Science AMA Series: I'm Dr. Julia Shaw, a memory scientist and criminal psychologist, back to discuss how we create complex false memories and my new book on it. AMA!

Dr$_{J}$$_{u}$$_{l}$$_{i}$$_{a}$$_{S}$$_{h}$$_{a}$$_{w}$[1]$_{a}$$_{n}$$_{d}$$_{r}$/$_{S}$$_{c}$$_{i}$$_{e}$$_{n}$$_{c}$$_{e}$$_{A}$$_{M}$$_{A}$$_{s}$[1]

[1]Affiliation not available

April 17, 2023

Abstract

SIGNING OFF. It's 8:50pm. What a great way to spend three hours! If you still desperately want your questions answered and I could not get to you, they are probably addressed in my book "The Memory Illusion"... or you can Tweet me your question @drjuliashaw or email me through my website www.drjuliashaw.com Over and out, Julia I also encourage you to take a peek my last AMA favourites post, because I have probably already answered some of your questions!: http://blogs.scientificamerican.com/mind-guest-blog/how-false-memory-changes-what-happened-yesterday/ Hi Reddit! I really enjoyed my last AMA and I've come back for another to coincide with the publication of my book The Memory Illusion on June 16th. You can watch a trailer about it here: https://youtu.be/72dhjGWB0gg I study how we can create incredibly detailed memories of things that never actually happened. In particular, I implant rich false memories of committing crime with police contact and other highly emotional autobiographical events. I thought I'd share my work with the community since I'm an avid Redditor. The technique I use in my research is essentially a combination of what's called "mis-information" (telling people convincingly that something happened that didn't) and an imagination exercise which makes a participant picture the event happening. The goal is to get my participants to confuse their imagination with their memory. I find, as do many other scientists who study memory, that it is often surprisingly easy to implant memories. All of my participants are healthy young adults, and in my last study 70% of them were classified as having formed these full false memories of crime by the end of the study. I am currently working on further research and analysis to see whether I can replicate this, since this success rate was incredibly high. Last year some of this research, which I did with Stephen Porter at UBC, went viral. It was so amazing to see such a great reaction from the press and public. There really seems to be a thirst for wanting to understand our faulty memories. You can see my favourite write up of the research here. In "Memory Hackers," a NOVA documentary that aired on PBS, you can actually see some real footage from the videos that I made during the interviews, which you can see here: https://www.youtube.com/watch?v=NfPLTtlo2oY My book, The Memory Illusion, is the first popular science book of its kind, and I'm super excited about it! If you find my research interesting you'll definitely like the book. The book will be released in 12 languages over the next year (English, German, Dutch, Portuguese, Italian, Taiwanese, Chinese, Japanese, Turkish, Russian, Czech, and Serbian). I've put a couple of links below. The eagle-eyed of you should spot a few Reddit references throughout my book when you read it, along with some Easter eggs, including my favourite Kurt Vonnegut quote (very) hidden in the text! UK: http://bit.ly/MemoryIllusion US: http://bit.ly/MemoryIllusionUS English language version internationally: http://bit.ly/TMIinternational If you want to know more about me and my science, and get free access to all the research I have published to date, go here: http://www.drjuliashaw.com/ Read my Scientific American contributions (almost all of which focus on memory errors) here: http://www.scientificamerican.com/search/?q=julia+shaw Follow me on Twitter: @drjuliashaw Proof Julia

the WINNOWER

REDDIT

Science AMA Series: I'm Dr. Julia Shaw, a memory scientist and criminal psychologist, back to discuss how we create complex false memories and my new book on it. AMA!

DR_JULIA_SHAW R/SCIENCE

SIGNING OFF.

It's 8:50pm. What a great way to spend three hours! If you still desperately want your questions answered and I could not get to you, they are probably addressed in my book "The Memory Illusion"... or you can Tweet me your question @drjuliashaw or email me through my website www.drjuliashaw.com

Over and out,

Julia

I also encourage you to take a peek my last AMA favourites post, because I have probably already answered some of your questions!: http://blogs.scientificamerican.com/mind-guest-blog/how-false-memory-changes-what-happened-yesterday/

Hi Reddit!

I really enjoyed my last AMA and I've come back for another to coincide with the publication of my book The Memory Illusion on June 16th. You can watch a trailer about it here: https://youtu.be/72dhjGWB0gg

I study how we can create incredibly detailed memories of things that never actually happened. In particular, I implant rich false memories of committing crime with police contact and other highly emotional autobiographical events. I thought I'd share my work with the community since I'm an avid Redditor.

