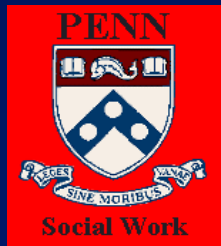


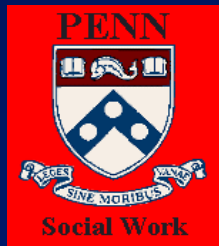
A Public Lecture by Richard J. Estes

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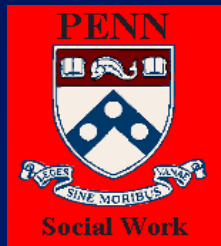


Practice-Focused Research

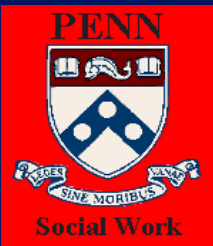


Presentation Objectives

- Review basic elements of research in practice settings, i.e., “Research 101”
- Identify various issues—both scientific and contextual—associated with the conduct of practice-focused research
- Explore ways in which your unit can initiate / enlarge its current research activities

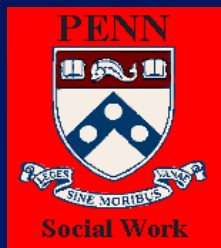


“RESEARCH”

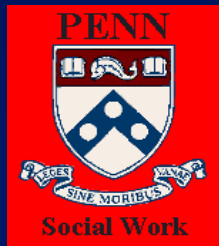


“Research”

- **Research:** “...methodological investigation into a subject in order to discover facts, to establish or revise a theory, or to develop a plan of action based on the facts discovered”
- Hence, “research” always refers to:
 - systematic study
 - of the similarities and differences
 - that exist in the nature, structure, and causes of some phenomenon of interest to us
- **In comparative studies**, one also needs to add:
across societies, time, and geographic space

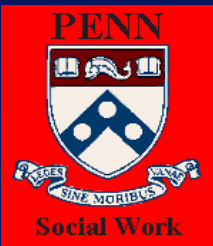


FUNCTIONS OF RESEARCH



“The Four Functions of Research”

- Description
- Explanation
- Prediction
- Control



Additional Functions of Research in Clinical Practice

■ Evaluating outcomes

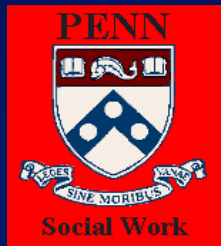
- Outcome: did we make a difference?

■ Assessing impact

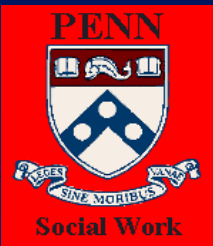
- Impact: does the difference we made persist over the long-term?
Or in some other consequential ways

■ Questions of “effectiveness” and “efficiency” also figure prominently in practice-based research

- Effectiveness: “achieving stated goals and objectives”
- Efficiency: “getting the biggest bang for the buck”

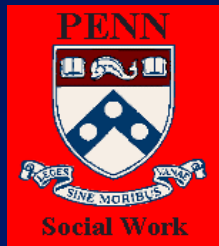


RESEARCH “DESIGN”



Research Design

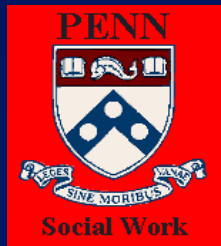
- Refers to the basic plan or strategy of a study
- Requires that careful attention be given to all of the elements of a study or investigation:
 - Problem identification and formulation
 - Specification and operationalization of concepts
 - Measurement
 - Sampling procedures
 - Plan for data collection and analysis
 - Research design and minimizing threats to design validity
- Above all else, research design requires that procedures used in any type of scientific investigation be *orderly* and *systematic*



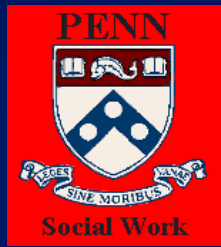
The “Language” of Research

An understanding and at least beginning skill in the use of some very elementary concepts is needed:

- “Variables” and variable types
- The “logic” of research design
- Design “validity” and threats to design validity
- Symbols used in research design



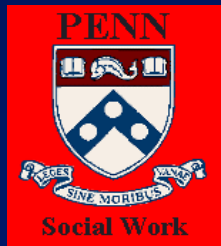
“Variables” in Research



Variables in Research

Three types of variables are of special interest to us in research

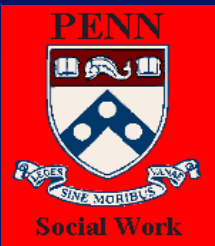
- **Dependent variable**
- **Independent variable**
- **Intervening variable**



