Dr. Ken Barger
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POPULATION-BASED RESEARCH

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   Grounded scientific research is based on control of biases
      Biases: Conceptual, methodological, situational, personal
      Recognition: Reactions - positive or negative, us or them
      Maximize chances of best predictive understandings
   Asking valid questions is essential for valid answers
   Separate facts from the interpretation of facts
   Professional and ethical standards

Appendix 1: Participant-Observation Methods
Appendix 2: Survey Methods
Appendix 3: Ethnosemantic Methods

POPULATION-BASED RESEARCH

1. Science

   a. Science

      Science: The study of natural phenomena
      Purpose: Discovery of natural laws and principles
                   Causal relationships
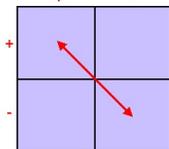   Predictive laws/relationships

   b. Scientific Research

      Science is a method of inquiry
           To validate ideas and explanations
      Basic scientific method: Controlled Comparison

      eg: Smoking and cancer
           Dominant mothers and homosexuality
           Psychosis and illness of the spirit
      Testing significant causal relationships

   c. Basic Research Issues

      Experimental/observational research:
           Experimental research - precise control of influences
           Observational research - analysis of natural phenomena
                Astronomy, paleontology, epidemiology, ethnology
           Spiral

      Deductive/inductive research:
           Deductive research - theory testing
           Inductive research - discovery
           Spiral

      Quantitative/qualitative research:
           Quantitative research - precise patterns/relationships
           Qualitative research - depth of explanation
           Both

      Prevalence/incidence research
           Prevalence - proportion distributed across a population
           Incidence - NEW occurrences

      Retrospective/prospective research
           Retrospective - reconstruction, relationships, can infer cause
           Prospective - incidence across time, causal relationships

Objective/subjective research:
    "Objective" a myth?
    Biases in all research:
        Conceptual - pre-existing ideas about behavior, theory investment
        Methodological - how/when/where data collected
        Situational - restrictive circumstances/activities/events
        Personal - personality, likes/dislikes, assumptions
        Chance - random occurrences
    Grounded scientific research is based on the *control* of biases
            ...rather than the *absence* of biases
        Awareness of biases
        Maximize chances of best predictive understandings
            In the research design
            In the analysis and grounding of conclusions

2. Concepts (http://www.iupui.edu/~anthkb/concepts.htm)

   a. SYSTEMS

   One of the most important conceptual perspectives in understanding natural phenomena is *systems*, the integrated nature of all phenomena. Systems can overlap with other systems, and there are levels of systems within systems. For example, biology, behavior, and ecology are mutually integrated with the health of both individuals and populations. And atomic particles and energy systems exist within our molecules, which exist within our bodies, which exist within our society, which exist within our global environment, which exists within our solar system and universe.

   Every phenomenon is therefore inter-related with all other phenomena in various ways, and all phenomena mutually influence each other directly or indirectly. No phenomenon can be considered separately from other phenomena, but rather must be considered in terms of how it functions within the systems of which they are a part.

   b. CULTURE

   Culture: The whole, learned, and shared behavioral system of a group of people
   Guidelines for interacting and experiencing life
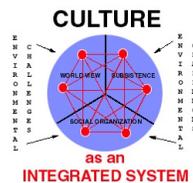   *eg*: American patient role - vs. Navajo patient
   Meanings - underlying needs and motivations
        eg: American "freedom" - vs. Japanese amae
   Functions - facilitate effective interactions/experiences
        eg: American "freedom" re socioeconomic status
             Cree reticence and H-trapping

   CULTURE
   as an
   INTEGRATED SYSTEM

   Culture can be defined as he whole, learned, and shared behavioral *system* of a group of people. Though the focus is on the organization and integration of group patterns of behavior, there are many subgroup and individual variations. Ethnicity generally refers to cultural heritages.

   Culture is deeply internalized, and most often not conscious. The system of behavior within which people live life is provides guidelines for experiencing life by framing what is " reality." Culture defines what is "normal" and "real" and "preferred" in people's life views and expectations, though the ideal and real are rarely consistent.   The cultural context is thus very important in molding and eliciting behavior in different settings.

   Humans have a phenomenal capacity for learned behavior, compared to other life forms on earth, as we observe the broad range of behaviors observed among human around the world over time. Each culture selects, molds, and integrates its own distinct package of behaviors selected from all those possible, and offers a unique alternative for adaptation to Life.

