The role of theory in understanding physical activity behaviour I

Social-Cognitive Theory
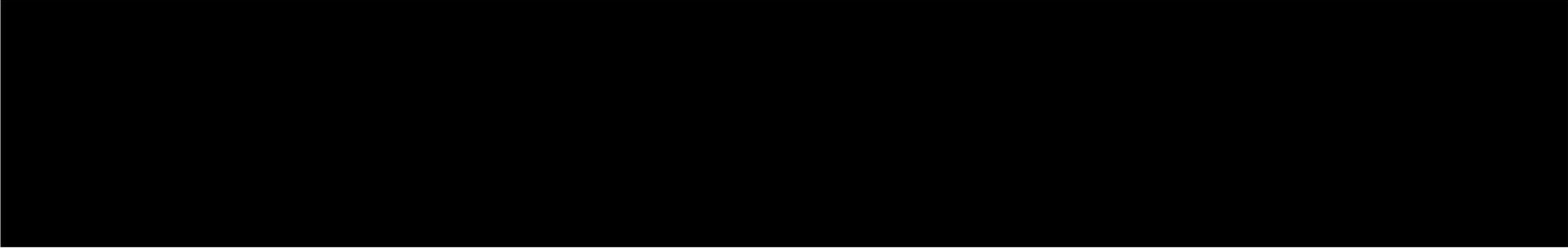**Health belief Model**
Ecological model

**Hassandra Mary, PhD.**

Theory and Practice...

- Theory is when you know everything but nothing works
- Practice is when everything works but no one knows why

- In our course theory and practice can be combined in 2 ways:
  - Either nothing works and no one knows why
  - ...or everything works and we know why....

Social Cognitive Theory

People learn...

- Directly from experience
- Imitation and modeling
  - Imitation abilities present at birth
  - Abstract modeling
- Observational learning
  - Attention
  - Retention (remembering)
  - Production
  - Motivation

How People Learn

Brain,

Mind,

Experience,
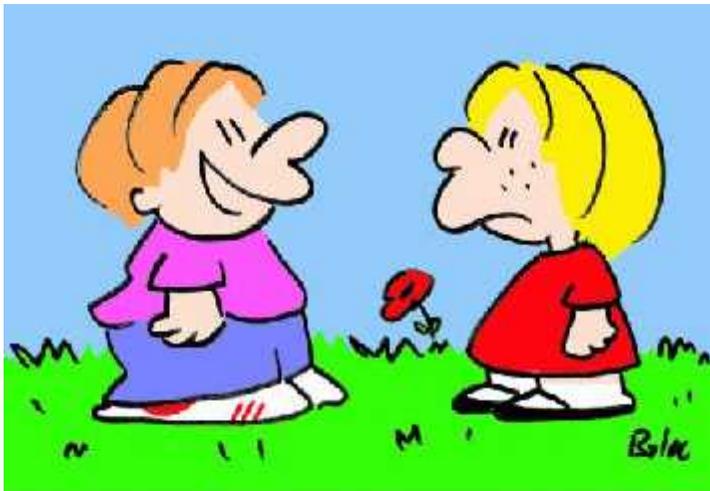
and

School
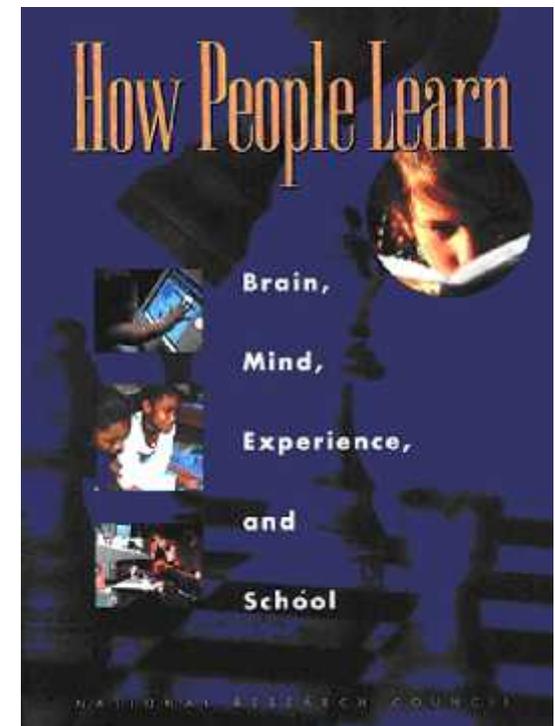
Explains...