Dependent Variables

■ Dependent variable:

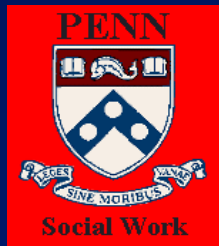
- That is caused by another, i.e., the result/product/outcome of some other event
- The dependent variable is usually what the study is trying to cause or bring about (e.g., adoption of safe sex practices, reduced depression, higher levels of school/work performance, etc.)
- Often symbolized using the letter “Y”



Independent Variables

■ Independent variable:

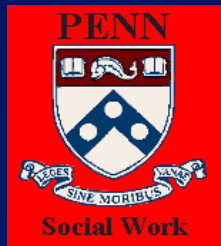
- The “intervention” or “action” variable
- That which does the causing, i.e., that which produces a result/product/outcome in the dependent variable
- Often symbolized using the letter “X”



Intervening Variables

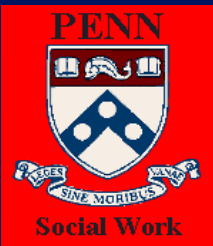
■ Intervening variable:

- Sometimes regarded as a “hidden,” certainly less visible, variable that may be responsible for changes on both the dependent and independent variable



Design

Validity



“Validity” in Research

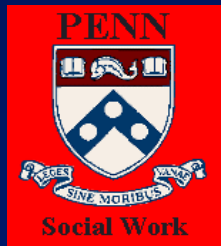
Many of the issues in research and research design are associated with:

■ Ensuring *design validity*

- providing a reasonable degree of assurance that the design/methods adopted are capable of generating the types of information needed to answer your research questions
- Epecially critically in determining that the causal (i.e., independent variable) variable is the factor producing the change/outcome on the dependent variable

■ *Reducing threats to design validity*

- controlling (and least reducing) the impact of other powerful explanations for the patterns/findings that you observe



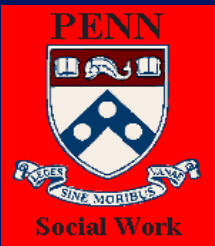
Internal vs. External Validity

■ Internal Validity

- The most basic elements needed to ensure the integrity of the study

■ External Validity

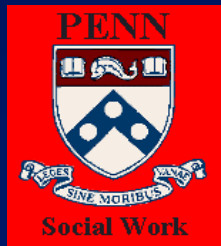
- Elements required to be able to generalize from the study sample to a larger population



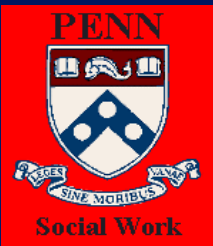
Additional Conditions Required For External Validity

The following three conditions must be satisfied in order to generalize from a study sample to a larger population:

- Must be able to prove that sample is *representative* of the larger population from which it was drawn
- If two or more groups are used in the study, must be able to prove that all of the study groups were *equivalent at the beginning of the study*
- Must be able to demonstrate that *nothing happened* during the course of the study--expect the introduction of the independent variable--*to change either the representativeness of the sample or the equivalence of the study groups*



Threats
to
Research Design
and
Design Validity



9 + 4 Threats to Internal Validity

■ History

- Factors occurring external to the research situation that may appreciably influence the dependent variable, e.g.,

■ Maturation

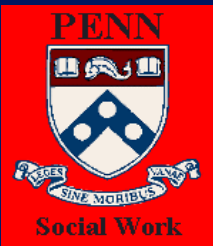
- Factors occurring within research subjects over time that account for changes in the dependent variable, e.g., ill health, fatigue, depression

■ Effects of initial testing

- Situations in which a pre-test can effect performance on the post-test (e.g., cramming for GREs)

■ Instrumentation

- Use of insensitive, unresponsive, inappropriate or invalid observation tools (including poorly trained interviewers)



9 + 4 Threats to Internal Validity

■ Statistical regression (to the mean)

- A statistical artifact whereby scores on repeated testing begin to resemble those of a group average

■ Selection bias

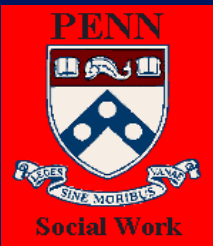
- Situations in which subjects are accepted into a study, or assigned to groups, on other than a random or equivalent basis

■ Mortality

- Shrinkage/loss of subjects over time

■ Reactive effects

- The “novelty” of participating in a study may induce subjects to alter behavior rather than the intervention itself (e.g., Hawthorn Effect)



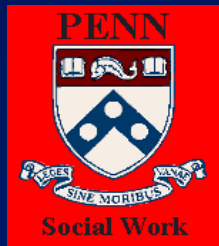
9 + 4 Threats to Internal Validity

■ Interaction of selection and maturation, etc.

