Introduction to Quantitative Research

Course: JOURN 8006

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Agenda

Today's topics

Agenda

1. Introductions
2. Syllabus
3. IRB certification
4. Quantitative research
   - Characteristics of scientific research
   - Projects for mass media research
5. Final paper

1. Introductions

Names, backgrounds, interest area(s)

Introductions

1. My **name** is _____.
2. This is my ___ (1st,2nd,etc.) **year in** ___ (program/degree).
3. I am **interested in** _____ (interest/topic/study area).
4. I currently have __ (a,b,c) about my final project.
   a) **no idea**
   b) **a weak idea**
   c) **a strong idea**

2. Syllabus

Also on Canvas

Syllabus

<see Canvas and/or handout>

3. IRB Certification

Human Subjects Research

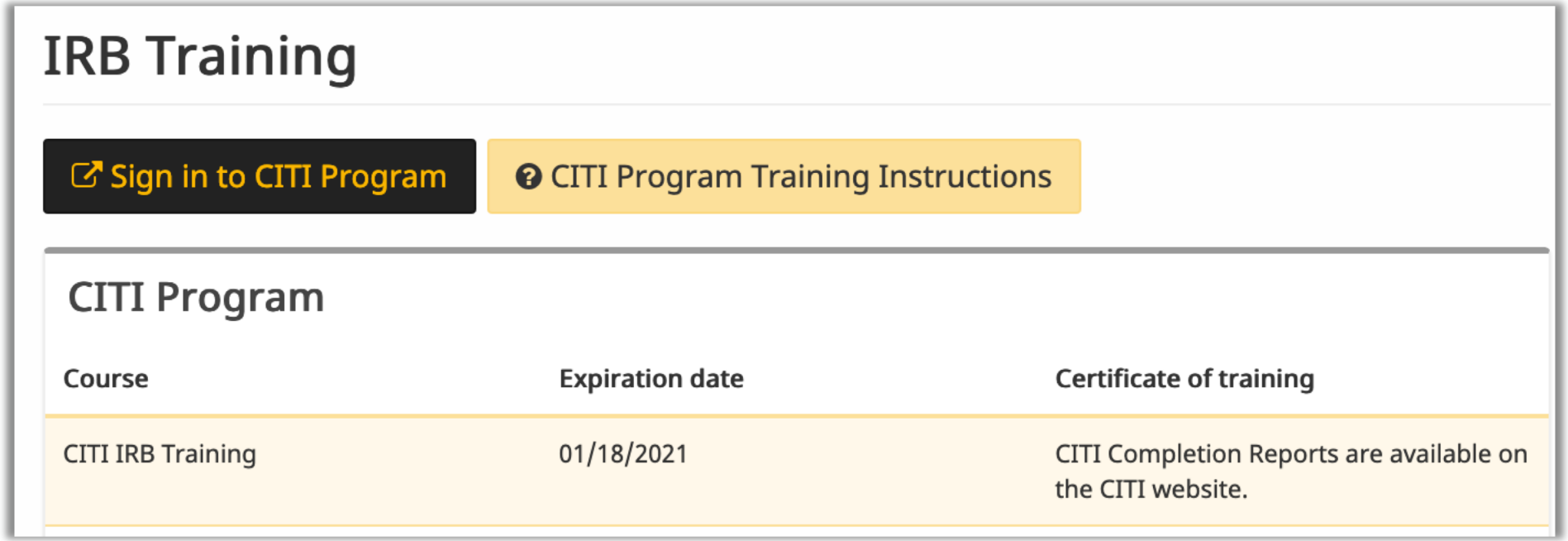
Institutional Review Board (IRB)

- **Assignment**: acquire IRB certification
- **Points**: required
- **Due**: 3:30pm by Jan. 28th
- **IRB website**: research.missouri.edu/irb

IRB Training

1. Login at **ecompliance.missouri.edu**
2. Click ***Institutional Review Board***
3. Under ***Prequisites*** select ***Take IRB training***
4. Complete ***CITI IRB Training*** (follow instructions; this may take multiple hours)
5. When complete, **take screenshot of certificate** and upload to Canvas

