

EXP3604C Exam 3 Notes

10/25

Imagery- relationships between different parts preserved in the mind

Mental representation of something physical, which is usually not present

Uses top-down processing since the senses are not being used

Also called imagination...not the same as pictures

Used for visual perception, anticipation, tracking, mental transformation and rotation

Galton: imagery is subjective...meaning must be picked out of self-reports, which are unreliable

Roger Shepard: can look at imagery use by measuring time it takes for someone to think it through

Mental rotation- similar to physically rotating object

More rotation needed = more time taken

Shepard + Metzler's experiment

See letters rotated to different angles

1 degree of rotation = 60 milliseconds of imagery

Showed that imagery can be studied with objective standard/measurement

Kosslyn's experiment

See object, asked about the either the side that was being focused on or the one that was not

If asked about side that wasn't focused on, subject had to scan over to it

Scan to the other side = most time taken

Kosslyn + Ball experiment

Study map, must scan from one landmark to another

More distance between landmarks = more time taken

Kosslyn's experiment

Imagine rabbit next to either a bee or an elephant, then picture rabbit's nose

Next to elephant = more time taken to "zoom in"

Imagery and perception can either interfere with or boost physical vision

Eyes follow same pattern when seeing physical object or imagining it

Area of brain that works with physical sight also works with mental imagery

Handles visuals in general

Visual neglect- ignoring half of the visual field

Ex: paying attention to only one side of a picture

Kosslyn's Theory of Perception and Imagery

Images are activated in the occipital lobe

Attention to a given detail leads to it being processed more

Visual heuristics same time and energy

Imagining objects on a map to be closer to 90 degrees than they actually are

Same for symmetry, alignment (being lined up), rotation/tilting (being straight)

Cognitive map- mental map of town, etc

Mental representation of physical environment, landmarks, locations

Works with relationships between objects, not with images of objects themselves

Roads next to Tennessee, stores close to Publix, etc

Spatial cognition- interpretation, processing and storage of 3D information

Analog Code Theory- mental representations closely mirror physical objects

Shepard + Metzler's experiment showed mental rotation is like physical rotation

Pavio's experiment

Asked to imagine hands of analog clock at different times

10/25 cnt'd

Had to determine at which of the times the hands had the smallest angle between them
Similar angles = longer time to determine answer

Segal + Fusella experiment

Told to imagine something either visual or auditory

Exposed to visual or auditory physical stimulus

Imagery and stimulus both visual/auditory = harder to detect stimulus

Mental images and physical stimuli interfere

Propositional Code Theory- mental representations are abstract language, don't resemble actual object

Reed: Star of David contains a parallelogram

It does have the shape, but most people store image as a star + can't think of it that way

Chambers + Reisberg: the ambiguous rabbit/duck

Has few details and easy to see, but hard to interpret into mental image

Imagery is hard to study

Cannot objectively see mental representations so must rely on self-reports

Subjective, easily incorrect or misleading because people are fallible/don't understand

10/30

Category- group of physical things that have traits in common and belong together

Ex: dogs

Exemplar- a physical instance or example of a category

Ex: an actual dog

Concept- mental representation of a category, ideas about objects

Ex: what you think dogs are like

Used to predict exemplars, reason, communicate ideas with others

We use concepts because of how we are designed

Cannot treat everything as completely distinct and unique, so we group them with others

Categorizing things into concepts is useful and efficient, saving time and effort

Do we have the concepts that we do because they exist outside ourselves, or because we made them up?

Concepts come to mind at different times for many reasons

Context makes you notice a certain concept

Priming makes a give concept more likely to come to mind

Stimuli make you have to actively use concepts

Goals make you tend to notice things that would lead to your desired outcome

Chronic accessibility (thinking about something all the time) keeps a concept always in mind

Med student syndrome is partly because they are primed to think of diseases

Concepts effect interpretation of events

Classical view- concepts are based on necessary and sufficient traits

Ex: bachelor = unmarried adult human male

Ex: chair = four legs, back, seat? What about stools?

Classical view does not work because some items have fuzzy boundaries

Typicality effects- degree to which item is seen as model example of a category

Greater degree = faster categorization into category

When asked to give examples of category, typical examples given before atypical ones

Ex: fruit = apples, pears, bananas [...] kumquats, starfruit, dragonfruit

Works like family resemblance

Probabilistic view- items have certain features that make them more or less likely to be in category

10/30 cnt'd

Feature comparison model- concepts are stored based on features

Characteristic features- not necessary, descriptive features

Defining features- necessary

Uses typicality effect

Prototype approach- categorize items by comparing them to mental model of a category

Prototype- the most representative/typical item in a category, the ideal example

Assigns item different levels of categorization

Superordinate- vague/abstract (ex: vehicle)

Subordinate- specific (ex: Jeep)

Basic- in the middle (ex: car)

Prototype theory- concept represented by prototype, compare exemplar with prototype

Ex: imagine the model dog, compare a new dog you see with that model

Rosch's idea

Exemplar theory- concept represented by previous exemplars, changes to fit new exemplars

Ex: have idea of what dogs are based on all dogs you've ever seen

Works better than Prototype theory

Would require a lot of memory to store all examples ever seen

Rules and exemplars

Rules- predetermined categories, say how to sort different objects based on required details

Are insufficient

Object may fit category but not fit rule exactly, be missing traits

Exemplars of category are necessary to understand what fits in category

Ex: Med students read description of disease but need pictures to understand better

Theory view- theories are what guide use of categories and concepts

Ex: apples and cars are seen as very different even though they do have some things in common

They both are physical objects, have color, obey the law of gravity...

The difference in how we use them determines what categories they fit into

Concepts are not represented by visible traits or similarities

Theories/ideas say what features to look at in order to categorize objects

Murphy + Medin's idea

Gelman + Markman experiment

Toddlers look at drawings of flamingos, bats and blackbirds (which look just like the bats)

Told that flamingos lay eggs and bats give birth, asked which one blackbirds do

Most said they lay eggs

People follow their biological categories instead of physical appearance

People believe that a basic essence determines what category it's in

Even if evidence of belonging to category is not visible or obvious

Keil experiment

Asked if a raccoon that was painted to look like a skunk was still a raccoon

People said yes

Asked if a coffeepot that was being used as a birdfeeder was still a coffeepot

People said no

The basic essence idea only works with biological life