- Includes a variety of interaction effects the most common of which is the “selection bias-maturation” interaction
 - » e.g., situations in which two comparison groups are different from the outset and the differences continue to deepen over the course of the study

■ “Diffusion” of treatments

- Occurs mostly as a result of the comparison group members communicating with one another and, thereby, sharing information that may effect each group’s performance on the dependent variable



9 + 4 Threats to Internal Validity

■ Compensation

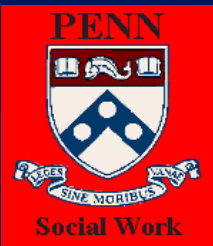
- Situations in which members of the research team (or others) share intervention-related information/techniques/meds, etc. with non-intervention control group members

■ Compensation rivalry

- Situations in which control group members actively compete with intervention group members on factors associated with the intervention or dependent variable (e.g., weight loss)

■ Demoralization

- Control group member mortality associated with a sense of deprivation of not participating in the active intervention



6 Threats to External Validity

■ Interaction of pre-testing and X

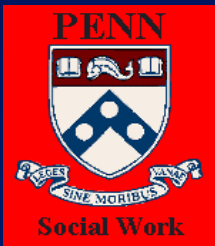
- Pre-tests alert respondents to focus of the research and, thereby, the test itself may influence their performance on the post-test (and their willingness to participate at all)

■ Interaction of selection and X

- A problem with “self selection,” i.e., when we are not able to randomly select people into studies
- People include themselves in studies of interest to them and exclude themselves from others

■ Reactive arrangements

- Similar to the threat to internal validity expect that, in terms of external validity, the pre-test itself has an impact on the subjects thereby making them different from the population from which they were selected



6 Threats to External Validity

■ Multiple treatment interference

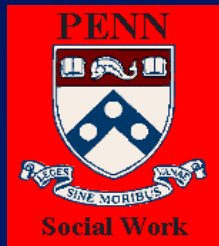
- A real challenge in clinical settings where subjects are exposed to a broad range of interventions—medical, psychological, social, etc.
- Difficult to “sort out” the contribution of any one intervention on the subject’s performance

■ Specificity of variables

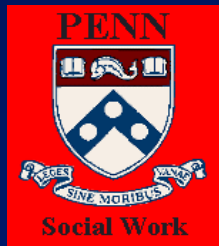
- All studies are conducted in a particular place, on a particular day, at a particular time, etc.
- Obviously, those who could not meet the above requirements are not participants and, thereby, both those that do and do not participate may differ from one another

■ Researcher bias

- People tend to see what they want to see, to study things in which they are interested and, even, to interpret/misinterpret facts consistent with those views

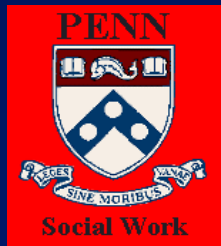


The Logic of Research Design

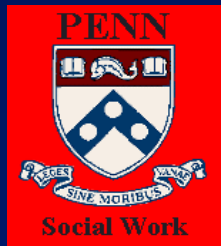


Research Logic

- The “logic” of research is quite rich and varied
- ranges from simple surveys of responses to a single question (e.g., what do you want to eat for lunch?) to highly complex, nuanced and multi-method approaches to highly elusive social problems (e.g., the contribution of family sexual abuse to the commercial sexual exploitation of children)
- Most research in practice focuses on questions of “effectiveness” and “efficiency” and, most, are related to a particular field of practice, a particular type of intervention and/or a particular setting (e.g., the effectiveness of “X” compound in reducing the incidence of “Y” disease within “Z” population)

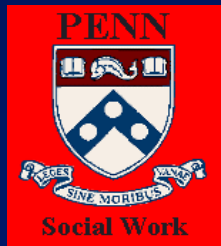


Examples of Designs Used in Research



Symbols Used in Research Design

- **R** = random sampling and random assignment to group
- **O** = observation
 - (measurement of performance on dependent variable)
- **X** = independent variable



