Are the findings and conclusions related to theory or previous research? To help contribute to the big picture, a well-written Discussion/Conclusion section should attempt to tie the findings and interpretations to any current theoretical thinking or previous research. This might be done through showing how the findings support what has gone before or providing evidence to refute some theory or challenge previous research.

6. Are any limitations of the study made clear? There are very few, if any, perfect studies in the literature. Regardless of how good a study is, a conscientious researcher will mention what the limitations are to caution the reader from being overly confident about the results.

7. Is there consistency between the findings and the applications? have seen relatively small correlations, such as r = 0.30, interpreted as an important finding because it was statistically significant, or the difference of 5 points between a treatment and a control group given importance for the same reason. Yet is either of these findings large enough to get excited about? Maybe, but much depends on the cost in time, human resources, and finance to get that 0.30 correlation or those extra 5 points due to the treatment. The consumer needs to be on alert when a researcher advocates costly changes based on statistical significance.

Lesson 22

CONSTRUCTING A RESEARCH LITERATURE REVIEW

WHY DO A REVIEW OF RESEARCH?

The main benefit of doing a literature review is to provide the consumer with a mosaic of what is happening concerning a given topic. No one research study exhausts all there is to know about a given topic. However, when you can integrate various recent research articles into a meaningful picture, you can discover a number of interesting things. First, you will realize whether there are any plausible answers to your questions when you see the bigger picture. On first blush, your impression might be that there are no clear answers, and you might be tempted to give up your search. However, as you weave the studies together in an integrated review, you might find answers for practical use. In addition, you might find conflicting results between studies. This might cause you to give up and conclude that no one can agree on any- thing. However, this is when being a discerning consumer will pay off. On careful scrutiny of the studies, you will begin to see why there are conflicting results. You might realize that the differences in the samples used in the studies produced the differing results. There might have been a difference in the procedures or materials used in the treatment. You now have to decide which study best corresponds to the context surrounding your particular research question. The closer the correspondence, the more applicable the findings might be to your situation.

However, if you find that the same results are replicated over a variety of studies, you can have more confidence that you are on the right track. Here is where external validity comes into play. Regardless of the sample, procedures, materials, or type of tests used, if the same findings keep appearing, you can be quite confident that you have a workable answer for your question. Without a well-done literature review, you cannot have this assurance. Occasionally, you will discover that there is little recent research on a particular question. When this happens, you should take this as a warning to take care. Maybe your research question is stated in such a way that your search accessed only a few studies. If this is the case, you will have to adjust the key concepts in your question to produce more rewarding searches. You might have to go back further in time to see whether there was anything done earlier. Then again, your question may be so novel that there is little research available to date.

To illustrate, one of my students raised a question concerning the usefulness of the critical period hypothesis. However, when looking over the past 5 years, he could not find enough research to fill a short 3-page review. He first asked whether this topic had been researched out—that is, had research gone as far as possible, whether by sufficiently answering the question or by being limited due to various constraints. Most probably, in my thinking, the latter might be the case. The variables used to test this hypothesis are beyond our current capabilities to manipulate or measure. If this is the case, we cannot make strong conclusions about children's seemingly superior language learning abilities as compared with adults. Possibly new approaches will be developed that will move research ahead on this topic in the future.

Second, doing a research review is important if you plan to do a study yourself. Such a review will give you an overview of the different kinds of methodologies, instruments for collecting data, and ways in which to analyze data commonly used in the research for a given area. This knowledge can help you

decide whether your proposed study is even feasible given your time, material, and financial constraints. Many a fledgling researcher could have saved him or herself needless angst if s/he would have realized that the study s/he was interested in doing required more time and resources than were available before launching into the task.

the first place to begin is searching for studies using preliminary sources. These are used to find documents that report research studies or theoretical positions. Most university libraries in the United States and Europe, as well as some public libraries, have such computerized search capabilities. Now that the Internet is available in most countries, you should be able to obtain a list of research studies pertinent to your questions even from your home computer. Again, as mentioned in chapter 2, good as the keywords (or descriptors) you use. You might have to try different combinations of these words to obtain sufficient results for your review, or you might have to use a thesaurus from the preliminary source you are using to identify related keywords to guide your search. Your goal is to access firsthand research studies (i.e., primary studies) that relate to your questions. How many studies you include depends on the nature of your question(s). If you want to do an exhaustive literature review, you will want to cover as many studies as you can find. However, most people want to put some limitations on their literature review, such as time constraints and/or only journal articles, to confine their search to studies with only certain characteristics.

Figure A.1 illustrates the results of a search I made for research articles using the ERIC database on the Internet. I put time limits and location limits for studies published between 1990 and 2002 in research journals only. I first began with the broad search only using the keyword ESL. The results were 1,200 documents. I then narrowed it down to articles dealing with ESL and writing, resulting in 336 references. If my question of interest was something like, "What does research say about writing in ESL?", I might want to stop here and scan through all 336 references.

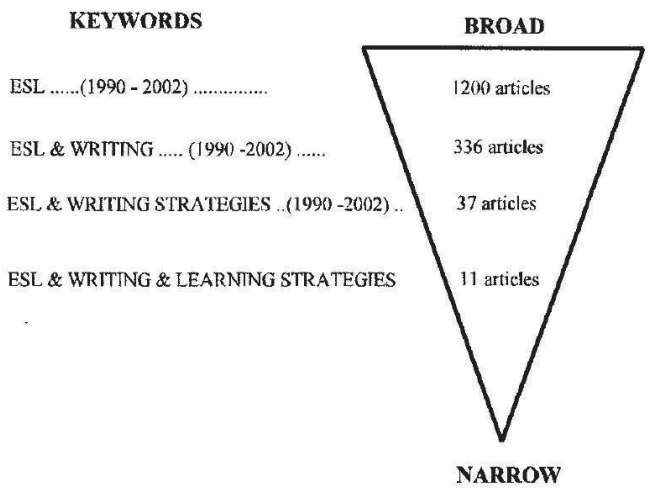

FIG. A.1. Results of using different combinations of keywords in a literature search using ERIC for years 1990 to 2002.

Most likely, I would want to narrow my search even more. For instance, I am interested in finding research studies about strategies ESL people use when writing. So I restated my search terms to be ESL and writing strategies. As shown in Fig. A.1, this captured 37 articles. I could have stopped there, but I wanted to make sure that the way I worded my keywords did not prevent me from seeing some study that might be using different terminology. So I did one more search, adding learning strategies to my list of keywords. This reduced the search to 11 articles.

You might ask the question, "How far back in time do you go in your search?" My recommendation is that you begin by looking at the last 5 years of research. Usually this results in enough current research to provide viable information addressing your question(s). I then suggest that you begin with the most recent research and work backward in time. This way you stay abreast with the most recent issues and findings with which researchers are currently working. This can save time by not getting involved with outdated issues with which people in the discipline are no longer concerned.

Once you have identified the studies you want to consider for inclusion in your review, you face the challenge of getting your hands on the actual articles. Hopefully, you will be near a good library that carries the journals so that you can have ready access to the studies. If the library does not subscribe to the journal, it may have a library loan agreement with other libraries that do have the journals. Some journals such as Language Learning and Modern Language Journal have electronic versions to which your library might have access. In such cases, you can download full articles for reviewing. If all else fails, you can order journal articles through databases such as ERIC, and they will mail them to you either through your library or to your address. If you do this, I strongly suggest that you order the microfiche version to keep the cost down and help save trees. You will need a microfiche reader for this, but these should be available at your library.

Lesson 23

DOING A RESEARCH LITERATURE REVIEW

ABSTRACTING PRIMARY LITERATURE

In preparation for constructing your review of the research literature, you need to formulate a systematic procedure for cataloging and storing your information for each study. We used to have to put our information on i.e., 12 cm × 20 cm cards that were awkward to handle. However, in our computerized day, there are a number of information storage software systems that make this task much easier. The one I favor and have used over recent years is Microsoft® Access 2000 (1999), which is readily available and easy to learn, although there are a number of others that will do the same job. Once you enter the information, which I discuss shortly, you will have created a database of studies from which you can draw information for your literature review. This database will provide you with the ability to sort and aggregate various studies at the click of the mouse based on whatever criteria you decide touse.

When you set up your database of studies for your review, enter the following use. First, record very accurately the last names and all initials for every author of each study. If you have only one author, it is useful to identify his or her gender as well because you might want to use personal pronouns when summarizing his or her study rather than speaking in the formal the researcher. Next, you want to record the exact title of the article. When doing this, use the style (e.g., APA or MLA) that you plan to use for your literature review. This will save you time when you prepare the table of references because you will not have to retype the references. At most you will only have to cut and paste with your word processor software. Following this you will need to record the year published, the exact title of the journal (in italics), the volume number (in italics), the issue number, and the page numbers from the beginning of the article to the very last page.

If you have read a published literature review, you will have noticed that the author basically looks for eight things when summarizing the main body of the study. They are as follows:

1. The focus of the study: What area and/or issue is being studied?

2. The research question(s) being asked.

3. The hypothesis(es) being tested (if any).

4. The size of the sample and important characteristics such as age and gender. Note here how thesample was chosen or assigned to the study, whether randomly or by some other procedure.

5. The variables in the study such as:

    a. Observational

    b. Independent

    c. Dependent

    d. Moderating

6. The procedures followed, including any materials, test instruments, or observational techniques.

The overall findings of the study.

8. The conclusion(s) that the researcher draws from the findings.

In addition you will want to add:

9. Any other observations you have made that pertain to your interests.

10. Any concerns you have with the study that you want to point out in your review.

Lesson 24

WRITING A RESEARCH LITERATURE REVIEW

WRITING A REVIEW OF RESEARCH

The outline I recommend for writing a good review of research is one that I have adapted based on chapter 6 of Cooper's (1998) book, Synthesizing Research. This pattern seems to be the one followed by many reviewers of research published in journals (e.g., Ellis, 2002; Sparks & Ganschow, 2001). Interestingly, this outline has the same headings that are used in reporting most primary research studies: Introduction, Method, Results, and Discussion.

I. Introduction

A. The research question that your review addresses.

B. The importance of the topic.

C. Historical background of the topic (theory, methodological issues, previous reviews, etc.).

D. The goal of your review. How you plan to add to the theory and information alreadyavailable.

II. Method section: Details regarding the makeup of the review.

A. What years are covered?

B. What preliminary sources were used to locate the studies?

C. What keywords guided your search?

D. Criteria for deciding which studies to review.

1. Description of the constraints that limited your selection.

2. Rationale for choosing these constraints.

E. What studies were excluded and why?

III. Results section: Studies summarized.

A. An overview of what studies will be discussed and their relation to one another and thereview as a whole.

B. At least one paragraph for each study summarizing the following:

1. The main point of the study.

2. The question(s)/hypothesis beingstudied.

3. Samples used and how they werechosen.

4. Procedure(s) used

5. General findings(results).

6. Author's interpretations/applications of the findings.

7. Any concerns to which you might want to alert the reader.

IV. Discussion section

A. Give an overview of major results of your review.

B. Compare/contrast the results between studies.

C. Provide possible reasons for any differences.

D. Relate results to any theoretical issues you mentioned in the introduction.

E. Compare with past reviews if any exist.

F. Explain any difference in findings with past reviews.

G. Offer application of findings toward future research.

Whenever possible, I recommend that you construct tables to help summarize your findings. What you put in a table will depend on what you are trying to highlight in your review. The purpose of the table is to provide a visual aid that will work with your text in helping the reader understand all of the relationships that you are trying to point out.

Preparing your own review of research literature.

The purpose of this exercise is for you to produce a review of research in an area of your own interest. You are to review whatever number of studies you find relevant in the space allowed. You are to develop an overall picture of what is being studied in your chosen area.