   Like other natural phenomena, culture is an integrated system. Every trait interacts with, influences, and is influenced by every other trait directly or indirectly, and all parts works together with each other as an integrated behavioral package. Therefore, any changes in one part affect other parts and the balance of the whole.

   Cultures are also relative. Each culture is its own behavioral system, and, though there may be many overlaps with other cultures, its patterns are unique in their combinations and overall balance. We therefore cannot understand other cultures in terms of our own "realities," but rather have to consider them terms of their own systems.

There are two levels of cultural experience:
- One is the **meanings** of behaviors ("emic" experience), how people think (conceptual) and feel (emotional) about "reality."
- The other is the **functions** of behaviors ("etic" experience), how the behaviors contribute to people meeting life challenges. There are different kinds of functions, such as biological contributions to health and fitness, subsistence/economic contributions to basic needs like food and shelter, social contributions to group cohesion and collective effectiveness, psychological contributions to people's identity and sense of purpose, and ecological contributions to maintaining a productive balance with people's physical and biological environmental systems. Functions can exist in very different areas of culture than the meanings, such as religious beliefs and practices having important economic, social, and psychological functions. In understanding other cultures, it is most often the FUNCTIONS that are *not* considered.

c. SOCIETY

Society is an organized group of people, who are bound together by shared social structures and relationships. This is usually not the same as culture. A society may include many different cultures. For example, American society includes diverse cultures, such as Anglo, Mexican, and Navajo heritages. Also, the same cultural heritage may appear in different societies, such as French in France and Belgium.

All nations today are pluralistic societies with different ethnic groups

d. ETHNOCENTRISM (http://www.iupui.edu/~anthkb/ethnocen.htm)

Ethnocentrism: Making false assumptions about others' behavior
             based on our own limited experience
Assumptions (don't know that we don't know)
    eg: Values - win/lose vs. relativism
        Colors - blue/green vs. tuŋortuk/tuŋUYortuk
        Diseases - susto, colic
Signs of misunderstandings?
    REACTIONS (us, them) - "realities" not working
Recognition and **control** of ethnocentric biases is the BASIC ETHNOGRAPHIC METHOD

Ethnocentrism can be defined as making false assumptions about others' behavior based on our own limited experience. Because our own life experience is all we know, we assume that it is "reality", or at least should be. For us, this is fine, since our cultural experience provides us with important meanings and functions for meeting life challenges. But we are not even aware of other bases for experiencing the meanings and functions of life. For example, Western culture assumes there is "blue" and "green", but this what we impose on "reality," groupings of wavelengths of light. In Inuttitut (Eskimo), much of these wavelengths are grouped together into tungortuk, which can only be translated as "bluegreen." Which is really "reality"? In truth, if we cannot even assume that there are such things as certain colors, how can we assume that all the rest of life experience is absolute?

So what is the problem? Ethnocentrism leads us to misunderstand others, to falsely distort their ways through our own cultural glasses. It also distorts our understanding of our own ways and potentials, because we cannot see ourselves out of our own context. But it's the natural course to be ethnocentric. How can we not be, if all we know is our own ways, which are meaningful and functional to us.

Controlling for Ethnocentrism: So we have a paradox. Because we are assuming we don't even know we are assuming; we misunderstand because we don't know we are misunderstanding. Is it possible to validly understand another culture? It has been done continually by immigrants, anthropologists, and many others enough to be able to function adequately in other cultural settings. In terms of grounded science, it is the control of biases, rather than the absence of biases, that leads to grounded understandings of natural phenomena. So how can we control for biases in understanding others and ourselves?

The process of controlling for ethnocentrism involves two steps:

(1) **Recognize** biases when they occur. Since it is impossible not to be biased, it is first important to know when we are biased. One of the best signs of biases is *reactions*, particularly in emotions and descriptive adjectives. This can include negative feelings (such as being offended, thinking something is "weird,"and seeing others as "lazy" or "primitive"), and also positive feelings (like being impressed by others' "family values" or "being in tune with nature," and thinking others are "free of the worries of modern life"). Reactions first tell us about ourselves. Why do we think something is "disgusting" or "wonderful"? This tells us about our own realities. Their reactions to us are also important clues. We may be assuming that life is progressing normally, but they may be shocked or awed at what we are doing (in our ignorance). This also tells us about our own realities. Reactions, then, are based on false assumptions. Once we recognize we are not understanding, we can hold these assumptions aside and seek better understandings.