....how people acquire and maintain certain behavioral patterns, while also providing the basis for intervention strategies.

Behavioral change depends on the factors:

environment

people

behaviour

"The Principal suspended me — School is the only place in the world where you can get time off for bad behavior."

The three factors environment, people and behaviour are constantly influencing each other.

Behaviour is not simply the result of the environment and the person, just as the environment is not simply the result of the person and behavior.

BEHAVIOR
(Learning)

PERSONAL

FACTORS
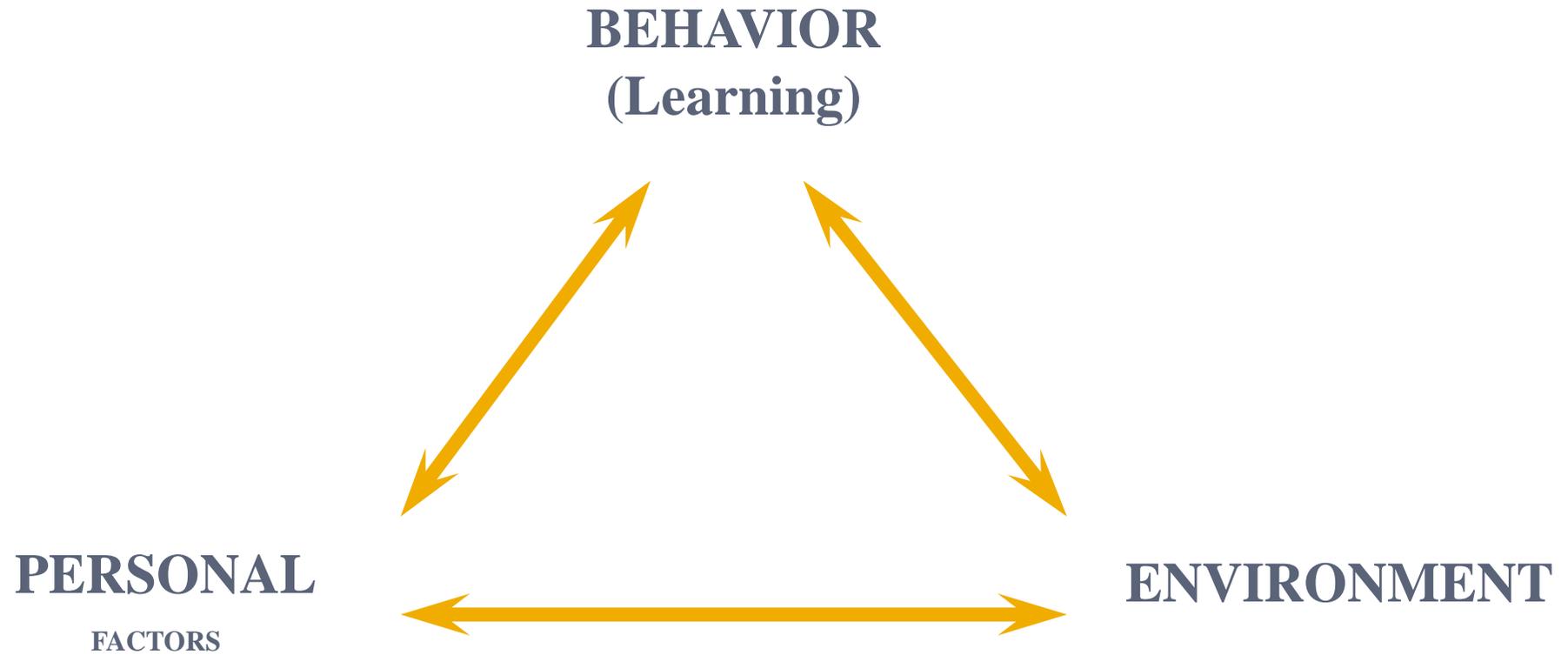
ENVIRONMENT

all interact to influence how we evaluate, interpret, organize, and
apply information

Environment

I JUST FINISHED MY ON-LINE FOOD SAFETY COURSE!

- Refers to the factors that can affect a person's behavior.
- There are social and physical environments.
  - **Social environment** include family members, friends and colleagues.
  - **Physical environment** is the size of a room, the ambient temperature or the availability of certain foods.

- Environment and *situation* provide the framework for understanding behavior (Parraga, 1990).

- The situation refers to the cognitive or mental representations of the environment that may affect a person's behavior.

- The situation is a person's perception of the place, time, physical features and activity (Glanz et al, 2002).