Criteria for the main body of the text:

I. Introduction: Conceptual presentation

A. What is your research question(s) that motivates your review?

B. Why is the answer to your question(s) important to applied linguistics?

C. What is the historical perspective behind your question?

D. What is the main aim of your review?

II. Method section

A. Details of the nature of your search.

1. What years did you cover in your search?

2. What preliminary sources did you use?

3. What keywords guided your search?

B. Criteria for deciding which studies to review.

1. What criteria did you use for including a study?

2. Why did you select these criteria?

3. What studies did you exclude and why?

III. Results section

A. An organized summary of the studies: Each study should include the following in your own words:

A. The main point of the study.

B. The question(s)/hypothesis being studied.

C. The sample used and how and why it wasselected.

D. The procedure(s) used for implementing the study.

E. The general findings (results) in words, not statistics.

F. The researcher's interpretations/applications of the findings.

IV. Discussion section

A. Summarize the major results of your review (use tables to provide visual aids in your summary if possible).

1. Compare/contrast the results between studies.

2. Provide possible reasons for any differences.

B. Compare with past reviews if any exist.

C. Explain any difference in your findings compared with past reviews.

D. Apply your findings toward answering your future research.

Lesson 25

Qualitative research and qualitative data analysis

The Qualitative–Quantitative continuum has received a lot of attention over the past 20 years, usually accompanied with much controversy. When you read articles dealing with this debate, you might think that this is not a continuum, but two distinct armed camps. However, as you become more familiar with the research available, you will find that many studies are neither purely qualitative nor quantitative. This is in line with Larsen-Freeman and Long (1991), who described these two terms as two ends of a continuum that have different data-collecting procedures along with different degrees of subjectivity in interpreting data. My students' findings concur with this opinion, in that they have classified many studies somewhere between the two ends of this continuum.

The problem is that epistemological issues regarding the nature of reality have been wedded with these two methodologies, resulting in the polarization of a number of researchers into camps. I agree with Miles and Huberman (1994), however, who stated, "We believe that the quantitative–qualitative argument is essentially unproductive . . . we see no reason to tie the distinction to epistemological preferences" (p. 41). Therefore, I am not going to address the related philosophical issues of positivism and postpositivism in this book because I do not believe they are important for the consumer of research at this time.

The two ends of this continuum mostly have their origins in different disciplines. Quantitative research has come mainly from the field of psychology, where there has been heavy emphasis on the use of statistics to make generalizations from samples to populations, thus the label quantitative methods. However, most methods under qualitative research have originated with anthropologists and sociologists who rely heavily on verbal description rather than numbers. Consequently, quantitative research is characterized by the use of numbers to represent its data, and qualitative research is characterized by verbal descriptions as its data.

Quantitative research frequently uses sample strategies for generalizing findings to larger populations,

whereas qualitative research works to uncover information from information-rich samples.

Although some mistakenly think that qualitative research does not use any numbers or statistics, this is not necessarily so. A number of qualitative studies involve numbers in the form of frequencies of occurrence of certain phenomena and are analyzed by such statistical methods as chi-square. In fact a number of books have been written (e.g., Agresti, 1996; Leonard, 2000) describing statistical procedures for qualitative research. Another misunderstanding regarding the differences between qualitative and quantitative approaches is that the former is a theoretical, whereas the latter is not. Although most qualitative research studies do not begin with theoretical

hypotheses, developing theory (or, to be more precise, a theoretical hypothesis) is often their goal. For instance, an approach referred to as grounded theory, which arose out of anthropology, has become part of the qualitative research repertoire in applied linguistics. The express goal of this method is to develop a theoretical hypothesis from descriptive data as the data accumulate from the ground up. A good example of how such a theory is developed is Spielmann and Radnofsky's (2001) qualitative study, which looked at tension/anxiety in the language learning classroom. They clearly stated, ". . . our goal was to develop a grounded theory—one that is inductively based on the data rather than deductively derived from a predetermined hypothesis—on the role of tension in the process of instructed L2 acquisition" (p. 260).

So what is qualitative research? Miles and Huberman (1994, pp. 5–8) defined what they thought common features across different manifestations of qualitative research are. I have extracted and summarized them in the following list. Data are gathered:

- in natural settings,
- through concentrated contact over time,
- holistically—"systematic, encompassing, integrated,"
- from deep inside the situation with preconceived notions held in check,
- by the researcher who is the "main 'measurement device,' "
- to analyze for patterns, comparisons, and contrasts,
- with interpretations constrained by theoretical interests and/or "internal consistency,"
- consisting mainly of verbal data.

In other words, any study that is done in a real-life setting, involving intensive holistic data collection through observation at a close personal level without the influence of prior theory and contains mostly verbal analysis, could be classified as a qualitative study. However, there are differing opinions as to what constitutes qualitative research. Gall et al. (1996) listed under their section on qualitative research such things as case studies, along with a list of 16 research traditions that are typically referred to as qualitative research. Among these are methods such as ethnography, protocol analysis, and discourse analysis—all commonly used methods in applied linguistics. Wolcott illustrated over 20 strategies in his famous tree diagram (Miles & Huberman, 1994, p. 6). Tesch organized 27 strategies into a flowchart under four general categories (Miles & Huberman, 1994, p. 7). Nunan (1992) included ethnography, case studies, introspective methods, and interaction analysis in his book. Johnson (1992) limited her book to case studies and ethnography. Interestingly, the TESOL Web site2 lists only three strategies under the heading of qualitative research: case studies, conversational analysis, and ethnography.

Consequently, it is difficult to provide a simple overview of all of these qualitative research strategies for the up-and-coming consumer. Other texts are better designed to do this (e.g., Denzin & Lincoln, 2000; Le-Compte, Millroy, & Preissle, 1992). In the following, however, I

use the three general strategies that are mentioned in the TESOL Web site, and I have added a fourth—protocol analysis—mentioned by Gall et al. (1996).

These strategies are commonly used in applied linguistics for the purpose of introducing qualitative research strategies.

Case studies are frequently found in applied linguistics research. Gall et al. (1996) defined a case study as, the in-depth study of instances of a phenomenon in its natural context and from the perspective of the participants involved in the phenomenon. A case study is done to shed light on a phenomenon, which is the processes, events, persons, or things of interest to the researcher. Examples of phenomena are programs, curricula, roles, and events. Once the phenomenon of interest is clarified, the researcher can select a case for intensive study. A case is a particular instance of the phenomena. (p. 545)

Notice that the focus of a case study is on a specific phenomenon. Lam and Lawrence (2002), for example, did a case study that focused on "changes in teacher and student roles in a computer-based project" (p. 295) as the phenomena in a single Spanish foreign language classroom. They used a number of procedures to collect their data: observations, focus groups, questionnaires, and interviews. The data they worked with were mainly verbal. Being a case study that involved only one intact3 class, the researchers recognized that their findings were not generalizable to larger populations. However, they believed that their findings were valid to transfer important implications for teaching and for stimulating future research.

Ethnography and Conversational Analysis. These next two approaches are listed in the TESOL Web site. In my opinion, they are two ends of a continuum under the qualitative research banner. On the ethnography end, data are gathered from a number of sources (e.g., notes from observations, interviews, transcriptions of video and audio recordings, etc.), resulting in large quantities of information. The verbal data are examined carefully for any reoccurring themes, coded, reduced into groups of related information, and organized into patterns perceived by the researcher. Interpretations and conclusions are warranted with thick descriptions4 of the data in the form of quotations from audiotapes, excerpts from interviews, and various documents for the purpose of triangulation.

Lesson 26

QUALITATIVE DATA ANALYSIS

What is qualitative research?

Qualitative Data Analysis (QDA) is the range ofprocesses and procedures whereby we move from thequalitative data that have been collected into some formof explanation, understanding or interpretation of thepeople and situations we are investigating.QDA is usually based on an interpretative philosophy.

Dimensions of qualitative methods

Understanding context

> How economic, political, social, cultural, environmental and organizational factors influence health?

Understanding people

> How people make sense of their experiences of health and disease?

Understanding interaction

> How the various actors involved in different public health activities interact each other?

Terms used in qualitative data analysis: vip for quiz

Theory: A set of interrelated concepts, definitions and propositions that presents a systematic view of events or situations by specifying relations among variables

Themes: idea categories that emerge from grouping of lower-level data points

Characteristic: a single item or event in a text, similar to an individual response to a variable or indicator in a quantitative research. It is the smallest unit of analysis

Coding: the process of attaching labels to lines of text so that the researcher can group and compare similar or related pieces of information

Coding sorts: compilation of similarly coded blocks of text from different sources in to a single file or report

: process that generates a word list comprising all the substantive words and their location within the texts entered in to a program

Important concepts in Designing qualitative research

Concept	Description
Natural setting	Participants are free from any control & data are collected in their natural environment
Holism	The whole is more than the sum, take magnitude of contextual factors in to account
Human as a research instrument	Researcher is involved in every step being responsive, flexible, adaptive and good listener
Emergent design	Study design emerges as further insights are gained through data collection and analysis
Saturation or redundancy	A stage where additional interview or observation is not believed to add new information-enough is enough!

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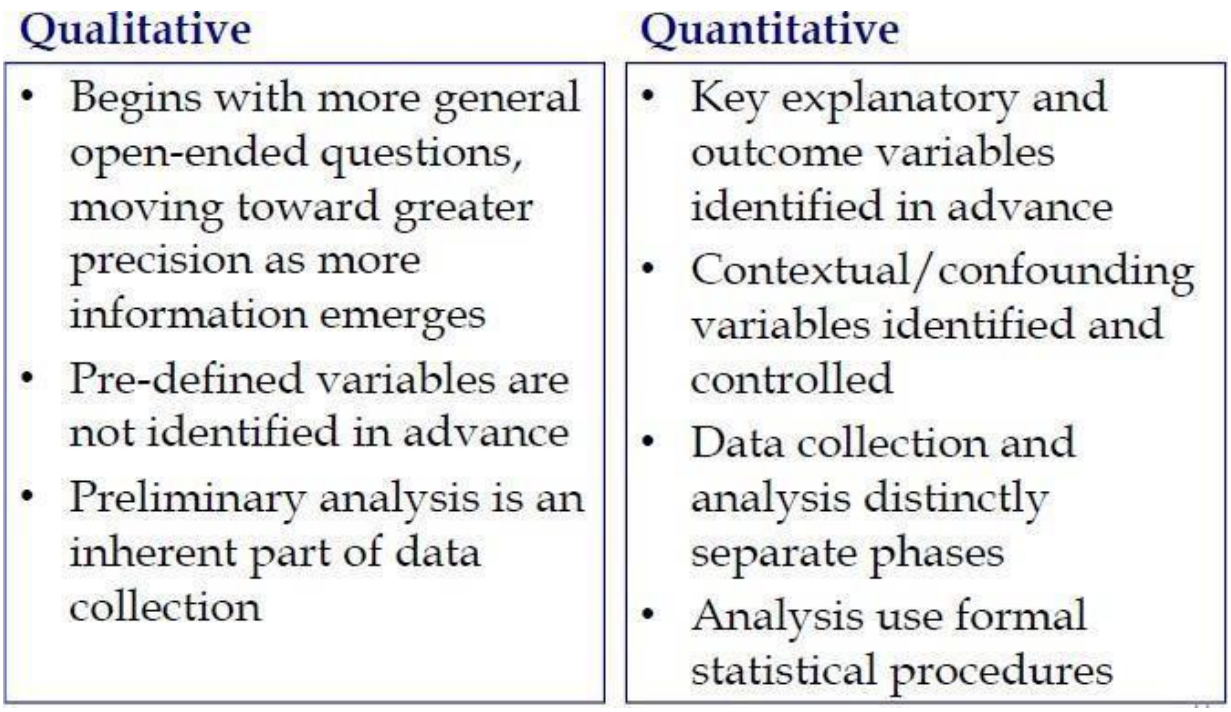
Qualitative vs quantitative data analysis

- Difference in data – instruments – procedures and analyses
- Qualitative:
- Content – attitudes – individual or shared ideas – experiences
- Verbal data - observation
- Quantitative:
- Numerical data – statistics - questionnaire



Qualitative	Quantitative
• Begins with more general open-ended questions, moving toward greater precision as more information emerges • Pre-defined variables are not identified in advance • Preliminary analysis is an inherent part of data collection	• Key explanatory and outcome variables identified in advance • Contextual/confounding variables identified and controlled • Data collection and analysis distinctly separate phases • Analysis use formal statistical procedures

Steps in quanlitative data analysis

The process of qualitative data analysis:

- Step 1: Organize the data
    - Transcribe the data (you can use hyper TRANSCRBE software) • Translate the data (You can use language translation software like SYSTRAN)• Data cleaning• Label the data – Structuring – Familiarizing
- Step 2: Identify a Framework
    - Read, Read, Read...• Identify a Framework – Explanatory – Guided by the research question – Exploratory-Guided by the data• Framework will structure, label and define data• Framework=Coding plan
- Step 3: Sort data in to Framework
    - Code the data• Modify the Framework• Data entry if use computer packages
- Step 4: Use Framework in descriptive analysis
    - Descriptive analysis – Range of responses in categories – Identify recurrent themes-Stop here if exploratory research
- Step 5: Second order analysis
    - Identify recurrent themes• Notice patterns in the data• Identify respondent clusters – Search for causality – Identify related themes• Build sequence of events• Search data to answer research questions• Develop hypothesis and test

Content analysis:

- Content analysis is the procedure for the categorization of verbal or behavioural data for the purpose of classification, summarization and tabulation.
- The content can be analyzed on two levels – Descriptive: What is the data? – Interpretative: what was meant by the data?

