

2014-2015 PSY2012  
Basic Principles of Psychology for Educators

Dr. WAN Lai Yin Sarah

Lecture 1  
The Science of Psychology

## These are some common reasons of many BEd students... what about yours?

- To gain a better understanding of how you came to be the person you are today
- To discover how people learn and explore ways that learning can be enhanced
- To learn how humans develop and grow throughout the entire life span
- To discover how to help people overcome problems and enhance their well-being
- To learn about real-world applications such as reducing stress, boosting memory, and making more accurate decisions
- To gain insight into relationships and communication

# What is Psychology?

- A scientific study of **behavior** and **mental process**
  - Behavior
    - Overt actions and reactions
  - Mental processes
    - Internal, covert activity of the mind
  - Scientific
    - Prevent possible biases that would lead to wrong observations
    - Precise and careful measurement

# Different schools of Psychology

- Structuralism (結構主義)
- Functionalism (功能主義)
- Psychoanalysis (心理分析)
- Behaviorism (行為主義)
- Humanistic perspectives (人本主義學派)
- Cognitive perspectives (認知學派)
- Biological perspectives (生物學派)
- Evolutionary perspectives (進化論學派)
- Gestalt Psychology (完形心理學)
- Sociocultural perspectives (社會文化學派)

# Structuralism (結構主義)

- **Wilhelm Wundt**'s psychology laboratory
  - Germany in 1879
  - developed the technique of *objective introspection*: the process of objectively examining and measuring one's thoughts and mental activities

Father of experimental psychology



# Structuralism (結構主義)

- Structuralism
  - focused on the structure or basic elements of the mind
  - Tried to emulate **physiology** by studying the building blocks of **conscious experience**, called '**atoms of the mind**', and how the '**atoms**' combine to create experience

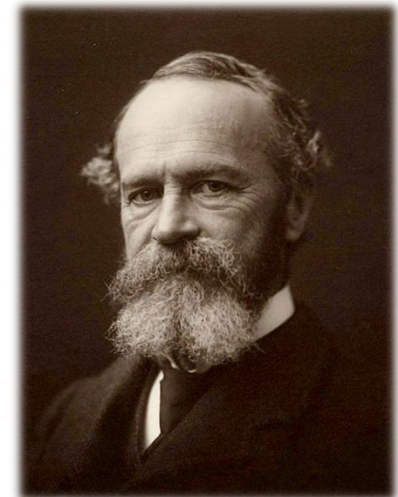
# Objective Introspection

- Study the '**atoms**' by objective introspection (客觀反省);  
i.e, examining how sensations and feelings change by varying the physical properties of objects



# Functionalism (功能主義)

- Functionalism
  - how the mind allows people to adapt, live, work, and play
- Proposed by **William James**
- Influenced the modern fields of:
  - educational psychology
  - evolutionary psychology
  - industrial/organizational psychology



Father of American Psychology  
1842-1910



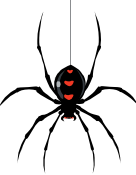
## Functionalism (功能主義)

- Influenced by **Darwinism (達爾文進化論)** & Wundt's introspection method
- Asked not about **structure**, but about the **causes** and **effects** of mental activity; i.e., how mental activities help the organism adapt to the environment

# Example of functional theory

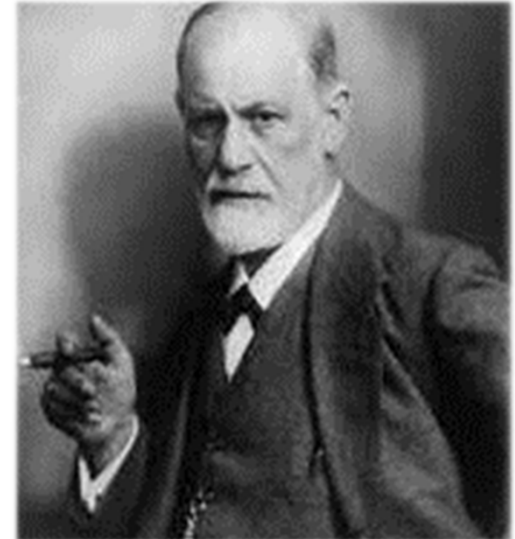
- James-Lange Theory of Emotion
  - Emotion is the interpretation of physiological reactions to external stimuli, e.g., perceiving danger leads to physiological processes involving the sympathetic nervous system which we label as fear, and so we run away or fight