(2) Ask **valid questions**. There are several sets of questions that can help us examine others' behavior in ways that can lead to better understandings:

- What are the *meanings* of the behavior to them? How do they see and feel about it? What is their "reality"? There can be many meanings for every behavior.

- What are the *functions* of the behavior in their adaptation? How does it help them meet life challenges? We should remember that important functions may be in other areas of cultural experience than the meanings. There can also be many functions for every behavior. This is the question that is generally not asked, yet is the one that can give us the greatest insights into cultural behavior.

There are many valid ways of experiencing life, each meaningful and functional to its participants. We do not have to necessarily agree with others' ways, but we should try to understand them if we are to have a more valid comprehension of the human experience, including our own. Interethnic encounters can be an opportunity for understanding the human potentials. Developing our abilities in recognizing and controlling for ethnocentric and other biases is one of the greatest skills in grounded scientific understandings.

For those who will be involved in an intensive emersion in another culture in their quest to understand the human potentials, ethnocentrism merges into a more extreme and traumatic process of culture shock. These people are strongly advised to understand this process, and to discuss recognition and means of coping in preparing for this traumatic but in the long-term growing experience.

e. ADAPTATION

Adaptation is the *systems process* in how a group interacts with its environment which enhances its survival and continuation. The emphasis is on the systems process, how and why changes occur in populations over time. This includes the interaction of biological, sociocultural, and ecological factors, and how these influence the well-being and continuation of the group. For humans, sociocultural behavior is a major means of adaptation, so this and the biological basis for behavior are particularly important considerations in understanding populations.
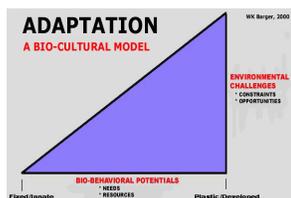
A bio-cultural model of adaptation can help us to ask more valid questions and to devise more valid means for understanding population-based phenomena. As a systems process, this involves the interaction between a population and its environmental conditions, each involving a set of forces in the adaptive process:

(1) Bio-Cultural **potentials**: One set of forces consists of the internal bio-cultural potentials of the population, that a group brings to a particular setting. These potentials consist of both needs (those things necessary for the group's existence, such as nourishment and social/emotional bonds), and resources (those things that can be used to enhance the group's existence, like grasping hands, capacity for learning, and social organization). As noted, for humans, a major resource for adaptation is culture, which is a rapid and flexible means of adaptation, compared to evolving biological traits over many generations to meet environmental conditions.

Ultimately, all morphological and behavioral potentials are based in a group's genetic heritage, so potentials can range from genetically fixed or innate (like blood type and certain facial expressions) to genetically highly plastic or developed/learned (like the ability to build resistance to certain infectious agents and learning a particular social role). The ultimate criterion for assessing whether a trait is more innate or more developed is how much can be changed in interaction with environment. In many cases, an interim criterion might be the degree of variation across populations, which can indicate the probability of how much a trait is more innate or more developed.

It should be remembered that *diversity* is adaptive, because the more different types of traits in a group the more likely the group will have the necessary resources to meet environmental challenges (particularly new and unforeseen ones). Diversity provides more alternatives to fall back on when meeting particular situations. This is an important reason for understanding the broad potentials of human.

(2) Environmental **challenges**: Another set of forces in the adaption process is the external environmental challenges, those conditions imposed by the setting in which a group exists. For humans, "environment" includes both ecological and sociocultural contexts. Challenges consist of both constraints (those things required for a group to exist in the setting, such as ability to obtain oxygen from water and an ability to cooperate in dense population settings) and opportunities (those things which can enhance life if utilized, like insect grubs as a food source and iron ore as a material for tools). Environmental challenges select among all those potentials which a population brings to a situation; those traits which contribute to the best balance are more likely to become more dominant.

The basic *process* of adaptation is **reorganization of system**. It is important to remember that it is the system that changes, not just traits. In the interaction between group's potentials and its environmental challenges, the challenges have a selective impact on the range of potentials and shape the expression of particular traits from among all the possibilities. Reorganization can include adding new traits, dropping former traits, or usually in the immediate circumstances emphasize one trait more and anther trait less. In cultural adaptation, people can change their behavioral traits, often change their environmental conditions, or, usually, both. Also, not changing a trait can be adaptive. Adaptation is a continual process, and is always going on at many different levels, since a system is never in perfect balance and is in a constant phase of readjustments. A changes in one area stimulates changes in other areas, and adaptation is always going on at many points in the system. Change, then, is the rule, the normal phenomenon. (The focus here is on sociocultural adaptation of groups, but the same processes occur at other levels of systems, from cells to the global ecosystem. At the individual level, this process can be termed "adjustment" to distinguish it from population-level events. Adaptation is an evolutionary process; it is populations that evolve, rather than individuals.)