The technique I use in my research is essentially a combination of what's called "mis-information" (telling people convincingly that something happened that didn't) and an imagination exercise which makes a participant picture the event happening. The goal is to get my participants to confuse their imagination with their memory. I find, as do many other scientists who study memory, that it is often surprisingly easy to implant memories. All of my participants are healthy young adults, and in my last study 70% of them were classified as having formed these full false memories of crime by the end of the study. I am currently working on further research and analysis to see whether I can replicate this, since this success rate was incredibly high. Last year some of this research, which I did with Stephen Porter at UBC, went viral. It was so amazing to see such a great reaction from the press and public. There really seems to be a thirst for wanting to understand our faulty memories. You can see my favourite write up of the research here. In "Memory Hackers," a NOVA documentary that aired on PBS, you can actually see some real footage from the videos that I made during the interviews, which you can see here: https://www.youtube.com/watch?v=NfPLTtlo2oY

My book, The Memory Illusion, is the first popular science book of its kind, and I'm super excited about it! If you find my research interesting you'll definitely like the book. The book will be released in 12 languages over the next year (English, German, Dutch, Portuguese, Italian, Taiwanese, Chinese, Japanese, Turkish, Russian, Czech, and Serbian). I've put a couple of links below. The eagle-eyed of you should spot a few Reddit references throughout my book when you read it, along with some Easter eggs, including my favourite Kurt Vonnegut quote (very) hidden in the text!

UK: http://bit.ly/MemoryIllusion

US: http://bit.ly/MemoryIllusionUS

English language version internationally: http://bit.ly/TMIinternational

If you want to know more about me and my science, and get free access to all the research I have published to date, go here: http://www.drjuliashaw.com/

Read my Scientific American contributions (almost all of which focus on memory errors) here:
http://www.scientificamerican.com/search/?q=julia+shaw
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Proof
Julia

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Hi Dr. Shaw

What are the best ways to help someone determine whether their memories are true to reality or perhaps falsely exaggerated/changed for various reasons?

Under_Earth

Unfortunately it seems that true and false memories are incredibly hard to distinguish. In the brain, one could even argue that they are identical.

There are a few things that I think provide good evidence that an event probably happened.

1) Corroborating evidence for a particular claim. This can be anything from photos, to Tweets, to physical evidence such as DNA. Ideally the evidence is from something that happened during or as soon as possible after the event actually occurred.

2) Other people who have experienced the event, with whom the person has not yet shared their account. I would ask them to write down their memories INDEPENDENTLY, and if they have broadly similar memory, this is evidence that the event may have happened the way the person remembers it to have happened.

More importantly, be careful using things like high confidence and emotionality as indicators that a memory is true - because these processes can be hijacked and be features of false memories too.

Hello Dr Shaw. If someone is convinced that an imagined event is an actual memory, how would you go about diffusing the illusion and providing clarity to the person?

NewMeBetterMe

Ideally, you would try to show them evidence that shows them that their memory is not possible - such as evidence that they were doing something else at the time or that the event was described and recorded in ways that are different from the way the person falsely remembers them.

Evidence that contradicts our memories can be quite difficult to accept, however, so another good strategy is to introduce them to research on how creative and malleable our memories are. Show them that we can come to quite easily confuse our imagination with our memory. Show them research. Show them science. Get them to become more critical of their own memories.

Thanks for doing this! What implications do you think your work has for the criminal justice system? In particular interviewing witnesses, wth the danger that they may have a faulty implanted memory.

LewdSkywalker

I actually talk about this a lot! Here is an answer I recently published over at Scientific American:

"The implications of false memory research for the criminal justice system are tremendous. It calls into question our current reliance on memories by suspects, victims, witnesses, even police officers and

lawyers.

Memories currently make or break cases, and by showing that they are often inherently unreliable, we call into question the very foundation of the way we currently use evidence in criminal trials. It leads to us asking whether we can ever be certain "beyond a reasonable doubt" that someone committed a crime for cases that rely exclusively on memory recall. It also shows us how easily bad interview/interrogation techniques can create false memories, making us rethink police practices."

http://blogs.scientificamerican.com/mind-guest-blog/how-false-memory-changes-what-happened-yesterday/

I also talk about processes involved in generating rich false memories of crime in a post I did about Making a Murderer: http://blogs.scientificamerican.com/mind-guest-blog/making-a-memory-of-murder/

Generally in what state(position of perceived leverage, mental/physical conditions) is a person more susceptible to false memories.
What is the most ridiculous/unbelievable false memory possible to be implanted?

