

Ch. 2: Creative Ideas and Working Hypotheses



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"Discovery Phase" of Science

- Scientist as "Christopher Columbus"
 - Who is Columbus?
 - Put yourself to Columbus



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"Discovery Phase" of Science

- Scientists discover new knowledge
- Discovery Phase of Scientific Inquiry
 - Idea generation
 - Literature search
 - Define concepts and variables
 - Study design
 - Implementation plan

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"Justification Phase" of Science

- Must provide principled rationale for:
 - Plan of study
 - Data analysis
 - Conclusions

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"Discovery Phase" of Science

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"Discovery Phase" of Science

- Idea Generation
 - Where to find ideas?
 - Where to find interesting research questions?
- Psychology is about human behavior
- Behavior is in everywhere
 - We should keep our eyes, ears and minds open

"Discovery Phase" of Science

- E.g.: Infantile Autism
 - (Also called autism.) A spectrum of neuropsychiatric disorders characterized by deficits in social interaction and communication, and unusual and repetitive behavior.
 - http://www.youtube.com/watch?v=2v4Pt_tgIpU&feature=related

"Discovery Phase" of Science

- E.g.:
 - Clinical Psychologist Leo Kanner (1943) was working with disturbed children
 - Noticed a similarity in behavior of some children
 - He called this syndrome (a set of symptoms) as infantile autism.
 - Discovery of Infantile Autism

Hypothesis

- Research Hypotheses

A *hypothesis* (plural: *hypotheses*) is

 - a tentative explanation for a phenomenon, and
 - is often stated in the form of a prediction together with an explanation for the prediction.

Hypothesis

- Examples of hypotheses:
 - Research participants who play violent video games are *predicted* to behave **more** aggressively after exposure than participants who passively view television violence
 - because*
video game participants' aggression is reinforced (rewarded) while playing the game.

Hypothesis

- Examples of Hypotheses (*continued*)
 - Research participants who play violent video games are *predicted* to behave **less** aggressively after the exposure than participants who passively view television violence
 - because*
video game participants have the opportunity to release any aggressive impulses; passive television viewers do not have the opportunity during exposure.

Hypothesis-Generating Heuristics

- **Intensive case study**
- Paradoxical incidents
- Analogies, metaphors, and imagery
- Conflicting results
- Improve old ideas
- Serendipity
- Varied replication

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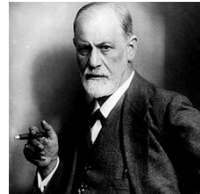
Hypothesis-Generating Heuristics

- Intensive case study
 - In-depth examination
 - E.g., Freud and psychoanalysis
 - Dou you know who Sigmund Freud is?

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Sigmund Freud

- Father of psychoanalysis
- The great question that has never been answered, and which I have not yet been able to answer, despite my thirty years of research into the feminine soul, is "What does a woman want?"



Hypothesis-Generating Heuristics

- Intensive case study
 - In-depth examination
 - E.g., Freud and psychoanalysis
 - Dou you know who Sigmund Freud is?
 - Free Association Method => Freud's psychoanalytic ideas
 - **Discovers** psychological basis of neurotic symptoms

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Hypothesis-Generating Heuristics

- Intensive case study
 - Used in
 - Educational research
 - Policymaking
 - Organizational and management analysis
 - City and regional planning
 - Single-case experimental research

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Hypothesis-Generating Heuristics

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Hypothesis-Generating Heuristics

- Paradoxical incident
 - A seemingly contradictory event
 - E.g., Diffusion of responsibility
 - Latane & Darley (1964)
 - 28-year old nurse stabbed
 - More than 50 neighbors heard her screams and came their windows
 - No one helped, no one called the police
 - This event lasted about 1/2 hour

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Hypothesis-Generating Heuristics

- Paradoxical incident
 - Why so many people failed to intervene.
- Latane & Darley (1964)
 - “Diffusion of responsibility”
 - Hypothesis: The more bystander witnesses to an emergency, the less likely it is that any one of them will offer help

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“Diffusion of responsibility”

- Hypothesis: The more bystander witnesses to an emergency, the less likely it is that any one of them will offer help
- Experiment: Latane & Darley (1970)
- http://www.youtube.com/watch?v=hUiA0SoF_xGA