

Science	Pseudoscience
Willingness to change with new evidence	Fixed ideas
Ruthless peer review	No peer review
Takes account of all new discoveries	Selects only favourable discoveries
Invites criticism	Sees criticism as conspiracy
Verifiable results	Non-repeatable results
Limits claims of usefulness	Claims of widespread usefulness
Accurate measurement	"Ball-park" measurement

<http://perceptivereality.weebly.com/introduction.html#/>

From: <http://planet3.org/2014/02/16/9620/>

Defining science^[edit]

Main article: [Demarcation problem](#)

Distinguishing between science and [non-science](#) is referred to as the demarcation problem. For example, should [psychoanalysis](#) be considered science? How about so-called [creation science](#), the [inflationary multiverse](#) hypothesis, or [macroeconomics](#)? [Karl Popper](#) called this the central question in the philosophy of science.^[a] However, no unified account of the problem has won acceptance among philosophers, and some regard the problem as unsolvable or uninteresting.^{[a][d]} [Martin Gardner](#) has argued for the use of a [Potter Stewart standard](#) ("I know it when I see it") for recognizing pseudoscience.^[a]

Early attempts by the [logical positivists](#) grounded science in observation while non-science was non-observational and hence meaningless.^[a] Popper argued that the central property of science is [falsifiability](#). That is, every genuinely scientific claim is capable of being proven false, at least in principle.^[a]

An area of study or speculation that masquerades as science in an attempt to claim a legitimacy that it would not otherwise be able to achieve is referred to as [pseudoscience](#), [fringe science](#), or [junk science](#).^[a] Physicist [Richard Feynman](#) coined the term "[cargo cult science](#)" for cases in which researchers believe they are doing science because their activities have the outward appearance of it but actually lack the "kind of utter honesty" that allows their results to be rigorously evaluated.^[a]

From: https://en.wikipedia.org/wiki/Philosophy_of_science#The_purpose_of_science



Dorsa Amir

@DorsaAmir

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There's a good chance that a bunch of the scientific ideas you've learned are now outdated and debunked. Here are some of the ones I feel most strongly about 👉 (1/7)

8:38 AM - 26 Mar 2019



Dorsa Amir @DorsaAmir Mar 26

Are you an ENTP or an ISTJ? Turns out it doesn't matter _(ツ)_/ The Myers-Briggs personality questionnaire has pretty poor validity & reliability. It's basically astrology. FYI, the "Big Five" is a way better personality framework. (2/7) [_vox.com/2014/7/15/5881_____](https://www.vox.com/2014/7/15/5881_____)





Dorsa Amir @DorsaAmir · Mar 26

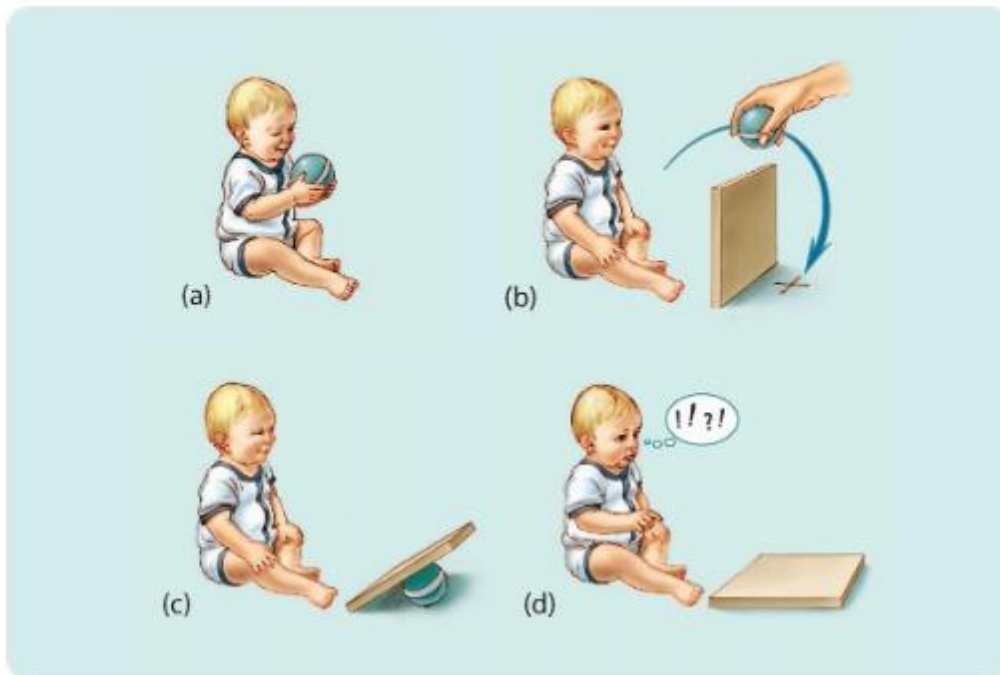
You may have heard that women who live together start having their periods at the same time. Nope. This phenomenon, known as "menstrual synchrony", is likely not real. A good review can be found here:

