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# Ontology, Epistemology, and Methodology

## DSAW6075/DSAW7075 Research Methods for Work-based Learning

*Trawsnewid Addysg; Trawsnewid Bywydau*
*Transforming Education; Transforming Lives*

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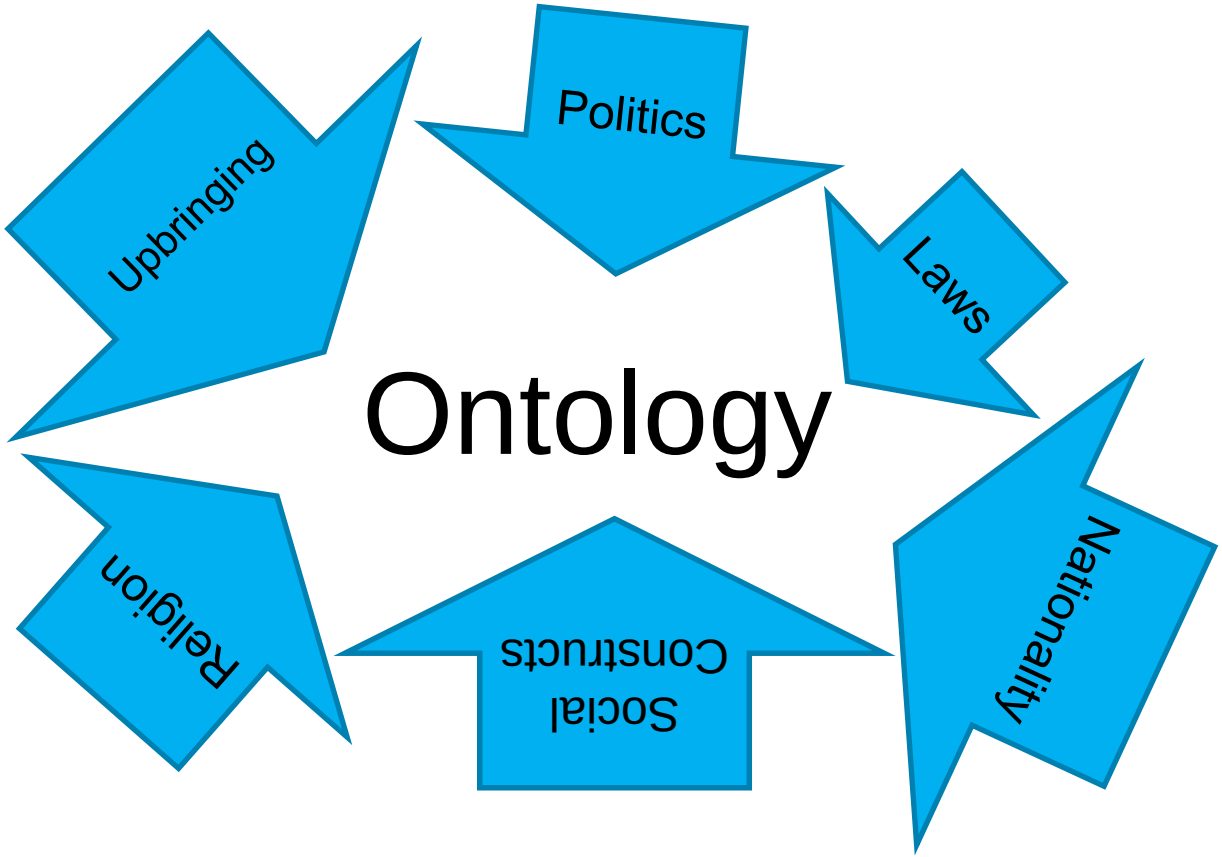
# Where does our research come from?

Except at NASA…

- Research never exists in a vacuum
- Every element of research – from the way we identify questions to ask to the way we decide to answer those questions – is influenced by our worldview, our beliefs, our environment, our upbringing, and many other factors

# Ontology

- A branch of philosophy/metaphysics, ontology literally translates to the study (-‘ology’) of being (‘onto’-)
- Our ontological positions and beliefs have a strong influence on the way we see the world, the research questions we see, and the way in which we choose to answer them


Nationality
Social Constructs
Religion
Ontology
Laws
Politics
Upbringing

# Ontology

## Objectivism

- Reality is fundamentally objective, and independent of other factors
- Truth, reality, fact, etc. are things that exist and can be found

## Subjectivism

- Reality cannot be understood without accounting for subjective experience
- Truth, reality, fact, etc. do not really exist – everything we know and think comes through our ‘lens’

# Ontology

Either it happened or it didn't

Whether or not it happened depends on who you are and where you're coming from

Some things are fundamentally 'true' and some are fundamentally 'false'

What is 'true' and what is 'false' depends on your perspective

# Crime in apartment buildings

Objectivists wonder:

- Do crimes occur in these buildings?
- What crimes occur in these buildings?
- Is there increased risk in these buildings?