The ultimate *measure* of successful adaptation is built into the above definition: **continuation** of the group (not a trait or tradition). Since this may involve long time periods, intermediate measures are often used, such as health. Adaptation is usually a relative process, however, and the basic issue is how optimally a group is functioning and balanced both internally and in interaction with its environment. If a trait or a change in a trait contributes to the ongoing existence of the group, then it can be considered more adaptive. If it hinders the functioning of a group in interaction with its environment, then it can be considered more maladaptive.

Time frames are an important consideration in adaptation. (This is actually the third dimension of the bio-cultural model.) adaptiveness can change over time. A group's potentials may change which affect adaptation, or environmental challenges may alter the adaptive process, particularly new unforeseen challenges. What is adaptive at one point may not be at another time, such as reliance on fossil fuels; and what is not adaptive at one point may turn out to be as asset at another time, like a neutral gene that provides resistance to a new disease.

In summary, adaptation is a **systems process**, involving the interaction of two sets of forces: the potentials a population brings to a setting, and the challenges in that setting over time. The basic process of adaptation is reorganization of the system, both at the level of the internal system of the group and at the level of how that group interacts with its environment. If the interaction contributes to the continuation of the group, it can be considered adaptive. But we must remember that there are always limits to adaptation, since a group's potentials may not be sufficient and/or the challenges may be too great.

Understanding the process of adaptation can help us better understand issues by providing a perspective for more insightful and valid questions. Asking poor questions can lead to misunderstanding, like "Nature or Nurture?" (which assumes natural phenomena are isolated and oppositional) rather than the more valid question of "Nature and Nurture - how much of each?" (which considers how fixed/developed potentials are and how the capacity for expression is selected and shaped by the environment).

3. The Research Process

The research process is an extended series of overlapping activities:
- Formulate the research issue - asking a valid questions
- Research plan - organizing data collection/analysis efforts
- Data collection - collecting information relevant to the issue
- Data analysis - findings
- Interpretations - abstraction of findings in terms of the issue
- Reporting - contributing to scientific knowledge

To many academics/others "research" = data collection... a narrow and shortsighted perspective.

a. Formulate the **Research Issue** (http://www.iupui.edu/~anthkb/learning.htm)

Asking a valid question
- Getting a valid answer - *under*emphasized in education system
- Posing a specific *relationship* between specific factors
- How one factor influences another factor

The Basic Scientified Method
CONTROLLED COMPARISON
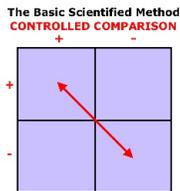
Levels of questions:
- Theory - statement of large-scale/abstract phenomenon
  eg: Life-style behavior (LS) can affect health (HE)
- Hypothesis - statement of a specific phenomenon
  eg: Social supports (SS) mitigates against hypertension (HT)
- Proposition - statement of a measurable phenomenon
  eg: Perceived marital closeness (MC) reduces blood pressure(BP)
  Multiple measures are usually more valid and balanced

In academics, "theory" usually means Hypothesis or Proposition

Alternative influences
- Control factors
  Biases
  Characteristics - age, experience, etc.
  Settings - seasons, unusual events, etc.
- Need to rule out or identify alternative explanations
  Or determine relative influences

Review of the literature
- Existing ideas and information
- Demonstration of the need for the research

Significance of the research project?
- Contributions to knowledge and to resolving human issues?
- Use of the findings?

Clarifying at beginning helps guide the whole research process

b. Research Plan

(1) Research Goals

Issue: Asking a valid question about the *relationship* between factors
How one set of factors influences another set of factors

Clear goals guide decisions through the whole research process
NOTE: Will refine questions as go through research process

(2) Research Variables

Specific events/behaviors to be investigated

Variable definition:
- Dependent - outcome factors being influenced (BP)
- Independent - influencing factors (MC)
- Control - other factors that may influence events
Directly or indirectly
eg: Smoking, salt in diet, age

Measures - exact information to be collected that will empirically demonstrate relationships
Reflect variables
eg: BP = diastolic pressure (vs. systolic, both)
MC = answer to interview question, ranked 1-5
Salt = daily dietary log (with conversion factor)

Instruments - means for collecting information
eg: Medical record, interview questionnaire

