INTRODUCTION TO THE CONCEPT OF THEORIES

Ahad ZareRavasan, PhD

What is theory?

- "… a set of <u>interrelated</u> concepts, definitions, and propositions that presents a <u>systematic</u> view of events or situations by <u>specifying relationships</u> among variables in order to <u>explain and predict</u> the events or the situations."

<div align="right">(Glanz, Rimer, and Lewis, p. 25)</div>

Some Differing Views of Theory in Information Systems

- Theory as statements that say **how something should be done in practice**:

- An early textbook by Davis and Olson (1985) articulates the way in which MIS should be designed, implemented and managed. This theory provides **prescriptions** to be followed in practice, with the implicit expectation that the prescribed methods will in some sense be "better" than alternatives (Cushing 1990).

Some Differing Views of Theory in Information Systems

- Theory as statements providing a **lens for viewing or explaining** the world:

- Orlikowski and Robey (1991) drew on structuration theory and empirical work to construct a theory in which the organizational consequences of IT are **viewed** as the products of both material and social dimensions. Such theory is seen as a desirable end product; formal testing of such a theory is not envisaged (Walsham 1995).

Some Differing Views of Theory in Information Systems

- Theory as statements of **relationships among constructs that can be tested**:

- The technology acceptance model (Davis 1986) posits that two particular beliefs on the part of users, perceived usefulness and perceived ease-of-use, are of primary relevance for computer acceptance behaviors. This theory leads to testable propositions that can be investigated empirically (see Davis et al. 1989).

A taxonomy of theories

Table 2. A Taxonomy of Theory Types in Information Systems Research	
Theory Type	**Distinguishing Attributes**
I. Analysis	Says what is. The theory does not extend beyond analysis and description. No causal relationships among phenomena are specified and no predictions are made.
II. Explanation	Says what is, how, why, when, and where. The theory provides explanations but does not aim to predict with any precision. There are no testable propositions.
III. Prediction	Says what is and what will be. The theory provides predictions and has testable propositions but does not have well-developed justificatory causal explanations.
IV. Explanation and prediction (EP)	Says what is, how, why, when, where, and what will be. Provides predictions and has both testable propositions and causal explanations.
V. Design and action	Says how to do something. The theory gives explicit prescriptions (e.g., methods, techniques, principles of form and function) for constructing an artifact.

Source: Greger (2006)

Theories are used to ...

- Guide the search for why people behave in certain ways

- Help pinpoint information needed before developing and organizing a program

- Provide insight as to how to shape strategies to reach people

- Help identify what should be monitored, measured, and compared

| Table 3. Structural Components of Theory	
Theory Component (Components Common to All Theory)	**Definition**
Means of representation	The theory must be represented physically in some way: in words, mathematical terms, symbolic logic, diagrams, tables or graphically. Additional aids for representation could include pictures, models, or prototype systems.
Constructs	These refer to the phenomena of interest in the theory (Dubin's "units"). All of the primary constructs in the theory should be well defined. Many different types of constructs are possible: for example, observational (real) terms, theoretical (nominal) terms and collective terms.*
Statements of relationship	These show relationships among the constructs. Again, these may be of many types: associative, compositional, unidirectional, bidirectional, conditional, or causal. The nature of the relationship specified depends on the purpose of the theory. Very simple relationships can be specified: for example, "x is a member of class A."
Scope	The scope is specified by the degree of generality of the statements of relationships (signified by modal qualifiers such as "some," "many," "all," and "never") and statements of boundaries showing the limits of generalizations.
Theory Component (Components Contingent on Theory Purpose)	**Definition**
Causal explanations	The theory gives statements of relationships among phenomena that show causal reasoning (not covering law or probabilistic reasoning alone).
Testable propositions (hypotheses)	Statements of relationships between constructs are stated in such a form that they can be tested empirically.
Prescriptive statements	Statements in the theory specify how people can accomplish something in practice (e.g., construct an artifact or develop a strategy).