## Example of functional theory

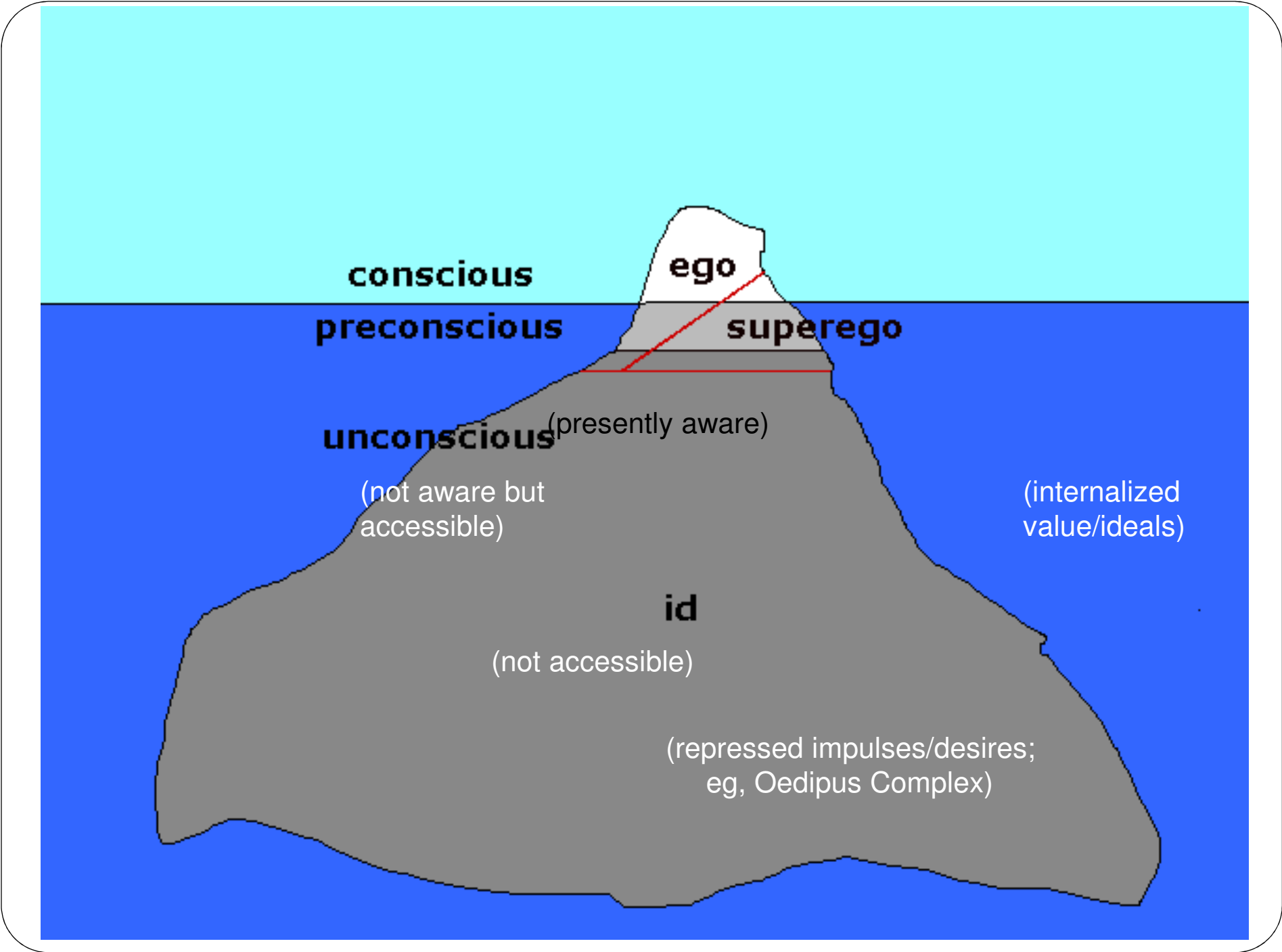
- External stimulus → physiological reaction  
→ emotion → behaviour
- A big spider  → heart beat increase →  
fear → run away/fight
- Applying psychology to different fields,  
e.g, *Lectures to Teachers* (educational  
psychology)