Pretest of instruments/measures
eg: Revise daily dietary log to weekly log

(3) Research Population

Definition:
- Characteristics
  Demographic, behavior, location/access, time periods, etc.
  Variations
  eg: Male, adult > 18, married, Indianapolis
- Size (N)
  eg: N=400,000
- Units - scale of measurement
  eg: Individual (vs. family, organization, etc.)
  NOTE: *Ecological fallacy*: assuming large unit measures smaller units
      eg: Durkheim's analysis of suicide and religion in European countries

Sample (n) - an accurate representation of larger unit
    Theory: Findings can be generalized to whole population
    Confidence Interval - degree to which can generalize to whole research population
        The larger the n, the greater the Confidence Interval
        Small N requires an n with greater proportion
        Others measures - margin of error, etc.
    Formulas (where p=.5 for maximum estimated CI, q=1-p):

$$95\% \ CI = + \ 1.96 \sqrt{\frac{pq}{n-1} \times \frac{N-n}{N}}$$
n=100 95%CI=± 9.8%
n=1000 95%CI=± 3.1%

$$99\% \ CI = + \ 2.58 \sqrt{\frac{pq}{n-1} \times \frac{N-n}{N}}$$
n=100 99%CI=±13.0%
n=1000 99%CI=± 4.1%

Sampling procedures:
- *Non*probability sample - cannot prove is representative (census/GIS comparisons)
  Accidental/incidental - whoever can get to be subjects
  Quota - % characteristics in whatever combination
  Purposive - a "typical" group
- *Probability* sample - everyone has equal chance of being included
  Simple random sample - list, random selection of n
      When don't know much about population, easiest
  Stratified random sample - sample strata, sample units
      Need to know basic characteristics of population (census)
  Cluster sample - sample areas, include everyone
  Stage sample - sample strata, sample cluster

Other sampling considerations:
    Activities, times, etc.

NOTE: When have almost all the population, sampling is irrelevant (small scale societies, etc.)

(4) Research Designs

Comprehensive strategies to collect and analyze information
Three basic models:

Case-Control model: Retrospectively test suspected causes
    Rule out selected variables by matching for them
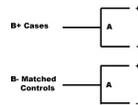   Test for influence of suspected causal variables
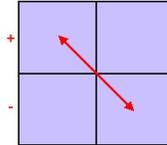   The usual clinical/laboratory research model
    NOTE: Actually not a population-based design

    Method:

    Assets:
Can investigate rare cases
Can identify the range of factors involved (but not distributions)
Can support causal hypotheses
Can estimate risk rates
Economical

    Limitations:
Recall bias
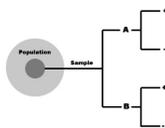Findings are not representative of the larger population
    Selection bias (controls) - cannot generalize
Cannot determine prevalence or incidence rates

Cross-Sectional study: Identify the *distribution* of traits, and significant noncausal
            relationships

    Method:
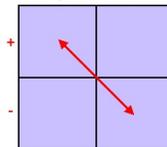
    Assets:
Findings are representative of research population
Can determine prevalence rates
Can determine associations
Relatively economical

    Limitations:
Cannot determine cause
Not appropriate for rare cases

Cohort study: Determine *causal* relationships

Also called a Longitudinal or Prospective study.

Method:
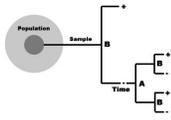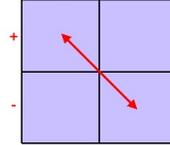
Assets:
Findings are representative of research population
Can determine prevalence rates (in first stage)
Can determine incidence/risk rates (over time)
Can determine causal associations

Limitations:
Costs, logistics, time
Often involves lost cases with time (attrition)

There are a number of variations and overlaps of these three basic models

(5) Data Collection Techniques

QUANTITATIVE techniques: survey interviews, structured observations, etc.
Assets: Distributions, significance/strength of associations
Limitations: Meanings, validity/acquiescence/ideal

QUALITATIVE techniques
Participant-observation, key informant, life history, etc.
Assets: Meanings, real
Limitations: Representative, significance/strength

Eclectic set of techniques
Select the combination of tools to best address the research issue

(6) Data Analysis

Data checks
Biases, errors, accuracy
Limitations?
Strengths?
Relevance?