Concepts

To do

- **_Environment_**: Factors physically external to the person

- **_Situation_**: Perception of the environment

- **_Behavioral capability_**: Knowledge and skill to perform a given behavior

- **_Expectations_**: Anticipatory outcomes of a behavior

- Provide opportunities and social support

- Correct misperceptions and promote healthful forms

- Promote mastery learning through skills training

- Model positive outcomes of healthful behaviour

Concepts   To do

- **_Expectancies_**_:_ The values that the person places on a given outcome, incentives → - Present outcomes of change that have functional meaning

- **_Self-control_**_:_ Personal regulation of goal-directed behavior or performance → - Provide opportunities for self-monitoring, goal setting, problem solving, and self-reward

- **_Observational learning_**_:_ Behavioral acquisition that occurs by watching the actions and outcomes of others' behavior → - Include credible role models of the targeted behaviour

Concepts   To do

- *Reinforcements*: Responses to a person's behaviour that increase or decrease the likelihood of reoccurrence → - Promote self-initiated rewards and incentives

- *Self-efficacy*: The person's confidence in performing a particular behaviour → - Approach behavioural change in small steps to ensure success

- *Emotional coping responses*: Strategies or tactics that are used by a person to deal with emotional stimuli → - Provide training in problem solving and stress management

- *Reciprocal determinism*: The dynamic interaction of the person, the behaviour and the environment in which the behaviour is performed → - Consider multiple avenues to behavioural change, including environmental, skill, and personal change.

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"I'm trying to find myself."

- **Bandura's social cognitive theory**
  - assumes that personality development, growth, and change are influenced by four distinctively human **cognitive processes**:
    - highly developed ability
    - observational learning
    - purposeful behavior
    - self analysis

Bandura: much of human personality and behavior is shaped by our own **thoughts and beliefs**
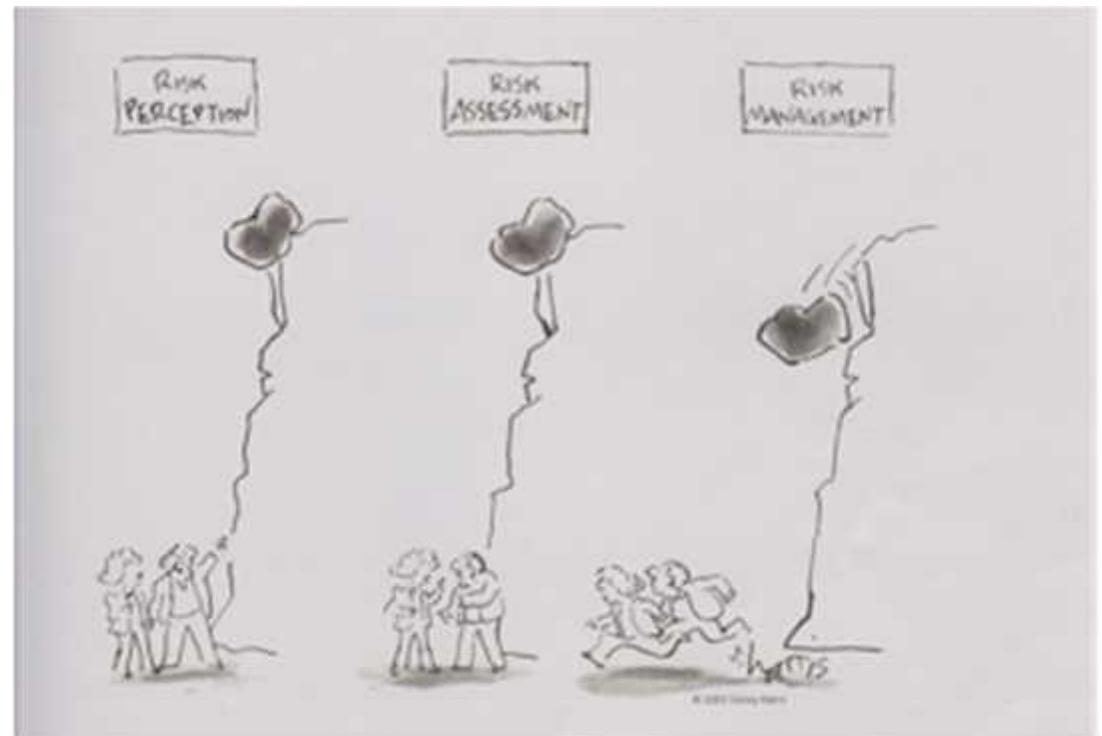
Social cognitive theory of health behavior
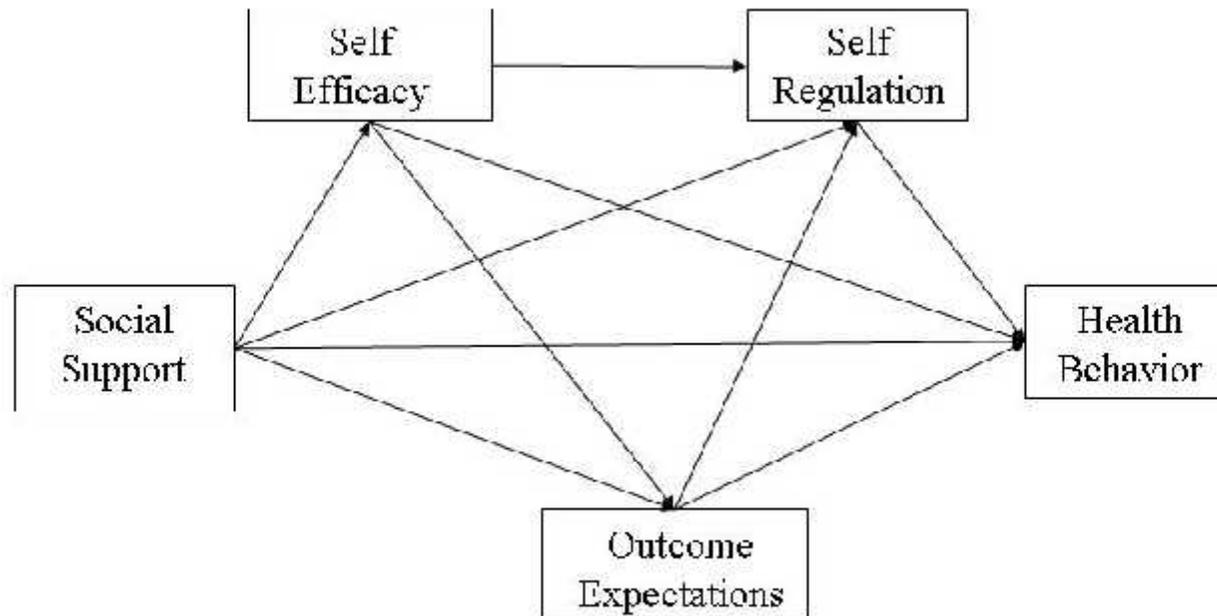
Best role models are:

- Model's Status, power, prestige
- Model's competence
- Similarity to the model
- Model' s credibility
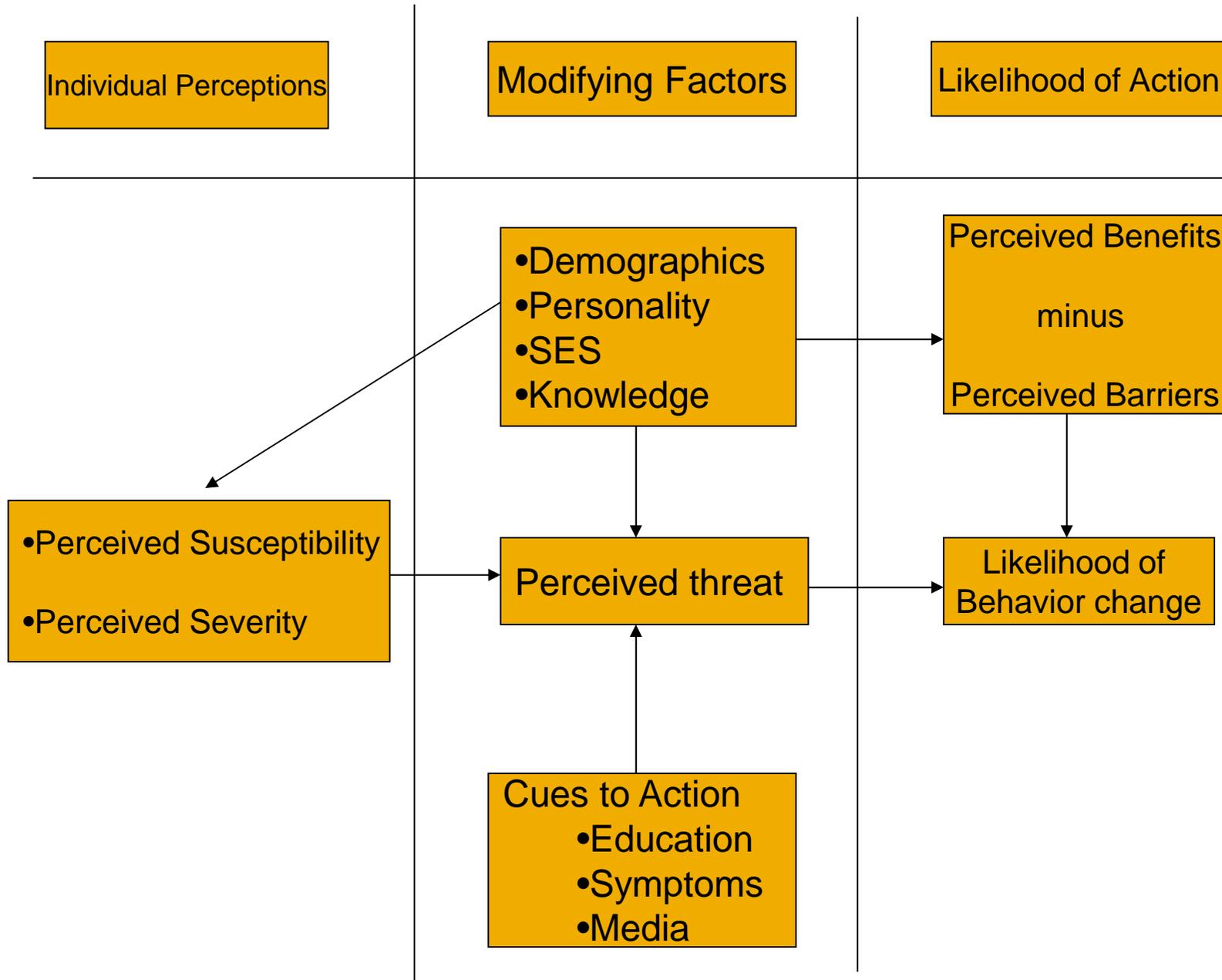- Model's gender