# Psychoanalysis (心理分析)

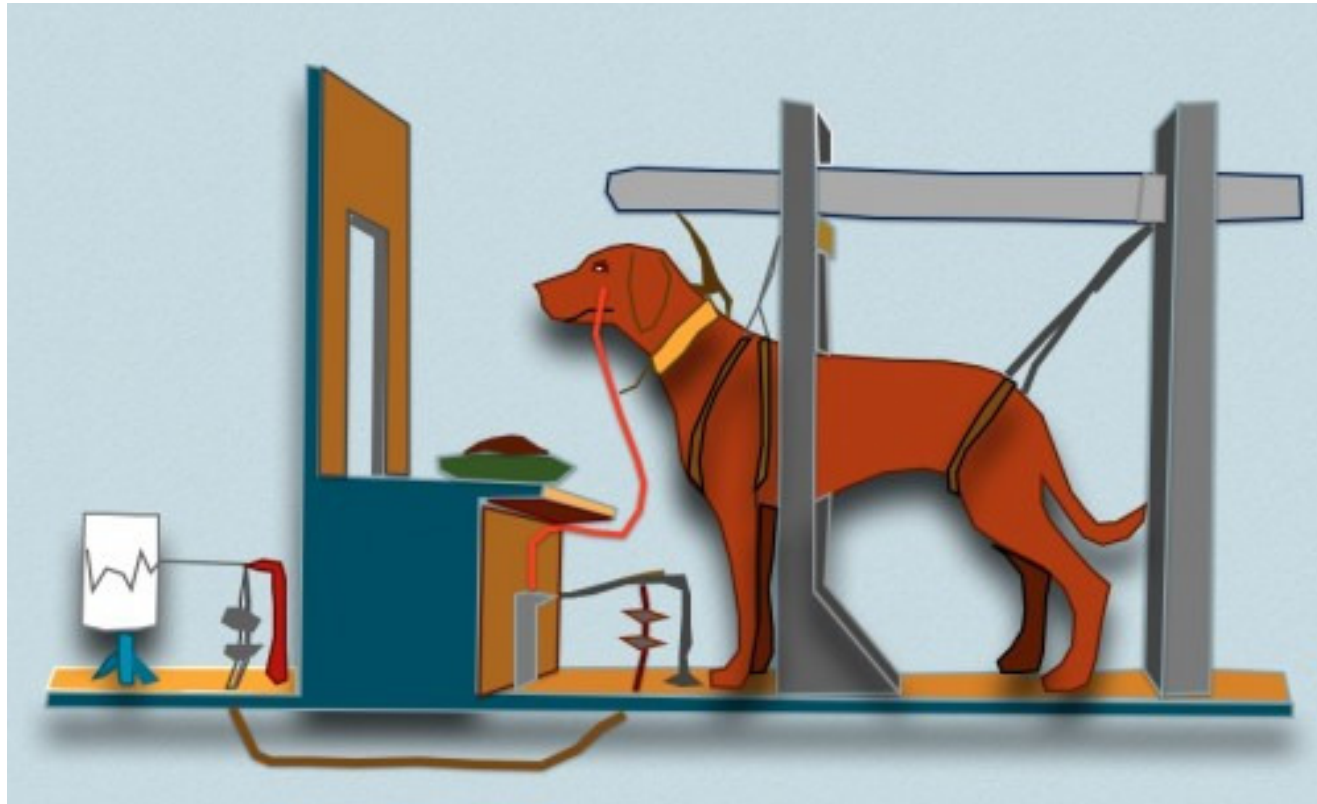
- **Sigmund Freud (弗洛伊德)**
- Freud proposed the existence of an unconscious (unaware) mind into which we push—or repress—our threatening urges and desires
  - Theory developed while treating patients with neurotic disorders
  - Determinism
    - Stressed importance of early childhood experiences and unconscious psychic energies