Narrative analysis:

- Narratives are transcribed experiences
- Every interview/observation has narrative aspect-the researcher has to sort-out andreflect up on them, enhance them, and present them in a revised shape to the reader
- The core activity in narrative analysis is to reformulate stories presented by people in different contexts and based on their different experiences

Discourse analysis:

- A method of analyzing a naturally occurring talk (spoken interaction) and all typesof written texts
- Focus on ordinary people method of producing and making sense of everyday sociallife: How language is used in everyday situations?
- Sometimes people express themselves in a simple and straightforward way
- Sometimes people express themselves vaguely and indirectly
- Analyst must refer to the context when interpreting the message as the same phenomenon can be described in a number of different ways depending on context.

Framework analysis:

- Familiarization: Transcribing & reading the data
- Identifying a thematic framework: Initial coding framework which is developed both from a priori issues and from emergent issues
- Coding: Using numerical or textual codes to identify specific piece of data which correspond to different themes
- Charting: Charts created using headings from thematic framework (can be thematic or by case)• Mapping and interpretation: Searching for patterns, associations, concepts and explanations in the data

- Analytic induction – Starts with an examination of a single case from a 'pre-defined' population in order to formulate a general statement about a population, a concept or a hypothesis
- Then the analyst examines another case to see whether it fits the statement-If it does, a further case is selected – If it doesn't fit there are two options
- Either the statement is changed to fit both cases or the definition of the population is changed in such a way that the case is no longer a member of the newly defined population – Then another case is selected and the process continues – In such a way one should be able to arrive at a statement that fits all cases of a population-as-defined – This method is only for limited set of analytic problems: those that can be solved with some general overall statement

QDA: USING SOFTWARE FOR ANALYSIS

Advantages and concerns

Although research can be possible without using a computer, it has several advantages. The most prominent advantage is that it eases the burden. The writer cuts and pastes by hand. He could do a comparatively more powerful analysis. He can create and insert codes in the text files. The writer can index, hyperlink and retrieve the data. It would lead to various shortcuts for a quick and effective study. It will save him from impeding the process or distancing from the text.

Traditional qualitative data analysis: a labor-intensive process

Traditionally, qualitative data analysis used to be labor intensive. Researchers were used to record the source material with a word processor. They used to make multiple photocopies of the text, painstakingly read through and assign codes to the material, cut the pages up in to coded passages and manually sort the coded text in order to analyze the patterns they find. Hence, it was a much difficult process without the existence of computers.

Using computer software

After the arrival of computer software, the work flow became easy, researchers got capability for data storage; they got the facilities of automated searching and display. Researchers were able to insert text, picture, audio and video source files directly, assign codes manually (autocode) to any section, be easy with the report feature, select a subset of cases and codes to work with and find data to use and sort in reports.

Use of computer software in qualitative studies

By using computer software in qualitative studies one can have following advantages:

- Transcribing data
- Writing/editing the data
- Easy storage ofdata
- Coding data (keywords or tags)
- Search and retrieval of data
- Data linking of related text
- Writing/editing memos about the data
- Display of selected reduced data
- Graphic mapping
- Preparing reports

three advantages
short q

Choosing software for qualitative studies

Choosing software: the key steps:

Keep in mind the following things while choosing the computer software for your study:

- Type and amount of data
- Theoretical approaches to analysis
- Time to learn vs time to analyze
- Level of analysis (simple or detailed)
- Desired "closeness" to the data
- Any desired quantification of results
- Individual or working as a team
- Peer software support available
- Any cost constraints

Basic steps involved:

- Install the program (note the requirements)
- Learn the operation using the help menu
- Prepare a source document (in text format)
- Open a project/study unit/Hermeneutic unit
- Import text, audio, video, picture source files
- Read the imported text documents
- Select the segment of the text
- Insert codes, categories, memos, quotations etc.
- Search, sort, manage categories, manage quotations etc.
- Mapping of concepts, layering, linking etc.
- Producing reports, matrices, exporting data, print

Common software for qualitative data analysis – links to access

- Atlas ti 6.0 (www.atlasti.com)
- HyperRESEARCH 2.8 (www.researchware.com)
- Max QDA (www.maxqda.com)
- The Ethnograph 6.0 (https://ethnograph.software.informer.com/6.0/)
- QSR N6 (www.qsrinternational.com)
- QSR Nvivo (www.qsrinternational.com)
- Weft QDA (www.pressure.to/qda)
- Open code 3.4 (https://opencode.software.informer.com/3.6/)

Lesson 28

vip chap

WHAT IS ACTION RESEARCH?

Action Research is a process in which participants examine their own educational practice systematically and carefully, using the techniques of research. (Watts, 1985, p.118)

Practitioners' (teachers') research

- The process by which practitioners attempt to study their problems
- Guide, correct and evaluate their decision and actions
- Studying problem by part-owners
- To take decision for improving their current practices
- E.g. constructive change in school
- Origin: human organization theory
- Task and relationship centered
- Capacity to solve problems and take decisions

Definition and meaning of action research

Organized investigative activity to change:

- Studying practical problems of education
- Finding out a practical solution current problems
- The practitioner can only study his problems
- Improve and modify the current practices
- Both individual and group problems
- Mainly an applied research
- A kind of personal research

Steps in action research

Organized investigative activity to change

- Selection of problem

- Formulation of Hypotheses
- Design of research (sampling and methodology)
- Collection of data (administration of tool and scoring)
- Analysis of data (use of statistics)
- Formulation of conclusions

A framework of action research project

Framework and paradigm of AR project

- Identification of problem
- Defining and delimiting the problem
- Analysing causes of the problem
- Formulating the action hypotheses
- Design for testing the action hypothesis
- Conclusions of action research project
- Working topic
- Objectives
- System of the project work
- Evaluation of the project
- Estimation of expenditure
- (Sampling) institution, students/teachers
- Facilities involved
- Now start your research study

Suggestions for an action research project

- Determine the nature of the project
- Developmental or experimental
- Direct associated with the problem

- Real problem
- Plan well regarding schoolwork
- Direct connection with qualitative improvement
- Performance of the students
- Evaluate objectively(reliable and valid tools)
- The action hypotheses should be formulated by considering the causes of the problem
- Under the approach of the teacher or worker
- The design of Action Research project should be economical from money, time and energy
- The problem should be selected objectively and studied scientifically
- The causes of the problem should be isolated objectively on the basis of some evidences

Lesson 29

SURVEY METHOD

Introduction to survey method

- Survey method gathers data by asking questions
- It is the commonly-used method of collecting information
- Population of interest is always preferred in survey method.
- Researchers take opinions of a large group of people about a topic.
- A survey consists of a formal list of questionnaire.
- Firstly, every survey asks about demographic interests
- Demographic questions are the most popular and common one e.g. what is your age? what is your gender? etc.
- Cross-sectional and longitudinal
    - Both the cross-sectional and the longitudinal studies are observational studies. Cross-sectional means that researchers record information about their subjects without manipulating the study environment. The defining feature of a cross-sectional study is that it can compare different population groups at a single point in time. A longitudinal study, like a cross-sectional one, is observational. So, once again, researchers do not interfere with their subjects. However, in a longitudinal study, researchers conduct several observations of the same subjects over a period of time, sometimes lasting many years.
- Surveys yield broader range of information
- Socio-economic characteristics and attributes are considered important in survey research.
- An example of a surveytopic:
    - English teachers' perception of mother-tongue based education policyin Philippines

- Describing 'what is'?
- Assessing magnitude
- Guiding about the planning
- Evaluating control activities
- Community perception (human behavior)
- Suggesting and testing hypotheses

Characteristics of survey method

- Mostly large cases
- Mostly cross-sectional study
- No characteristics of individuals
- Involves clearly defined problem
- Requires experts imaginative planning
- Involves definite objectives
- Careful analysis and interpretation

- Logical and skillful reporting
- Surveys vary greatly in complexity
- Not developing scientific principles
- Useful to the solution of localproblems
- Advancement of knowledge
- Penetrating insight
- Suggests the course of future developments
- Present trends and problems
- Fashioning many new tools

Steps in survey research

Before starting survey research one should;

- Know what exactly do you want?
- Determine the target population
- Choose the mode of data (Direct + mail + phone + personal interview)
- Select the sample
- Prepare instrument
- Write any memo or letter?
- Train the interviewers
- Recheck carefully before you start your research

Suggestions for a survey method project

- Be sure about the nature of the project and gather sufficient demographic information
- Determine whether your study is cross sectional or longitudinal
- It should be directly associated with the people's opinions
- Be sure of the survey nature
- Keep yourself aware of limitations - human biases
- Descriptive or normative study and tools?
- Follow up studies and tools

Lesson 30

EXPERIMENTAL METHOD

Introduction to experimental method

The word experimental research has a range of definitions. ′ The experimental method is a systematic and scientific approach to research in which the researcher manipulates one or more variables, and controls and measures any change in other variables. In the strict sense, experimental research is what we call a true experiment. ′ This is an experiment where the researcher manipulates one variable, and control/randomizes the rest of the variables. It has a control group, the subjects have been randomly assigned between the groups, and the researcher only tests one effect at a time.

Experimental research as a scientific method

- Deriving verified functional relationships among phenomena
- Variation (effect) on a dependent variable
- Observation (what will occur?) under controlled conditions
- Formal treatment is carried
- An experiment is conducted
- Pure and quasi experimental

Basic assumptions behind the experiment

This law states that if two situations are equal in all respects except for an independent variable, any change between two situations can be attributed to the independent variable.

- When two situations are similar in every respect
- One element added or one subtracted from one
- Any difference developed at the end is the result of the operation
- The concept of cause and effect is an example of an experimental study

Types of Experimental Design

There are two basic types of research design:

- True experiments
- Quasi-experiments

The purpose of both is to examine the cause of certain phenomena.

True experiments, in which all the important factors that might affect the phenomena of interest are completely controlled, are the preferred design. Often, however, it is not possible or practical to control all the key factors, so it becomes necessary to implement a quasi-experimental research design.