Findings
Patterns, variations
Relationships, causes

Interpretations
Outcomes
Influences, causal influences

(7) Reporting

Contribution to scientific knowledge
Making results available (including negative findings)
Applied reports - implications for social issues
Organizational, policy, public
Research not completed until reported
Authorship considerations

(8) Logistics (usually *under*estimated)

Coordinations and collaborations - organizations/agencies, sites, schedules, etc.
Personnel
Responsibilities/functions, training
Salary/wages, benefits, released time
Equipment - computers, field, lab, photo, etc.
Supplies - office, forms, literature, film, computer, software, etc.
Services - duplication, photo, mainframe time, utilities, etc.
Facilities/space
Travel and living expenses - mileage/fares, meals, lodging, etc.
Costs - direct, indirect
Emergency/crisis procedures - contingency plans (*will* happen)

(9) Schedule (usually *under*planned)

    Preparations
    Initial start-up period
    Data collection
    Close up
    Analysis
    Reports

    In general, effort and time are proportional:
    ¼ Preparations
    ¼ Data collection
    ¼ Analysis
    ¼ Reports

(10) Project Management (usually *under*planned)

    Overall coordination and administration
    Individual roles/responsibilities
    Deadlines
    Accounts
    Emergency/crisis procedures

(11) Project Evaluation (usually *not* done)

    Strengths and limitations:
    Achievement of research goals?
    Unanticipated events?
        Obstacles, vested interests, positive, etc.
    Logistics?
    Project management?

(12) Human Subjects

    Issues:
- Risks
- Confidentiality of identity
- Possible adverse impacts (including *unforeseen* impacts)

    Institutional review

(13) Funding

    Budget
    Sources - interests, amounts

(14) Research Proposals

    Audiences (views and empahses)
    Deadlines
    Contents

c. Data Collection

Keep GOALS clear - will guide data-collection decisions
Systematic
Comprehensive

Factors in field research:

(1) Roles

Researcher: Learner (an attitude)
Subjects: Experts - we are asking them to help us learn
Learn what is there - *not* what we think is there (or should research ourselves)

Applied roles - purposefully trying to make changes
  Not value-free - Involves value positions and vested interests
  Need to assess values involved
  Need to examine *all* possible positive and adverse outcomes
  Accountability - responsibility for outcomes (including adverse impacts)

(2) Rights of Participants and Communities

Informed Consent:
- All risks must be clearly explained
- Confidentiality - identity will not be revealed or used
- Not to participate or not to answer questions
- Can ask about study, questions, uses, etc.
Specific consent must be obtained
  Human subjects review process
  Sensitive factors - invasive experiments, minors, illegal behavior

(3) Biases

Conceptual, methodological, situational, personal, chance
Ethnocentrism - assumptions

No such thing as "objective" research - biases *always* involved
  CONTROL for biases is the key to sound scientific research
  Recognition of biases is the key to controlling them
Dilemma: Biased because we don't know are being biased
  Look for the primary *sign* of biases: REACTIONS - us, them

(4) Field work is an *intensive experience*

   Heavy work - time, energy, social interactions, etc.
        Exhausting
        Schedule in rest, relaxation, and breaks

   Culture shock
   •   Initial bliss (ignorance)
   •   Shock - learn enough to know don't know what's happening
        Disorientation - without guidelines to understand meanings
        "Crazy" - what is "normal" is not functional with others
        Recognize: Extreme reactions (depression, anger, etc.)
   •   Coping strategies: Taking breaks, discussing, etc.
   •   Reorientation - re-socialization to local norms, etc.
   NOTES:
   •   We *change who we are*
        Reorganize our outlooks, social orientations, personality
        A traumatic process
        But we learn the human potentials in ourselves
        Hopefully we will be able to *develop* and grow as a person from the challenge
   •   We will also face reverse culture shock when we return to our original cultural setting
        We are not the same person... and cannot go back
        Hopefully we will be able to *go on* in another stage of growth

   Conflicts *will* occur - emergencies, crises at different levels (people, financial, natural, etc.)
        Plan ahead - structure means for handling problems

   Communications back home are also important

(5) Field Techniques

Qualitative Techniques: Participant-Observation (Appendix 1)
Learn by systematic observation and experience
Depth of meanings - direct and intense understandings
Techniques:
- **Assume nothing** - control for biases, everything is data
- Field notes - key words with memory aids
  Memory - write (if appropriate), mental outline of chronological key words
- Journal - permanent record
  Date, time, context
  Description: chronological, detailed (as if describing to someone), comprehensive
      Separate facts from interpretation of facts
      Questions: Possible interpretations - to verify
      Notes: Follow-ups, etc.
  Personal:
      Mood/feelings, reactions, etc. (affects what see/do)
      Learning about self, biases, own culture, ethnocentrism, research process, etc.
Other techniques: Key informant, life histories, etc... less representative of population
            Ethnolinguistics (Appendix 3)... great depth in conceptual fields
                (Also called ethnomethodology, etc.)
Assets: Depth of meanings, real behavior
Limitations: Representativeness, biases (self-selection, ethnocentrism)

