

Lecture Outline Schemas Part 1

- Bottom up vs. Top Down Processing
- Schemas
 - Definition
 - Functions
 - Activation
 - Structure

Bottom-Up Processing

Definition: Processing of information that is driven by individual features of stimuli.

Example: putting a puzzle together, not knowing what the picture will be.

Top-Down Processing

Definition: Processing of information that is driven by past knowledge and experience.

Example: putting a puzzle together, knowing what the picture will be.

Schemas

Definition: Mental representations of knowledge.

- Preconceptions
- Theories
- Expectations

Schemas

- Schemas contain two kinds of knowledge

1. Attributes

- Birds: wings, eat worms, fly
- Women: nurturing, emotional, take care of children

2. Relations among attributes

- Birds can fly because they have wings
- Taking care of children makes women nurturing

Schemas

- Schemas do not have to be veridical (accurate).

- Example: Stereotypes are a kind of schema and stereotypes are sometimes inaccurate.

Functions of Schemas

General Function: Help people understand incoming stimuli

Specific Functions:

- categorize new instances
- infer additional attributes
- guide interpretation and attention

Function 1: Categorize New Instances

- People classify new instances into categories
- Schemas provide information about the features shared by category members

Function 2: Infer Additional Attributes

- After categorization, people infer features from schema attributes

Categorization:

Inference:

Function 2: Infer Additional Attributes

Warm-Cold Study: Asch (1946)

Purposes:

- Demonstrate that some traits have stronger affect on inferences than others
- Demonstrate how people make inferences from person schemas

Warm-Cold Study: Asch (1946)

Procedure:

- Participants heard description of person
- Participants made inferences about person by selecting one trait from trait pairs
 - » generous - ungenerous
 - » shrewd - wise
 - » dishonest - honest
 - » frivolous - serious

Warm-Cold Study: Asch (1946)

Description Content:

- intelligent
- skillful
- industrious
- ----- (cold vs. warm) ← Manipulation
- determined
- practical
- cautious

Warm-Cold Study: Asch (1946)

Hypothesis: Manipulation of Warm-Cold have large effect on inferences

Results:

	Trait List	
	Warm	Cold
generous	91%	8%
good-natured	94%	17%
sociable	91%	38%

Warm-Cold Study: Asch (1946)

Hypothesis: Manipulation of Polite-Blunt will have weaker effect on inferences than Warm-Cold

Results:

	Study 1		Study 2	
	Warm	Cold	Polite	Blunt
generous	91%	8%	87%	33%
good-natured	94%	17%	91%	55%
sociable	91%	38%	91%	55%

Warm-Cold Study: Asch (1946)

Conclusions:

- Some traits are central in one's schema (w-c), others are peripheral (p-b)
- People use schemas to make inferences

Function 3: Guide Interpretation and Attention

Schemas enable people to interpret ambiguous events

- Crying = Mourning at a funeral
- Crying = Joy at a wedding

Function 3: Guide Interpretation and Attention

Stereotypes

One kind of schema that people use to interpret ambiguous events

Racial Bias Study: Sagar & Schofield (1980)

Purpose: Demonstrate that stereotypes bias interpretation of ambiguous events

Participants: 40 African American; 40 White

Racial Bias Study:
Sagar & Schofield (1980)

Procedures

Participants presented with four ambiguous drawings:

- bumping
- requesting food
- poking
- taking a pencil

Racial Bias Study:
Sagar & Schofield (1980)

Procedures

Participants rated actor's behavior as.....

- mean
- threatening
- playful
- friendly

Racial Bias Study:
Sagar & Schofield (1980)

		Actor Race	
		African American	White
Participant Race	African American		
	White		

Racial Bias Study:
Sagar & Schofield (1980)

Subject	Actor	Mean & Threatening
White	W	8.28
	AA	8.99
African American	W	7.38
	AA	8.40

Conclusion: White and African American participants rated identical behavior as more mean and threatening when actor was African American. Schemas influence the interpretation of events.

Washing Clothes Study:
von Hippel et al. (1993)

Background: Schemas facilitate memory

- Direct attention to relevant information
- Direct attention away from irrelevant information

Purpose of Study:
Challenge existing thought--Can schemas inhibit memory?

Washing Clothes Study:
von Hippel et al. (1993)

Hypothesis: Schemas inhibit memory overall, but enhance retrieval of schema-relevant info

- Without schema: People encode more info but have worse retrieval
- With schema: People encode less info but have better retrieval -- schema acts as cue.

Washing Clothes Study:
von Hippel et al. (1993)

Step 1: Participants (n = 24) read scenario.

Manipulation: Schema activation

- 1/2 participants given title: Washing Clothes
- 1/2 participants not given title

Step 2: Completed Word Fragments:

- Words from scenario, but multiple answers
- e.g., c o m _____ complicated communicate

Washing Clothes Study:
von Hippel et al. (1993)

Dependent Variable:

- Number of word fragments solved with words from scenario
- Better memory = more word fragments solved with words from scenario

Washing Clothes Study:
von Hippel et al. (1993)

	# word fragments solved with words from scenario
Given title	19
Not given title	22

Conclusion: Schemas can inhibit memory

Schema Functions 4 & 5:

Function 4: Schemas aid communication

- schemas fill in details

Function 5: Schemas aid reasoning

- can combine existing schemas to help understand conflicting information

- e.g., Harvard Educated Carpenter

Schema Activation

1. Salience:

- salient schemas activated before less salient schemas

Schema Activation

2. Priming:

- Recently or frequently primed schemas activated before less recently or less frequently activated schemas