Health Belief Model

Health Belief Model

Based on these assumptions:

- People <u>desire to avoid illness</u> or get well
- People feel that a <u>negative health condition (i.e., HIV) can be avoided</u>
- People believe that he/she <u>can successfully</u> take a recommended health action
- People believe that a specific health action that is available to him or her will prevent illness, so people have a <u>positive expectation that by taking a recommended action, he/she will avoid a negative health condition</u> (i.e., exercise will be effective at preventing CHD).

Health Belief Model

Individual Perceptions	Modifying Factors	Likelihood of Action

•Demographics
•Personality
•SES
•Knowledge

Perceived Benefits

minus

Perceived Barriers

•Perceived Susceptibility

•Perceived Severity

Perceived threat

Likelihood of Behavior change

Cues to Action
•Education
•Symptoms
•Media

Components of HBM

- <u>Perceived Susceptibility</u>: One's belief regarding the chance of getting a condition → "how likely do you think you are to have *this health issue*?"

- <u>Perceived Severity</u>: one's belief of how serious a condition and its sequelae are → "how serious a problem do you believe *this health issue* is?"

- <u>Perceived Benefits</u>: one's belief in the efficacy of the advised action to reduce risk or seriousness of impact → "how well does the recommended behavior reduce the risk(s) associated with *this health issue*?"

- <u>Perceived Barriers</u>: one's belief about the tangible and psychological costs of the advised action → "what are the potential negative aspects of doing this recommended behavior?"

Additional Components of HBM
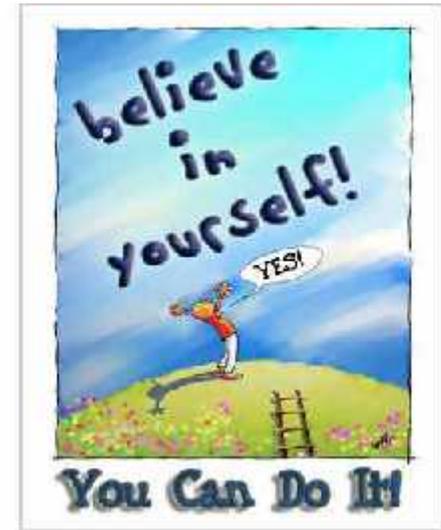
- <u>Cues to Action</u>: strategies to activate one's "readiness", factors which cause you to change, or want to change (not systematically studied)
- <u>Self-Efficacy</u>: one's "conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977), one's confidence in one's ability to take action.
    - As the health concerns of the nation have shifted to lifestyle-related conditions, self-efficacy has taken on greater importance, both as an independent construct, and as a component of HBM

Research shows that…

- Perceived barriers was the most powerful single predictor of the HBM across all studies and behaviors.
- Perceived severity was the least powerful predictor but it was strongly related to sick-role behavior (Glanz et al, 2002).

