

# Cognitive Psychology

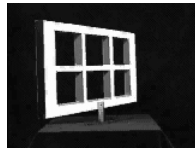
Psychology 3120, Fall 2008

David Strayer

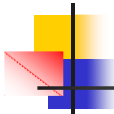
Ann Lambert



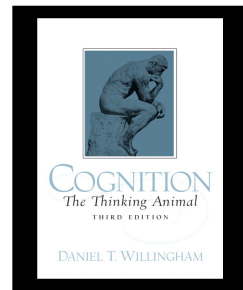
<http://www.psych.utah.edu/psych3120>



## Cognitive Psychology



- [On-line Syllabus](#)
- [Course Readings](#)
- Course Overview
- Course Information
- Class Materials
- Lecture Notes
- Study Guides





## Cognitive Psychology

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- Class message board
- Psych 3901 -003
- Extra credit
- Research assistants needed
- Class demonstration



## Cognitive Psychology

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- Perception & Attention
- Varieties of Memory
- Skill Acquisition, Decision Making, Problem Solving, Parapsychology



## 25 Questions

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- Studies have shown that eyewitness testimony is valid and accurate, especially with highly stressful (i.e., memorable) events.
- **False** -- Eyewitness testimony is notoriously unreliable, particularly when the observer is in a highly aroused state. There have been 218 post-conviction exonerations because they were factually innocent of the crime (based on DNA evidence).



## 25 Questions

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- We use only about 10% of our brain.
- **False** -- We use all or our brain all the time. Even small brain lesions can result in significant cognitive impairment. The distributed neuronal cell loss with age amounts to up to 25% of the brain volume and accounts for many effects of cognitive aging.



## 25 Questions

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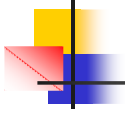
- Someone who learns something when they are drunk will subsequently remember it better when they are drunk than when they are sober.
- **True** -- State dependent learning demonstrates the importance of the "cognitive environment" in the formation and retrieval of episodic memories. When there is a match between context, retrieval is good.



## 25 Questions

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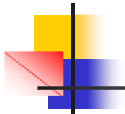
- Studies of divided attention have demonstrated that driving while using a cell phone is not impaired.
- **False** -- Studies show that using a cell phone significantly interferes with driving. In fact, several studies show that you are more impaired when driving and talking on a cell phone than when you are driving drunk.



## 25 Questions

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- Recent evidence supports some of the claims of Extra Sensory Perception (ESP) advocates.
- **False** -- In controlled "double-blinded" studies, no systematic evidence has been obtained for ESP. In fact, you can win \$1 million if you can provide proof of a paranormal event.



## 25 Questions

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- Memory aids do not really improve our memory.
- **False** -- Mnemonic techniques really work. They organize the information, make the material less susceptible to forgetting or interference, and provide a useful retrieval structure.



## 25 Questions

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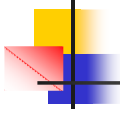
- Backwards messages hidden in music influence our behavior.
- **eslaF** -- There is no evidence that this information is processed, let alone influences our behavior.



## 25 Questions

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- Speed reading techniques can dramatically improve reading speed without sacrificing comprehension.
- **False** -- Human performance is governed by the speed-accuracy tradeoff -- Going faster results in lower accuracy. However, good old fashioned practice can improve the efficiency of reading.



## 25 Questions

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- Freud's "free association" technique tells us something about the organization of memory.
- **True** -- This is similar to the semantic priming studies with spreading activation. Individual differences can reflect enduring predispositions (or partial patterns of activation) that bias the semantic network in one way or another.



## 25 Questions

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- Information can be stored in long-term memory even if you never attended to it.
- **False** -- Attention is necessary for the creation of long-term (and short-term) memories. Information that falls outside of attention is lost.



## 25 Questions

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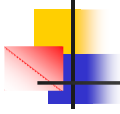
- Advertising using subliminal perception is very effective.
- **False** -- Effects of subliminal perception are, at best, minimal. There is little evidence that stimuli presented below the observer's threshold influence motives, attitudes, beliefs, or choices.



## 25 Questions

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- We should try to avoid using heuristics (rules of thumb) during decision making because they are a major cause of human error.
- **False** -- Heuristics help speed the decision making process and unburden working memory. However, these simplifying rules or short-cuts do create biases in decision making.



## 25 Questions

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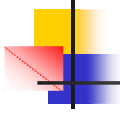
- There is no basis for the claim that eating carrots will help your night vision
- **False** -- The rods use the photopigment rhodopsin (which is made up of vitamin A, also found in carrots). People with a vitamin A deficiency can have poor night vision which can be corrected by supplemental vitamins.



## 25 Questions

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- Infant's ability to discriminate between the phonemes of language is actually better than that of adults.
- **True** -- As language develops, infants lose the ability to discriminate or produce phonemes that are not in their language.



## 25 Questions

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- There is no limit on how much information can be stored in long-term memory.
- **True** -- No one has ever filled up long-term memory. There may be limits on what information is initially stored (attentional limitations), but once stored, the memories are permanent (although they may not be accessible). This is probably due to the superpositional distributed nature of memory.



## 25 Questions

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- People who are color blind are missing one or more types of cones in the retina
- **True** -- Trichromatic theory suggests that normal color vision depends on three cone types with different colors made up by the ratio of activation of these receptors. However, some forms of color vision can also be due to damage to cortical areas.



## 25 Questions

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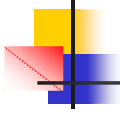
- The arrangement of displays and controls in cars, airplanes, etc. is arbitrary because we can learn to use any configuration with practice.
- **False** -- There are some configurations that result in interference that simply can't be practiced away. It is up to Human Factors professionals to root out these bad design principles.



## 25 Questions

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- People are always biased.
- **True** -- Our expectations and memories color the way that we perceive and remember the world. This becomes a recursive process and accounts for many of the individual differences between people.



## 25 Questions

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- Practice always improves performance.
- **False** -- Learning capitalizes on the statistical regularities of the environment. Most of the time there are consistencies in the environment that facilitate learning, but in some cases there are irregularities or inconsistencies that impede learning.



## 25 Questions

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- Our expectations influence our perceptions and memories.
- **True** -- Expectations and other "top-down" processes play a major role in what we perceive and remember. Often, differences in what two observers see or remember are due to the effects of top down processing.



## 25 Questions

- The difference between \$500 and \$1000 is psychologically greater than the difference between \$10,500 and \$11,000.
- **True** -- The mental representation of magnitude is compressed at the high end of the scale. 500 vs. 1000 is a greater psychological difference than 10500 vs. 11000



## 25 Questions

- If someone is blind in one eye, they will have no depth perception.
- **False** -- There are pictorial cues (e.g., size, interposition, etc) and movement cues that provide depth information. The use of both eyes provides binocular cues -- random dot stereograms make use of binocular visual information.



## 25 Questions

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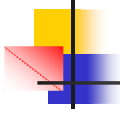
- With enough practice it is possible to do two things at the same time as well as doing each thing by itself.
- **True** -- Under very specific task combinations, people can do two things (playing piano and reading a novel) as well as either in isolation. This is called "Perfect Timesharing".



## 25 Questions

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- During the movement of the eyes while reading, the processing of visual information is temporarily suppressed.
- **True** -- This is called saccadic suppression. Not only is the processing of visual information suppressed, but higher level cognitive thoughts also appear to be put on hold.



## 25 Questions

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- It is possible to have a permanent memory that influences your behavior even though you are not consciously aware of that memory.
- **True** -- The distinction between implicit and explicit memory suggests that implicit memory is very important to our everyday behavior, even though we may be unaware of these memories.