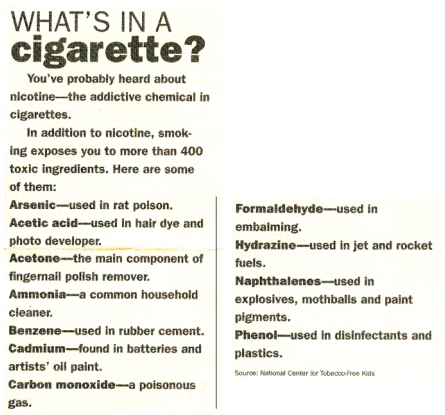
OCTH 725
The Research Process

Jeff Radel, Ph.D.
Spring 2006

What is the point of this course?

Understanding the research process is a key element for developing occupational therapy principles and guiding practice.

1. Why is conducting research important to Occupational Therapy?
2. What does it mean to be a researcher on a research project?
3. What distinguishes qualitative, descriptive, and experimental research paradigms?
4. Why are research ethics essential for research, and what is the purpose of an Institutional Review Board?
5. How do researchers conduct descriptive data analyses, and how are inferential statistics used?
6. How does a consumer of research intelligently critique research studies appearing in research, clinical practice, or popular literatures?



Ethics & Research

- **When do ethics play a role in the research process?**
- **Who determines the ethical code governing research?**
- **How can we be sure research is conducted ethically?**
- **What may be consequences of unethical research?**

Take authorship, for instance…

- **contribute to actual writing of a paper**
- **contribution to the scientific formulation of the work**
  - hold primary responsibility for the data, concepts, and interpretation of results
- **covered by Principle 6.23 in the APA Publication Manual (2001) and 8.12 of the APA Ethical Principles (2002)**

Human Subjects Protections

- **Protection of the rights of human participants in research (also codes for protection of animals in research – American Association for Laboratory Animal Science, 1963)**
- **Assures the benefits of research outweigh the risks and that human participants agree to the terms of the research**

Ethics - Historical Overview

- **Nuremburg Code (1947)**
- **World Medical Association – Declaration of Helsinki (1964)**
- **National Research Act (PL 93-348) in 1974**
  - established the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (the National Commission)

Ethics - Historical Overview

- **The Belmont Report (1979)**
- **Put forth the three requirements for ethical human research**
  - autonomy
  - beneficence
  - justice

KUMC Tutorial & Test

- **Access HSC tutorial *via* myKUMC**
- **Read through the tutorial modules**
- ***DO NOT* take the HSC quiz sequence!**
- **Expect a brief in-class quiz next week**
- **You *WILL* be responsible for this material and the on-line quiz as part of OCTH790 next year.**

Background information

- **Human radiation experiments**
- **Tuskegee syphilis study** (1932-1972)
- **Clinical trials**
  - Risks/benefits related to Stage I, II, and III trials
  - Examples? Gene therapy, new drugs, new use for old drugs, new approaches to treatment

Answers are not simple! Gene therapy as an example

- What is normal? What is a disability or disorder? Who decides?
- Are disabilities diseases? Should they be cured and/or prevented?
- Does searching for a cure demean the lives of individuals presently affected by disabilities?
- Expensive! Who has access? Who pays?

Ethical protections apply to practice as well as research!

- Participation is voluntary
- Informed consent is obtained beforehand
- Risk of harm is limited
- Confidentiality is protected
- Anonymity is maintained throughout & afterwards
- Right to service is provided

That's fine, but does it apply to OT?

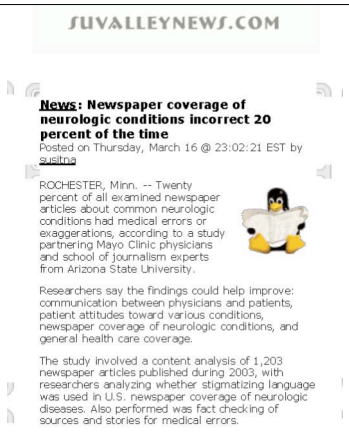
Examples?