Group work

- How well you think this model applies to your project?

Ecological model

Subway ticket machine
https://www.youtube.com/watch?v=qaPNDbGKr7k

Monty Python Silly Walk
https://www.youtube.com/watch?v=By95MlAGTjE

Piano stairs
https://www.youtube.com/watch?v=2lXh2n0aPyw

Compare ...
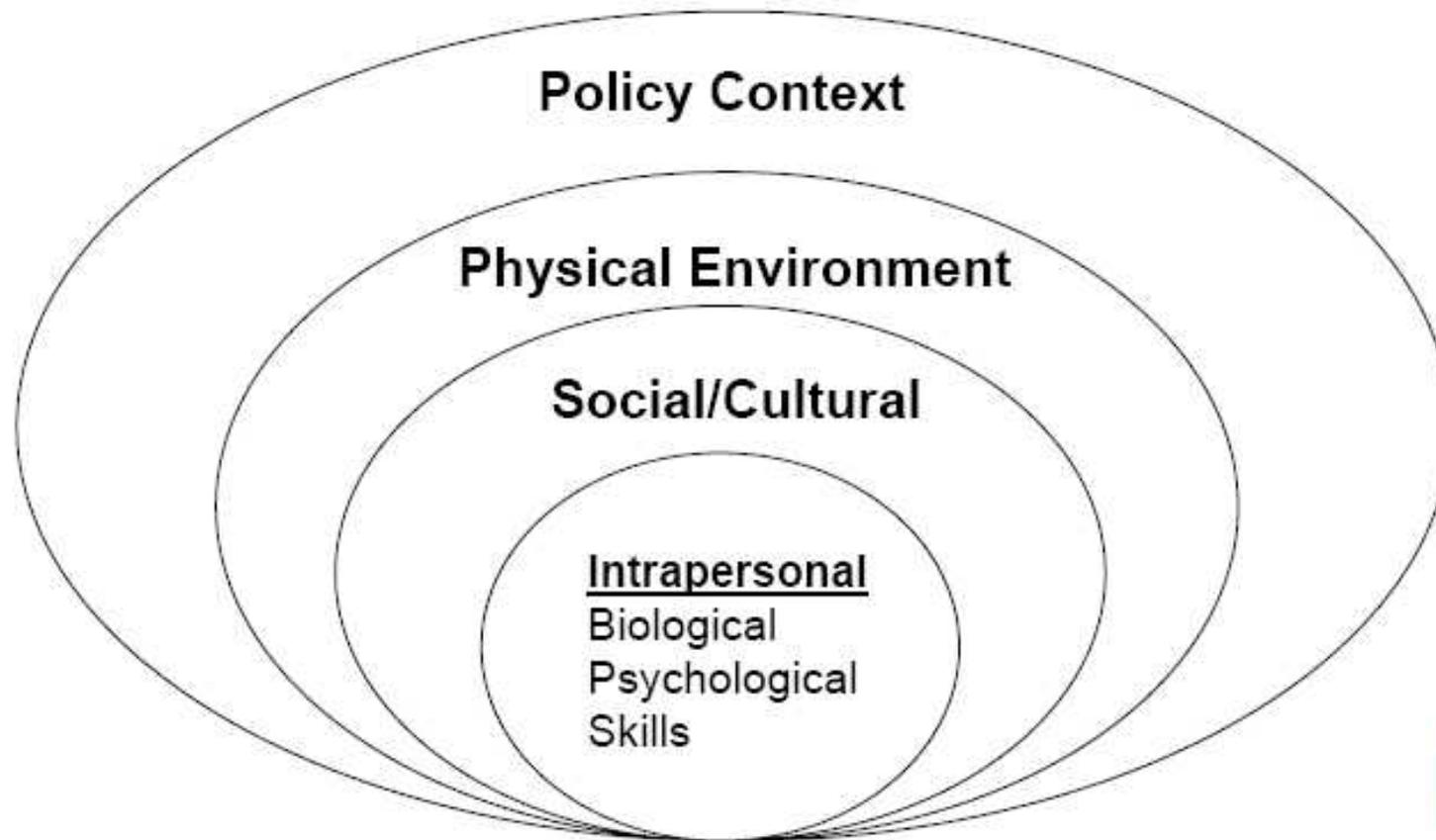
CITY IN THE PAST

CITIES OF TOMORROW

Leads to...

