Research Methods in Linguistics
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Lecture (0)

Introduction
Linguistics is first and foremost a science. Thus, it is based on research.

Before we dig into how to do research, you should be aware of how to skew our logic.
“Research is the systematic approach to obtaining and confirming new and reliable knowledge”

- Systematic and orderly (following a series of steps)
- The purpose is new knowledge, which must be reliable

This is a general definition which applies to all disciplines
Knowledge acquisition gained
  • through reasoning
  • through intuition
  • but most importantly through the use of appropriate methods
Definitions of scientific method use such concepts as **objectivity** of approach to and **acceptability** of the results of scientific study.

**Objectivity** indicates the attempt to observe things as they are, without fabricating any observations to make it accord with some preconceived worldview (without keeping dust under the rug).

**Acceptability** is judged in terms of the degree to which observations and experimentations can be reproduced.
One of the early writers on scientific method, the English philosopher and statesman Francis Bacon, wrote in the early 17th century that the organizing of a sufficiently large number of observations of nature would lead to theories accounting for those operations—the method of inductive reasoning.
At about the same time, however, the French mathematician and philosopher René Descartes was attempting to account for observed phenomena on the basis of what he called clear and distinct ideas—the method of deductive reasoning.
Inductive Reasoning vs Deductive Reasoning

- Theory
- Hypothesis
- Pattern
- Observation

- Theory
- Hypothesis
- Observation
- Confirmation
Empiricism: the notion that enquiry is conducted through observation and knowledge verified through evidence.

Determinism: the notion that events occur according to regular laws and causes. The goal of research is to discover these.

Scepticism: the notion that any proposition is open to analysis and critique.
Notice that:

... *truth* was not used in the definition of research

This concept of *truth* is outside of the productive realm of thinking by researchers
— new things are being **discovered** and old, long-held theories are **modified** or **replaced** with better ones as more data/knowledge is accumulated.
For example,

- the idea that the sun is at the center of our solar system replaced the idea that the earth was at the center of the universe, (Geocentric model (also known as Geocentrism, or the Ptolemaic system))
Scientists are human, too, and so these major changes are often controversial and accompanied by violent debate!
Accidental discovery:

- Accidental discovery may occur in structured research process
- Usually takes the form of a phenomenon not previously noticed
- May lead to a structured research process to verify or understand the observation
Data Collection

- an intermediate step to gain reliable knowledge
- collecting reliable data is part of the research process
Searching out published research results in libraries (or the internet)

- This is an important early step of research
- The research process always includes synthesis and analysis
- But, just reviewing of literature is not research
1. Searching for explanation of events, phenomena, relationships and causes
   - What, how and why things occur
   - Are there interactions?

2. A process
   - Planned and managed – to make the information generated credible
   - The process is creative
   - It is circular – always leads to more questions
• All well designed and conducted research has potential application.

• Failure to see applications can be due to:
  – Users not trained or experienced in the specialized methods of research and reasoning
  – Researchers often do not provide adequate interpretations and guidance on applications of the research

• Researchers are responsible to help users understand research implications
1. Suspicion that a factor (exposure) may influence occurrence of a phenomenon

- Observations in experiential domains of practice
- Examination of phenomenon/outcome patterns
  - Do subpopulations have higher or lower rates?
  - Are phenomenon occurrence rates increased in the presence of certain factors?
- Observations in controlled research environments
- Theoretical speculation
2. Identify variables you are interested in:
   • Exposure - (predictor variable, action)
   • Outcome - (phenomenon, viewpoint, event)

3. Formulate a specific hypothesis
   - Frame a hypothesis which seeks to answer a specific question about the relationship between an exposure and an outcome
1. Scientists use observations and reasoning to develop technologies and propose explanations for natural phenomena in the form of hypotheses.

2. Predictions from these hypotheses are tested by experiment and further technologies developed.

3. Any hypothesis which is cogent enough to make predictions can then be tested reproducibly in this way. Once it has been established that a hypothesis is sound (by use of the above methods), it becomes a theory.

4. Sometimes scientific development takes place differently with a theory first being developed gaining support on the basis of its logic and principles.
1. Choose a question to investigate
2. Identify a hypothesis related to the question
3. Make testable predictions in the hypothesis
4. Design an experiment to answer hypothesis question
5. Collect data in experiment
6. Determine results and assess their validity
7. Determine if results support or refute your hypothesis
If the experiments prove the hypothesis to be true, it becomes a theory or law of nature. If the experiments prove the hypothesis to be false, the hypothesis must be rejected or modified. The scientific method used properly should give us predictive power (to understand phenomena which have not been tested).
Before classification, we must first define types of research
Different criteria are used to classify research types

(All of these are somewhat arbitrary and artificial)
• **Basic** – to determine or establish fundamental facts and relationships within a discipline or field of study. Develop theories ... (examples in linguistics?)

• **Applied** – undertaken specifically for the purpose of obtaining information to help resolve a particular problem

• The distinction between them is in the application
  – Basic has little application to real world but could be done to guide applied research
Figure 2.1. Relationship among research, knowledge, and use (Bonnen, 1986).
- designed to improve a discipline
- dwells on theories, fundamental relationships and analytical procedures and techniques
- In linguistics, the intended users are other linguists
- Provides the conceptual and analytical base for other linguistic research
- It is synergistic and complementary with subject matter and problem-solving research
• Provides the foundations for applied research
• Circular as applied research reveals the shortcomings of disciplinary research
• Examples of some linguistic theories? (generative grammars, speech acts theory, conceptual metaphor theory...)

DISCIPLINARY... CONT.
“research on a subject of interest to a set of decision makers “

Tends to follow subject-matter boundaries within a discipline (e.g., Language development, language acquisition, language and identity)

Inherently multidisciplinary, drawing information from many disciplines
- eg. Language and identity draws from psychology, sociology, language planning and policy from political science
Provides policy makers with general knowledge to make decisions about various problems.

A primary source of policy applications for language

Subject-matter research is a cornerstone in language— it involves direct application of applied linguistics to contemporary issues.
• Designed to solve a specific problem for a specific decision maker
• Often results in recommendations on decisions or actions
• Problem-solving research is holistic – uses all information relevant to the specific problem (while disciplinary research tends to be reductionist)
• Disciplinary research is generally the most “durable” (long lasting); problem-solving research the least durable
Descriptive Research – the attempt to determine, describe, or identify something
• The intent is often synthesis, which pulls knowledge or information together

Analytic – the attempt to establish why something occurs or how it came to be

All disciplines generally engage in both
Methodology and Method are often (incorrectly) used interchangeably

- **Methodology** – the study of the general approach to inquiry in a given field

- **Methods** – the specific techniques, tools or procedures applied to achieve a given objective
  - Research methods in linguistics include qualitative and quantitative analysis, regression analysis, statistical analysis, surveys, data gathering, etc.
Research is a creative process.

...research includes far more than mere logic ... It includes insight, genius, groping, pondering – ‘sense’ ... The logic we can teach; the art we cannot

Research requires (or at least works best) with imagination, initiative, intuition, and curiosity.
A. Gather and use previously developed knowledge
B. Exchange ideas
C. Apply deductive logic
D. Look at things alternate ways
E. Question or challenge assumptions
F. Search for patterns or relationships
G. Take risks
H. Cultivate tolerance for uncertainty
I. Allow curiosity to grow
J. Set problems aside ... and come back to them
K. Write down your thoughts
   “... frequently I don’t know what I think until I write it”
L. Freedom from distraction ... some time to think.

*Creativity may provide the difference between satisfactory and outstanding research.*