- Psychodynamic perspective: modern version of psychoanalysis
- more focused on the development of a sense of self and the discovery of motivations behind a person's behavior other than sexual motivations



# Behaviorism (行為主義)



# Behaviorism (行為主義)

- Ivan Pavlov, John Watson & B.F. Skinner
- “science of behavior”
- Focus on **observable behaviors** rather than subjective experience
  - Must be directly seen and measured
  - Present-focused
  - The mind is a ‘black box’

stimuli



**Black box**



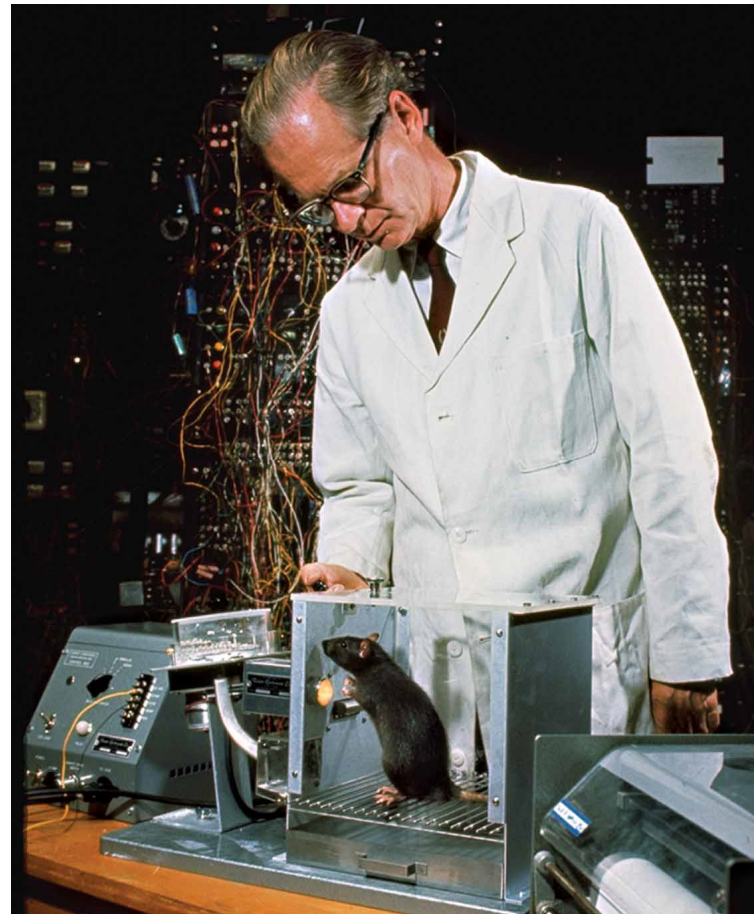
responses



# Behaviorism (行為主義)

- Behaviors are **responses** to environmental **stimuli** & maintained through **reinforcements** (i.e. reward) and **punishments**
- Phobias (i.e. response) may be learned through repeated association (a form of training) with threatening stimuli, and subsequently maintained because avoiding the stimuli is rewarding
- Little Albert

Behaviorist **B. F. Skinner** puts a rat through its paces.  
What challenges might arise from applying information  
gained from studies with animals to human behavior?  
*Courtesy of Nina Leen/Time Life Pictures/Getty Images*