Tsurupettan

There are a number of scientists who actually focus their research on ridiculous/unbelievable false memories, so called 'impossible' memories. These include things such as shaking hands with Bugs Bunny at Disneyland or drinking tea with Prince Charles.

Hands down the craziest type of false memories, however, are those of satanic ritual abuse. This is where people come to believe that they were abused in horrific ways by large numbers of people (sometimes a school, sometimes a whole town) in ways that are impossible. They are impossible because these perceived memories often involve things like imaginary creatures or medical procedures that would leave scars but didn't. They also sometimes feature memories from before the age of 2, which would generally be considered impossible autobiographical memories.

People can also have false memories of alien abductions that feel very real to the rememberer, even though most of us would agree that this is an impossible event.

Are there any potential positive benefits or therapeutic implications to planting false memories? Is there something about a falsely remembered narrative that can be calming or change the way a individual feels about themselves or the world that might be used (ethically and with consent) in therapy?

leontes

I think that we can definitely use false memory science for good, potentially in the future even helping people with PTSD or other memory-related ailments.

Hi Dr Shaw, I'm curious about the replicability of your study on implanting false memories. Has there been another study that attempted to replicate your particular procedures? Fascinating results, no doubt. But I wonder if it's due to specific reasons such as your appearance, impression, gender, mannerism towards the participants. It would be even more fascinating to find out factors could play roles into influencing rates of false memory being created.

Thanks for doing this AMA! I took your course Sex, Drugs, and Recidivism several years ago and had thoroughly enjoyed it.

helloimruth

Hi, former student! It's great to see you on here! I loved teaching that course.

I agree that replication is essential for research integrity and generalizability. It is possible that there is something inherent to me that makes me more likely to generate false memories than others, like my extroversion (which is known to be important for false memory generation from previous studies), but as there are many other studies that have generated various kinds of false memories with various kinds of people, I am also convinced that there are others who have the ability to hack peoples' memories.

I'm actually currently working on a replication of the study with three other institutions and various interviewers. It's a time-consuming process, but I'm confident that we will get it off the ground and I am curious to see what we might find!

Do you feel that there could be other applications of false memories, perhaps used in therapy to help people recover from traumatic events, or do you feel that over-writing certain experiences with false memories would be dangerous?

BloodBride

I think that we can definitely use false memory science for good, potentially in the future even helping people with PTSD or other memory-related ailments.

I have been exploring some options with war veterans along this line, since this population sometimes feels as though they have to no avail tried everything to help them forget terrible events.

We re-write our experiences every time we recall them anyways - this is related to a brain process called "retrieval induced forgetting" - so the only real *danger* I could see with a potential false memory therapy is if the memories that are implanted are also bad or even worse than the original ones. That being said, I do not know of anyone who has directly done this kind of research so the consequences are somewhat unknown.

As a clinic psychologist, I have a few issues with your suppositions.

Where do I begin: social irritants, psychological are major factors.

False memories are, in my experience, a part of psychological traumatic events.. Not manifested in day to day. Unless the patient is psychotic.

You deal with cases and it is easy to verify your conclusion.

Going to buy your book.

My question: is why do you think that false memories are very common in patients with extreme psychotic tendencies?

Have you developed a way to help them recall the memories and help them differentiate false with real memories?

lesteramod1

False memories may seem exceptional, but there is exceptionally strong scientific evidence that we have false memories incredibly frequently and that no one is immune.

From a recent article I wrote:

"The question isn't whether our memories are false, it's how false are our memories.

Complex and full false memories (of entire events) are probably less common than partial false memories (where we misremember parts of events that happened), but we already naturally fill in so many gaps between pieces of memories and make so many assumptions, that our personal past is essentially just a piece of fiction."

http://blogs.scientificamerican.com/mind-guest-blog/how-false-memory-changes-what-happened-yesterday/

Hi Dr Shaw,

Thank you so much for doing this AMA and for all of your important work. I find that when educating others about psychology, the hardest topics are always those where people have a sense that their brain works effectively (e.g., people are hesitant to believe they are biased etc.). As most people assume their memories to be a recording of previous events and mostly reliable, how do we best educate society about the immense flaws in memories and the ramifications that has for criminal justice?