tandfonline.com/doi/abs/10.1080/00016344.2013.828888 (3/7)



Dorsa Amir @DorsaAmir · Mar 26

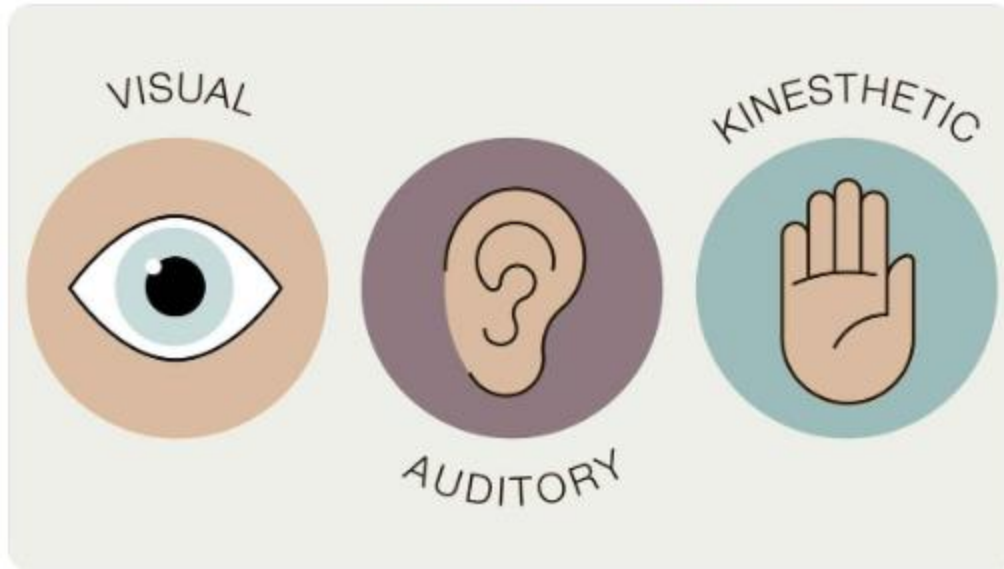
You know when you play peekaboo with a baby and they get really surprised when you pop out again? It's not because they thought you ceased to exist. That is, babies *do* have "object permanence". This is a holdover from Piaget's studies in the 1960s. simplypsychology.org/Object-Permanence/ (4/7)