Similarities between true and quasi-experiments:

Study participants are subjected to some type of treatment or condition
Some outcome of interest is measured

The researchers test whether differences in this outcome are related to the treatment

Differences between true experiments and quasi-experiments:

In a true experiment, participants are randomly assigned to either the treatment or the control group, whereas they are not assigned randomly in a quasi-experiment

In a quasi-experiment, the control and treatment groups differ not only in terms of the experimental treatment they receive, but also in other, often unknown or unknowable, ways. Thus, the researcher must try to statistically control for as many of these differences as possible

Because control is lacking in quasi-experiments, there may be several "rival hypotheses" competing with the experimental manipulation as explanations for observed results

Types of variables in experimental research

EM functioning around variables:

- Variable – subject to change – different value
- IV: manipulated
- DV: observed/response
- MV: special IV - modifying
- CV: neutralized controlled
- Intervening: All can't be controlled

EM functioning around variables:

Example:

- Among students of the same age and intelligence, skill performance is directly related to the number of practice traits particularly among boys but less directly among girls
- IV: Number of practice traits
- DV: Skill performance
- MD
- CV: Age, intelligence
- IntV: Learning

Designing experimental studies

Experimental method: sophisticated way of research

- Plan a strategy for investigation (determine the variables)
- Study should be valid, objective, accurate and economically
- Experimental design sets up a framework
- Adequate tests to test the relations among variables
- Assign the active variables:
    - An active variable is a variable that is manipulated by the investigator. It's designed to shine light on some part of a question or problem, and its usefulness comes in the way it can be controlled by a researcher. Because of that, an active variable changes in a well-defined and carefully manipulated way over the course of an experiment.
- Specify the statistical tools and analysis
- Determine the controlling experimental variables

- The need for precision – 'true study'

Procedures in experimental method

Basic principles of experimental design:

- Randomization:
  - Valid estimate
  - Experimental error
  - Minimize bias
  - Independence of variances
- Replication:
  - Repeated treatment
  - Increase precision
  - Estimate + reduces error
- Local Control:
  - Homogenous groups
  - Size + shape (S+G errors)

Characteristics of a good experimental design

The essential characteristics:

- Observed treatment effects are unbiased estimates
- Quantitative description - 'true' – 'precision'
- Objective test of a specified hypothesis
- Minimum "cost" broadly conceived

Decisions to be made in planning the experiment

- Define the 'treatments'
- Selection or exact definition of the population to be investigated
- Selection of a criterion
- Identification of the factors to be controlled and the level or levels at which each is to be controlled
- Final restatement of the problem
- Selection of a specific experimentaldesign

Checking for errors in experimental method

Various types of errors possible

- Chance Error
  - Individual differences
  - Sampling errors
  - Measurement errors
- Systematic errors
  - Researcher's bias
  - Hawthorne effect
- Avoid errors

short q

- Maximize variance (IV)
- Control variance (EV)
- Minimize error (random)

Major designs in experimental research

Simple random design

- Simple - treatment effects
- Randomization at all levels
- Eliminating 'subject' error
- Choosing subject from population
- Divided into groups of three
- Assigned to a treatment

Treatment X level design imp for

- Control over intra-subject
- Stratified sampling technique
- Equate the groups

Subject X treatment design

- All treatments to the same subjects
- Eliminate inter-subject differences - 'subject' error
- Precise than Simple Random Design/Treatment X Level design

Random replication design

- Basic experiment is replicated
- Independent subject sample
- Repeating experiment on sub-population
- Each replication (different group)

Group within treatment design

- Large members of finite groups (education)
- Each treatment to independent random sample
- Establishing generalization
- Eliminating contamination

Factorial design

- Two or more cross classification of treatments
- Variables are simultaneously studied
- Common features with Treatment X Level design

Lesson 31

Historical research

Topic: 150-154

Historical research means meaningful recording of past events. It is the branch of learning that studies the records of past events. It is a scientific method of inquiry to historical problems. It depicts relationship between persons, events, times and places, studying the undergoing change and transformation. Historical research provides new understanding of past, relevance to present and future. It also gives important information on the effects of past practices and prepare for future.

Historical research – in education

- In the field of education, historical research helps educators understand problems and issues.
- It accumulates knowledge.
- It improves practices and policies

Good research questions to be asked during historical research

- What is the historical context that led to this event orsituation?
- Why did it happen at this time and place?
- How did things use to be?

Primary sources

- Read scholarly literature
- Discuss with your supervisor

Locating relevant sources in historical research

Sources of historical data or evidences:

- Two major categories: documents and remains
- Documents
    - Official records
    - Institutional records
    - Personal documents
    - Newspapers, periodicals, journals

- Literary material
- Catalogue, syllabus, prospectus

- Remains
  - Building, furniture and equipment
  - Library and their furniture
  - Photographs and other records.
  - Forms of degree, diploma, certificate, records, registers
  - Text-books, exercise-books, maps, drawings, etc.
  - Written material

Evaluating relevant sources in historical research

Sources of historical data or evidences:

- Who created the source (text) document
- How neutral is the source
- For whom was it created?
- Significance of the source?
- Evidence or support?
- Relation to other sources
- Reliable and credible?
- Evaluating the truth content

Advantages and disadvantages of historical research

- Great deal towards education
- Avoiding the mistakes of the past
- Applying lessons from the past to current problems
- Using the past to make predictions about the present
- Understanding present practices and policies in light of thepast
- Examining trends across time
- Scientific research growing

- Very difficult to study historical events
- Cause - effect relationship
- Obstacles hindering the objectivity of the study
- Special historical perspective required
- Serious decline due to scientific research
- Valid sources from the past

Lesson 32

CASE STUDY

Topic: 155-159

What is a case study?

A case study is a research methodology that has commonly used in social sciences. A case study is a research strategy and an empirical inquiry that investigates a phenomenon within its real-life context. Case studies are based on an in-depth investigation of a single individual, group or event to explore the causes of underlying principles.

Case study: The intensive study of a phenomenon

- Commonly used in social sciences – in-depth/detailed
- Case – unit, institution, concept or an individual
- Criminology – police enquiry
- Clinical diagnostic study
- Exhaustive method of exploring and analyzing
- Fact-findings about psychological or educational problems
- Research strategy and an empirical and real-life inquiry

Features of a case study:

Comprehensive study of a social unit of society

- Case study can be on a person, group, institution, community or family
- Smaller number of units to be studied
- Extensive - it studies a social unit deeply and thoroughly
- Both qualitative as well as quantitative
- Covers sufficient wide cycle of time
- Follow up - it has continuity in nature
- Illustrative – describe event or situation
- Exploratory – basic initial data to identify

- Cumulative – pulling together information for greater amount of information
- Critical instance – situations of unique interest – to challenge and to question

Types of case studies:

- Illustrative Case Studies
  - Typically utilizing one or two instances
- Exploratory (or pilot) Case Studies
  - For large scale studies for
- Cumulative Case Studies
  - aggregate information from several sites
- Critical Instance Case Studies
  - Unique cases

Criteria of a good case studies

Essential characteristics of a satisfactory case

- Continuity
  - Desirable for information
- Completeness of data
  - Range of data
- Validity of data
- Confidential recording
  - Professional problems
- Scientific synthesis
  - Interpretation of the evidence

Steps in a case study:

Essential steps required to be taken

- Status of the situation or unit of attention

- Collection of data, examination and history
- Diagnosis and identification of casual factors
- Adjustment, treatment and therapy (treatment)
- Follow up program

Lesson 33

THE FRAMEWORK OF A RESEARCH ARTICLE

Topic No. 160-166

Essential components (format) of a paper

- Title
- Author(s) and institution(s)
- Abstract
- Introduction
- Methodology (Method)
- Results
- Discussion and conclusion
- References
- Appendices (if any)

Finalizing your title

- Very important - critical
- Titles either attract or dissuade your readers
    - Focus
    - RQ(s)
    - Hypothesis
- Type of article
    - Primary research
    - Review of literature
    - Position paper
- Should not require unnecessary reading
- Short and succinct

- Telling the reader
- Examples:
- Comparing the Effects of Reading and Writing on Writing Performance (Tsang, 1996)
- Second Language Learning and the Teaching of Grammar (Zhongganggao, 2001)
- Word Translation at Three Levels of Proficiency in a Second Language: The Ubiquitous Involvement of Conceptual Memory (de Groot & Poot, 1997)
- Three criteria
- Focus + type + succintncess

Finalizing your abstract

Five essential things

- a. Purpose of the study
- b. Source(s) from where the data are drawn
- c. The method(s) used for collecting data
- d. The general results, and
- e. General interpretation of the results
- May also add: implications and recommendations

Example: Treiman, Kessler and Bourassa (2001)

We analyzed spellings that were produced by children in kindergarten (N = 115), first grade (N = 104), and second grade (N = 77) in order to determine whether children's own names influence their spellings of other words. Kindergartners overuse letters from their own first names (or commonly used nicknames) when spelling. Kindergartners with longer names, who had more own-name letters available for intrusions, tended to produce longer spellings than did children with shorter names. Moreover, the spellings of kindergartners with long names tended to contain a lower proportion of phonetically reasonable letters than did the spellings of children with short names. These effects appeared to be confined to children who read below the first grade level. The results support the view that children's own names play a special role in the acquisition of literacy. They further show the children choose in a way that reflects their experience with the letters.

Analysis of an Example Abstract

Essentials	*Content*
Purpose of the study	This paper investigated whether knowledge of one's own name affected a child's spelling ability.
Sample	115 kindergartners, 104 first graders, and 77 second graders.
Method used for collecting data	They analyzed the children's spelling in comparison to the spelling and length of the children's names.
Results	Kindergartners differed from the older children in three ways, which they listed.
Interpretations of results	The results support the notion that knowledge of one's own name is involved in becoming literate.

Writing an introduction to your study

Introduction: the brains of the study

- Introducing the topic being investigated
- Why - important enough?
- Research questions + theory
- Hypothesis + predictions
- Constructs + special terms
- Typically - historical context
- Logical argument – statements – references

Build your argument – why this study is needed?

The 'methodology' section of your paper

Subsections of 'methodology' section

- Sample
- Research design
- Treatment(s) (optional)
- Techniques (optional)
- Materials (optional)

- Data-collection procedures
- Instruments (optional)
- Observational methods
- Procedures followed

The 'results' section of your paper

Trying to make sense of your data

- Depending on the nature of your research design
- Statistics
- Symbols – tables – graphs
- Qualitative (verbal) data
- Patterns - trends
- Descriptive statistics
- Strength and weaknesses of your study
- Choice of data analysis

Discussion and conclusion of your paper

The final section of a research study

- Combined or separate
- Discusses the results and conclude the study
- Results are interpreted in the light of RQs/hypothesis
- Findings to previous research studies
- Evaluate your own study in this section – strengths and weaknesses
- Further research and important suggestions

Lesson 34

RESEARCH PROPOSAL AND SYNOPSIS

An outline of a proposed research work

- Useful basis for the evaluation of project and guidelines for researcher
- For an academic degree or a funding agency
- A clear and concise statement of the problem
- The hypothesis involved
- A recognition of the significance of the problem
- Definitions of the important terms
- Assumptions and limitations
- A brief survey of related literature
- An analysis of proposed research producers
- Time schedule involved

Writing a research proposal and synopsis vi

A well-prepared and well-designed proposal has:

- The problem and statement of the problem
- The review of literature or theoretical framework of the study
- The hypotheses and objectives
- The methodology and procedure of the study
- Educational implications or significance of the problem
- Definitions, assumptions and delimitations
- A tentative structure of the report
- Bibliography
- Time frame

Components of a research proposal

question

- The statement of the problem:
  - Limited enough in scope
  - A definite conclusion possible
  - Suggesting a specific answer or conclusion
  - Specific and clear-cut words
- Review (literature) and theoretical framework:
  - Summary of previous research
  - Why?? What is known and unknown?
  - Past knowledge is important
  - Eliminating replication
  - Basis for the formulation of hypotheses and deciding the methodology ofthe study
  - Concluding with a 'gap' and comment on area of agreement and disagreement in findings
- The hypotheses and objectives:
  - Based on hypotheses
  - Expected outcomes and the investigation
  - If hypotheses can not be formulated but objectives of the study can be written to indicate the direction of the research work
- The methodology and procedure of the study:
  - Method, sample, population, tools and statistical analysis techniques of the study
  - Info on data gathering devices and sources of data
- Educational implications or significance of the problem:
  - Answering the question or the solution to the problem
  - How may influence educational theory or practice
  - Why the project calls for an urgency - justifying its worth

- Definitions, assumptions and delimitations:
- Technical terms and variables - operational definitions
- What assumptions (underlying variables)?
- Delimited to what variables, sample, method, tools and statistical techniques?
- A tentative structure of the report:
- Chapterization
- Proposed final shape or look of the study
- Bibliography:
- What books were studied or are important?
- Books of research, conceptual framework
- Hand-books encyclopedia, journals
- Unpublished and published thesis

Evaluating a research proposal

Criteria for evaluating proposal or synopsis

- Significance of the proposed research
- Contextual, practical and national level significance
- Quality of the proposed research project
- Relation to previous work
- Likelihood of success
- Adequacy of design, methodology and tools etc.
- Qualification of the researcher?
- Facilities available?
- Reasonableness of the budget and anticipated results?
- Realistic timeframe?

