

Advanced Experimental Psychology II (PSYC.674): Ideas for Research Projects

1) Sex differences have been reported for rats solving the water maze "place" task, and humans engaging in a computer-generated virtual water maze task. Do males and females use different navigational strategies? Is the stimulus control of spatial navigation different for males and females? One cue that we have recently identified as "controlling" navigational behavior to a greater or lesser extent in male rats is the door/entrance to the room containing a constellation of other distal cues. To what extent might the door/entrance differentially control the spatial navigational performance of males and females?

2) Animals tend to employ a "win-stay" strategy in the water maze. That is, they have a strong tendency to swim to the place (location) where they previously found the hidden platform instead of exploring other locations (win-shift) as is typically observed on appetitive (food motivated) dry-land spatial tasks, like the radial arm maze. Do males and females differ in win-stay versus win-shift spatial tendencies? Although males tend to do better on the standard place task in the water maze (requiring a win-stay strategy), perhaps females would perform better than males on the match-to-place version that requires a win-shift strategy.

3) In the article "Strong Inference," Platt (1964) argues that some fields of science (e.g. molecular biology and high-energy physics) progress more rapidly than others because researchers in these fields systematically employ an accumulative method of inductive inference (i.e., strong inference). Is this true? How might we test this hypothesis?

4) A meme is "an idea, behavior, style or usage that spreads from person to person within a culture." In the article "The Power of Memes," Susan Blackmore (2000) suggests that humans' ability to imitate, and thus to transmit memes, is what separates us from the rest of the animal world. Is this true? Do other social species produce memes? Is there a way to comparatively test for memetic evolution across species (e.g., human and rat)?

5) In the human realm, Susan Blackmore (2000) suggests that a good social psychology experiment might be designed to test the idea that people preferentially copy more articulate people and find them more sexually attractive than less eloquent people. How could we test this idea?

6) In the "animal" world, Sapolsky (2001) summarizes recent findings on "male attractiveness" and female investment in offspring sired by males possessing qualities that seem to be "what other females want." Could this be an example of memetic evolution in animals? How could we test this idea?

More Websites

alt.memetics

<http://maxwell.lucifer.com/virus/alt.memetics/>

The world-of-Dawkins:

<http://www.world-of-dawkins.com/>

Meme Central:

<http://www.memecentral.com/votm.htm>

Journal of Memetics:

<http://www.cpm.mmu.ac.uk/jom-emit/>

"What is a meme?"

Glenn Grant: Meme (pron. meem): A contagious information pattern that replicates by parasitically infecting human minds and altering their behavior, causing them to propagate the pattern. (Term coined by Dawkins, by analogy with "gene".) Individual slogans, catch-phrases, melodies, icons, inventions, and fashions are typical memes. An idea or information pattern is not a meme until it causes someone to replicate it, to repeat it to someone else. All transmitted knowledge is memetic.

Tony Lezard: Richard Dawkins, who coined the word in his book *The Selfish Gene* defines the meme as simply a unit of intellectual or cultural information that survives long enough to be recognized as such, and which can pass from mind to mind. There's not much of a sense of describing thought processes, but nor is it just a model. As Richard Dawkins writes (this is from memory), "God indeed exists, if only as a pattern in brain structures replicated across the minds of billions of people throughout the world." (Of course the patterns aren't physically identical, but they represent the same thing.)

Richard Dawkins: Examples of memes are tunes, ideas, catch-phrases, clothes fashions, ways of making pots or of building arches. Just as genes propagate themselves in the gene pool by leading from body to body via sperm or eggs, so memes propagate themselves in the meme pool by leaping from brain to brain via a process which, in the broad sense, can be called imitation. If a scientist hears, or reads about, a good idea, he passes it on to his colleagues and students. He mentions it in his articles and his lectures. If the idea catches on, it can be said to propagate itself, spreading from brain to brain. Memes should be regarded as living structures, not just metaphorically but technically. When you plant a fertile meme in my mind, you literally parasitize my brain, turning it into a vehicle for the meme's propagation in just the way that a virus may parasitize the genetic mechanism of a host cell. And this isn't just a way of talking -- the meme for, say, 'belief in life after death' is actually realized physically, millions of times over, as a structure in the nervous systems of people all over the world.

H. Keith Henson: A meme survives in the world because people pass it on to other people, either vertically to the next generation, or horizontally to our fellows. This process is analogous to the way willow genes cause willow trees to spread them, or perhaps closer to the way cold viruses make us sneeze and spread them.

Peter J. Vajk: It is important to note here that, in contrast to genes, memes are not encoded in any universal code within our brains or in human culture. The meme for vanishing point perspective in two-dimensional art, for example, which first appeared in the sixteenth century, can be encoded and transmitted in German, English or Chinese; it can be described in words, or in algebraic equations, or in line drawings. Nonetheless, in any of these forms, the meme can be transmitted, resulting in a certain recognizable element of realism which appears only in art works executed by artists infected with this meme.

Heith Michael Rezabek: My favorite example of a crucial meme would be "fire" or more importantly, "how to make a fire." This is a behavioral meme, mind you, one which didn't necessarily need a word attached to it to spring up and spread, merely a demonstration for another to follow. Once the meme was out there, it would have spread like wildfire, for obvious reasons... But when you start to think of memes like that -- behavioral memes -- then you can begin to see how language itself, the idea of language, was a meme. Writing was a meme. And within those areas, more specific memes emerged.

Lee Borkman: Memes, like genes, vary in their fitness to survive in the environment of human intellect. Some reproduce like bunnies, but are very short-lived (fashions), while others are slow to reproduce, but hang around for eons (religions, perhaps?). Note that the fitness of the meme is not necessarily related to the fitness that it confers upon the human being who holds it. The most obvious example of this is the "Smoking is Cool" meme, which does very well for itself while killing off its hosts at a great rate.