That's fine, but does it apply to OT?

- **When is it a valid intervention?**
  - Facilitated communication
  - Cranio-sacral therapy
  - Brain Gym
  - NDT
- **Warning signs**
  - One training center
  - 'Certification' needed before principles can be applied
  - Significant cost for training, at only that center
  - Extreme belief in treatment - 'cures all ills' outlook

Critical but open view

- **Evidence-based!**
- **Rigorous, controlled**
- **Appropriate**
- **Important!**


SUVALLEYNEWS.COM

News: Newspaper coverage of neurologic conditions incorrect 20 percent of the time

Posted on Thursday, March 16 @ 23:02:21 EST by susitna

ROCHESTER, Minn. -- Twenty percent of all examined newspaper articles about common neurologic conditions had medical errors or exaggerations, according to a study partnering Mayo Clinic physicians and school of journalism experts from Arizona State University.

Researchers say the findings could help improve: communication between physicians and patients, patient attitudes toward various conditions, newspaper coverage of neurologic conditions, and general health care coverage.

The study involved a content analysis of 1,203 newspaper articles published during 2003, with researchers analyzing whether stigmatizing language was used in U.S. newspaper coverage of neurologic diseases. Also performed was fact checking of sources and stories for medical errors.

Why do OTs need to learn about research?!

- To build knowledge systematically
- To test treatment efficacy
- To enhance understanding of daily practice
- To become a critical consumer of research literature
- To influence health policy and service delivery
- To participate effectively in research

Inquiring minds want to know ...

- ***Research*** describes ways of knowing
  - logical
  - authority
  - hearsay
  - trial & error
  - historical
  - belief
  - spiritual
  - intuition

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- ***Research*** is asking good questions and then determining answers.

Where does Research begin?

- Personal observation
- Test of "Implicit Knowledge" *(intuition)*
- Theory-driven; hypothesis testing
- Theory generation
- Extension of existing research

Who does Research?

- Anyone asking a question for which the answer is not satisfactory
- By those with specific questions
- By those new to the area (those having a different perspective)
- The real question ---
  who does ***good*** research?

An Example?

How Old is Old?

Jeanne Louise Calment
122 years

b. 21 Feb 1875
d. 04 Aug 1997
France

Sarah Knauss
119 years

b. 24 Sept 1880
d. 30 Dec 1999
Pennsylvania, USA

http://www.recordholders.org/en/list/oldest.html

An Example?

- Red wine & cardiovascular disease

An Example?

- Red wine & cardiovascular disease
- **Where & why did initial studies originate?**
- **What was the focus of secondary & later studies?**
- **Implications of findings?**
- **What might be factors a researcher would need to consider?**

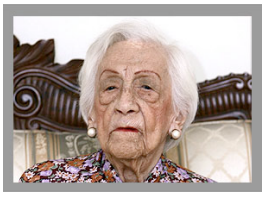
Flavors of Research

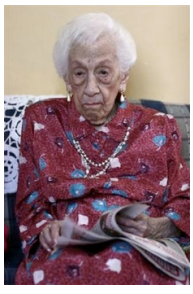
- **There are a variety of forms of research, each with particular pros & cons**
  - *Experimental* - hypothesis testing
  - *Naturalistic inquiry* - human experience in context
- **Current thinking gives equal weight to these approaches to research, and holds them to be complementary**
- **Note that no research project is perfect!**

How Old is Old?