# Behaviorism (行為主義)

- Deterministic and reductionistic
- The famous twelve infants quote (John Watson):  
*“Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select – doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors.”*

# Other Perspectives

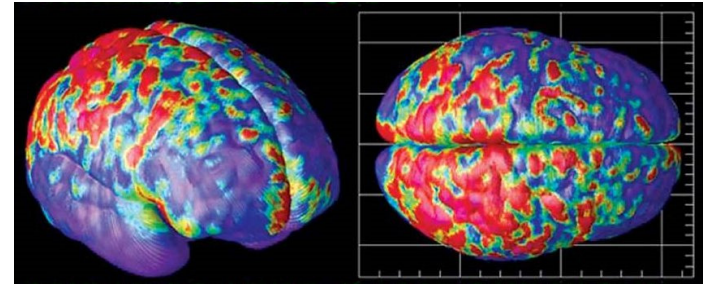
## **Humanistic perspectives (人本主義學派)**

- Abraham Maslow, Carl Rogers
- Free will
- Self-actualization
  - Achieving one's full potential or actual self

## **Cognitive perspectives (認知學派)**

- Focus on memory, thoughts, intelligence, perception, and problem-solving; the 'black box' as characterized by behaviorism

# Other Perspectives



## **Biological perspectives (生物學派)**

- Behavior is a result of biological events in the body; e.g, genetic influences, hormones, and activities of the nervous system

## **Evolutionary perspectives (演化論學派)**

- Focus on the survival and adaptation values of traits and behaviors; i.e, natural selection
- E.g, men & women differ in choosing partners because...

# Other Perspectives

## **Gestalt Psychology (完形心理學)**

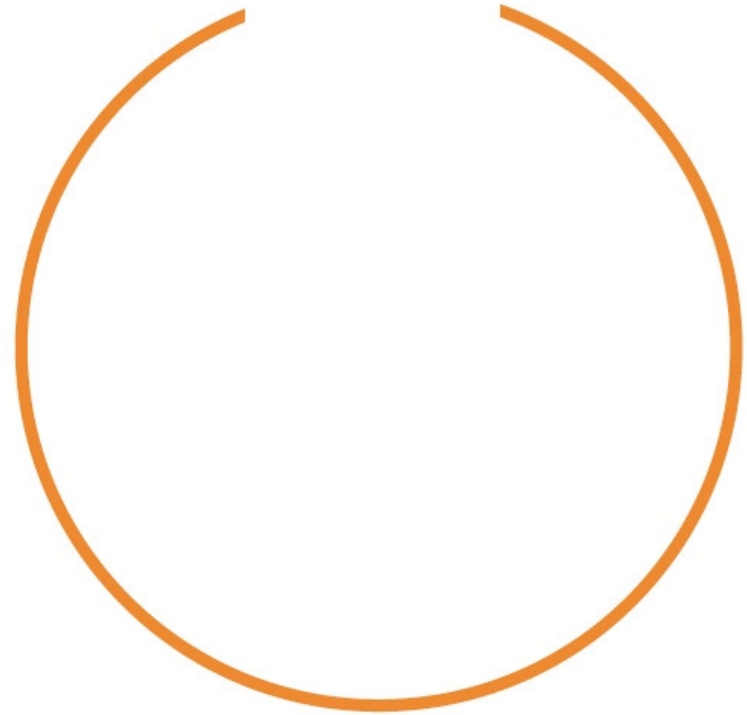
- Gestalt = organized whole; “the whole is larger than the sum of the parts”
- Perception and thoughts are influenced by a tendency to find patterns and completeness

## **Sociocultural perspectives (社會文化學派)**

- Environment, SES (socio-economic status), neighborhood, access to education and health care, etc
- Person-environment fit

## Gestalt Perception

The eye tends to “fill in” the blanks here and sees both of these figures as circles rather than as a series of dots or a broken line.