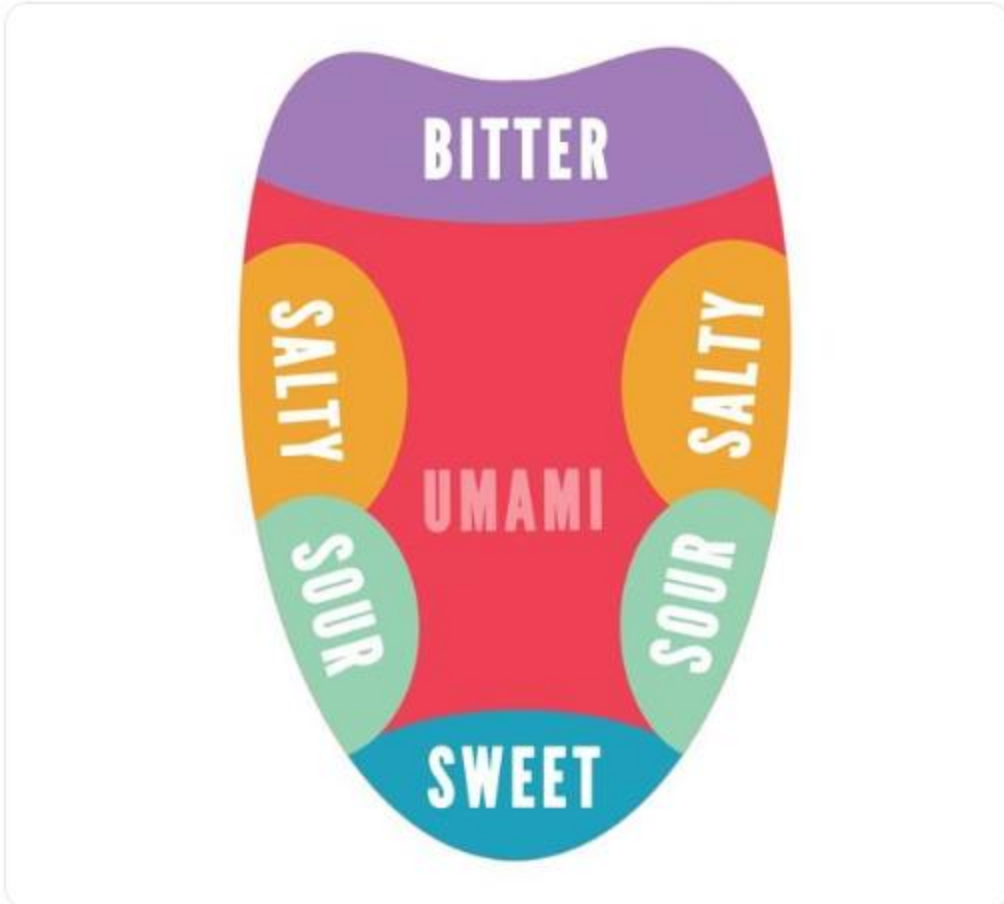
Dorsa Amir @DorsaAmir · Mar 26

Are you a visual learner or a kinesthetic learner? Well, don't worry if you don't know, there's no such thing as a "learning style". We should probably stop teaching it in our schools.. (5/7) [psychologicalscience.org/journals/pspi/...](https://psychologicalscience.org/journals/pspi/)



Dorsa Amir @DorsaAmir · Mar 26

Oh, and you know how you thought there was a part of the tongue for sweet and another part for salty? Well, the tongue map is also not really a thing, and largely a historical curiosity from 1901. livescience.com/7113-tongue-ma... (6/7)





Dorsa Amir @DorsaAmir · Mar 26



If you want more, this recent thread is packed full of faulty ideas that annoy people (like the fact that people think natural = safe, or that civilization has doubled the human lifespan) (7/7)

Dorsa Amir @DorsaAmir

What popular-but-inaccurate scientific idea annoys you the most?

Show this thread



Chiemeziem M.D

@DrChiemeziem

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I was reading random things on the internet last night and stumbled upon some things about Albert Einstein's wife.

Some people say she was as brilliant as Einstein, if not better. But what happened to her?

Thread.



2:15 AM - 7 Mar 2019



Chiemeziem M.D @DrChiemeziem · Mar 7

We all know and remember Marie Curie right? Why? Because she was the first woman to win a Nobel Prize. The first person and only woman to win it twice and the only person to win a Nobel Prize in two different sciences, physics and chemistry.

What of Mileva Marić-Einstein?

10 886 4.6K



Chiemeziem M.D @DrChiemeziem · Mar 7

Mileva Marić-Einstein was Albert Einstein's wife. She was the only woman in the Physics department at Zurich Polytechnic when Albert Einstein studied.

In fact, she was the only person to score higher than Einstein in mathematics at the entrance exam. Such was her brilliance.