Maria Esther de Capovilla
116 years in 2006

b. 14 September 1889
d. alive @ 03/20/2006
Ecuador





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Experimental research

- Deductive in nature
- Linear research process
- Theory-based
- Hypotheses are proposed and then testing
- Systematic, controlled, empirical & critical
- Reductionalistic
- Standardized procedures and analytic methods

Naturalistic inquiry

- Holistic, non-linear, iterative process
- Subjective reality is created by observer
- Ideas are the lenses through which the environment is viewed, and influence how we understand and define the world
- Human experience is complex and can't be understood by reductionalism
- Those who have the experience are the most knowledgeable about them

Naturalistic inquiry

- Endogenous
- Critical theory
- Phenomenology
- Heuristic design
- Life history
- Ethnography
- Grounded theory
- Participatory action research

This approach requires:
- Flexibility
- An awareness & exclusion of personal bias & values
- The ability to exist as an ***observer*** in another's environment

Complementary approaches?

- Reductionalism can not explain a variety of persistent and unanswered issues in healthcare
- Quantification does not necessarily provide useful insights
- Pressure to demonstrate outcomes empirically has made replicable strategies attractive in naturalistic settings

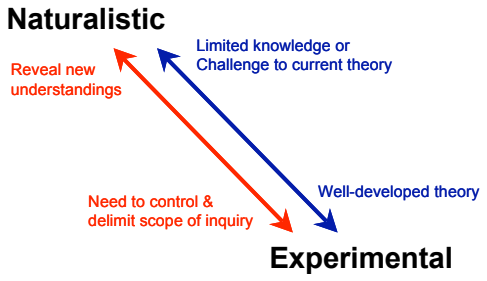
How might integration take place?

- **Naturalistic inquiry to derive definition of issues among a small population**
- **Non-experimental, survey-based study in a larger population to examine constructs generated by initial inquiry**
- **Experimental study to determine effectiveness of a proposed treatment, emerging from these findings but related to existing theories**

How might integration take place?

- **Experimental study of treatment effects is conducted in controlled conditions**
- **Findings suggest treatment does not account for all of the observed effect; the situation is more complex!**
- **A naturalistic approach is undertaken (observation, interviews, open-ended surveys) to determine how complex factors influence outcome measures**

A continuum of research tradition



Essentials of Research

- Identify philosophical foundation
- Frame a research problem
- Determine supporting knowledge
- Identify theory base
- Develop a specific question or query
- Select a design strategy
- Set study boundaries
- Obtain information
- Analyze information & draw conclusions
- Report & disseminate conclusions

Ethical considerations throughout!

OCTH 725 & OCTH 790

Factors to consider

- **Is the issue important?**
- **Is the approach comprehensive?**
- **Is the proposal innovative?**
- **Is the proposal technically sound?**
- **Is the proposal cost effective?**
- **Does the proposal meet ethical standards?**
- **Are there critical flaws?**

Critical Flaws

- **A factor that renders conclusions invalid**
- **Typical critical flaws:**
  - Data collected can't answer research question
  - Data are over-interpreted
  - Standardized tests are used inappropriately
  - Information on validity of test instrument lacking
  - Subjects are not appropriate
  - Study is based on faulty assumptions

Critical Flaws - examples

- **Examiner bias** - person collecting data was aware of subject's condition
- **Inappropriate subjects** - high schoolers tested for an intervention intended for elementary school children
- **Inappropriate test** - verbal subsection of Wechsler Adult Intelligence Scale (WAIS-III) used when person has aphasia

Things to keep in mind ...

- **Your research topic should interest you**
- **The question should be simple**
- **Expect to do a pilot study first & a more comprehensive study later**
- **Write down thoughts, observations, details throughout the research process**
- **Identify your premise and *write it down***
- **Identify variables important to consider**
- **Talk to others about your project**

How do you go about it?

The literature review

- **A necessary initial step!**
- **What prior knowledge relates to your question?**
- **What disciplines share an interest?**
- **How will your study add knowledge?**
- **Suggestions for tailoring your approach?**
- **Maybe it's already been done!**

The literature search

- **Don't depend only on electronic searches!**
- **Primary sources are closer to the data than reviews, which are closer than textbooks….**
- **A review is a good way to get into the literature; use the review's references, too**
- **Be aware of the nature of the source**
  - peer-reviewed *vs.* other possibilities
- **Organize results & look for common elements**