# What is Psychology?

- A scientific study of **behavior** and **mental process**
- Psychology is a Science
  - Prevent possible biases from leading to faulty observations
  - Precise and careful measurement

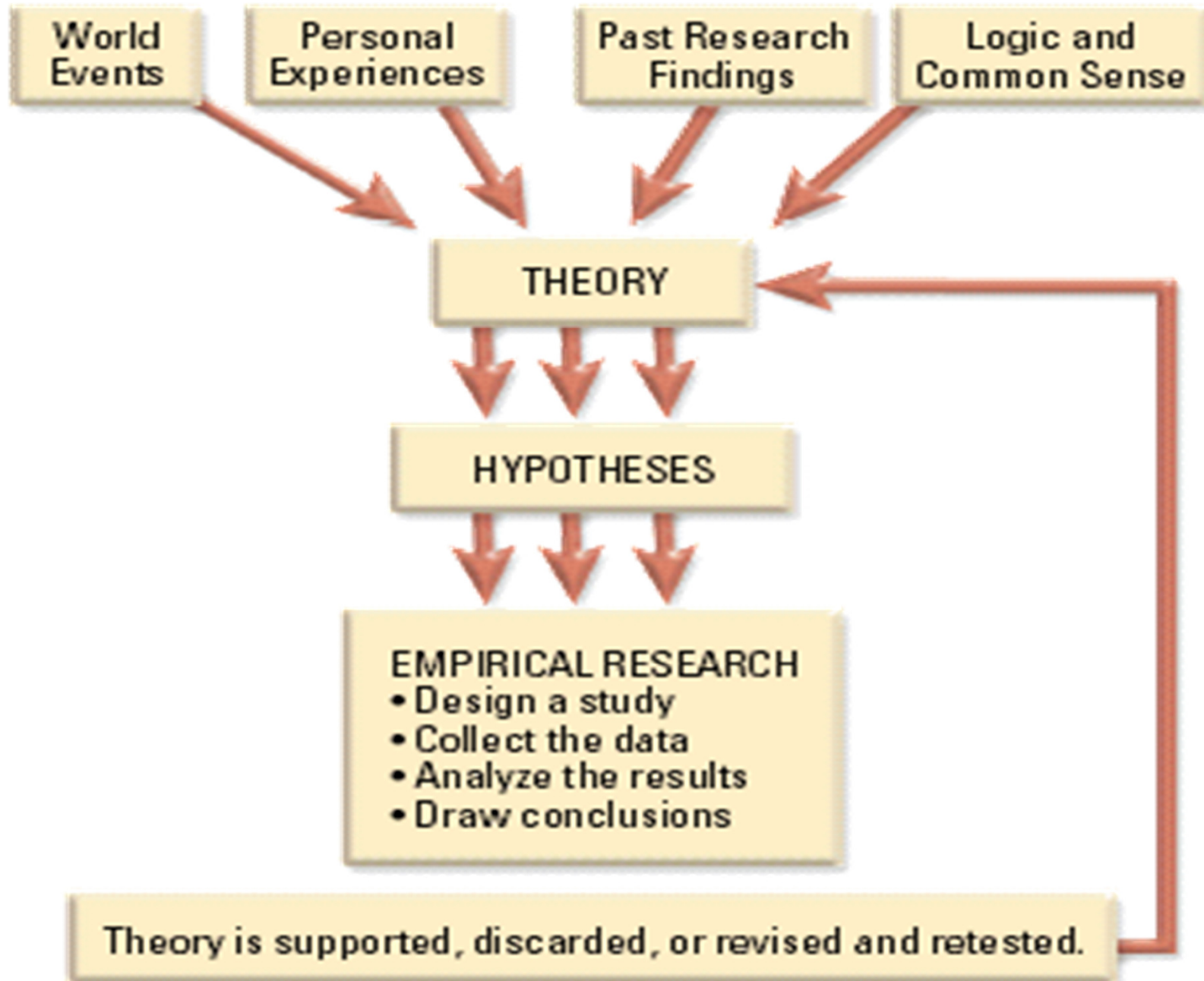


# Psychology and the Scientific Method

- Scientific method
  - system of gathering data so that bias and error in measurement are reduced

