

Sense of Self

IIE 366: Developmental
Psychology
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Lectures 25-26

Self awareness

- Adults have the impression of a *self*
- Physical body
- Psychological experiences
- Conscious awareness
- Continuity through time

Development

- Very young children do not seem to have a sense of self in the same way as adults
 - ♦ More next time
- This seems surprising because our sense of self is such a natural part of who we are
- However, in many respects it is the adult sense of self that is surprising
 - ♦ In some respect the sense of self is an illusion

Illusion of self

- Split brain studies
- Consciousness
- Phantom limbs
- Pinocchio illusion
- Crossed hands illusion
- Rubber hand illusion

Split brains

- Your brain is divided into left and right hemispheres
- Neural fibers connect the hemispheres
- Sometimes cut the connections to control cases of epilepsy
- Surprising effects
 - ♦ <http://kr.youtube.com/watch?v=ZMLzP1VCANo>

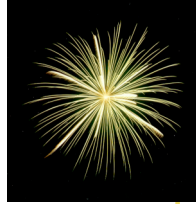


Split brains

- So different parts of the brain have different ideas about what is seen
 - ♦ Most normal brains do not have this problem because the connections between the hemispheres are not severed
- Is a split brain person a single "self"
 - ♦ What if they describe something out loud so that both hemispheres "know" it
 - ♦ Can "self" occur for some things and not others?

Consciousness

- When does a person “know” something?
- Suppose you see an fireworks explosion
- At what moment can you say that you have seen it?
 - When the firework explodes?
 - When the light hits your eye?
 - When the information goes to your occipital cortex?
 - When the information goes to your language centers?
 - When you say, “Cool!”?



Consciousness

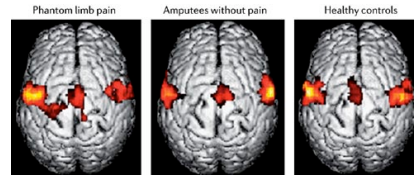
- No moment seems appropriate because processing in the brain is distributed across both space and time
- There no “moment” of awareness because there is really no “you” that has such awareness
- Different parts of the brain know different things at different times

Phantom limbs

- We have a strong impression of our body as being separate from the rest of the world
- However, our understanding of what corresponds to our body is more flexible than you might suspect
- Amputees often report feeling their missing limb
 - Pain
 - Heat
 - Gestures

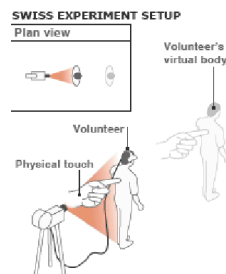
Phantom limbs

- The brain reorganizes its representation of body parts
- Brain scan during a lip pursing task
 - Brain areas that would normal represent the missing limb are active during the lip pursing task



Out of body experiences

- The brain reorganizes its representation of body parts
- Brain scan during a lip pursing task
 - Brain areas that would normal represent the missing limb are active during the lip pursing task



Pinocchio illusion

- You can distort your perception of your own body
- 1) Stimulate the upper tendon of your bicep with a vibrator. This gives the illusion that your arm is straightened (due to stimulation of muscle spindles in the tendon).
 - Place that hand on your nose and close your eyes. When the arm appears to straighten due to the vibration, your nose appears to grow.
- 2) Have a friend sit in front of you and place your right hand on their nose. Place your left hand on your nose.
 - Close your eyes. Move both hands together in a variety of movements. Your nose will appear to grow to the length of your right hand.

Crossed hands illusion

- Much of your awareness about your body comes from visual information
- Even with normal tactile information, confusing visual perception of fingers can lead to incomplete control of your fingers
- Similar to trying to complete a task while looking in a mirror

Rubber hand illusion

- <http://kr.youtube.com/watch?v=TCQbygjG0RU>
- Your sense of what corresponds to your own body depends on continuous visual and tactile feedback
- Messing up that feedback can change your perception of identifying what counts as your body



Demonstrations

- We're going to try to demonstrate
 - Pinocchio illusion
 - Crossed hands illusion
 - Rubber hand illusion
- Everyone needs one partner.
- As you complete each illusion, answer the questions to get homework credit.
 - Hand the sheet in at the end of class.

Next time

- Development of sense of self