Lesson 35

CONDUCTING RESEARCH AND USING RESEARCH TOOLS

Mapping out a research strategy

- There are tools that can be downloaded on the computers and used for calculation and interpretation of the data such as: EndNote, TURNITIN etc.
- One should pose questions on internet that are worth exploring.
- Then you can find articles through databases or indexes
- Similar is the case with finding books through a library catalog, finding Web sources and using other search tools hence, conducting field research

Important concerns while searching for data:

- Choose narrow and challenging questions
- What is your assignment?
- In which academic discipline are you writing?
- What is your tentative research question?
- How long will the paper be?
- How much time can you spend on the project?
- Search databases and techniques required
- Use quotation marks "gateway drug".
- Use AND to connect words: hyperactivity AND children or a plus sign: hyperactivity + children.
- Use NOT in front of words that must not appear in a document: Persian Gulf NOT war. Or a minus sign (hyphen) instead: Persian Gulf -war
- Use OR if only one of the terms must appear in a document: "mountain lion" OR cougar
- Use an asterisk as a substitute for letters that might vary: "marine biolog*" (marine biology or biologist)
- Use parentheses to group a search expression and combine it with another: (standard OR student OR test*) AND reform.

Managing information and avoiding plagiarism: evaluating sources

Determining how sources support your purpose

- 100s of potential sources
- Assessing for quality sources
- Selecting sources worth your time and attention
- Annotating bibliographic entries
- Info to help you decide
- Scholarly vs popular sources

Decide on the following information

- Title and brief description (How relevant?)
- Date (How current?)
- Name of periodical (Howscholarly?)
- Length (How extensive in coverage?)
- Additionally: The URL (domain) for example, .com, .edu, .gov, or .org

Scholarly vs popular

- COMMON FEATURES OF A SCHOLARLY SOURCE
- Formal presentation includes abstract and research methods
- Includes review of previous research studies
- Reports original research
- Includes references
- Often has multiple authors who are academics

Scholarly vs popular

- COMMON FEATURES OF A POPULAR SOURCE
- Often has a provocative title
- Author is typically a staff reporter, not an expert
- The bulk of the article presents anecdotes about the topic
- Presents a summary of research but no original research
- No consistent citation of sources

Managing information and avoiding plagiarism: reading critically

Read with an open mind and a critical eye

- Not necessarily judging an author's work harshly
- Examining its assumptions, assessing its evidence, and weighing its conclusions
- Distinguish between primary and secondary sources

- Be alert for signs of bias
- Assessing the author's argument
- Web sources: authorship, sponsorship, purpose and currency of the content

Checking for signs of bias

- Does the author or publisher endorse political or religious views that could affect objectivity?
- Is the author or publisher associated with a special-interest group, such as Greenpeace or the National Rifle Association, that might present only one side of an issue?
- Are alternative views presented and addressed? How fairly does the author treat opposing views? (See A3-c.)
- Does the author's language show signs of bias?

Assessing an argument

- What is the author's central claim or thesis?
- How does the author support this claim—with relevant and sufficient evidence or with just a few anecdotes or emotional examples?
- Are statistics consistent with those you encounter in other sources? Have they been used fairly? (It is possible to "lie" with statistics by using them selectively or by omitting details.) Does the author explain where the statistics come from?
- Are any of the author's assumptions questionable?
- Does the author consider opposing arguments and refute them persuasively? (See A3-c.)
- Does the author fall prey to any logical fallacies? (See A3-a.)

Maintaining a working bibliography

Effective researchers are good record keeper

- Record working bibliography
- Systematic ways to manage record
- Keeping track of your sources by keeping three copies:

- Email
- Save
- Print

- Keep track of source materials
- Highlight key passages
- Use color-coding
- Avoid plagiarism and the chances of unintentional plagiarism

Sample of annotated bibliography

Gonsalves, Chris. "Wasting Away on the Web." *eWeek.com*. Ziff Davis Enterprise Holdings, 8 Aug. 2005. Web. 16 Feb. 2009.

Summarize the source.

In this editorial, Gonsalves considers the implications of several surveys, including one in which 61% of respondents said that their companies have the right to spy on them. The author agrees with this majority, claiming that it's fine if his company chooses to monitor him as long as the company discloses its monitoring practices. He argues that "the days of Internet freedom at work are justifiably finished," adding that he would prefer not to know the extent of the surveillance. Gonsalves writes for *eWeek.com*, a publication focused on technology products. He presents himself as an employee who is comfortable with being monitored, but his job may be a source of bias. This editorial contradicts some of my other sources, which claim that employees want to know and should know all the details of their company's monitoring procedures.

Annotations should be three to seven sentences long.

Use quotations sparingly. Put quotation marks around any words from the source.

Interpret the relationship between this source and others in the bibliography.

Evaluate the source for bias and relevance.

For an entire book

- All authors; any editors or translators
- Title and subtitle
- Edition (if not the first)
- Publication information: city, publisher, and date

For a periodical article

- All authors of the article
- Title and subtitle of the article
- Title of the magazine, journal, or newspaper
- Date; volume, issue, and page numbers

For a periodical article retrieved from a database (in addition to preceding information)

- Name of the database and an item number, if available
- Name of the subscription service
- URL of the subscription service (for an online database)
- Accession number or other number assigned by the database
- Digital object identifier (DOI), if there is one
- Date you retrieved the source

NOTE: Use particular care when printing or saving articles in PDF format. These files may not include some of the elements you need to properly cite the source. You may need to record additional information from the database or Web site where you retrieved the file.

For a Web source (including visuals)

- All authors, editors, or creators of the source
- Editor or compiler of the Web site, if there is one
- Title and subtitle of the source
- Title of the site
- Publication information for the source, if available
- Page or paragraph numbers, if any
- Date of online publication (or latest update)
- Sponsor of the site
- Date you accessed the source
- The site's URL

NOTE: For the exact bibliographic format to use in your working bibliography and in the final paper, see MLA-4b, APA-4b, or CMS-4c.

Avoiding plagiarism and taking notes

Avoid unintentional plagiarism (academic offence)

- Don't use the language of your source (unless quoting directly)
- Don't half copy
- Don't plug your synonyms
- Resist the temptation to relax
- Prepare your own notes
- Three ways to take notes:
- Summary + quote + paraphrase
- For all three use page number

Lesson 36

CHOOSING A DOCUMENTING STYLE - APA

Details that are needed for citation:

- Author's or editor's or organization's full names
- Title of article, book or chapter (if each chapter has a different author)
- Name of the book, journal or periodical
- Version or edition
- Name of publisher
- Year of publication
- Place of publication (for books only)
- Volume and issue numbers (for journals only)
- Page numbers (for articles and chapters only)

APA: supporting a thesis

Choosing a documentation style

- Select a style appropriate for your discipline
- APA- American Psychological Association
- Supporting a thesis in a typical way
- Forming a working thesis and support with a well –organized evidence
- Organizing your ideas
- Using sources to inform and support your argument

Example (Hacker & Sommers, 2011, p. 445).

- RQ: Is medication the right treatment for the escalating problem of childhood obesity?
- WT: Treating cases of childhood obesity with medication alone is too narrowan approach for this growing problem.
- Organize your ideas: APA recommends headings – standard model - Method,Results, Discussion
- Providing background information or context

- Explaining terms or concepts
- Supporting your claims
- Back up your assertions with facts, examples, and other evidences from your research
- Lending authority to your argument – provide expert opinion
- Construct your argument in your own words – cite others' judgment on it
- Anticipating and countering alternative interpretations - don't ignore sources contraryto your position

APA: citing sources – avoiding plagiarism

Choose an appropriate documentation style

- Select a style appropriate for your discipline
- Citing quotations and borrowed ideas
- Enclosing borrowed language in quotation marks
- Putting summaries and paraphrases in your own words
- Use software preferably (EndNote) also built in (MS Word)
- Your research paper is a collaboration (sources)
- Three acts are plagiarism:

(1) failing to cite quotations and borrowed ideas

(2) failing to enclose borrowed language in quotation marks, and

(3) failing to put summaries and paraphrases in your own words

- Sources are cited for two reasons: (a) tell your readers about the sources of info (b) to give credit to the authors from whom you take it.

APA: integrating sources

Choose an appropriate documentation style

- Select a style appropriate for your discipline
- Using quotations appropriately
- Using signal phrases to integrate sources

- Synthesizing sources
- Quotations, summaries, paraphrases, and facts will help you develop your argument
- But they cannot speak for you – so integrate them

Use quotations appropriately

- When language is especially vivid or expressive
- When exact wording is needed for technical accuracy
- When it is important to let the debaters of an issue explain their positions in their own words
- When the words of an authority lend weight to an argument
- When the language of a source is the topic of your discussion
- Limiting your use of quotations

To avoid monotony, try to vary both the language and the placement of your signal phrases.

In the words of Carmona (2004), ". . ."

As Yanovski and Yanovski (2002) have noted, ". . ."

Hoppin and Taveras (2004), medical researchers, pointed out that ". . ."

". . . ," claimed Critser (2003).

". . . ," wrote Duenwald (2004), ". . ."

Researchers McDuffie et al. (2003) have offered a compelling argument for this view: ". . ."

Hilts (2002) answered objections with the following analysis: ". . ."

Verbs in signal phrases

admitted	contended	reasoned
agreed	declared	refuted
argued	denied	rejected
asserted	emphasized	reported
believed	insisted	responded
claimed	noted	suggested
compared	observed	thought
confirmed	pointed out	wrote

APA: documenting sources

Choose an appropriate documentation style

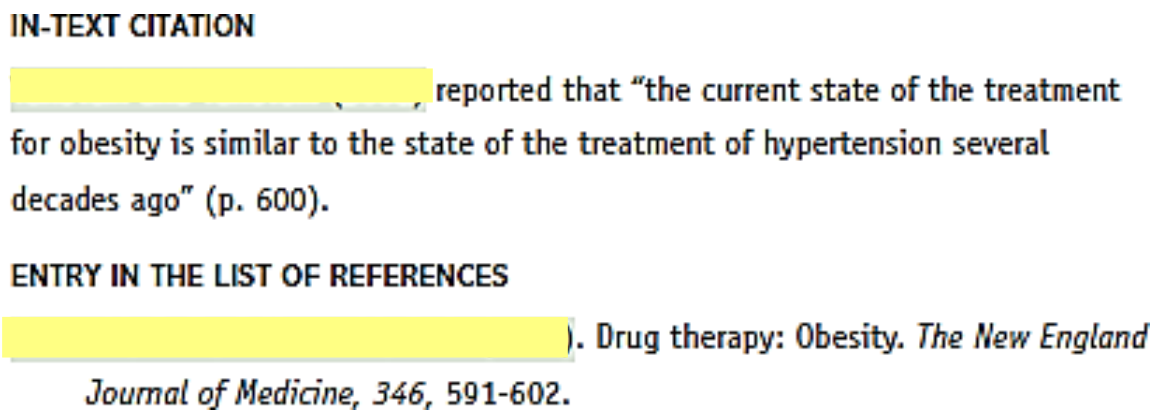
- APA in-text citations
- APA list of references
- Software and manual uses
- EndNote
- Also built in MS Word
- Various kinds of documenting techniques required

Ask yourself:

- Which sources inform, support, or extend your argument?
- Have you varied the functions of sources — to provide background,
- Explain concepts, lend authority, and anticipate counterarguments?
- Do your signal phrases indicate these functions?
- Do you explain how your sources support your argument?
- Do you connect and analyze sources in your own voice?
- Is your own argument easy to identify and to understand, with or without your sources?

The three types of in-text references:

- APA – e.g. (Bailey, 1990, p.34)
- Harvard – e.g. (Bailey, 1990: 34)
- MLA – e.g. (Bailey 34)



IN-TEXT CITATION

reported that "the current state of the treatment for obesity is similar to the state of the treatment of hypertension several decades ago" (p. 600).

ENTRY IN THE LIST OF REFERENCES

). Drug therapy: Obesity. *The New England Journal of Medicine, 346,* 591-602.

APA: manuscript format and sample paper

APA - documentation style

- Formatting your paper
- Manuscript format
- Sample APA paper
- Font – title – page number and running head

- Margins, caps, headings
- End list references etc.

APA: sample paper (Hacker& Sommers, 2011):

Marginal annotations indicate APA-style formatting and effective writing.

Abstract

In recent years, policymakers and medical experts have expressed alarm about the growing problem of childhood obesity in the United States. While most agree that the issue deserves attention, consensus dissolves around how to respond to the problem. This literature review examines one approach to treating childhood obesity: medication. The paper compares the effectiveness for adolescents of the only two drugs approved by the Food and Drug Administration (FDA) for long-term treatment of obesity, sibutramine and orlistat. This examination of pharmacological treatments for obesity points out the limitations of medication and suggests the need for a comprehensive solution that combines medical, social, behavioral, and political approaches to this complex problem.