Environment & PA

- Reliance on psychosocial models delayed research interest in environments & PA
- It seems obvious now that PA must be done in "places"
- Development of ecological models and applications to PA in the mid 1990's was a first critical step
- Early measurement efforts set the stage for progress in research on environments & behavior

An Ecological Model of Health Behavior

Policy Context

Physical Environment

Social/Cultural

<u>Intrapersonal</u>
Biological
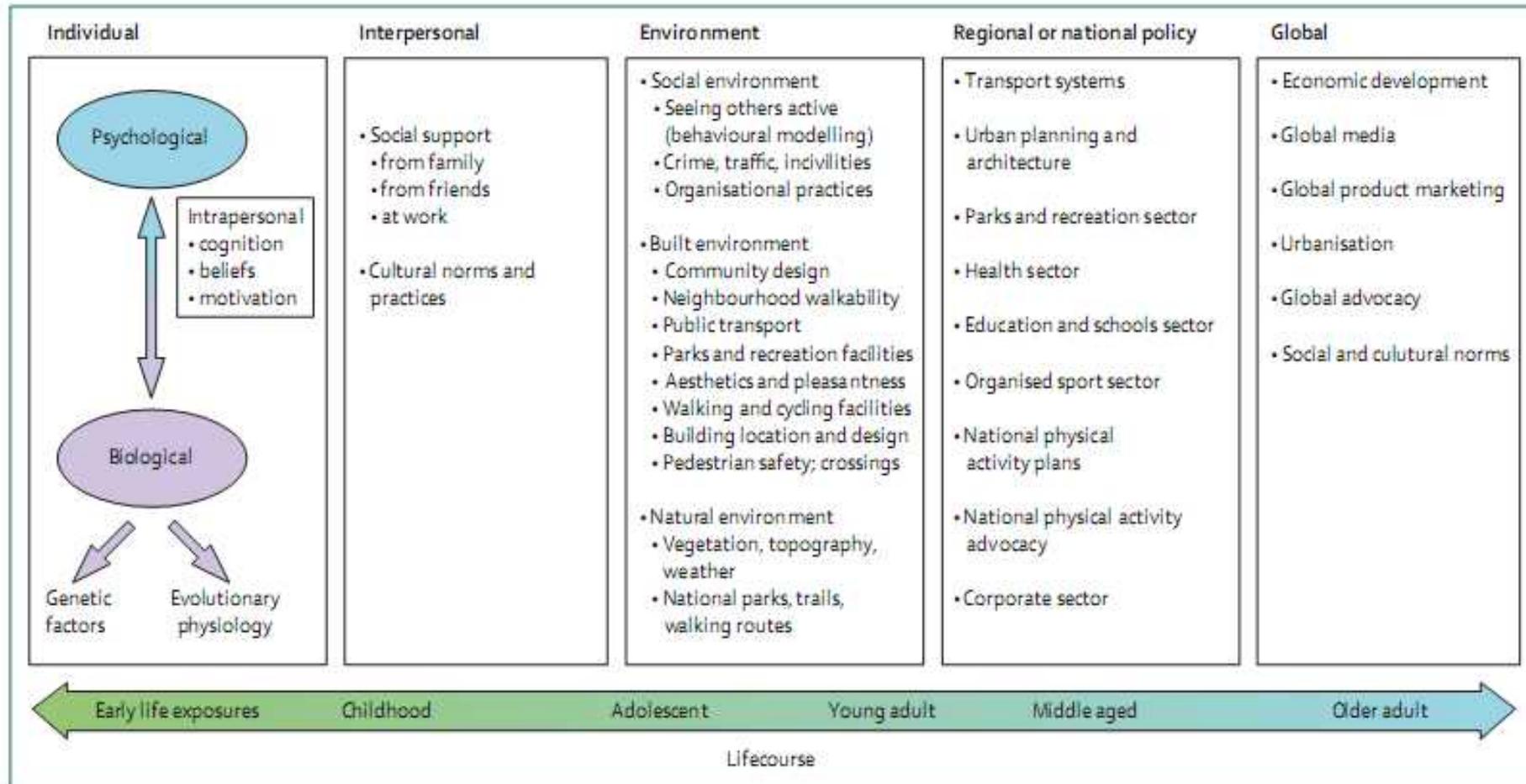Psychological
Skills

Bauman et al., 2012

Figure 1: Adapted ecological model of the determinants of physical activity

Cooperation needed between

Physical activity researchers were developing interest in place
– Health promotion
– Health psychology
– Exercise science

Expertise in measuring **environments** was elsewhere
– City planning
– Geography
– Environmental psychology
– Parks & recreation

Ecological models are based on:

B.F. Skinner (1904-1990) The Model: Environment and Behavior
Measure behavior & environment by observation!

