

This talk is designed to provide:

- an introduction to the discipline -- what I would like students to know coming out of introductory psychology
- recommended reading and resources -- through general references initially; specific references and names later on

Evolutionary psychology is...

- A functional approach to the study of human thought and behavior

Cosmides, L., & Tooby, J. (1997). *Evolutionary psychology: A primer*. UCSB Center for Evolutionary Psychology. Online at: <http://www.psych.ucsb.edu/research/cep/primer.html>

A functional approach

“Is it not reasonable to anticipate that our understanding of the human mind would be aided greatly by knowing the purpose(s) for which it was designed?”

-George C. Williams, 1966

Dawkins, R. (1989). *The selfish gene* (new edition). New York, NY: Oxford University Press.

Evolutionary psychology is...

- The use of evolutionary principles, namely selection, to understand the core elements of human nature.

- Natural selection
- Sexual selection

Differential reproductive success because of heritable variants

* Selection → adaptation (complex design)

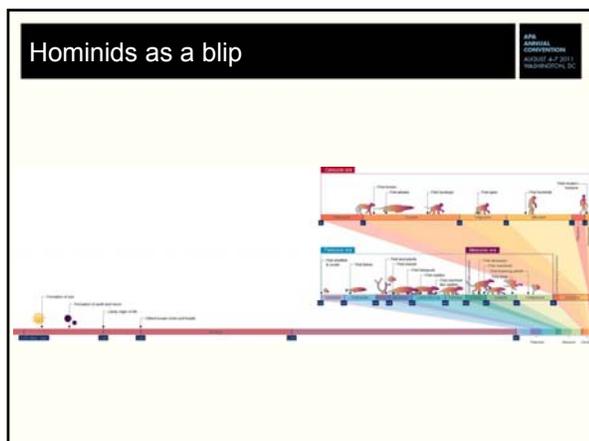
Buss, D. M. (2008). *Evolutionary psychology: The new science of the mind* (3rd ed.). Boston, MA: Allyn & Bacon.

Two givens

1. Human bodies *and brains*, like those of any other species, are the product of a long evolutionary history

- Deep time
- Evolutionary heritage

Dawkins, R. (2009). *The greatest show on Earth: The evidence for evolution*. New York, NY: Free Press.



Two givens

1. Human bodies *and brains*, like those of any other species, are the product of a long evolutionary history

- Deep time
- Evolutionary heritage

2. (Within a lifespan) The human body and brain, like those of any other species, develop in the context of their environments

- Internal, familial, local, cultural, ecological

Ridley, M. (2003). *Nature via nurture: Genes, experience, and what makes us human*. New York, NY: Harper Collins.

In the context of environments

- The fallacy of genetic determinism
 - Language!
 - Spoken language vs reading/writing
- The fallacy of immutability
 - Taste preferences
 - Probabilistic reasoning

Pinker, S. (2002). *The blank slate: The modern denial of human nature*. New York, NY: Viking. Or, see him online at TED.com.

Over the long span of evolutionary history, our ancestors faced recurrent adaptive problems...

- Avoiding predators
- Avoiding outsiders
- Finding (and relocating) calorically dense food
- Catching prey
- Caring for offspring
- Selecting high quality mates
- Attracting high quality mates
- Out-reproducing one's rivals
- Gaining care from others (not just infants)

Adaptive problems generate evolved solutions

- Avoiding predators →
- Avoiding outsiders
- Finding (and relocating) calorically dense food →
- Catching prey →
- Caring for offspring →
- Selecting high quality mates →
- Attracting high quality mates →
- Out-reproducing one's rivals →
- Gaining care from others →

Evolved solutions are *adaptations*... that may or may not be *adaptive* (or "good")

Adaptations operate in a modern environment

- Taste preferences
- Learning biases
- Agency detection
- Desire for sexual variety

Symons, D. (1995). Beauty is in the adaptations of the beholder: The evolutionary psychology of human female sexual attractiveness. In P. R. Abramson & S. D. Pinkerton (Eds.), *Sexual nature, sexual culture* (pp. 80-118). Chicago, IL: University of Chicago Press.