Subjectivists wonder:

- Do residents experience crimes in these buildings?
- What do people in these buildings consider to be ‘crimes’?
- Do people feel safe in and around these buildings?

# Where do you stand?

- What do you think is your preferred ontological position?
- What do you think is the preferred ontological position of your workplace?
- Do they link up? How does this agreement/opposition affect research potential?

# Epistemology

- Epistemology literally translates to the study (‘-ology’) of knowledge (‘epistem-’)
- Our epistemological positions can help us understand what we think of as ‘knowledge’, how knowledge is created, and what knowledge is valid

# Epistemology

How deep must we dig to uncover the 'real truth'?

What is truth?

What is knowledge?

What kinds of information are legitimate?

# Epistemology

## Positivism

- The scientist!
- We find knowledge/information by measuring, gauging, observing, etc. using the senses
- Research should adhere strictly to the ‘scientific method’ and remain at arm’s length from participants/subjects
- What is important is understanding occurrences

## Interpretivism

- The detective!
- We find knowledge/information through interpreting and understanding
- Research should be flexible and interactive, allowing participants/subjects to drive questions
- What is important is understanding experiences

# Epistemology

| | |
|---|---|
| I only trust the numbers | I only trust what people think |
| It's only true if you can back it up with evidence | It's true if enough people believe it's true |
| Fact matters more than opinion in understanding | Fact and opinion are equally important in understanding |

# Crime in apartment buildings

## Objectivists wonder:

- Do crimes occur in these buildings?
- What crimes occur in these buildings?
- Is there increased risk in these buildings?

## Positivists ask:

- Are crime statistics available?
- Have we categorised the crimes that occur?
- Can we compare these buildings to others?

## Subjectivists wonder:

- Do residents experience crimes in these buildings?
- What do people in these buildings consider to be 'crimes'?
- Do people feel safe in and around these buildings?

## Interpretivists ask:

- Have we spoken to residents to get their views?
- Do residents think certain crimes are more or less important?
- Can we observe the interaction of residents or behaviours of passers-by?

# Where do you stand?

- What do you think is your preferred epistemological position?
- What do you think is the preferred epistemological position of your workplace?
- Do they link up? How does this agreement/opposition affect research potential?

# Methodology

- Methodology literally translates to the study (‘-ology’) of ways of searching (‘method-’)
- The methodology we choose is grounded in our ontological and epistemological positions, and reflects what we think is the **BEST** way to:
  - answer the questions we’ve identified (through our ontological lens), in order to:
    - get to the answers we see as valid (because of our epistemological position).

# Methodology

## Qualitative

- Data have ‘qualities’ that are generally not numeric and must be understood rather than measured
- Tends to look for meaning or experience
- Inductive = developing theory

## Quantitative

- Data are  numerical in nature, and can be measured and ‘quantified’
- Tends to look for cause and effect or pure fact
- Deductive = testing theory

# Method(ology) Man asks…

What is the most effective way for me to answer the question I have in a way that provides me with knowledge or information I feel is valid?

# Methodology

**Common Qualitative Methods**

- Interviews (semi- or un-structured)
- Questionnaires (open-ended or opinion questions)
- Observation
- Focus group discussions
- Diaries
- Case study
- Role-playing
- Action research

**Common Quantitative Methods**

- Interviews (semi- or structured)
- Questionnaires (closed-ended questions)
- Observation
- Focus group discussions
- Logs
- Case study
- Measuring
- Experiments
- Content analysis
- Ex post facto experiments
- Testing

# Crime in apartment buildings

## Objectivists wonder:

- Do crimes occur in these buildings?
- What crimes occur in these buildings?
- Is there increased risk in these buildings?

## Positivists ask:

- Are crime statistics available?
- Have we categorised the crimes that occur?
- Can we compare these buildings to others?

## Quantitative seeks:

- Statistics on crime
- Rates of crime
- Measurements of crime
- Comparison to other buildings

## Subjectivists wonder:

- Do residents experience crimes in these buildings?
- What do people in these buildings consider to be 'crimes'?
- Do people feel safe in and around these buildings?

## Interpretivists ask:

- Have we spoken to residents to get their views?
- Do residents think certain crimes are more or less important?
- Can we observe the interaction of residents or behaviours of passers-by?

## Qualitative seeks:

- Experience of crime
- Knowledge of crime
- Interpretations of crime

# Where do you stand?

- What methodology do you think you prefer?
- What methodology do you think your workplace prefers?
- Do they link up? How does this agreement/opposition affect research potential?

# Review Ontology, Epistemology, and Methodology

- Cohen, L., Manion, L. and Morrison, K. (2011) *Research Methods in Education.* Abingdon: Routledge.
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