Selected *Pre-Experimental* Research Designs

- “Casual” observation design:

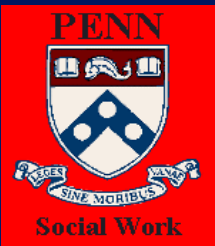
O

- One group, *post-test* only design:

X O

- One group, *pre- and post test* design:

O X O



Selected *Pre-Experimental* Research Designs (cont'd)

■ *One group, longitudinal case study:*

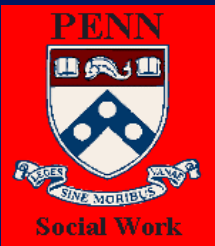
- also referred to as “panel,” “cohort,” “developmental,” “dynamic” case study

X O O O O

■ *Static-group, comparison design:*

X O

O



Selected *Experimental* Research Designs

- *Classic, “true,”* experimental design:

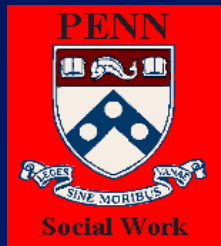
R O X O

R O O

- *Post-Test only, control group* design:

R X O

R O



Selected *Experimental* Research Designs (cont'd)

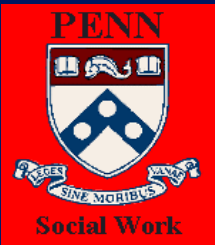
■ *Solomon Four-Group* research design:

R O X O

R O O

R X O

R O



Selected *Quasi-Experimental* Research Designs (cont'd)

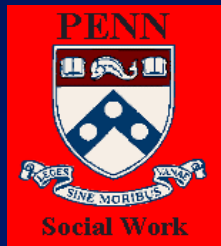
- *Time series* research design:

O O O X O O O

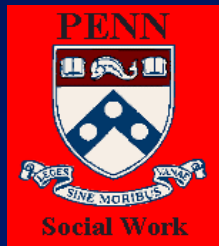
- *Non-equivalent control group* design:

O X O

O O

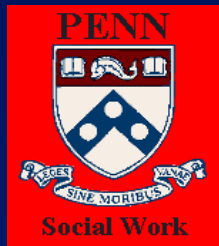


The Research Report



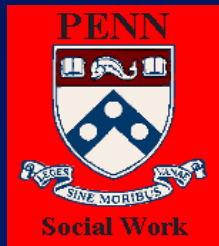
Elements of The Research Report

- Title Page
- Abstract
- Introduction
- Literature Review
- Research Methods
- Sample & Sampling Procedures
- Findings
- Discussion
- References
- Appendixes



The Research Report

- **Title Page**
- **Abstract (50-100 words)**
- **Introduction (1-2 pages)**
 - Significance and purpose of study
 - Relevance to social work or other practice setting/situation
 - Research question(s)
- **Literature Review**
 - Theories, concepts and variables
 - Empirical studies



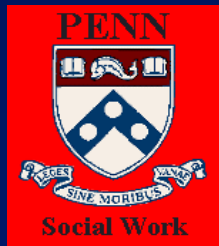
The Research Report

■ Research Methods

- Research design
- Data collection procedures
- Protections for research participants
- Measures
- Research instrument or interview agenda

■ Sample & Sampling Procedures

- Procedures
- Characteristics of sample members



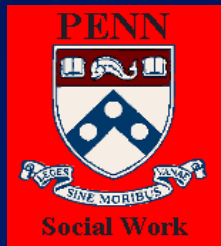
The Research Report

■ Findings

- Visual presentation: tables, graphs and charts
- Narrative presentation

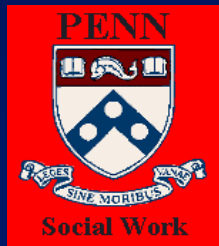
■ Discussion

- Your interpretation of findings
- Implications and recommendations for social work or other practice setting/situation
- Strengths and limitations of the study
- Suggestions for future research

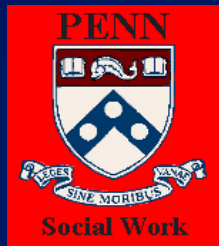


The Research Report

- **References**
- **Appendixes**
 - Consent form
 - Research instrument



OTHER “ISSUES” IN RESEARCH



Other Issues in Practice-Focused Research

- **Privacy**
- **Informed Consent**
- **Dealing with adverse reactions to the research situation**
- **Ethical dilemmas**
- **Collaborative/cooperative relationships**
- **Institutional Review Boards**