The fallacy of the naturalistic fallacy

- What is natural is NOT necessarily good and is certainly not "justified."
 - Infidelity: explanation ≠ excuse

EP is theoretically driven: Success depends on the weight of the evidence

Evaluating the weight of the evidence

- Testing hypotheses derived from Parental Investment Theory
 - Multiple data sources and samples
 - Multiple methods

Katelaar, T., & Ellis, B.J. (2000). Are evolutionary explanations unfalsifiable? Evolutionary psychology and the Lakatosian philosophy of science. *Psychological Inquiry*, 11, 1-21.

Women, on average, report less effort toward short-term mating than men do (Adapted from Jackson & Kirkpatrick, 2007)

Mating Orientation	Men	Women
Short-term	~4.1	~2.8
Long-term	~6.1	~6.4

Reminders

- Average differences are just AVERAGES
- Explanation is not justification or excuse
- PLUS, in many domains male and female humans are NOT different

Both sexes devote more effort to long-term than short-term mating (Adapted from Jackson & Kirkpatrick, 2007)

Mating Orientation	Men	Women
Short-term	~4.1	~2.8
Long-term	~6.1	~6.4

Are EP'ists a bunch of "just-so storytellers"?

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- All disciplines in psychology are guilty of this.
 - Why do some people fear commitment?
 - Why are some people so stingy?
 - Why are girls under-represented in STEM fields?
- EP has a built-in protection against just-so stories: Theory > Hypotheses > Predictions
- EP says evolution is always relevant – the question is HOW.

Not everything is an adaptation

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- E.g., belly buttons
- E.g., (debated) sexual attraction in cross-sex friendship
- E.g., (debated) rape

Mating research gets the hype, but EP is generating knowledge across the life sciences

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- Infant cognition
(Spelke, Santos, Baillargeon)
- Female advantages in spatial memory
(Eals, Silverman, Pacheco-Cobos)
- Functional biases and aversions during pregnancy
(Fessler, Sherman)
- Intuitions about moral reasoning
(Hauser, Cushman, Bleske-Rechek)
- Environmental triggers of in-group out-group bias
(Schaller, Parks, Kurzban)
- Men's potential detection of human female ovulation
(Maner, Miller, Singh, Haselton)
- Kin detection mechanisms
(Lieberman, Cosmides, Tooby)

A quick example to illustrate:

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- EP is theory driven
- EP'ists like specific hypotheses
 - What to expect
 - What NOT to expect
- EP'ists often use clever methods
- EP'ists have documented evidence of adaptations operating outside of awareness
- EP'ists document findings that have practical applications

Theoretical background: Challenges of reproduction over ancestral history

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- Sex differences in parental investment
- Sex differences in parental certainty

Implication: Two specific predictions

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- Men should be differentially responsive to infants of differential resemblance to themselves (favoring those who resemble themselves).
- Women should not be.

Platak and colleagues, 2002 (2003, 2004, 2005):
The effect of manipulated resemblance

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- Undergraduates from SUNY-Albany
- Take facial shot
- (unbeknownst to them) Morph face with that of a 2-year-old child
 - 50%, 25%, 12.5%...

The morphing procedure

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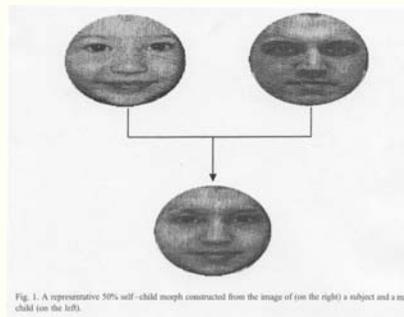


Fig. 1. A representative 50% self-child morph constructed from the image of (on the right) a subject and a male child (on the left).

Sample stimulus array

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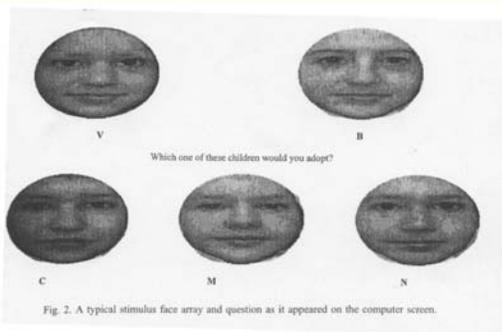


Fig. 2. A typical stimulus face array and question as it appeared on the computer screen.

Sample DVs

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- Which one of these children would you be most likely to adopt?
- Which one of these children do you find to be the most attractive?
- Which one of these children would you be comfortable spending the most time with?
- If one of these children damaged something valuable of yours, which one would you punish most?