ImNotJesus

Oooh. Great question. The answer is SCIENCE COMMUNICATION! By that I mean trying to start conversions with *people* who would not otherwise encounter this information by writing in an *accessible* manner in *public spaces*.

By PEOPLE I mean anyone who is not currently doing memory research. This includes scientists at interdisciplinary conferences, educators, lawyers, police, and everyone else. People sometimes focus too much on the idea of educating the "general public", but who exactly is this? Everyone is part of a group, with training needs and a desire to know things that directly affect their professional and private lives. Find their needs, address them, and you'll make a difference.

ACCESSIBLE. As in, no jargon, or explain your jargon. Keep the critical thinking, and the expertise, but otherwise forget everything you learned about science communication at university. Keep it short. Keep it relevant to current issues. Keep it practical. These are three things that are too often left out of academic articles.

PUBLIC SPACES. Ask places like Scientific American, Huffing Post, The Guardian, Big Think... or any outlets you like whether you can write for them. This can be in isolated cases, like when you find new research results, or on an ongoing basis.

Science is sexy right now. Capitalize on that and spread your message.

I've happened to be the witness in a murder case with a friend. The object of our testimony was an apparently minor event that happened a couple of hours before the murder in an emotionally flat context. As i gave my statement multiple times over the following 24h, week, months, i realised that hadn't i constantly referred to my original, written down statement in the immediate aftermath of the murder, my statement would have significantly changed in the details over time, also because my stress increased (got to know victim's personal details, news, upcoming trials, etc). Also, not discussing the topic intentionally with my friend helped cross checking a few things. The whole experience makes me lose any confidence on any eyewitness testimony. I'm a healthy, educated adult who observed simple events in perfect conditions and yet if not for a peculiar set of coincidences i

wouldn't trust a word i said. How are eyewitness testimony perceived and treated in forensic contexts?

BambinoMerenda

This is an exceptional story. Great first-hand insight, too. I'm sorry this happened to you.

Certainly we need to treat any memory evidence within the framework of understanding in what ways it can, and does, often change. I think that in many criminal trials the judge and jury are under equipped to adequately evaluate the memories of witnesses, victims, and suspects. There are still many misconceptions throughout the criminal justice system which taint the course of justice. What we need is to focus on preventing false memories and ideally for people in your kind of situation to do a memory interview once and do it well, rather than doing it over and over and over again.

I would love to write a piece on your experience, if you don't mind? It would be fantastic to have a first hand account of the factors that *you* felt contributed to your insights regarding your memory being able to shift over time. If you are interested, please email me through my website - www.drjuliashaw.com

Hello Dr Julia, Thanks for doing this AMA. Q: with a difficult childhood is it possible to create false good/bad memories of a parent? If so, what would that mean? Are we protecting them or ys?

spacemanicure

Yes, it is possible to create false memories of a parent, or any other person.

I think this has little to do with 'protecting' anyone, instead it is due to the flexibility of our memory processes. However, given that our memories are interpreted by the present, it is possible that if you perceive your childhood as negative, that in hindsight you can bias your memories unintentionally and remember experiences with a parent as more negative than they actually were.

During recovery from a brain haemorrhage, my father kept "confabulating" which I believe is when his brain essentially makes up memories. He would say he had done things and been out and was certain these things had happened, when in fact he had been in the hospital ward all day.

Is there a way to prevent confabulation from happening or is it something that heals with time following brain trauma?

flumpsy

When we experience brain trauma we sometimes lose, temporarily or permanently, the ability to access coherent memories. This impacts our ability create a sense of a consistent life story, and what we seem to do to compensate is to make things up - we confabulate.

This is a perfectly normal process, and usually once the brain heals this subsides back to the levels of a healthy brain. It should heal with time, unless structures in the brain have been permanently and irreparably damaged.

What profile of people are easier to have memories implanted? Does IQ play a role, or maybe the type of studies the students were into. My first guess is that people that are studying social studies would be more prone to implanting than people that are into math.

janjko

I wrote about this for Scientific American recently!

"Are some people more susceptible to creating false memories than others?