Theories and Levels of Influence

- Behavior is very complex
  - Influenced and supported in multiple ways

Ecological Model (levels of theories)
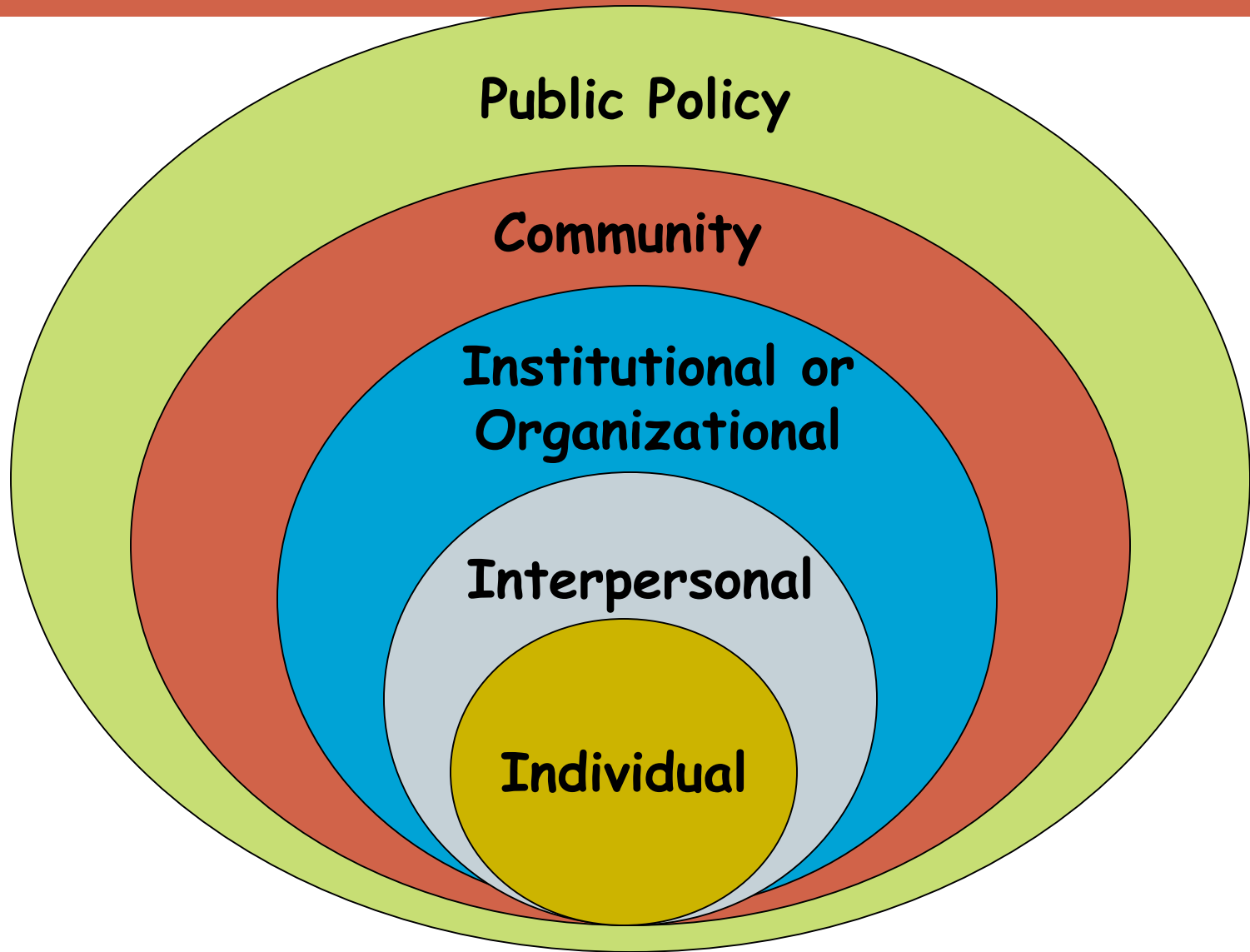
Individual / Intrapersonal factors

- Knowledge, attitudes, beliefs (KAB)
- Skills
- Motivation
- Age, gender, genetics

Interpersonal factors

- Social support / social networks
- Social norms, cultural environment
- Religious affiliation

Institutional or organization factors

- Educational level

- Culture

- Social Interactions

Community factors

- Living and working conditions
- Public safety
- Local public health
- Economic development
- Environment

Public Policy Factors

- Federal, State & Local Policy and Law
  - Zoning
  - Taxes
- Public Health System
- Educational System

Ecological Model (levels of theories)