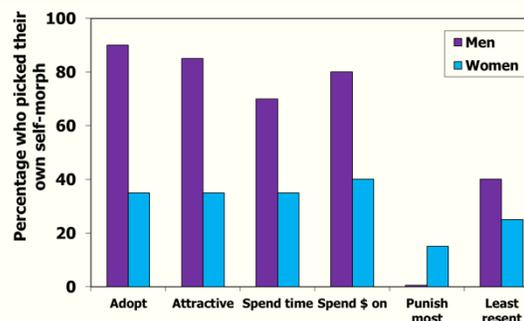
Array of morphed faces that did NOT include participant's face

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- Neither males nor females chose any face more often than chance

In array of morphed faces that DID include one with participant's face...

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Morph awareness?

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Take-home points

- Evolutionary theory is the bedrock of the life sciences; for evolutionary psychologists it is also the bedrock of the science of *humans*
- Evolutionary psychologists pride themselves on hypothesis testing
- Evolutionary psychologists are optimistic scientists: knowledge is power

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A closer look: sex differences in short-term mating

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Women are choosier about sex

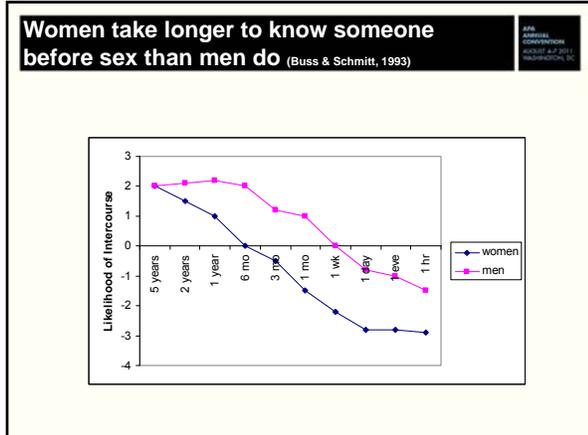
(Kenrick et al., 1990)

Relationship Stage	women	men
dating	~45	~45
sexual relations	~65	~48
steady dating	~68	~65
marriage	~70	~70

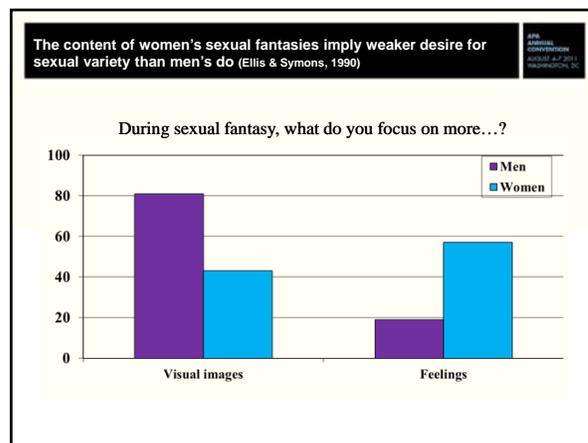
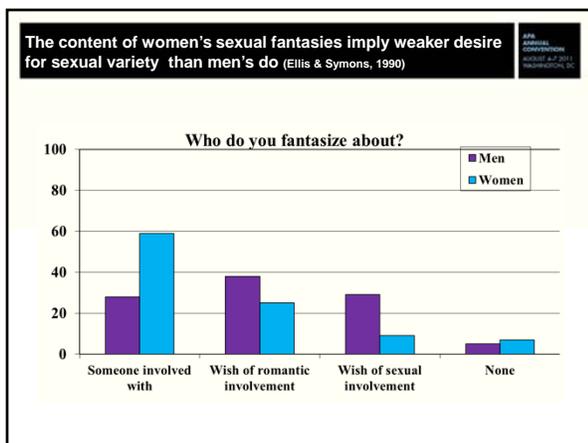
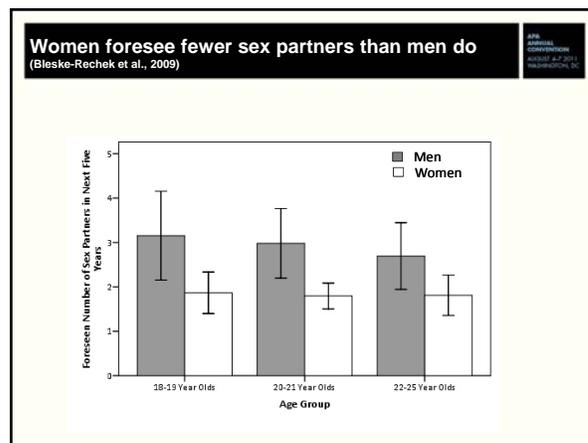
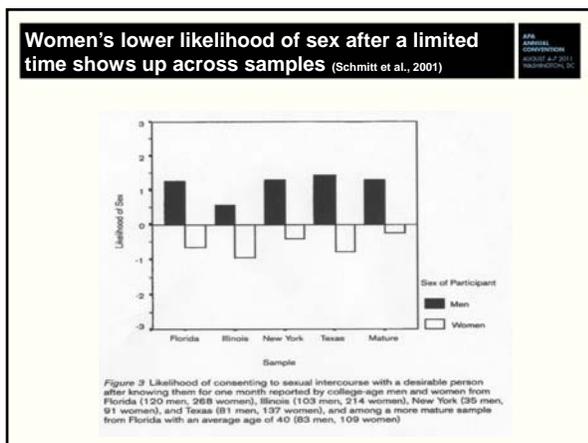
Women are choosier about sex