# Psychology and the Scientific Method

- Steps in the Scientific Method:
  1. Perceive the question
  2. Form **hypothesis** (假定)
    - Tentative explanation of a phenomenon based on observations
  3. Test the hypothesis
  4. Draw conclusions
  5. Report results
    - Allows for replication
    - Demonstrate reliability of results



# Observational study

- Focus only on things that are observable
  - Watch how animals or humans behave in laboratories or in their normal environments (naturalistic observation; advantage: realistic)
  - Child psychologists rely a lot on observation studies because children can't express well
  - Inter-rater reliability: would two people seeing the same behavior interpret it in the same way?

The researcher in the foreground is watching the children through a one-way mirror to get a description of their behavior. Observations such as these are just one of many ways that psychologists have of investigating behavior. Why is it important for the researcher to be behind a one-way mirror? *Photo credit Jeff Greenberg/The Image Works*



# Correlational study

- Correlation
  - Measure of the relationship between two variables
- Variable
  - Anything that can change or vary
  - Example: skin color, academic performance, height, income, health

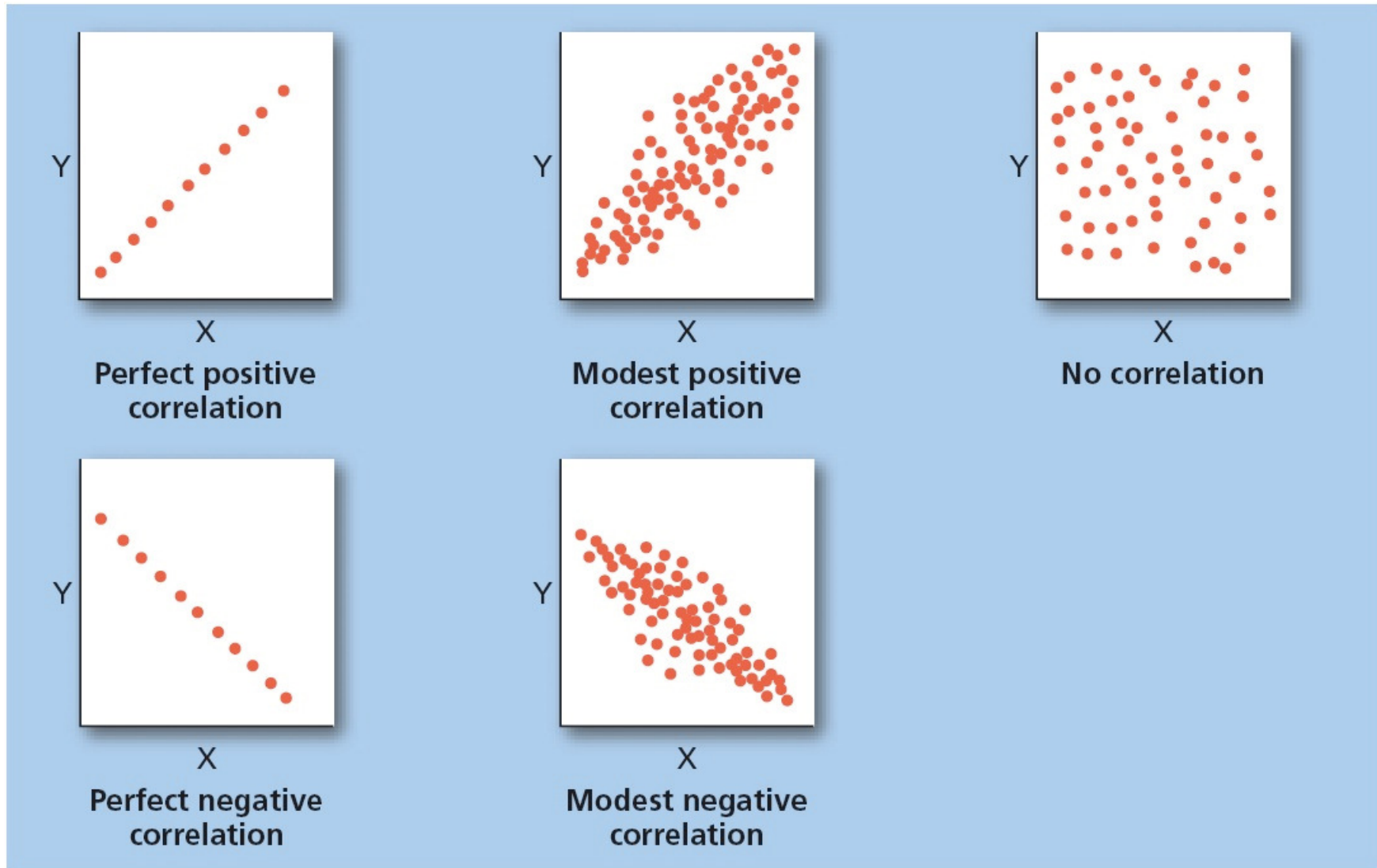
# Correlational study

- Positive correlation
  - Variables are related in the same direction
    - As one increases, the other increases ↑↑
    - As one decreases, the other decreases ↓↓
- Negative correlation
  - Variables are related in opposite directions
    - As one increases, the other **decreases** ↑↓
    - As one decreases, the other **increases** ↓↑



**These scatterplots show direction and strength of correlation.**

It should be noted that perfect correlations, whether positive or negative, rarely occur in the real world.





# Correlation ≠ Causation

- *Correlation does not prove causation*
- *Example: Black children generally do less well in school than White children, but this is not due to their skin color*
- Confusing correlation with causation can lead to unnecessary bias and prejudice

- ↓Family income      ↑sickness

***less medical service***

- What is the implication for teaching ethnic minorities in HK?

# Experimental Study

- Allows researchers to determine cause and effect
- Deliberate manipulation of variables
