Evidence-Based Criminology

• Evidence-based criminology
  – Founded upon the experimental method
  – Emphasizes randomized controlled experiments
  – “Evidence” refers to scientific findings

• ASC Division of Experimental Criminology

• Academy of Experimental Criminology
  – Journal of Experimental Criminology
The Evolving Science of Criminology

- John Laub’s three eras
  - Golden Age of Research (1900-1930)
  - Golden Age of Theory (1930-1960)
  - Empirical testing of dominant theories (1960-2000)

- The 21st century contains “all possible offspring” of what came before
The Evolving Science of Criminology

• Scientific criminology involves
  – The systematic collection of related facts
  – An emphasis on the scientific method
  – General laws, a field for experimentation or observation, control of academic discourse
  – Acceptance into the scientific tradition
  – Emphasis on a worthwhile subject

• Modern criminology meets these criteria
Theory Building

• The ultimate goal of criminological research is:
  Construction of theories or models that improve our understanding of criminal behavior and help us create effective strategies to deal with the crime problem

• Theory:
  – A series of interrelated propositions that attempt to describe, explain, predict, and ultimately control some class of events
  – Theories gain explanatory power from inherent logical consistency
  – Test theories by how well they describe and predict reality
Uses of Theories

• Provide patterns for interpreting data

• Link studies together

• Supply frameworks within which concepts and variables have special significance

• Allow us to interpret the larger meaning of findings
The Role of Research and Experimentation

• **Research:**
  The use of standardized, systematic procedures in the search for knowledge

• Types of research
  – Pure vs. applied
  – Primary vs. secondary
Stages in Research

• Problem identification

• Development of a research design

• Choice of data collection techniques

• Review of findings
Problem Identification

• Choosing the problem/issue to be studied

• Frequently involves testing hypotheses

• Hypothesis:
  – An explanation that accounts for a set of facts and that can be tested by further investigation
  – Something that is taken to be true for the purpose of argument or investigations
Problem Identification

• Concepts in a hypothesis must be translated into variables:
  – **Variables**: Concepts that can undergo measurable changes

• **Operationalization** – turning a simple hypothesis into one that is testable

• After concepts in hypothesis are measurable, hypothesis can be tested
Development of a Research Design

• **Research design**:  
  - The logic and structure inherent in any particular approach to data gathering  
  - Guide to systematic collection of data

• Simple research design - One-group pretest-posttest

\[ O_1 \times O_2 \]

• Does not eliminate confounding effects
Validity in Research Designs

- **Internal validity:**
  The certainty that experimental interventions did indeed cause the changes observed in the study group

- **External validity:**
  The ability to generalize research findings to other settings
Threats to Internal Validity

- History
- Maturation
- Testing
- Instrumentation

- Statistical regression
- Differential selection
- Experimental mortality
Threats to External Validity

• Reactive effects of testing

• Self-selection

• Reactive effects of experimental arrangements

• Multiple-treatment interference
Experimental and Quasi-Experimental Research Designs

• *Controlled experiments:* Attempt to hold conditions other than the experimental intervention constant

• *Quasi-experiments:* Give the researcher control over the “when and to whom” of measurement (but not exposure)
Experimental Design

- Pretest-posttest control group design
  - Experimental group: O1 x O2
  - Control group: O3 x O4

- Control group is not exposed to the treatment or experimental intervention

- Randomization is critical to the success of an experimental design
  - Subjects are assigned to study groups without biases or differences resulting from selection
  - No self-selection allowed, no personal judgment used in subject assignment
  - Controls threats to internal validity
Choice of Data-Collection Techniques

• Data gathering strategies provide approaches to the accumulation of information needed for analysis

• Selection based on
  – Ease/simplicity
  – Cost
  – Time
  – Form required for data

• Key issues – will the strategy produce information in a usable form?
Choice of Data-Collection Techniques

- Five main data-gathering strategies
  - Surveys
  - Case studies
  - Participant observation
  - Self-reporting
  - Secondary analysis
Surveys

- Use questionnaires to gather data
  - In person/face-to-face
  - Telephone surveys
  - Mail surveys
  - Surveys sent via e-mail, fax

- Produce “survey data”
  - Public opinion
  - Fear of crime
  - Attitudes/perceptions
Case Studies

• In-depth investigations into individual cases
  – Life history – a single subject is the focus of a case study

• Suffer from high levels of subjectivity but provide the opportunity to examine individual cases in depth
Participant Observation

• Involves various strategies in which the researcher observes a group by participating, to varying degrees, in the activities of the group

• Researcher may operate undercover or make their purpose and identity known from the start

• Main types
  – Participant as observer
  – Observer as complete participant
Self-Reporting

• Subjects are asked to report rates of certain behaviors, such as crime
  – May provide information when official records are lacking
  – Often considered a form of survey research

• Introspection/personal reflection techniques
  – purely subjective
Secondary Analysis

- New analysis or evaluation of existing data that was gathered by other researchers
- Secondhand analysis of information originally collected for a different purpose
Problems in Data Collection

• Scientific observation must meet two criteria
  – Intersubjectivity:
    For observations to be valid, independent observers must report seeing the same thing under the same circumstances
  – Replicability:
    When the same conditions exist, the same results can be expected

• Observations meeting these criteria may still lead to unwarranted conclusions
Review of Findings

• Most data subjected to some form of data analysis using statistical techniques

• **Descriptive statistics**: describe, summarize, highlight relationships within data
  – Measures of central tendency
  – Standard deviation
  – Correlation

• **Inferential statistics**: attempt to generalize findings by specifying how likely they are to be true for other populations or locations
  – Tests of significance
Quantitative Versus Qualitative Methods

- **Quantitative methods**
  - Techniques that produce measurable results that can be analyzed statistically
  - “Mystique of quantity”

- **Qualitative methods**
  - Techniques that produce subjective results, or results that are difficult to quantify
  - Verstehen
Values and Ethics in the Conduct of Research

- Values enter into all stages of the research process
  - No research is free from preconceptions and biases
  - The most effective way to control their effect is to be aware of them at the onset of the research

- Ethical issues do not affect validity but may impact the lives of researchers and subjects
  - Protection of human subjects
  - Privacy
  - Need for disclosure of research methods
  - Data confidentiality
Values and Ethics in the Conduct of Research

• Informed consent
  – Strategy used to overcome ethical issues inherent in criminological research
  – Inform subjects as to nature of research, their anticipated role, the uses made of the data

• Institutional review boards
  – Boards established by universities, research organizations, government agencies
  – Examine research proposals to determine whether expectations of ethical conduct have been met before the proposals are submitted to funding organizations
Social Policy and Criminological Research

• Ideally, research should significantly impact public crime control policy

• Realistically
  – Public officials may be ignorant of current research
  – Public officials may ignore research findings
  – Public officials often seek to create politically expedient policies
  – Research may be at odds with public sentiment
Writing the Research Report

• Title page
• Acknowledgements
• Table of contents
• Preface
• Abstract
• Introduction
• Review of existing literature
• Description of existing situation

• Statement of hypothesis
• Description of research plan
• Disclaimers/limitations
• Analysis/discussion
• Summary/conclusions
• Endnotes/footnotes
• Appendices
• List of references
Writing for Publication

• *Refereed journals:* Journals that use peer reviewers to gauge the quality of the manuscripts submitted to them

• Manuscript submission requirements vary by journal