Certainly there are individuals who are considered more vulnerable, such as those with low IQ, children and teenagers, and people with mental illnesses like schizophrenia that already make it difficult for individuals to engage in 'reality monitoring'. Essentially anyone who may already be bad at telling fact from fiction is probably more likely to generate false memories.

However, in my own research on 'normal' adults, I did not find any systematic personality differences between those who did and those who did not form false memories. I tested for 'fantasy proneness', compliance, and the 'Big Five' personality types… in addition to testing for gender, age and education. I found nothing.

This does not mean that such personality vulnerabilities don't exist - they probably do - but they are probably not as important as we may assume. I am convinced that everyone can, and does, make false memories."

http://blogs.scientificamerican.com/mind-guest-blog/how-false-memory-changes-what-happened-yesterday/

Hi Dr. Shaw, Do you think there are ways to preserve accurate memories?

manyapple5

Write stuff down! Take pictures! Live Tweet! Make videos!

The more immediate you can make a recording of something that you think you will want as an accurate account later on, the more you are going to reinforce the memory. Then you also have the original record that has been tainted by as few biases as possible to act as corroborating evidence.

Thanks for the AMA. I have two questions I'd love for you to answer: What was the most interesting thing you learned whilst writing your book, what percentage of our memories (on average) are false memories?

Ihaveanotheridentity

I had SO much fun writing the book! I got to learn so much about so many different and cutting edge aspects of memory science. I already look forward to writing my next book :)

I personally loved thinking about time perception; our ability to perceive *time* is a memory process, because in order to know that time has passed we need to know that things just happened. We need to be able to *remember* that things just happened. This was something I had simply never thought of before.

I also loved hiding a few Easter Eggs in the book, which you would never notice while reading unless you know! ... to hint at two, there is a great memory poem alluded to (by EE Cummings) and my favourite Kurt Vonnegut poem very inconspicuously concealed... It's so hard to find that it might be a *while* before anyone finds it!

The implications of your work on legal testimony is extraordinary.

Have you or your work been cited in court and what do you think is the best way to ensure that testimony given in court about memories of events is correct?

Are there traits of false memories themselves that are not typical in naturally formed memories ie more color or detail is remembered or more association with common themes of the day etc ?

Are there typical circumstances surrounding the formation of false memories that can been explored to see if those circumstances existed in the person giving testimony? Maybe more discussion with others after the event etc.?

GWtech

Too many questions! You get one answer! ;)

I actually work as an expert for court cases quite regularly, educating the court on false memories. I know that in these settings my work has been directly mentioned in relation to the trial, and that others have used my research and the research of my colleagues in other trials. I think it is critical to educate the court on the possibility of false memories for everyone involved, since witnesses, victims, and suspects can all have false memories.

Does your research follow the progression of these false memories over longer periods of time (e.g., a week, two weeks)? Also, how often is reconsolidation implicated in your specific area of research? Do you often see the false memory created in the laboratory update more over time from their imagination inserting novel (fabricated) information into the original laboratory memory?

Currently I'm conducting research on retroactive interference on memory for emotional images from the IAPS and we're hoping to see incorporate reconsolidation into memory for emotional events over the next few months.

chensley

I encourage you to check out my research pubs here!http://www.drjuliashaw.com/research.html

What are the substantial debates about the ethical implications of memory implantation?

What does memory manipulation tell us about the dependability and susceptibility of "true" memory? Should these revelations make us more suspicious of what we believe to remember?

MahatmaGrande

The big debate - known as the "memory wars" - has to do largely with issues around accepting that memories of highly emotional events can be false. A minority of researchers and therapists argue that highly emotional events cannot possibly be false, but I would say that such concerns are not evidence based and that a mountain of evidence clearly shows that we can have false memories of all kind - including false memories of potentially traumatic events.

This ties in with ethics. If we *can* convince people they did highly emotional things, should we? How can we justify this? I think that the answer to this is largely one of the potential consequences of such research for society at large - with tremendous potential gain for things like justice. Also, previous studies have not resulted in any undue or lasting harm to participants, which is promising to know that they don't display things that might be ethically questionable if they were repeated.

I also know that people already have lots of false memories. At least one created in a lab is controlled and can quickly be used as a learning experience that leaves the participant with an insight into how faulty *their own* memory can be. This is a lesson they can take with them and apply to their critique of memory for the rest of their lives.

Dear Dr Shaw, thanks for doing this AMA. I eventually thought of a good question.

