

## Tutorial on Theories (Bordens & Abbott Chaps. 2)

### TUTORIAL ON THEORIES

#### A. The Nature of Theories

- Theories are set of assumptions (concepts and beliefs) that used to explain phenomena
- Theories can be differentiated from:
  - **hypotheses** which are predictive statements about particular relations between specific variables.
  - **laws** which are well confirmed generalized statements of about relations between variables ( e.g., gravity).
  - **models** which are formalizations of relations between variables (e.g., maps, mathematical expressions).
- Theories may explain phenomena causally (Mechanistic) or by their purposes (Functional).

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#### B. Dimensions of Theories

- Theory can be located on 3 dimensions
  - Theories may be expressed mathematically (Quantitative) or non-mathematically (Qualitative)
  - Theories may describe variable relations (Descriptive), draw analogies between relations (Analogical), or propose new structures to explain them (Fundamental)
  - Theories may be about a range of different phenomena (Broad) or have a more limited scope (Narrow).

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#### C. Functions of Theory

- Theories have four different functions
  - **Understand:** Theories are a basis for explaining phenomena
  - **Prediction:** Theories could be used to specify the the set of conditions for certain outcomes to occur.
  - **Organizing and Interpreting Research:** Theories provide a framework for interpreting, cataloging, relating, and different results
  - **Generating Research:** The importance of a theory lies in the the quality and quantity of

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### D. Testing Theories

- Different strategies are used to test theories.
  - **Confirmation**: Seeking evidence of relations predicted by theories.
    - Of moderate value because confirmation adds little additional support. Typically used for new theories.
  - **Disconfirmation**: Seeking evidence of relations implicitly or explicitly denied by the theory
    - Of great value because it shows the theory's limits. Typically used for well tested theories
  - **Strong Inference**: Seeking evidence confirming or disconfirming multiple theories of phenomena.
    - Provides best logic of experimentation