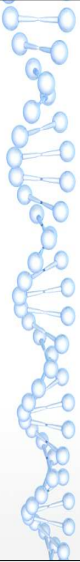


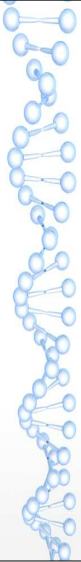
## Environmental psychology and environmental genetics

- As Environmental Health (6) on 6 Nov. 2014
- Key Concepts
  - Environmental psychology considers health and behavior in sociophysical context, based on both objective and subjective measures of immediate and remote environmental conditions
  - Risk of disease is a function of both genetic and environmental factors, so that gene-environment interactions are important



## Field definition of environmental psychology

- Assuming that a dynamic and reciprocal relationship exists between individual and groups and the environment where they live
- Sociophysical contexts affect the behavior and health: eg. the kind of dwelling, social and physical aspects of neighborhood.
  - "Sociophysical environment" means interdependent social and physical dimensions of settings jointly influencing an individual's psychological and physical well-being
- "Environment and behavior studies (EBS)" is alternative term.



## Typical approaches of environmental psychology

- Concerned with the behavioral, emotional, and health outcomes of people's transactions with everyday environments
- Naturalistic field studies, emphasizing multidisciplinary perspective (incl. psychology, environmental design, geography, sociology, **human ecology**, natural resource management, government, public health)
- Behavior and health outcomes in relation to objective and subjective meanings
- User-oriented studies
- Events naturally occur, conditions may change during the course of the events
- Holistic and longitudinal approach
  - **Sharing the focus with human ecology!!**
  - (Only the nominal difference?)**



## Levels of environmental analysis in sociophysical context

- Elemental: water, air, food, ...
- Individual: an individual's (1) body and physical, perceptual and cognitive abilities, (2) intellectual abilities, personal beliefs, values, attitudes, emotions, memories and experiences
- Stimuli: recognizable features of an environment that cause a personal perception or physical and/or psychological reaction
- Situation: sequences of individual or group activities and events occurring at a particular time and place
- Settings: socially structured and geographically bounded locations where certain kinds of activities and events regularly recur (eg. college classroom)
- Life domain: spheres of a person's life that encompass multiple situations and settings (eg. home, work, school, ...)
- Societal: overarching systems of beliefs and values, social and cultural norms, and social, political, and economic institutions that integrate life domains for large groups of people



## Four different "world views" (Altman and Rogoff, 1987)

- **Trait** worldview tries to understand and predict the enduring, consistent features of physical settings and people as individual factors
- **Interactional** worldview posits stable relationships among traits and proposes basic "laws" that describe these relationships
- **Organismic** worldview tries to understand larger, more complete, more complex aggregates of factors, acknowledging that these factors may change or evolve over time
- **Transactional** worldview proposes that the factors that affect behavioral phenomena are part of a constant, dynamic, reciprocal milieu



## Hurricane "Katrina" example

- Three parts of the event
  - awareness and preparation
  - immediate response ~ focusing on the use of common setting features as "affordances" (possibilities for action that are latent in an environment)
  - aftermath
- Environmental psychology's comprehensive approach
  - sense of place
  - place attachment
  - contextual transformation (sudden and dramatic context changes, resulting in fundamental behavior modification)

## Three principles of contextual analysis

- 1. The relationship between environment and health is influenced by interdependencies among immediate situations, immediate settings, and more remote environmental conditions
- 2. The different environments in which an individual participants exert a cumulative, synergistic effect on his or her health
- 3. Health is the result of an interaction among the objective features of the environments in which individuals participate, individual's perceptions of those features, and individuals' personal attributes

## Neighborhood

- Functions of both real and virtual neighborhood
  - Affiliation
  - Identity
  - Social support
  - Community
  - Information
  - Daily life
  - Recreation
- Problems
  - Conflict of real/virtual
  - Stimulation overload
  - Attentional fatigue
  - Digital divide

## Presence of nature

- Elemental: Natural scents, natural objects
- Individual: Clothing choices, eating choices
- Stimuli: Natural sounds (bird songs, ...), Natural surfaces (wood, rock, ...), Natural colors and textures, Views of nature through windows
- Situation: Outdoor meetings, meals, entertainment, gardening
- Setting: Outdoor recreation, relaxation
- Life domain: Outdoor occupations, location of residence, workplaces
- Societal: Nature preserves and wilderness areas

(cf.) Urbanization is an elimination of 'uncontrollable' nature from our living environments (Dr. Takeshi Yoro)

## Behavioral impacts of displacement due to climate change

- Global: Massive population dislocation
- National: Changes to and disruption in food production and distribution
- Regional: Increased cardiovascular and respiratory disease
- Community: Functional disruption leading to scarcity of necessary resources (potable water, electricity, gas, sanitation), damage to and inaccessibility of health care facilities
- Neighborhood: Inability of neighborhood to recover, neighborhood decay, disruption of social networks
- Residential (family): Family separation, conflict, deprivation, long-term negative economic impact, educational disruption
- Individual: Dramatic increase in environmental (psychological) stress, malnutrition, loss of income, poverty, inadequate medical care

## Gene-environment interaction

- Combinations of genetic susceptibility and environmental exposures account for the majority of disease burden
- As age and environmental exposure increase over time, so do the progressive molecular response and changes that are linked to the pathogenesis
- Polymorphism / variation of genetic features are related with disease susceptibility -> Human genome project (-> tailor-made medicine)
  - ELSIs (Ethical, Legal and Social Implications) are important issues. Necessity of paying attention to the potential for genetic discrimination by employers or insurers, and confidentiality issues (cf. in classic extreme, Nazi-like eugenics)
  - eg. Genetic variability and susceptibility to lead toxicity, so-called thrifty genotype/phenotype with susceptibility of obesity (phenotype is related with epigenetics), highly susceptible genotype of breast cancer, ...
- Accelerated with the development of the "-omics" technology

## The thrifty phenotype hypothesis

(Source: Br Med Bull. 2001;60:5-20. "The thrifty phenotype hypothesis." by Hales CN, Barker DJ.)