Primes: Environmental cues
e.g., a bed primes thoughts of sleeping

Priming Study:

Gilbert & Hixon (1991)

Purpose:

- a) show that primes can activate schemas (stereotype)
- b) show that activation requires cognitive resources

Priming Study:

Gilbert & Hixon (1991)

Participants: Female participants (n = 71)

Procedure:

- Watched video
- Experimenter showed cards with word fragments on them
- Participants completed word fragments

Priming Study:

Gilbert & Hixon (1991)

Manipulations:

1. Activation of Asian Stereotype
 - Yes: Experimenter Asian
 - No: Experimenter Caucasian
2. Cognitive business
 - Busy: Rehearsed 8 digit number during video
 - Not Busy: Did not rehearse number during video

Priming Study:

Gilbert & Hixon (1991)

Word Fragment Task:

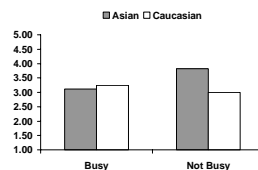
- Word fragments had multiple correct answers, one that was associated with Asians

S _ Y
S _ O R T
R _ C E
P O L I _ E
N _ P

- Dependent variable: # Asian word completions

Priming Study:

Gilbert & Hixon (1991)



Conclusion:

Primes can activate schema, if people have sufficient cognitive resources

Schema Activation

3. Chronic Accessibility:

- Chronically accessible schemas used more than others
- Individual differences
 - self-defining
 - important to one's self-concept

Schema Activation

4. Goals:

- People's goals influence which schemas are activated

Feedback Study:

Fein & Spencer (1997)

Purpose: To show that goal to bolster self-esteem activates negative stereotypes

- Step 1: Intelligence test
- Step 2: Feedback
- Step 3: State Self-Esteem scale
- Step 4: Evaluate job applicant
- Step 5: State Self-Esteem scale

Feedback Study:

Fein & Spencer (1997)

Manipulations:

Feedback:

- positive (93rd %)
- negative (46th %)

Schema Activation

- Job applicant = Jewish
- Job applicant = Italian

Feedback Study:

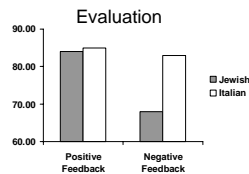
Fein & Spencer (1997)

Hypotheses:

- In positive feedback condition:
 - Jewish and Italian applicant judged similarly
- In negative feedback condition:
 - Jewish applicant judged less favorably
- Denigrating Jewish applicant raises self-esteem

Feedback Study:

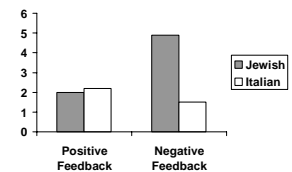
Fein & Spencer (1997)



Feedback Study: Fein & Spencer (1997)

Fein & Spencer (1997)

Change in Self-Esteem



Structure of Schemas

Classical View:

There is a set of necessary and sufficient attributes needed for an instance to belong to a schema

Classical View: Assumptions and Limitations

Assumption 1: Schemas have clear-cut boundaries

Limitation 1: Difficulty specifying defining features of instances

Classical View: Assumptions and Limitations

Assumption 2: All instances equally typical

Limitation 2: Not all members perceived as equally typical

Classical View:
Assumptions and Limitations

Test of Assumption 2: All instances equally typical

Eleanor Rosch

- Typicality ratings
- Reaction times
- Production of examples

Classical View:
Assumptions and Limitations

Assumption 3: Categorization of new instances simple

Limitation 3: Not all new instances are easily categorized

Probabilistic View of Schemas

Probabilistic View

- Prototype Model
- Exemplar Model

Schema

- list of typical features
- no feature necessary or sufficient
- family resemblance

Probabilistic View of Schemas

Process of Categorization

- Compare features of instance to fuzzy set of features
- Similarity = number of features an instance shares with group members
- Hi similarity = categorization as group member

Probabilistic View of Schemas

Addresses Limitations of Classical View

- Schemas do not have clear-cut boundaries
- Group members vary in typicality
- Categorization of new instances can be difficult

Prototype Model

Schemas represented as list of typical features (a prototype).

Prototype = list of features that are typical of group members

Example: Bird

- has feathers
- lives in nest
- eats worms, etc.

Prototype Model

Process of categorization:

- Match features of a new instance to prototype.
- High similarity = categorization as group member

Exemplar Model

Schemas represented as groups of specific instances (exemplars).

Exemplar = specific group members

Bird:

- robin
- crow
- hummingbird

Exemplar Model

Process of categorization:

- Match features of a new instance to exemplar.
- High similarity = categorization as group member

Impact of Probabilistic View

DSM II:

Depression: "an excessive reaction of depression due to an internal conflict or to an identifiable event such as the loss of a love object or cherished possession"

Impact of Probabilistic View

DSM IV-R:

Depression: depressed mood for 2 years plus 2 additional symptoms

- insomnia
- appetite loss
- fatigue inability to concentrate
- low self-esteem
- loss of pleasure in activities
- restlessness

Criticisms of Probabilistic View

Criticism 1: What features to match on

- Any instance can match any other instance on some features

Criticisms of Probabilistic View

Criticism 2: People have theories about relation among features

- Birds have wings and fly
- Also know that birds fly because they have wings

Raccoon Study:

Keil, 1989

Purpose: Demonstrated that children do not categorize on basis of feature matching alone

Raccoon Study:

Keil, 1989

Children still believed that the "skunk" was a raccoon

Conclusion: People do not engage in simple feature matching as prototype and exemplar model propose

**Exam 1 Next
Thursday**