Example screen shot



4. Quantitative Research

Introduction to Quantitative Research

Research

- **Research** is *"an attempt to discover something"* (Wimmer & Dominick, 2011, p. 2)
- **Scientific research** is *"an organized, objective, controlled, qualitative or quantitative empirical analysis of one or more variables"* (Wimmer & Dominick, 2011, p. 9)

Social Science

- **Social science** is *"the science of people or collections of people, such as groups, firms, societies, or economies, and their individual or collective behaviors"* (Bhattacherjee, 2012, p. 1)

Types of Scientific Research

1. **Exploratory**
   - Scope out, form hunches, test feasibility
2. **Descriptive**
   - Careful measurement, reports–e.g., US census
3. **Explanatory**
   - Makes and explains connections

Methods of knowing

1. **Tenacity**:
   - true because it's always been
2. **Intuition**:
   - true because it is self evident
3. **Authority**:
   - true because qualified source says so
4. **Scientific**:
   - true because studies provisionally support it

Scientific Knowledge

Scientific knowledge is the accumulation of laws and theory to explain phenomena

- **Laws** are the observed patterns
- **Theories** are explanations (mechanisms) of the underlying phenomena

Theory

- **Theory** is *"a set of related propositions that presents a systematic view of phenomena by specifying relationships among concepts"* (Wimmer & Dominick, 2011, p. 13)

Scientific Reasoning

- **Inductive research** takes observations (small) and infers theoretical insights (big) from them
  - **Small → big**
- **Deductive research** takes theories (big) and applies them to observations (small)
  - **Big → small**

Scientific Method

- Scientific method describes **the general process** of conducting scientific research
- There are lots of flow charts and listicles of the different "**characteristics**" of the scientific method

Characteristics (1/3)

1. Scientific research is **public**
2. Science is **objective**
3. Science is **empirical**
4. Science is **systematic** and **cumulative**
5. Science is **predictive**

- (Wimmer & Dominick, 2011)

Characteristics (2/3)

1. Scientific research is **empirical**
2. Scientific research is **replicable**
3. Scientific research is **provisional**
4. Scientific research is **objective**
5. Scientific research is **systematic**

- (sciencing.com, 2018)

Characteristics (3/3)

1. **Logical**: Scientific inferences must be based on logical principles of reasoning
2. **Confirmable**: Inferences derived must match with observed evidence.
3. **Repeatable**: Other scientists should be able to independently replicate or repeat a scientific study and obtain similar, if not identical, results
4. **Scrutinizable**: The procedures used and the inferences derived must withstand critical scrutiny (peer review) by other scientists

- (Bhattacherjee, 2012, p. 5)