9 1.5K 7.9K



Chiemeziem M.D @DrChiemeziem · Mar 7

What was the difference between these two brilliant women? Why did one go down in history as a great scientist with two Nobel Prize and the other as just Albert Einstein's wife?

Their husbands!

16 1.2K 4.9K



Chiemeziem M.D @DrChiemeziem · Mar 7

Mileva Marić-Einstein got married to Einstein and helped him in writing some of the most profound papers that changed science but Einstein never cited her in his works.

But Maria Curie married Pierre Curie; a gentleman who understood partnership.

29 2.4K 9.7K



Chiemeziem M.D @DrChiemeziem · Mar 7

When the Nobel Prize committee wrote Pierre Curie in 1903 informing him that he had won the Nobel Prize, Pierre asked if his wife was also going to be honored but he was told only him and Henri Becquerel would be honored.

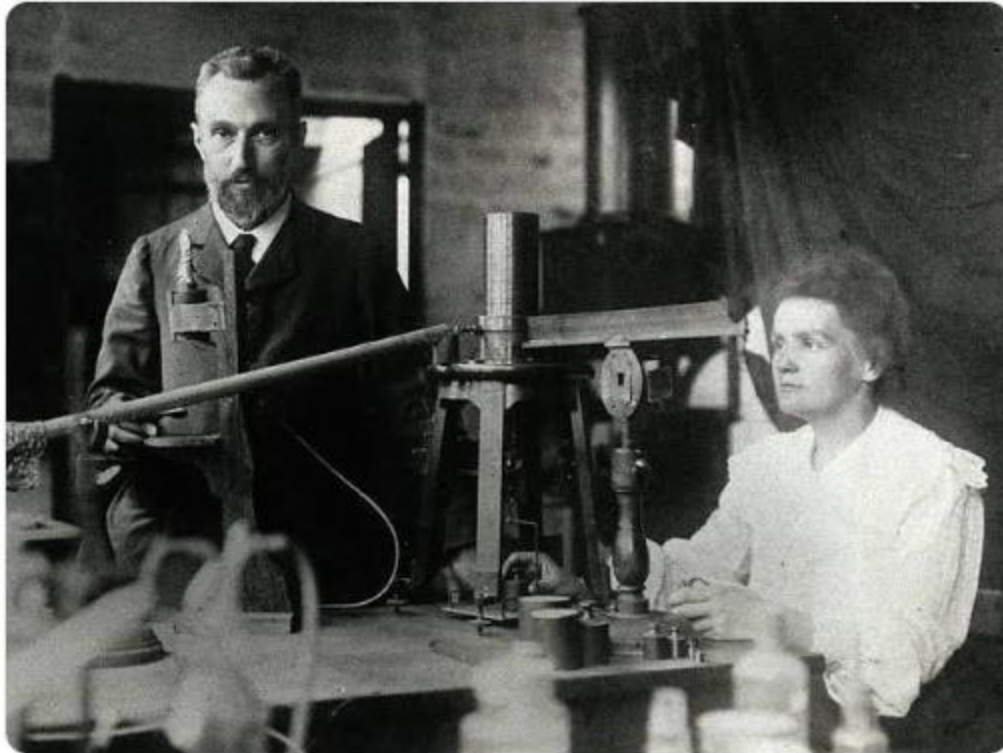
5 909 4.3K



Chiemeziem M.D @DrChiemeziem · Mar 7

Pierre wrote the Nobel Prize committee acknowledging the honor but rejecting it if his wife would not be honored.

He said the papers had a heavy input from his wife. The committee budged and Marie Currie became the first woman to win a Nobel Prize.



14 2.2K 11K



Chiemeziem M.D @DrChiemeziem · Mar 7

Albert Einstein on the other hand was too consumed with personal recognition that he didn't even consider to put Maric's name on publications. Such actions would later cause controversy in the scientific world where till today, there are debates on Maric's contributions.

15 1.3K 6.6K



Chiemeziem M.D @DrChiemeziem · Mar 7

In conclusion, the right marriage will reinforce your legacy. The wrong marriage will diminish it.

Make sure your partner is your partner in the true sense of the word; someone who recognizes your contributions and will rather turn down a Nobel Prize than be honored without you.