Measuring Behavior within Environments
- Stair observations
  - Beginning with Brownell & Stunkard, 1980
- Puhl, Baranowski, late 1980's
  - Included environmental context
- BEACHES: Thom McKenzie, 1991
  - Indoors/outdoors, specific location, TV on
- SOFIT, SOPLAY, SOPARC, etc. McKenzie
  - Tailored to various settings: PE classes, school grounds, parks
  - Including limited characteristics of settings

Ecological models are based on:

- <u>Social cognitive theory</u>, which explains behavior in terms of reciprocal relationships among the characteristics of a person, the person's behavior, and the environment in which the behavior is performed.
- Ecological models <u>emphasize the role of the physical as well as the social environment</u>.

Ecological models…

- … help us to understand **how people interact with the environments**
- They can be used to develop effective multi-level approaches to improve health behaviours – Physical activity
- Motivation and skills cannot be effective to change behaviours if environment and policies make it difficult or impossible to choose healthy behaviours
- Environment and policies should make healthy choices convenient, attractive, and economical and then motivate and educate people

Early research…

- Map of San Diego covered with 1 km grid
- Location of 2053 participants & 385 free or pay exercise facilities coded
- Distance assessed in grid blocks, based on sum of differences between coordinates
- **<u>Density of facilities was related to probability of being an exerciser</u>**

Sallis, J.F., Hovell, M.F., Hofstetter, C.R., Elder, J.P., Caspersen, C.J., Hackley, M., & Powell, K.E. (1990). Distance between homes and exercise facilities related to the frequency of exercise among San Diego residents. *Public Health Reports, 105*, 179-185.

Early Perceived Environment Measure

- Home equipment
  - Checklist of 15 items (aerobic equip, bicycle, dog)
- Neighborhood environment
  - Checklist of 8 items (sidewalks, heavy traffic, lights)
- Convenient exercise facilities
  - Checklist of 18 items (basketball court, health club)

Sallis, J.F., Johnson, M.F., Calfas, K.J., Caparosa, S., & Nichols, J. (1997). Assessing perceived physical environment variables that may influence physical activity. *Research Quarterly for Exercise and Sport, 68,* 345-351.

In School Environments...

- Activity areas at middle schools were identified, mapped, & coded for selected permanent attributes
- While physical activity was being coded with **SOPLAY**, concurrent attributes were observed
  - **Equipment available, supervision, area accessible, weather**
  - Reliability is high, given adequate training

    Sallis, J.F., Conway, T.L., Prochaska, J.J., McKenzie, T.L., Marshall, S.P., & Brown, M. (2001). The association of school environments with youth physical activity. *American Journal of Public Health, 91*, 618-620.

In workplaces…

- Direct observation to assess **characteristics of worksite environments for physical activity**, diet, smoking, and alcohol
- Worksite physical attributes: _bike parking, stairs, foods in cafeteria & vending_
- Information environment: _posters, bulletin boards, newsletters_
- Immediate neighborhood environment: _trails, parks, health clubs, foods in restaurants_

Oldenburg, B., Sallis, J.F., Harris, D., Owen, N. (2002). Checklist of health promotion environments at worksites (CHEW): Development and measurement characteristics. _American Journal of Health Promotion, 16_, 288-299.

Critical examination

- Strengths:
  - Focus on <u>multiple levels of influence</u> which broadens the options for interventions
  - Might <u>help sustainability</u> of effects
- Weaknesses:
  - <u>Lack of specificity</u> for the most important influences
  - Lack of information about how the broader levels of influence operate or <u>how variables interact across levels</u>
  - Difficult to manipulate experimentally

Group work

How well you think this model applies to your project?

References

- James F. Sallis (2000). Measuring Physical Activity-Related Environments: A Brief History Active Living Research, San Diego State University

- Sallis, J.F., Owen, N., & Fisher, E.B. (2008). Ecological models of health behavior. Pp. 465-486. In K. Glanz, B.K. Rimer, and K. Viswanath (Eds.), *Health Behavior and Health Education: Theory, Research, and Practice, 4th edition.* San Francisco: Jossey-Bass.

Thank you...