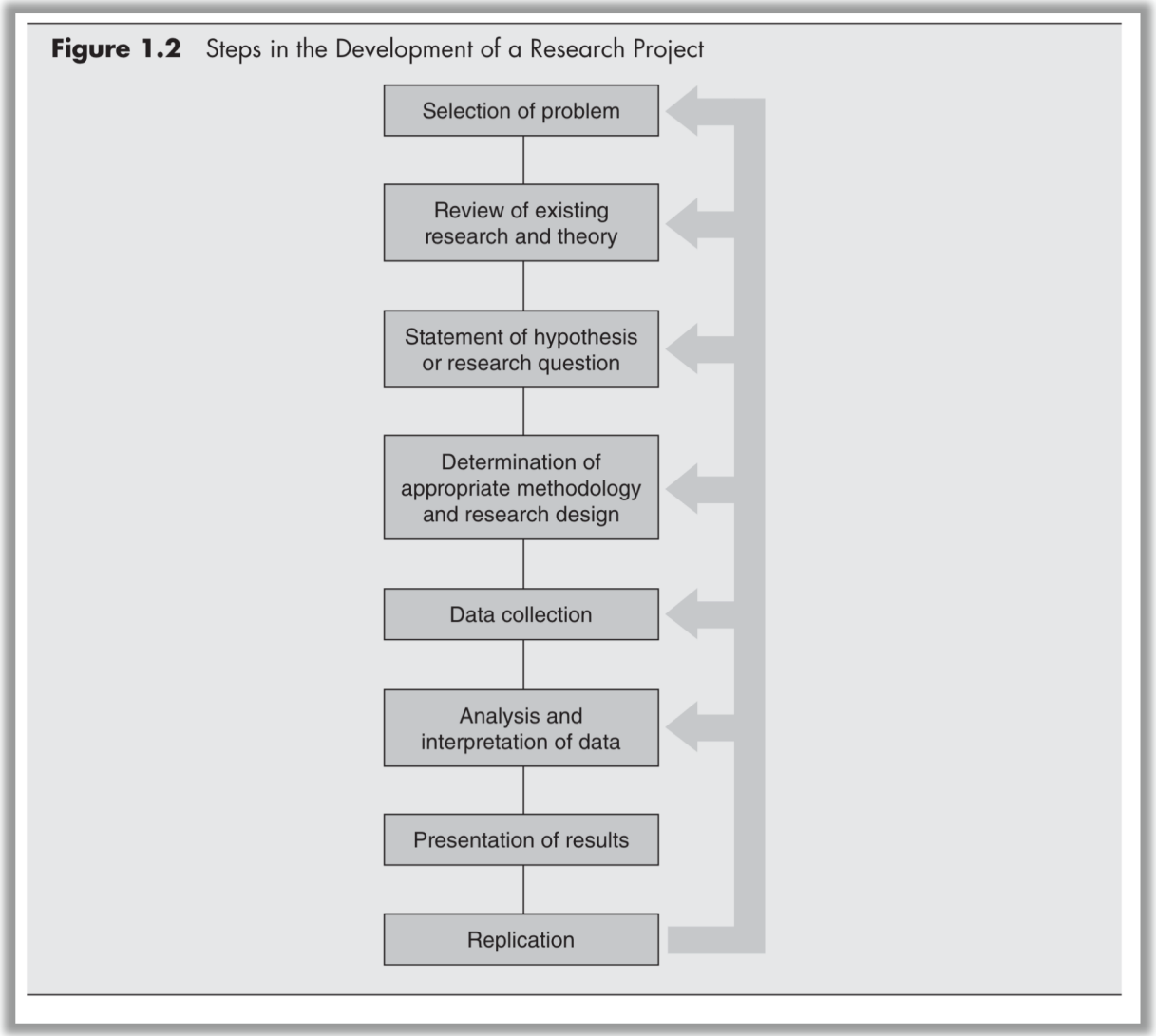
Research Values

- Research should ***strive*** to be valid and reliable
  - **Validity**: *accuracy* of findings
  - **Reliability**: *consistency* of findings
- **Post-positivism**
  - Researcher cannot be divorced from research
  - Empirical ideals are not discrete; they exist on a continuum