Quantitative Techniques: Public Survey (Appendix 2)
- Learn by assessing representative behavior
- Breadth of understandings
- Distribution and relationships
- Techniques:
  Sampling design
  Questionnaire construction - order, phrasing, open/closed, etc
      Codebook
  Interviewing - trained interviewers, standardized stimuli
  Data coding and entry - quantitative records
Other techniques: Structured observation, standardized tests, etc.
- *Assets*: Distributions, significance/strength of relationships
- *Limitations*: Depth of meanings, validity (acquiescence/ideals)

Everything is data - even people's reactions to us/research
      Controls, standards

Know what do *not* know

Multiple methods provide more balanced and comprehensive information

There are a number of variations and combinations of techniques

d. Data Analysis

Keep GOALS clear - will guide analysis decisions
    But also be open to new and revised ideas

Check Dataset - where good/not, how can use results/not
- Errors
- Reliability - reproducible with same results
- Validity - exactness with which the data actually measure the phenomena
Conceptual
Accuracy
Truthfulness
- Interdependence (factor analysis)

Patterns - dependent/independent/control variables (qual./quant.)
    Description of behavior/events
    Distribution of behavior/events across the study population
    Meanings of behavior/events
    Also variations - individuals, groups, time, location, etc.
    Can also build scales of related variables

Relationships - independent/control variables
    Nonsignificant factors - can eliminate
    Influence of independent variables on dependent variable(s) in an integrated system
        Binary relationships - significance, direction, strength
        Multivariate relationships - combined and relative influences
            Comparative influences of control variables
            Control for other possible influences
        Cause - influences over time

PROCESS
Prove that hypothesis cannot be disproved
- Rule out alternate explanations
Or at least determine relative influences
Qualify where cannot support
- Document - empirical basis
- Demonstrate influences of proposed variables

INTERPRETATIONS
- *Best* explanations of phenomena being investigated
Based on grounded empirical evidence
re hypotheses/propositions
- Rule out alternative explanations
Where hypotheses proven
And where need to modify ideas
- Generalizations
Populations, patterns, relationships
Keep in perspective, qualify
Where cannot absolutely support, qualify
- Validate - how *much* can be proven?
- Continuing issues
What still needs to be proven?
What new issues are raised?
    Even new hypotheses

e. Reporting

A professional responsibility
    Contributing to scientific knowledge
    Findings and ideas accessible for others

Types of reports:
- Summary reports - informal general statement of findings
- Published reports (status):
    Conceptual issue book (academic presses)
    Peer-reviewed journal - conceptual issue (American Ethnologist)
    Peer-reviewed journal - report of findings (Science, American Anthropologist)
    Edited volume (academic press)
    Paper in edited volume (academic presses)
    Paper delivered at academic meetings
    Vanity press book - copy-ready version (U. Press of America)
- Applied reports
    Reports to organizations and agencies, with recommendations
    Summary reports in non-edited news organs (professional, other)
    Online, web, and other reports accessible to the public
Models - use professional articles/books for models of reports

Authorship considerations
- Primary - analysis and preparation of draft
- Coauthors - relative contributions to project

Organization of reports:
- Title - inform the reader of the main issue
- Introduction - direct the focus and explain the issue
- Content sections - provide basic information regarding the issue
- Conclusions - bring the findings together in a final argument
- Notes (comments and other materials not directly related to the main issue)
- Bibliography (references cited)
- Figures, tables, pictures

Process of Report Writing:

- Considerations in the development of research reports
  Clarify research/conceptual issue
  Logical organization of ideas/information - effective argument
  Support for all interpretations/conclusions
  Clear communication
  Audiences
- Outline - major sections, details of each point
- Draft - basic information, references/evidence, NOTES
  Descriptive sections
    - Population/community
    - Patterns
    - Relationships
  Introduction
    - Lead-in
    - Conceptual focus/issue - general, literature, specific issue
    - Methods - population/sampling, design, strengths/limitations
    - Preview
  Conclusions
    - Summary review of major findings
    - Major interpretations of findings RE issue
    - Final argument/implications
    - Lead-out
- Revisions
  Introduction   descriptions   conclusions
    - Consistent focus
    - Continuity and flow
    - Evidence/logic
  Technical editing
    - Headings, citations, tables, references
    - Spelling, typos, grammar
    - Professional appearance
- Read aloud for accuracy and clarity
- Reviewers - critique/feedback