Chiemeziem M.D @DrChiemeziem · Mar 9

Let me also add that the eldest daughter of Pierre and Marie Curie; Irene Joliot Curie with her husband, Frédéric Joliot became joint winners of the Nobel Prize in Chemistry in 1935; 32 years after Pierre and Marie did it together in 1903. She too married a supportive partner.



66 1.4K 11K

More information: <https://blogs.scientificamerican.com/guest-blog/the-forgotten-life-of-einsteins-first-wife/> (and “Genius” the television show; season one specifically tracks Albert Einstein)

CHEESE TRIGGERS SAME PART OF BRAIN

AS HARD DRUGS, STUDY FINDS

<https://www.independent.co.uk/life-style/food-and-drink/cheese-triggers-the-same-part-of-brain-as-hard-drugs-study-finds-a6707011.html>

Scientists find religion triggers same area of brain as sex, drugs and love

<http://bigthink.com/paul-ratner/your-brain-on-god-scientists-find-that-religious-ecstasy-affects-same-part-of-brain-as-sex-drugs-and-love>

Facebook addiction ‘activates same part of the brain as cocaine’

Internet addiction activates the same areas of the brain as drugs such as cocaine, but is much easier to quit, a study suggests

<https://www.telegraph.co.uk/news/12161461/Facebook-addiction-activates-same-part-of-the-brain-as-cocaine.html>

Compliments activate the same part of your brain, as does receiving money.

Published on April 12, 2016

<https://www.linkedin.com/pulse/compliments-activate-same-part-your-brain-does-receiving-singh/>

What is the meaning of "All models are wrong, but some are useful"



74



35

"Essentially, all models are wrong, but some are useful."

--- Box, George E. P.; Norman R. Draper (1987). Empirical Model-Building and Response Surfaces, p. 424, Wiley. ISBN 0471810339.

What exactly is the meaning of the above phrase?

modeling

share cite improve this question

edited Apr 27 '13 at 21:16



RegDwight

111 1 1 5

asked Apr 27 '13 at 8:39



gpuguy

533 2 7 9

13 On the same book is was earlier mentioned : Remember that all models are wrong; the practical question is how wrong do they have to be to not be useful. Maybe this is more helpful. – user11852 Apr 27 '13 at 8:53

add a comment

14 Answers

active

oldest

votes



97



I think its meaning is best analyzed by looking at it in two parts:

"All models are wrong" that is, every model is wrong because it is a simplification of reality. Some models, especially in the "hard" sciences, are only a little wrong. They ignore things like friction or the gravitational effect of tiny bodies. Other models are a lot wrong - they ignore bigger things. In the social sciences, we ignore a lot.

"But some are useful" - simplifications of reality can be quite useful. They can help us explain, predict and understand the universe and all its various components.

This isn't just true in statistics! Maps are a type of model; they are wrong. But good maps are very useful. Examples of other useful but wrong models abound.

share cite improve this answer

answered Apr 27 '13 at 10:25



Peter Flom ♦

78.2k 12 110 219

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How would I know if my own research area was this wrong?

Our usual safeguards won't save us: peer review, meta-analysis, 100s of conceptual replications, listening to eminent researchers. All failed.

This should be keeping us up at night.



5-HTTLPR: A Pointed Review

In 1996, some researchers discovered that depressed people often had an unusual version of the serotonin transporter gene 5-HTTLPR. The study became a psychiatric sensation, getting t...

slatestarcodex.com

3:40 AM - 8 May 2019

Mozart effect

From Wikipedia, the free encyclopedia

[Jump to navigation](#)[Jump to search](#)

The **Mozart effect** can refer to:

- A set of research results indicating that listening to [Mozart](#)'s music may induce a short-term improvement on the performance of certain kinds of mental tasks known as "[spatial-temporal reasoning](#)";^[1]
- Popularized versions of the hypothesis, which suggest that "listening to Mozart makes you smarter", or that early childhood exposure to classical music has a beneficial effect on mental development;
- A US [trademark](#) for a set of commercial recordings and related materials, which are claimed to harness the effect for a variety of purposes. The trademark owner, Don Campbell, Inc.,^[2] claims benefits far beyond improving spatio-temporal reasoning or raising intelligence, defining the mark as "an inclusive term signifying the transformational powers of music in health, education, and well-being."