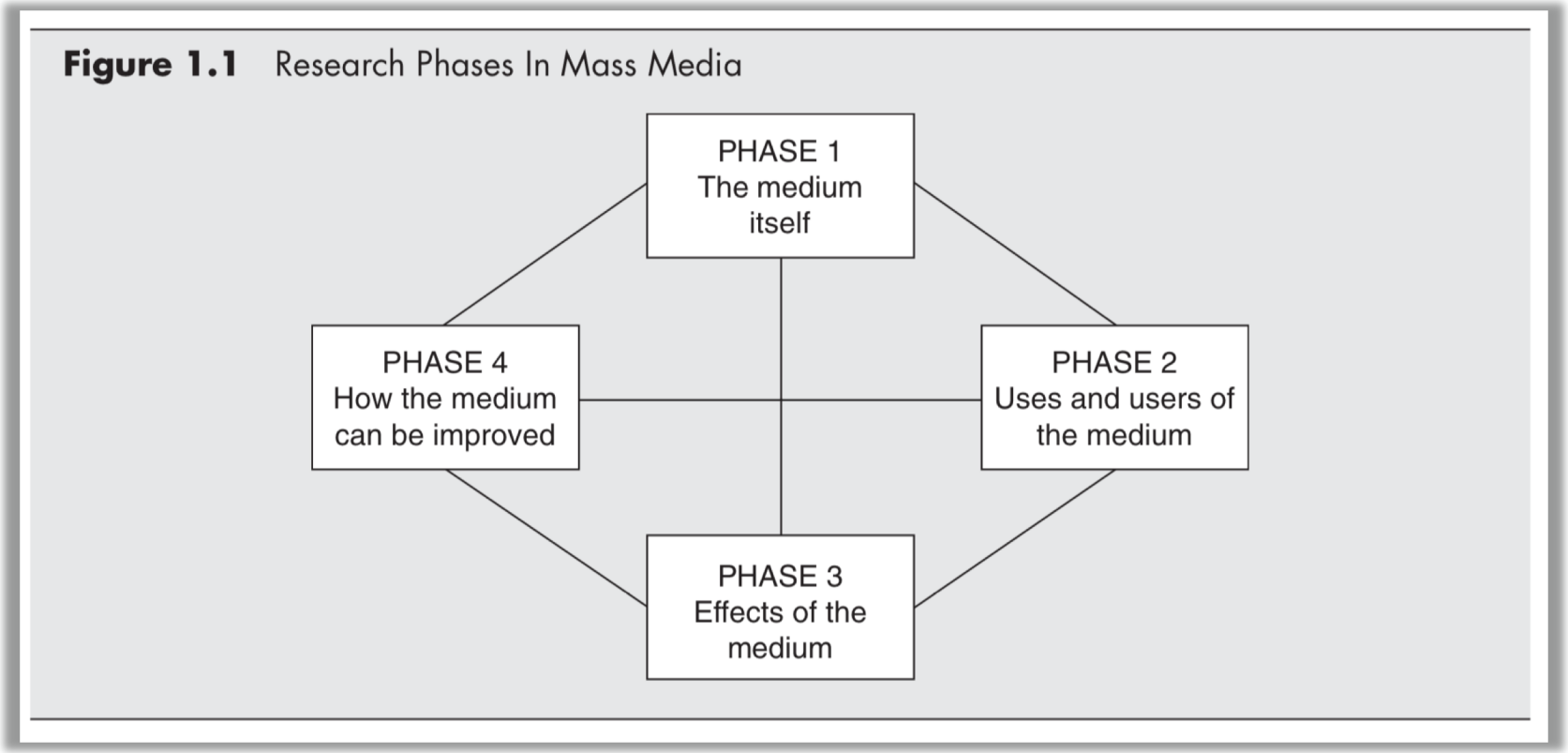
Mass Media

- Mass media are "*any form of communication that simultaneously reaches a large number of people, including but not limited to radio, TV, newspapers, magazines, billboards, films, recordings, books, and the Internet*" (Wimmer & Dominick, 2011, p. 2)

Research Process



Research phases



5. Final Paper

Research Proposal

Research Paper I

- The final paper is a **research proposal**, which will include…
  - **Statement of value** or need of the study
  - Brief **summary of** pertinent **literature**
  - **Identification of** applicable **theories**
- But is *primarily* about your **research design, methods, and plan of data analyses**

Research Paper II

- **Topic** is chosen by you, *in consultation with me*.
- **Research questions and/or hypotheses** are due at course midpoint.
- **Presentations** (with Q&A) during final three weeks
- Final **paper** is **due during finals** week

Course Preview

- Two days (weeks) each:
  - **Survey** methods
  - **Experimental** methods
  - **Observational** methods
  - ---------<midterm>----------
  - **Statistical** methods
- **Day #1**: introduce topic/concepts (homework assigned)
- **Day #2**: application (homework due)

Statistical concepts

- **Sampling**/probability
- **Descriptive** statistics
  - Describing your ***sample***
- **Inferential** statistics
  - ***Association***: Correlation/regression
  - ***Categorical***: Chi-square test, t-test, ANOVA

Questions?

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