Communication principles
- Guide the reader's focus and understandings
- Help reader follow and understand the evidence
- Interest reader in the issue and information

Academic review process:
- "Publish or perish" has some validity
    Test standards of scholarship before professional peers
    Findings/ideas accessible for further research/understandings
    Sometimes blindly applied rule
- Peer review generally upholds standards of scholarship
    Publication in peer-reviewed professional journals
    Ranking of professional journals
- But can also suppresses creative new thinking
    Very few people in a profession are truly creative thinkers
        Most research involves testing/extending others' theories
        At level of hypotheses
    Most academics not productive - concepts or data
        Outdated/incomplete concepts - when in grad school

Who are the reviewers?
    Testers/expanders and nonproductive academics

How can you tell if ideas empirically grounded?
- Publication in peer-reviewed (refereed) professional journal
    Pros: Meets basic scholastic standards
    Cons: Can stifles creative new ideas
        Most reviewers *not* creative
- Other forums - edited volumes, books

Research process not completed until reported
- Several reports can come from one project (vs. one project = one report)
- Also, an integrative report can come from a series of projects

4. Principles in Scientific Research

The ultimate purpose of science is to explain the most phenomena with the simplest predictive statement (pose the best explanation possible).

The research process includes comprehensive planning and reporting.   The greater the planning the more comprehensive the results. Changes always occurs... so build in flexibility.

(1) Scientific research is based on the **control of biases**

Not the absence of biases
• "Objectivity" a myth - impossible
• Judgement is always present in scientific research
Recognition and control of biases is essential in grounded scientific research

Kinds of biases:
● Conceptual
  Ethnocentrism is a critical conceptual bias in ethnographic research
● Methodological
● Situational
● Personal
● Chance

Recognition: REACTIONS (ours and theirs, positive and negative)
  Learning to recognize reactions comes with training and practice

Controlling for biases maximizes the chances of developtingbest predictive understandings

(2) Asking **valid questions** is essential for valid answers

In ethnographic research, this includes:
● What are their *meanings*?
● What are the *functions*?

(3) Separate the **facts** from the **interpretation** of facts

(4) Scientific standards are maintained in the peer-review process

How can we know if ideas/information meet scientific standards?

Peer review generally upholds standards of scholarship
  Particularly peer-reviewed articles in professional journals

Though this process can also stifle creativity
• Most reviewers not creative
• Conceptual academic books often are the most common forums for posing comprehensive creative models

(5) High **standards** in concepts and methods are an ***ethical*** issue

Ethical responsibilities (*AAA/SfAA* statements):
- Group being researched - informed consent
  Purpose, risks, confidentiality, nonparticipation
- Students - grounded concepts, guidance, recognition
- Profession - valid data and results
- Public - contribute to general well-being

Though science is *not* democratic
    Believing or wanting phenomena to be a certain way does not make it so
    eg: The world is flat
        Smoking should not cause cancer

Professional standards are essential in applied research
    We impact on people's lives - so we do not have luxury of abstraction
    This makes it an ethical issue... whether we want it to be so or not
Applied research can also be empirical test of concepts/methods in real life
    But the ethical issues are even more critical because we *intend* to impact on people's lives

SUMMARY: Population-Based Research

Science
    Basic method
    Research issues
    Objectivity - controls
Research process
    Formulate the research issue (asking a valid questions)
    Research plan
- Goals - research question
- Variables/measures
- Population/unit/sample
- Research design
        Cohort/longitudinal
        Cross-sectional
        Case-control
    Data collection
    Data analysis
    Reporting
    Logistics, schedule, management, evaluation, human subjects, proposals
Data collection
    Roles, participant rights, biases, intensity
    Qualitative techniques
        Participant-observation
    Quantitative techniques
        Public survey
    Everything is data
    Controls
Data analysis
    Dataset
    Patterns - distributions, meanings
    Relationships - binary, multivariate influences, functions, cause
    Process
    Interpretations - best explanation based on empirical evidence, qualify
Reporting
    Responsibility
    Types, organization
    Process
    Communication
    Peer-review process
Principles
    Control of biases
    Asking valid questions is essential for valid answers
    Separate facts from the interpretation of facts
    Standards
    Ethics

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