Abstract appears on a separate page.

Full title, centered.

Can Medication Cure Obesity in Children?
A Review of the Literature

In March 2004, U.S. Surgeon General Richard Carmona called attention to a health problem in the United States that, until recently, has been overlooked: childhood obesity. Carmona said that the "astounding" 15% child obesity rate constitutes an "epidemic." Since the early 1980s, that rate has "doubled in children and tripled in adolescents." Now more than 9 million children are classified as obese.[1] While the traditional response to a medical epidemic is to hunt for a vaccine or a cure-all pill, childhood obesity is more elusive. The lack of success of recent initiatives suggests that medication might not be the answer for the escalating problem. This literature review considers whether the use of medication is a promising approach for solving the childhood obesity problem by responding to the following questions:

Mirano sets up her organization by posing four questions.

1. What are the implications of childhood obesity?
2. Is medication effective at treating childhood obesity?
3. Is medication safe for children?
4. Is medication the best solution?

Mirano states her thesis.

Understanding the limitations of medical treatments for children highlights the complexity of the childhood obesity problem in the United States and underscores the need for physicians, advocacy groups, and policymakers to search for other solutions.

Headings, centered, help readers follow the organization.

What Are the Implications of Childhood Obesity?

Obesity can be a devastating problem from both an individual and a societal perspective. Obesity puts children at risk for a number of medical complications, including Type 2 diabetes, hypertension, sleep apnea, and orthopedic problems (Henry J. Kaiser Family Foundation, 2004, p. 1). Researchers Hoppin and Taveras (2004) have noted that obesity is often associated with psychological issues such as depression, anxiety, and binge eating (Table 4).

In a signal phrase, the word "and" links the names of two authors; the date is given in parentheses.

Obesity also poses serious problems for a society struggling to cope with rising health care costs. The cost of treating obesity currently totals

[1]Obesity is measured in terms of body-mass index (BMI): weight in kilograms divided by square of height in meters. A child or an adolescent with a BMI in the 95th percentile for his or her age and gender is considered obese.

Mirano uses a footnote to define an essential term that would be cumbersome to define within the text.

$117 billion per year—a price, according to the surgeon general, "second only to the cost of [treating] tobacco use" (Carmona, 2004). And as the number of children who suffer from obesity grows, long-term costs will only increase.

Because the author (Carmona) is not named in the signal phrase, his name and the date appear in parentheses.

Is Medication Effective at Treating Childhood Obesity?

The widening scope of the obesity problem has prompted medical professionals to rethink old conceptions of the disorder and its causes. As researchers Yanovski and Yanovski (2002) have explained, obesity was once considered "either a moral failing or evidence of underlying psychopathology" (p. 592). But this view has shifted: Many medical professionals now consider obesity a biomedical rather than a moral condition, influenced by both genetic and environmental factors. Yanovski and Yanovski have further noted that the development of weight-loss medications in the early 1990s showed that "obesity should be treated in the same manner as any other chronic disease . . . through the long-term use of medication" (p. 592).

Ellipsis mark indicates omitted words.

The search for the right long-term medication has been complicated. Many of the drugs authorized by the Food and Drug Administration (FDA) in the early 1990s proved to be a disappointment. Two of the medications—fenfluramine and dexfenfluramine—were withdrawn from the market because of severe side effects (Yanovski & Yanovski, 2002, p. 592), and several others were classified by the Drug Enforcement Administration as having the "potential for abuse" (Hoppin & Taveras, 2004, Weight-Loss Drugs section, para. 6). Currently only two medications have been approved by the FDA for long-term treatment of obesity: sibutramine (marketed as Meridia) and orlistat (marketed as Xenical). This section compares studies on the effectiveness of each.

In a parenthetical citation, an ampersand links the names of two authors.

Sibutramine suppresses appetite by blocking the reuptake of the neurotransmitters serotonin and norepinephrine in the brain (Yanovski & Yanovski, 2002, p. 594). Though the drug won FDA approval in 1998, experiments to test its effectiveness for younger patients came considerably later. In 2003, University of Pennsylvania researchers Berkowitz, Wadden, Tershakovec, and Cronquist released the first double-blind placebo study testing the effect of sibutramine on adolescents, aged 13–17, over a 12-month period. Their findings are summarized in Table 1.

Mirano draws attention to an important article.

After 6 months, the group receiving medication had lost 4.6 kg

(about 10 pounds) more than the control group. But during the second half of the study, when both groups received sibutramine, the results were more ambiguous. In months 6–12, the group that continued to take sibutramine gained an average of 0.8 kg, or roughly 2 pounds; the control group, which switched from placebo to sibutramine, lost 1.3 kg, or roughly 3 pounds (p. 1808). Both groups received behavioral therapy covering diet, exercise, and mental health.

These results paint a murky picture of the effectiveness of the medication: While initial data seemed promising, the results after one year raised questions about whether medication-induced weight loss could be sustained over time. As Berkowitz et al. (2003) advised, "Until more extensive safety and efficacy data are available, . . . weight-loss medications should be used only on an experimental basis for adolescents" (p. 1811).

A study testing the effectiveness of orlistat in adolescents showed similarly ambiguous results. The FDA approved orlistat in 1999 but did not authorize it for adolescents until December 2003. Roche Laboratories (2003), maker of orlistat, released results of a one-year study testing the drug on 539 obese adolescents, aged 12–16. The drug, which promotes weight loss by blocking fat absorption in the large intestine, showed some effectiveness in adolescents: an average loss of 1.3 kg, or roughly 3 pounds, for subjects taking orlistat for one year, as opposed to an average gain of 0.67 kg, or 1.5 pounds, for the control group (pp. 8–9). See Table 1.

Short-term studies of orlistat have shown slightly more dramatic results. Researchers at the National Institute of Child Health and Human Development tested 20 adolescents, aged 12–16, over a three-month period and found that orlistat, combined with behavioral therapy, produced an average weight loss of 4.4 kg, or 9.7 pounds (McDuffie et al., 2002, p. 646). The study was not controlled against a placebo group; therefore, the relative effectiveness of orlistat in this case remains unclear.

For a source with six or more authors, the first author's surname followed by "et al." is used for the first and subsequent references.

Is Medication Safe for Children?

While modest weight loss has been documented for both medications, each carries risks of certain side effects. Sibutramine has been observed to increase blood pressure and pulse rate. In 2002, a

Table 1

Effectiveness of Sibutramine and Orlistat in Adolescents

Medication	Subjects	Treatment[a]	Side effects	Average weight loss/gain
Sibutramine	Control	0–6 mos.: placebo 6–12 mos.: sibutramine	Mos. 6–12: Increased blood pressure; increased pulse rate	After 6 mos.: loss of 3.2 kg (7 lb) After 12 mos.: loss of 4.5 kg (9.9 lb)
	Medicated	0–12 mos.: sibutramine	Increased blood pressure; increased pulse rate	After 6 mos.: loss of 7.8 kg (17.2 lb) After 12 mos.: loss of 7.0 kg (15.4 lb)
Orlistat	Control	0–12 mos.: placebo	None	Gain of 0.67 kg (1.5 lb)
	Medicated	0–12 mos.: orlistat	Oily spotting; flatulence; abdominal discomfort	Loss of 1.3 kg (2.9 lb)

Note. The data on sibutramine are adapted from "Behavior Therapy and Sibutramine for the Treatment of Adolescent Obesity," by R. I. Berkowitz, T. A. Wadden, A. M. Tershakovec, & J. L. Cronquist, 2003, *Journal of the American Medical Association, 289*, pp. 1807-1809. The data on orlistat are adapted from *Xenical (Orlistat) Capsules: Complete Product Information*, by Roche Laboratories, December 2003, retrieved from http://www.rocheusa.com/products/xenical/pi.pdf

[a]The medication and/or placebo were combined with behavioral therapy in all groups over all time periods.

Mirano uses a table to summarize the findings presented in two sources.

A note gives the source of the data.

A content note explains data common to all subjects.

consumer group claimed that the medication was related to the deaths of 19 people and filed a petition with the Department of Health and Human Services to ban the medication (Hitts, 2002). The sibutramine study by Berkowitz et al. (2003) noted elevated blood pressure as a side effect, and dosages had to be reduced or the medication discontinued in 19 of the 43 subjects in the first six months (p. 1809).

When this article was first cited, all four authors were named. In subsequent citations of a work with three to five authors, "et al." is used after the first author's name.

The main side effects associated with orlistat were abdominal discomfort, oily spotting, fecal incontinence, and nausea (Roche Laboratories, 2003, p. 13). More serious for long-term health is the concern that orlistat, being a fat-blocker, would affect absorption of fat-soluble vitamins, such as vitamin D. However, the study found that this side effect can be minimized or eliminated if patients take vitamin supplements two hours before or after administration of orlistat (p. 10). With close monitoring of patients taking the medication, many of the risks can be reduced.

Is Medication the Best Solution?

The data on the safety and efficacy of pharmacological treatments of childhood obesity raise the question of whether medication is the best solution for the problem. The treatments have clear costs for individual patients, including unpleasant side effects, little information about long-term use, and uncertainty that they will yield significant weight loss.

In purely financial terms, the drugs cost more than $3 a day on average (Duenwald, 2004). In each of the clinical trials, use of medication was accompanied by an expensive regime of behavioral therapies, including counseling, nutritional education, fitness advising, and monitoring. As journalist Greg Critser (2003) noted in his book *Fat Land*, use of weight-loss drugs is unlikely to have an effect without the proper "support system"—one that includes doctors, facilities, time, and money (p. 3). For some, this level of care is prohibitively expensive.

A third complication is that the studies focused on adolescents aged 12–16, but obesity can begin at a much younger age. Few data exist to establish the safety or efficacy of medication for treating very young children.

Mirano develops the paper's thesis.

While the scientific data on the concrete effects of these medications in children remain somewhat unclear, medication is not the only avenue for addressing the crisis. Both medical experts and

policymakers recognize that solutions might come not only from a laboratory but also from policy, education, and advocacy. A handbook designed to educate doctors on obesity called for "major changes in some aspects of western culture" (Hoppin & Taveras, 2004, Conclusion section, para. 1). Cultural change may not be the typical realm of medical professionals, but the handbook urged doctors to be proactive and "focus [their] energy on public policies and interventions" (Conclusion section, para. 1).

The solutions proposed by a number of advocacy groups underscore this interest in political and cultural change. A report by the Henry J. Kaiser Family Foundation (2004) outlined trends that may have contributed to the childhood obesity crisis, including food advertising for children as well as

> a reduction in physical education classes and after-school athletic programs, an increase in the availability of sodas and snacks in public schools, the growth in the number of fast-food outlets . . . , and the increasing number of highly processed high-calorie and high-fat grocery products. (p. 1)

Addressing each of these areas requires more than a doctor armed with a prescription pad; it requires a broad mobilization not just of doctors and concerned parents but of educators, food industry executives, advertisers, and media representatives.