With increasing technology and further understanding of the brain and memories, do you think it will be possible one day to "store" memories?

As someone who is nearing the end(ish) of my PhD creating and clinically testing a robotics/VR system to help amputees with Phantom Limb Pain basically by tricking their brain in thinking that a virtual limb is their own. It would be interesting to know your views.

Regards,

Peter

psnow85

Hi Twitter friend! Your research sounds fascinating!

I like the idea of being able to 'download' our memories, but I think we are very far from this kind of application. In a way the internet is already an external memory for us, because we can store tremendous amounts of information there, freeing up our brain resources so we can focus on other things.

I'll actually be talking about this on an upcoming "LevelUpHuman" Podcast, where I discuss Baby X and the race for AI, and how potentially combining futuristic brain scanning with a digital representation of neural networks in a Baby X type way, we could, purely hypothetically make brain backups. This is obviously SciFi at the moment, but I love futurology and discussions about what *could* be possible if we continue making exponential technological advances.

Relevant links:

My article at Scientific American: Separating Science Fiction from Science Fact in Memory Research: http://blogs.scientificamerican.com/mind-guest-blog/separating-science-fiction-from-science-fact-in-memory-research1/

Baby X (saw this first hand earlier this year. It's totally bonkers): https://www.youtube.com/watch?v=eXrRdX8kVWw

Level Up Human (my post not out yet, but the episodes are all futuristic): http://leveluphuman.com/

Hi Dr. Shaw, I'm quite interested in the structure of memory and how it is contextualized or anchored in time, place and other factors. I have extremely poor memories of the first 16 years of my life during which I moved on average around every 6 to 12 months (usually to very different countries/contexts). You've mentioned the importance of 'landmarks' in your book - I've wondered whether this poor memory could be due to the fact that I could not anchor it properly to a time, place or other landmark, since I did not have a strong 'structure' or chronology to anchor it to.

samosama

Hi! It's only been two days since the book was released and you're already at the landmarks section? I'm impressed!

I also moved around a lot when I was growing up, and I also have bad memory for my childhood and teenage years. Perhaps we are onto something here?

In some ways you could say that you perhaps have *too many* landmarks, since you moved so much.

As such, these moves, which for many happen rarely in their lives and would signify an important shift in their personal narrative, lose their significance to you.

Similarly "newness" also would have also lost it's memory importance. If everything is new all the time, the characteristic of being a new experience is not going to be as helpful to your memory as for someone who experiences fewer new things.

I don't know of any research directly on this, but it is certainly a great question!

Hi Dr Shaw

Do repressed memories play a part in these false memories? Does your brain intentionally change memories to prevent pain?

xXDaNXx

Relevant post I wrote for SciAm on repression and regression!
http://blogs.scientificamerican.com/mind-guest-blog/memory-mondays-regression-therapy-isn-t-real-but-hollywood-keeps-the-myth-alive/

Are you concerned about your research potentially being used for nefarious objectives?

After all, with past government programs such as Project MKUltra, it isn't completely unfeasible for a Manchurian-Candidate-like scenario to be attempted, given the results of your studies. At the very least, wouldn't the possibility to implant "false witnesses" in a trial come as a temptation to someone with both the resources and power to do so?

Do you believe memory manipulation could ever reach that extent? Either way, very interesting work!

Edit: formatting.

Myxomatosis_

All research can be misapplied and used for bad, including false memory research. While false memory science can be used to help prevent wrongful convictions and protect the innocent from faulty eyewitness or confession memories, I would also not be surprised if the science of false memory has potentially let guilty people go free. We need to be very cautious how and when we apply these kinds of techniques to maximize positive outcomes for society.

Big fan of yours and the topic itself ! Quick question, what methods did you use to determine how best to convince your subject ? I am sure trying to suggest a memory 'way out there' would have failed more often than it succeeded, so how did you find the balance of believability ?

queenofsomething

Thanks! Believably, or 'plausibility' as we generally refer to is as in memory research, actually may not matter as much as we think it does. Given that we have implanted impossible memories (like having tea with Prince Charles) at similar frequencies as probable memories (like being attacked by a dog), what seems to matter more is that you can make it fit in your personal life story. The person themselves ideally needs to generate the details of who was there themselves, as well as why they were there, and the exact sequence of events. That way they can weave a narrative around an event that makes sense to them!

