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Abstractionism vs. Contextualism

→ Abstractionism

- Builds models abstracted from a domain; the model is used to answer questions
 - (1) Decide on the ontology of the phenomena we wish to describe
 - (2) Use this ontology to represent the domain of discourse
- & Assumes knowledge and understanding are independent from context
- ♥ Used by natural scientists and engineers.
 - > ...although many scientists don't realize that step 1 involves choice
 - > logical positivism vs. theory-driven observation

→ Contextualism

- & Emphasizes the details and idiosyncrasies of the domain
 - (1) Collect naturalistic data from the domain of study (Rich descriptions)
 - (2) Use the data to support explanations (but don't build abstract models)
- Assumes it is impossible to build models that have meaning when removed from their context
- ♥ Used by many social scientists
 - > but generally limits them to the descriptive rather than predictive/prescriptive

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Participant Observation

→ Approach

- ♦ longitudinal studies:
 - > Observer spends time with the subjects, joining in, long enough to become a member of the group

→ Advantages

- ♥ Contextualized;
- & Reveals details that other methods cannot

→ Disadvantages

- **SEXTREMELY** time consuming!
- ♥ Resulting 'rich picture' is hard to analyze
- & Cannot say much about the results of proposed changes

→ Watch for

♥ going native!

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Ethnomethodology

→ Basis

- Social world is ordered
 - > The social order may not be obvious, nor describable from common sense
- The social order cannot be assumed to have an a priori structure
 - Social order is accomplished on a moment-to-moment basis through participants' collective actions (rather than through any pre-existing structures)
 - > i.e. social order only observable when an observer immerses herself in it.
- & Observation should be done in a natural setting
- Need to consider how meanings develop and evolve within context

→ "Use the members' own Categories"

- & Most conventional approaches assume preexisting categories
 - > This may mislead the observer (e.g. appropriation)
- \$ Ethnomethodology attempts to use the subjects' own categories
 - > What categories (concepts) do they use themselves to order the social world?
- ♥ What methods do people use to make sense of the world around them?
 - > During observation, use the same methods members use, eg by developing a legitimate role within the community under observation.

→ Measurement

No scientific objectivity, so use the subjects' own measurement theory

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Source: Adapted from Goguen and Linde, 1993, p158.

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Ethnomethodological approach

→ Ethnomethodology is a subarea of Anthropology

- Looks for behaviours that may be different in a specific culture but which have the same underlying purpose or meaning.
 - > E.g. how do people go about gaining status in different cultures:
 - > Frenchmen brag about sexual conquests to gain status;
 - > Americans brag about money to gain status.
 - \succ Each of these topics is taboo in the other culture

→ Uses a very tightly controlled set of methods:

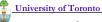
- > Conversational analysis
- \succ Measurement of body system functions e.g. heartbeat
- > Studies of Non-verbal behaviour (e.g. gestures, body language)
- > Detailed video analysis
- ♥ These techniques are useful in capturing information about a social setting.

→ Other observation techniques can be applied:

- ₲ Time-motion study
- > who is where, when?
- ♥ Communication audit
- > who talks to whom about what?

 \$\triangle \text{Use of tools status symbols plus sharing rules}\$

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Postscript: Postmodernism

→ Modernism

- Rationality is the highest form of mental functioning
- Nodern science produces universal truths
 - ...independent from the context and status of the scientist who produced them
- Rationality will always lead to progress and perfection
 - > All human institutions can be scientifically analyzed and improved
- Reason is the ultimate judge of what is right (true, legal, ethical,...)
- ♦ Language must be rational
 - > it only exists to represent the real world; > there must be a firm, objective
 - there must be a firm, objective connection between the "signifier" and the "signified"
 - > the meaning cannot depend on the

→ Postmodernism (PoMo)

- ♥ Questioning the grand narrative
 - A grand narrative is a story that a culture/society tells itself about it's practices and beliefs
 - > E.g. in the US: "democracy is the most enlightened/rational form of government"
 - > E.g. in science: "scientific truths are universal and eternal"
- Postmodernism identifies and critiques such narratives

⋄ Instead, look for mini-narratives

- > Stories that explain small practices, local events, situated, contingent behaviour
- ...and don't make any claims about universality, truth, or stability

⋄ E.g. Literary Deconstruction

- > Examine what a text does not say, what
- it represses
- > Reveal internal arbitrary hierarchies and dichotomies

⋄ E.g. Semiotics

- > The study of the relationship between
- signs and the things they signify



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What has PoMo got to do with RE?

→ logical positivist view:

- > "there is an objective world that can be modeled by building a consistent body of knowledge grounded in empirical observation"
- ♥ In RE: "there is an objective problem that exists in the world"
 - > Build a consistent model; make sufficient empirical observations to check validity
 - > Use tools that test consistency and completeness of the model
 - > Use reviews, prototyping, etc to demonstrate the model is "valid"

→ Popper's modification to logical positivism:

- > "theories can't be proven correct, they can only be refuted by finding exceptions"
- ∜ In RE: "requirements models must be refutable"
 - > Look for evidence that the model is wrong
 - > E.g. collect scenarios and check the model supports them

→ post-modern view:

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- "there is no privileged viewpoint; all observation is value-laden; scientific investigation is culturally embedded"
- ♥ In RE: "validation is always subjective and contextualised"
 - > Use stakeholder involvement so that they 'own' the requirements models
 - > Use ethnographic techniques to understand the participant's worldviews

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