(Kenrick et al., 1990)

Relationship Stage	women	men
dating	~52	~50
sexual relations	~55	~40
steady dating	~60	~60
marriage	~65	~65

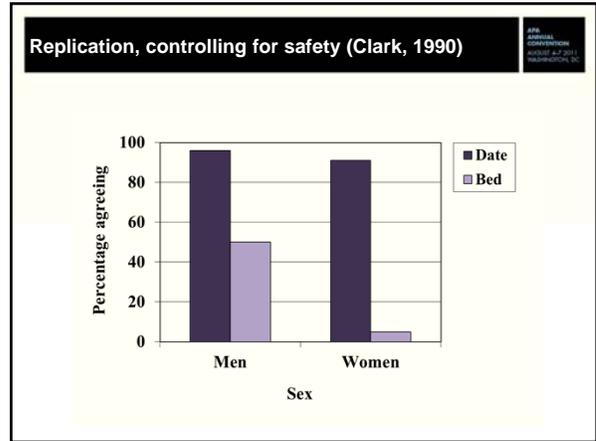
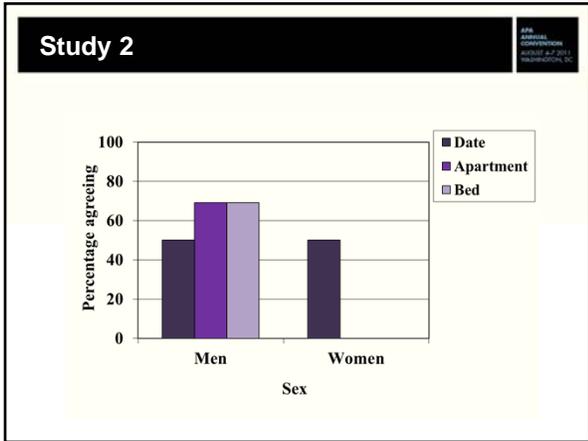
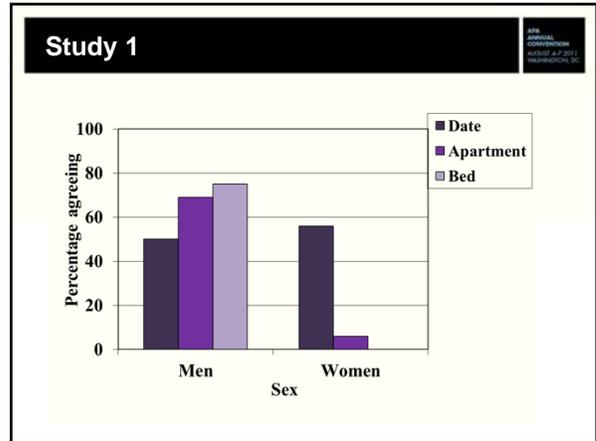


- Perhaps you are saying, "It's just that women view sex as a step toward commitment, and men don't."



Women, on average, are less receptive to short-term mating opportunities than men are (Clark & Hatfield, 1989)

- Confederates
 - 22 years old
 - Casual attire
 - Varied from slightly unattractive to moderately attractive (prejudged)
 - Approached individuals perceived as attractive
 - Condition varied by page of notebook



Another replication (Greitmeyer, 2005) . . .