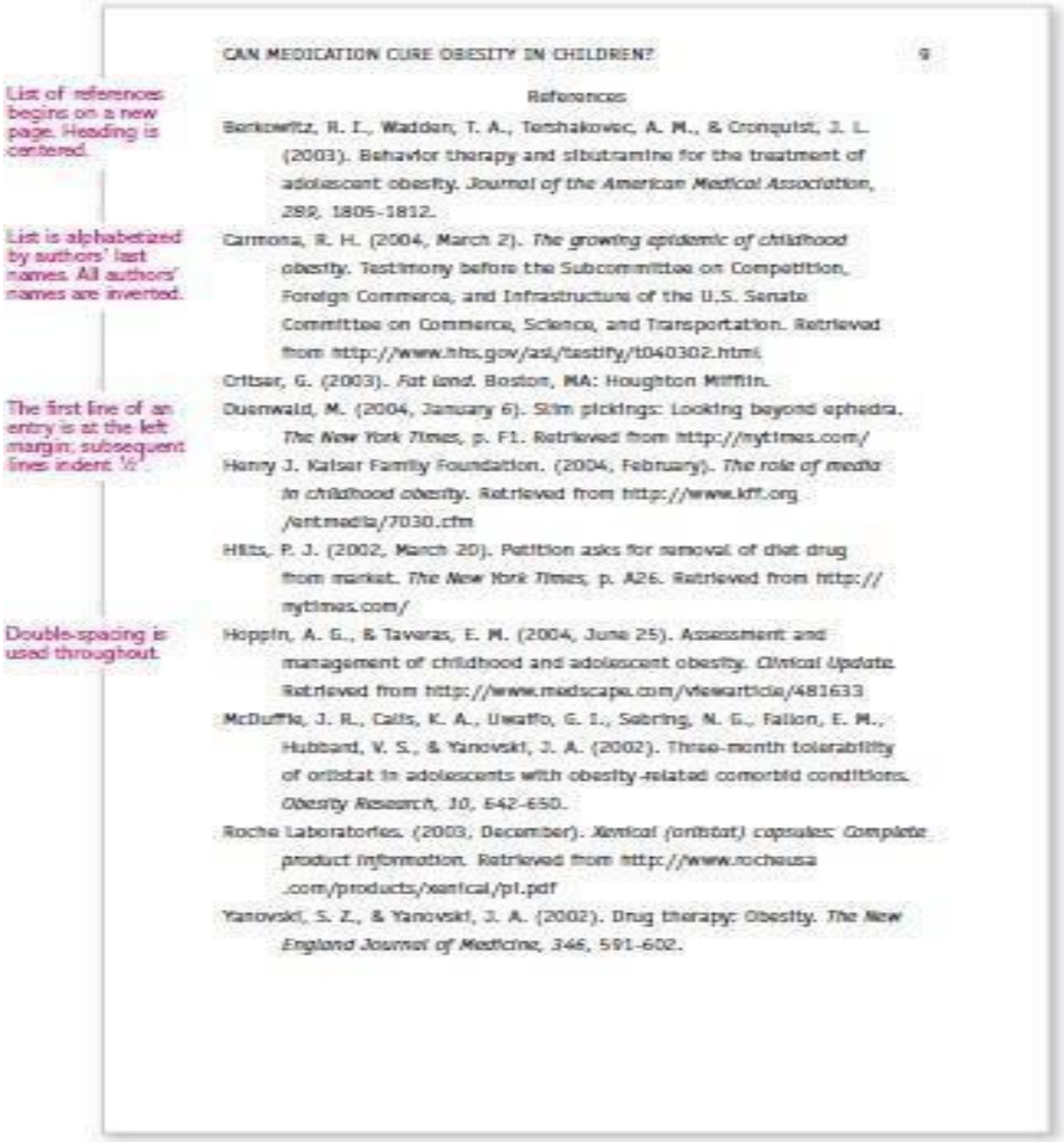
The barrage of possible approaches to combating childhood obesity—from scientific research to political lobbying—indicates both the severity and the complexity of the problem. While none of the medications currently available is a miracle drug for curing the nation's 9 million obese children, research has illuminated some of the underlying factors that affect obesity and has shown the need for a comprehensive approach to the problem that includes behavioral, medical, social, and political change.

Brackets indicate a word not in the original source.

A quotation longer than forty words is indented without quotation marks.

Mirano interprets the evidence; she doesn't just report it.

The tone of the conclusion is objective.



CAN MEDICATION CURE OBESITY IN CHILDREN? 9

List of references begins on a new page. Heading is centered.

References

List is alphabetized by authors' last names. All authors' names are inverted.

Berkowitz, R. I., Wadden, T. A., Tershakovec, A. M., & Cronquist, J. L. (2003). Behavior therapy and sibutramine for the treatment of adolescent obesity. *Journal of the American Medical Association, 289*, 1805-1812.

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The first line of an entry is at the left margin; subsequent lines indent ½".

Double-spacing is used throughout.

Hoppin, A. G., & Taveras, E. M. (2004, June 25). Assessment and management of childhood and adolescent obesity. *Clinical Update.* Retrieved from http://www.medscape.com/viewarticle/481633

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Lesson 37

STUDYING LITERATURE: THE PRE-CRITICAL RESPONSE

Literary research: the objectives involved

- Understanding of the basic theoretical concepts
- Contemporary approaches to literature
- Major differences among them
- Understanding of the aims of literary criticism
- Knowledge of key forms and terminology of literary criticism
- Read literature with understanding and judiciousappreciation

Literary research: the objectives involved

- The basic theoretical concepts
- Basic for understanding and complementing
- Primarily focusing on senses and emotions
- The first step to move from amateur to analytical response
- Focusing on what, how and why?
- No substitute for initial personal, appreciative response to the basic ingredients of literature

Major components of a literary work:

- Setting
- Plot
- Characters
- Structure
- Style
- Atmosphere
- Theme
- Conflict
- Tone

Defining major components of literary work:

- The setting is the time frame or place in which the work takes place.
- The plot is the general background of the story line or literary work that presents the sequence of events in which the characters in possible conflict are involved.
- The characters are the individuals that the writing is typically based upon in a story line.
- Atmosphere is the mood or feeling conveyed by the author's choice of language.
- The theme is the underlying meaning of the writing. It is clearly stated and can be applied to the reader's life.

Commenting on setting and plot

The pre-critical response: setting and plot

- Your understanding of the basic literary components

- The TIME (day or history) and PLACE?
  - Specific
- Contribute strongly to the mood (atmosphere)
- Through which the action or narrative occurs

The pre-critical response: setting and plot

- Happenings in a literary work
- Referring to an action
- Organized around a conflict
- Builds through:
  - Complication
  - Climax
  - Resolution
- Time-honored plot ingredients (the escape, the chase, the capture, the release)

Commenting on characters and structure

The pre-critical response: characters and structure

- Character (ization) - developing Personality (ities)
  - Round (developed/believable)
  - Flat (stereotypes)
  - Dynamic
  - Static
- Structure: the reader's or viewer's unconscious sense of plot structure
- The relatedness of actions - the gradual buildup in suspense from a situation full of potential to a climax and a resolution

Commenting on style and atmosphere

The pre-critical response: style and atmosphere

- The distinctive handling of language
  - Choice
  - Arrangement
  - Tone
  - Mood
  - Imagery
  - Sound effects and other devices

The pre-critical response: style and atmosphere

- Mood
- The overall atmosphere
- Prevailing emotional era

- A common ingredient
- Created through several factors

Commenting on theme

The pre-critical response: theme

- Major idea and main concept
- Underlying meaning
- Directly or implied
- The often rich and varied underlying idea of the action is the theme
- Complex aspect of literature requiring very intentional thinking
- Slavery, hypocrisy, violence and destruction

Lesson 38

INTRODUCTION TO TEXTUAL SCHOLARSHIP, GENRE AND SOURCE STUDIES

Literature as art – three fundamental Qs

1. Do we have an accurate version of what we are studying?

- Textual scholarship

2. What are we dealing with?

- Genre studies

3. Did earlier writings help this work come into being?

- Source studies

Studying through textual scholarship

The primary goal of the discipline of textual scholarship (or textualcriticism) is the investigation of texts. Textual scholars attempt to understand how texts have come to be as they are and, in order to achieve this, they examine the primary sources of a text. There are several different schools of thought within the discipline: some scholars are interested in what the author intended, some others see texts as collaborative products and there are also those who are interested in how a text is transmitted. In many cases, textual scholars produce editions of the texts they have studied.

Do we have an accurate version of what we are studying?

- Sophocles?
- Troy?
- Local romances?
- Macbeth?
- Heer Ranjah?
- James Thorpe - Principles of TextualCriticism
- Authentic text (text which the author intended)

- Problem with older works?
- Corrupted? (omissions and errors)

Studying through textual scholarship

Do we have an accurate version of what we are studying?

- Originality?
- Satisfactory Shakespearian text?
- Healthy respect for textual criticism
- Studying the genesis
- Development of a piece of literature
- E.g., Ezra Pound (Waste Land) in creating a modern classic
- Dickens Great Expectations
- Which is the real???

Studying through textual scholarship: examples

Do we have an accurate version of what we are studying?

- Authentic text (Close editing & proofreading?)
- Skilled in linguistics, literary criticism and bibliography
- Aesthetic (as well as scientific) text
- For interpretation and evaluation
- Indispensible tool for further meaningful analysis
- Textual criticism: combination of artist and scientist

Studying through textual scholarship

Example: Hamlet

- Greatness discovered by the editors
- 400 hundred years and four versions
- Words with changed meanings?

- Richness of interpretation
- 17th century meaning
- O that this too too solid flesh would melt
- (Act 1, Scene, ii) Sallied? sullied?
- James Thorpe - Principles of Textual Criticism
- DC Greetham - Textual Scholarship: An Introduction

Studying through genre studies

Genre means a type of art, literature, or music characterized by a specific form, content, and style. For example, literature has four main genres: poetry, drama, fiction, and non-fiction.

Matters of genre: What are we dealing with?

- The fountainhead of criticism
- Beginning in the POETICS
- Basic notions [catharsis, tragic hero, formative elements of drama, unity ofplot, mimesis,]
- Distinguishing one genre from another
- Followed by critics
- Aristotelian or Neo-Aristotelian
- Revival in 20th C. (University of Chicago)

Genre criticism: criticism of kinds and types

- Traditional way of approaching a piece of literature
- Athenian citizens knew what they were going to see in a play by Sophocles
- Homer (Iliad and Odyssey)
- The conventions of epic
- Mock epic (Pope)
- Examples: pure type, mixed, innovative or unique composition – a new kind
- The Age of Earthquake

Matters of genre: What are we dealing with?

- Terminology and definitions
- Significant development in 20th century
- Northorp Frye - Anatomy of Criticism
- Greek terminology - new distinctions
- WORDS: acted + spoken + sung or chanted + written
- Two more recent works:
- ED Hirsch - Validity in Interpretation (individuality of a givenwork)
- Robert Scholes - Structuralism in Literature (archetypal and rhetorical)

Genre criticism: examples

- To His Coy Mistress:
    - Lyric: emotion, imagination and subjectivity
    - Proposition: graceful, sophisticated and philosophical
    - Impassioned but?
- HAMLET:
- Revenge tragedy (drama)
- Serious action - Seneca's concept of tragedy - typical ingredients
- Hesitation + intrigue + real or pretended insanity
- Philosophic soliloquies
- Murders and dead bodies

Did earlier writings help this work come into being?

- Genetic approach?
- New historicism?
- Growth and development of a work
- More background Qs

- The art of allusion
- Influence on 'To His Coy Mistress'
- GB Shaw's 'Saint Joan' – the 16th century event
- What was the basic source?

How did earlier writings, other works of art influence the text?

- Multiple levels of literary dissection
- Provide information about the genesis of a text

Characteristics of Fiction

1. Fiction has three categories that are, realistic, non-realistic, and semi-fiction.
2. Fiction work is not real.
3. Authors can use complex figurative language to touch readers' imaginations.
4. Unlike poetry, it is more structured, follows proper grammatical pattern, and correct mechanics.
5. A fictional work may incorporate fantastical and imaginary ideas from everyday life.
6. It comprises some important elements such as plot, exposition, foreshadowing, rising action, climax, falling action, and resolution.
7. Popular literary fiction include, James Joyce's novel A Portrait of an Artist as a Young Man, Charles Dickens' A Tale of Two Cities, Jane Austen's Pride and Prejudice, and Harper Lee's To Kill a Mockingbird.

Characteristics of Non-Fiction

Non-fiction is a vast category that also has sub-genres; it could be creative like a personal essay, or factual, like a scientific paper. It may also use figurative language, however, not unlike poetry, or fiction has. Sometimes, non-fiction may tell a story, like an autobiography, or sometimes it may convey information to readers. Other examples of non-fiction include biographies, diaries, memoirs, journals, fantasies, mysteries, and romances. A popular example of non-fiction genre is Michael Pollan's highly celebrated book, The Omnivore's Dilemma: A Natural History of Four Meals, which is an account of the eating habits of Americans.

Lesson 39

RESEARCH METHODS IN LITERATURE – III

Topic no. 193-198

Introduction to historical biographical approach

Biographical criticism is a form of literary criticism which analyzes a writer's biography to show the relationship between the author's life and their works of literature. Biographical criticism is often associated with historical-biographical criticism, a critical method that "sees a literary work chiefly, if not exclusively, as a reflection of its author's life and times".