- Holding constant other variables
- Example: does music improve learning performance in primary school students?

# Features of the Experiment

- **Operational definition**
  - In the example, how do we define “learning performance”?
- **Independent variable (IV)**
  - Variable manipulated by experimenter
  - e.g, listening to music before class or not
- **Dependent Variable (DV)**
  - Represents measured response of the experimental manipulation
  - e.g, the quiz score of students

# Features of the Experiment

- **Experimental Group**
  - Receives the manipulation
  - e.g, students that listen to music before class
- **Control Group**
  - Not subjected to the independent variable
  - Controls for other factors (confounds) that may affect the outcome
  - e.g, students attending the same classes but without listening to music
  - Placebo: pretending to treat (but without active treatment ingredients); used a lot in medical & psychotherapy outcome research

# Ethics in Psychological Research

- Common ethical guidelines:
  1. Rights and well-being of participants must be weighed against the study's value to science
  2. Participants must be allowed to make an informed decision about participation.
  3. Deception must be justified
  4. Participants may withdraw from the study at any time
  5. Participants must be protected from risks or told explicitly of risks
  6. Investigator must debrief participants, telling the true nature of the study and expectations of results
  7. Data must remain confidential

# Professional Fields in Psychology

- **Educational Psychologist**

- Qualification: a master/doctorate degree in educational psychology
- Job nature: helping children or young people with learning or psychological problems and conducting psychological tests (i.e. IQ test) in educational settings

- **Clinical Psychologist**

- Qualification: a master/doctorate degree in clinical psychology
- Job nature: helping people with psychological disorders, conducting psychological assessment and psychotherapy

# Professional Fields in Psychology

- **Counseling Psychologist**

- Similar to clinical psychologists but with more emphasis on practicing counseling in the community setting (i.e. universities) rather than in the clinical setting (hospitals)

- **Industrial-organizational Psychologist**

- Work in companies or organizations to enhance the satisfaction and productivity of employee