The term was first coined by [Alfred A. Tomatis](#) who used [Mozart's music](#) as the listening stimulus in his work attempting to cure a variety of disorders. The approach has been popularized in Don Campbell's book, *The Mozart Effect*,^[3] which is based on an experiment published in [Nature](#) suggesting that listening to Mozart temporarily boosted scores on one portion of the [IQ](#) test.^[4] As a result, the [United States' Governor of Georgia](#), [Zell Miller](#), proposed a budget to provide every child born in Georgia with a CD of [classical music](#).

[Alfred A. Tomatis](#)^[edit]

The concept of the "Mozart effect" was described by French researcher [Dr. Alfred A. Tomatis](#) in his 1991 book *Pourquoi Mozart? (Why Mozart?)*.^[5] He used the music of Mozart in his efforts to "retrain" the ear, and believed that listening to the music presented at differing frequencies helped the ear, and promoted healing and the development of the brain.^[6]

[Rauscher et al. 1993 study](#)^[edit]

Frances Rauscher, Gordon Shaw, and Catherine Ky (1993) investigated the effect of listening to music by Mozart on [spatial reasoning](#), and the results were published in [Nature](#). They gave research participants one of three standard tests of abstract spatial reasoning after they had experienced each of three listening conditions: the [Sonata for Two Pianos in D major, K. 448](#) by Mozart, verbal relaxation instructions, and silence. They found a temporary enhancement of spatial-reasoning, as measured by spatial-reasoning sub tasks of the Stanford-Binet IQ test. Rauscher et al. show that the enhancing effect of the music condition is only temporary: no student had effects extending beyond the 15-minute period in which they were tested. The study makes no statement of an increase in IQ in general (because IQ was never measured).^[4]

[Popularization](#)^[edit]

While Rauscher et al. only showed an increase in "spatial intelligence", the results were popularly interpreted as an increase in general IQ. This misconception, and the fact that the music used in the study was by Mozart, had an obvious appeal to those who valued this music; the Mozart effect was thus widely reported. In 1994, [New York Times](#) music columnist [Alex Ross](#) wrote in a light-hearted article, "researchers [Rauscher and Shaw] have determined that listening to Mozart actually makes you smarter", and presented this as the final piece of evidence that Mozart has dethroned [Beethoven](#) as "the world's greatest composer."^[7] A 1997 [Boston Globe](#) article mentioned some of the Rauscher and Shaw results. It described one study in which three- and four-year-olds who were given eight months of private piano lessons scored 30% higher on tests of spatio-temporal reasoning than control groups given computer lessons, singing lessons, and no training.

The 1997 book by Don Campbell, *The Mozart Effect: Tapping the Power of Music to Heal the Body, Strengthen the Mind, and Unlock the Creative Spirit*, discusses the theory that listening

to [Mozart](#) (especially the piano concertos) may temporarily increase one's [IQ](#) and produce many other beneficial effects on mental function. Campbell recommends playing specially selected classical music to infants, in the expectation that it will benefit their [mental development](#).

After *The Mozart Effect*, Campbell wrote a follow-up book, *The Mozart Effect For Children*, and created related products. Among these are collections of music that he states harness the Mozart effect to enhance "deep rest and rejuvenation", "intelligence and learning", and "creativity and imagination". Campbell defines the term as "an inclusive term signifying the transformational powers of music in health, education, and well-being. It represents the general use of music to reduce stress, depression, or anxiety; induce relaxation or sleep; activate the body; and improve [memory](#) or [awareness](#). Innovative and experimental uses of music and sound can improve listening disorders, [dyslexia](#), [attention deficit disorder](#), [autism](#), and other mental and physical disorders and diseases".^[8]

These theories are controversial. The relationship of sound and music (both played and listened to) for cognitive function and various physiological metrics has been explored in studies with no definitive results.

From: https://en.wikipedia.org/wiki/Mozart_effect