Studies on historical and biographical approaches

- Focus is on the life, times, and environment of the author and/or the literary characters
- Nearly all literature is open to this approach
- Examines how these external factors affect the literary work
- Literature - the reflection of an author's life and times
- The political, economic, and sociological context of author's times
- To truly understand the works

The Importance of the Historical Perspective

- Historical novels often make important comments on the human condition in aparticular era.
- Understanding the human condition and social pressures helps understand the work
- 14th century England by Chaucer
- On the Late Massacre in Piedmont
- On His Blindness
- On His deceased Wife

Historical biographical method: practice I

The concept of historical perspective

- Traditional historical perspective

- There are 'facts' that we can know, with some degree of certainty
- As readers we… need to gather them and relate them to literary works
- Exploring the possible ways in which the meaning of the text has changed over time

Historical criticism: goals

- To strive to understand a literary text as a product of the social, cultural, and intellectual context in which it was created.
- To examine how the text was initially received by readers as well as how its reception has changed over time.
- To examine how the author's own experiences may be reflected in the text.

Historical criticism: two ways to approach

- Old Historicism: looks at the time in which a piece was written to determine how it was interpreted by its contemporaries.
- New Historicism: demonstrates how a literary work reflects ideas and attitudes ofthe time in which it was written.

Why examine the time period in which a piece was written?

- Every work is written in a specific time
- Time periods change: how people think – and their views of the world
- Specific social values - influence how a piece is written - intellectual beliefs
- Shakespeare - a tumultuous time when some in power believed the theater to be an evil influence
- Did he write "all the world's a stage" to comment on these attacks?
- Kurt Vonnegut wrote Slauterhouse Five during the Viet Nam war era
- While the book is about World War II, how much of it is a commentary on the Viet Nam War?

Historical biographical method: practice II

Why demonstrate how a work reflects its time?

- Commenting on power struggles

- Examining other texts e.g., diaries, records, and institutions helps understand better
- Language influences how we interpret text (the diction of a piece)
- Comparing and contrasting "the language of contemporaneous documents and literary works"
- Revealing "hidden assumptions, biases, and cultural attitudes that relate to the two kinds of texts
- Demonstrating how the literary work shares the cultural assumptions

Checklist for critical questions

- When was the work written? Published? Received? Why?
- What does it reveal about the standards - tastes - values
- What social attitudes and cultural practices were prevalent?
- The kinds of power relations?

Checklist for critical questions

- How do the power relations reflected in the literary work manifest the cultural practices and social institutions?
- Other historical documents, cultural artifacts, or social institutions?
- How might close reading of such nonliterary "text" illuminate?
- How is past reflected?
- Differences from the ideas and values?

Advantages and disadvantages of HBM

- Advantages: works well for some which are obviously political or biographical in nature.
- Places allusions in their proper classical, political, or biblical background.
- Disadvantages: "the intentional fallacy"
- Tends to reduce art to the level of biography and make it relative (to the times) rather than universal.
- Example: life and times of Marvell - to understand the context of the poem

Introduction to moral philosophical approach

A moral philosophical approach usually describes or evaluates a work in terms of the ideas and values it contains. This often means examining a work's ideas and values—both those expressed directly by the narrator or character and those implied by the overall design and content—in relation to a particular ethical, philosophical, or religious system (rationalism, existentialism, Christianity, etc.).

The philosophical approach in literature becomes much more than a novelty, it becomes something human. It is something concerned with love and wisdom as well as hatred and innocence.

This philosophical approach just doesn't think of literature as an art; it recognizes that literature can influence the lives of others in a significant way. Critics believe that the major purpose of literature is to teach morality. Plato and Horace both emphasized on morality. Mathew Arnold discussed morality in the genre of poetry.

What is being taught?

- Literature: an important source of moral guidance and spiritual inspiration
- In harmony with criticaltradition
- Matthew Arnold: supremely important source of moral guidance and spiritual inspiration
- The best poetry has a power of forming, sustaining, and delighting us, as nothing else can

Moral criticism - the longest history

- The importance of literature:
    - Not just its way of saying
    - But also what it says
- Critics who concentrate on the moral dimensions of literature often
- Judge literary works by their ethical teachings and by their effects on readers
- Literature that is ethically sound and encourages virtue is praised
- Literature that misguides and corrupts is condemned

Literature has a didactic purpose?

- Greatest writers have considered themselves teachers as well as artists
- Literature's power as a teacher (Plato)

- Capable of corrupting morals and undermining religion
- Moralism – utilitarianism
- Capable of fostering virtue (Aristotle and Horace)
- Delightful and instructive
    - Functions of literature: teach morality and probe philosophical issues (Samuel Johnson)

Moral philosophical method: practice I

The Study of Poetry (Matthew Arnold)

- Most important thing is the moral or philosophical teaching
- Great literary work must possess "high seriousness"
- Literature (poetry): important source of moral and spiritual inspiration
- Would probably replace philosophy and religion
- Moral and religious significance

Neo-Humanist: 20th century moral evaluation

- Originally American
- Literature as a criticism of life
- The study of the technique of literature is a study of means
- Concerned with the ends of literature
- How it affects the reader?
- Application in your own context - evaluating works using MSM

Moral philosophical method: practice II

Moral criticism

- 1940s: "Death" of Neo-Humanism
- Birth of Christian Humanism (Religious Humanism)
- "a philosophy advocating the self- fulfillment of man within the framework ofChristian principles." (Webster)

- Most human beings have personal and social needs that can only be met by religion
- T.S. Eliot
- Edmund Fuller
- Hyatt Waggoner

Moral criticism

- Less popular – during last few decades
- Why? – excess of criticism?
- Asserts that the larger purpose of literature is to teach morality and to probe philosophical issues
- Authors *intend* to instruct the audience in some way
- So? Can you think of some works to be evaluated?

Moral criticism: advantages and disadvantages

- Advantages: useful for works which do present an obvious moral philosophy
- Useful when considering the themes of works
- Does not view literature merely as "art" isolated from all moral implications
- Recognizes that literature can affect readers and that the message of a work is important
- Disadvantages: too judgmental? Artistic merit? MP content?

Lesson 40

CHOOSING A DOCUMENTING STYLE - MLA AND CMS

Topic no. 199-204

The Modern Language Association (MLA) provides a method for source documentation that is used in most humanity courses.

CMS stands for the Chicago Manual of Style. It is a style of formatting written works that is most widely used in publishing.

Book Citation in MLA:

Book citation in MLA generally requires an author name, work title, publication city, publisher, year published, and an identification of the publication medium, such as print.

Book Citation in CMS:

Book citation in MLA generally requires an author name, work title, publication city, publisher and publication year.

Modern Language Association

- To be fair and ethical, you must cite anything you borrow from
- MLA recommends a system of in-text citations

1. The source is introduced by a signal phrase that names its author.

2. The material being cited is followed by a page number in parentheses.

3. At the end of the paper, a list of works cited (arranged alphabetically by authors' last names) gives complete publication information about the source.

Learn MLA carefully and apply it accordingly

- Enclose borrowed language in quotation marks
- Put summaries and paraphrases in your own words
- Use the in-text citation tips recommended by MLA
- Give full details of the source at the end
- Avoid intentional and unintentional plagiarism

IN-TEXT CITATION

Legal scholar Jay Kesan points out that the law holds employers liable for employees' actions such as violations of copyright laws, the distribution of offensive or graphic sexual material, and illegal disclosure of confidential information (312).

ENTRY IN THE LIST OF WORKS CITED

Kesan, Jay P. "Cyber-Working or Cyber-Shirking? A First Principles Examination of Electronic Privacy in the Workplace." *Florida Law Review* 54.2 (2002): 289-332. Print.

ORIGINAL SOURCE

Without adequate discipline, the World Wide Web can be a tremendous time sink; no other medium comes close to matching the Internet's depth of materials, interactivity, and sheer distractive potential.

—Frederick Lane, *The Naked Employee*, p. 142

PLAGIARISM

Frederick Lane points out that if people do not have adequate discipline, the World Wide Web can be a tremendous time sink; no other medium comes close to matching the Internet's depth of materials, interactivity, and sheer distractive potential (142).

BORROWED LANGUAGE IN QUOTATION MARKS

Frederick Lane points out that for those not exercising self-control, "the World Wide Web can be a tremendous time sink; no other medium comes close to matching the Internet's depth of materials, interactivity, and sheer distractive potential" (142).

ORIGINAL SOURCE

In earlier times, surveillance was limited to the information that a supervisor could observe and record firsthand and to primitive counting devices. In the computer age surveillance can be instantaneous, unblinking, cheap, and, maybe most importantly, easy.

—Carl Botan and Mihaela Vorvoreanu, "What Do Employees Think about Electronic Surveillance at Work?" p. 126

PLAGIARISM: UNACCEPTABLE BORROWING

Scholars Carl Botan and Mihaela Vorvoreanu argue that in earlier times monitoring of employees was restricted to the information that a supervisor could observe and record firsthand. In the modern era, monitoring can be instantaneous, inexpensive, and, most importantly, easy (126).

MLA: documenting and integrating sources

MLA Handbook for Writers (New York: MLA, 2009)

- Use quotations appropriately
- Limit your quotations
- Use the ellipsis mark and brackets
- Set off long quotations if more than 4 lines, indent 1")
- Use signal phrases

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ENTRY IN THE LIST OF WORKS CITED

Kesan, Jay P. "Cyber-Working or Cyber-Shirking? A First Principles Examination of Electronic Privacy in the Workplace." *Florida Law Review* 54.2 (2002): 289-332. Print.

MLA: manuscript format and sample paper

MLA formatting

- Times New Roman
- Size: 12
- No title page
- Margins: 1" all sides
- Pagination: Upper right corner with your last name
- Line spacing: double
- Read the detail and see the sample paper

IN-TEXT CITATION

Legal scholar Jay Kesan points out that the law holds employers liable for employees' actions such as violations of copyright laws, the distribution of offensive or graphic sexual material, and illegal disclosure of confidential information (312).

ENTRY IN THE LIST OF WORKS CITED

Kesan, Jay P. "Cyber-Working or Cyber-Shirking? A First Principles Examination of Electronic Privacy in the Workplace." *Florida Law Review* 54.2 (2002): 289-332. Print.

CMS: citing sources – avoiding plagiarism

Chicago Manual of Style (University of Chicago 2009)

- Required by many history and humanities instructors
- Consult your advisor
- CMS citations consist of superscript numbers in the text
- To be fair and ethical, you must cite anything you borrow from
- Notes with corresponding numbers
- Given at the foot of the page (footnotes) or at the end of the paper (endnotes).

TEXT

(as not allowed to recruit black soldiers from out of state. "Ostensibly," writes Peter Burchard, "no recruiting was done outside Massachusetts but it was an open secret that Andrew's agents were working far and wide."[1]

NOTE

1. Peter Burchard, *One Gallant Rush: Robert Gould Shaw and His Brave Black Regiment* (New York: St. Martin's, 1965), 85.

CMS (Chicago) – documenting sources

- Superscript numbers in the text of the paper
- Refer readers to notes with corresponding numbers
- Given either at the foot of the page (footnotes) or at the end of the paper (endnotes)
- A bibliography is often required as well
- Appears at the end of the paper and gives publication information for all the workscited in the notes
- Ibid – in the same place

TEXT

, claimed to have seen Forrest order the killing, but when asked to describe the six-foot-two general, he called him "a little bit of a man."[12]

FOOTNOTE OR ENDNOTE

12. Brian Steel Wills, *A Battle from the Start: The Life of Nathan Bedford Forrest* (New York: HarperCollins, 1992), 187.

BIBLIOGRAPHY ENTRY

Wills, Brian Steel. *A Battle from the Start: The Life of Nathan Bedford Forrest*. New York: HarperCollins, 1992.

CMS: manuscript format and sample paper

CMS (Chicago) style

- Times New Roman
- Size: 12 (not specific)
- Full title page
- Margins: 1" all sides
- Begin the endnotes on a new page at the end of the paper
- Line spacing: relax - single but could be double

Highlighted by Frishtay

- Read the detail and see the sample paper

TEXT

, claimed to have seen Forrest order the killing, but when asked to describe the six-foot-two general, he called him "a little bit of a man."[12]

FOOTNOTE OR ENDNOTE

12. Brian Steel Wills, *A Battle from the Start: The Life of Nathan Bedford Forrest* (New York: HarperCollins, 1992), 187.

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Lessons Compiled by Maha Malik

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