Greetings Dr. Shaw and thank you!

Roughly 8 years ago, for a paper in a Cognition class with Dr. Daniel Bernstein at KPU in BC, I suggested a false memories experimental design which included an additional experimental group who are brought through the exact same process of implanting the rich false memory, but are told from the very beginning that the memory itself is false, and to go along with it. Perhaps call it the daydreaming cohort.

He mentioned that to his knowledge no one had yet looked into the difference in mental processes between attempting to replay events in one's mind from their past that may or may not be true, and imagining themselves in those same events knowing that they are fiction. Are you aware of any research done on this concept, and/or do you think this is a useful avenue of study?

Zierlyn

I am not aware of this kind of design - I think it would be worthwhile and the results would be meaningful regardless of what you found!

What have you found to be the primary explanation for why people create their own false memories?

Buzz8522

Because memories are stored as complex networks in the brain that can be distorted and recombined.

Is there a way to distinguish whether a memory is real or if it is a false one which the person believes is true?

bravetravels

Relevant article I wrote! http://blogs.scientificamerican.com/mind-guest-blog/how-false-memory-changes-what-happened-yesterday/

Hi Dr. Shaw

Are false memories ever beneficial in an evolutionary sense? How much do we know about the evolution of memory in humans and other animals?

Thanks

suoirucimalsi

Relevant reply from a recent SciAm post!

"Can false memories be advantageous or have positive consequences?

I think that false memories are a gorgeous consequence of a beautifully complex cognitive system, the same system which allows us to have intelligence, problem-solving, and a vivid imagination. Overall false memories are a part of this, and are neither positive or negative, they just ARE.

Whether or not they are considered 'good' is also incredibly dependent on the circumstances. For example, a victim not remembering part of a crime committed against them may be considered a bad thing for an investigation, but a good thing for the victim."

http://blogs.scientificamerican.com/mind-guest-blog/how-false-memory-changes-what-happened-yesterday/

Does this false memory creation apply to those gifted (cursed?) with eidetic memories? If so, what changes occur in their minds that trick their otherwise perfect memory to trick them? If not, what is it about their brains that gets them past this hurdle?

LyanGamer

I dedicate a whole chapter of the book to this - I called it "memory wizards". And, yes, even the people with the most perfect memories in the world are prone to false memory processes.

Dr. Shaw,

I'm just curious if there have ever been any instances when planting false memories turned out bad? Did anyone in the study get so convinced they were left with issues they didn't have before?

discospaceship

Not that I know of. Instead, most participants seemed surprised then enthralled with how their memory worked. Many even signed up the following term for my lectures, and became my research assistants, because they wanted to learn more about memory. I think that, if anything, most participants remember it as a positive experience.

Are we sure you wrote the book? I mean, we're just trusting your memory, right?

I will definitely pick up the book. Memory has always been a fascination of mine. As far as I can remember.

ChristianBMartone

Indeed. *What is real?* How can we trust that anything has ever happened?

CUE EXISTENTIAL CRISIS

Good morning Dr. Shaw, do you think implanting memories of criminal behavior could have a lasting negative effect on moral choices of your subjects going forward?

MiseryAndMorose

Potentially, but only if they were to continue to believe that they had actually committed a crime, which my subjects do not.

In my research I make sure there is an extensive debriefing process where I explain why and how the memories are false at the end of the study, and I make sure that the participants leave knowing that what they recalled to me was purely a piece of fiction. This means that the participants leave with so-called "non-believed" memories. As such, they should not have lasting consequences.

How has research of flashbulb memories, and the malleability of memory, impacted your approach to memory implantation?

mattandflynn

I talk about this extensively in my book! Essentially, the research repeatedly shows that there is no such thing as flashbulb memories... no memories are safe from distortion.

Paranormal phenomena, IMO, are the result of memory errors, among other things. Have you tried implanting false memories to create the impression of things like precognition, seeing ghosts, or telepathy?

4ray

I agree that some paranormal phenomena, like alien abductions, can be partially the result of memory errors.

Researcher Chris French at Goldsmith's university is who you are interested in if you want to know more about this! He focuses on paranormal psychology and false memories.

If implanting false memories is easy to do, would the reverse be just as easy? Meaning, can a real event be forcibly scrubbed from memory and not just modified, by a 3rd party? It sounds like I'm asking about a device like what you might see in a particular series of movies starring Will Smith, and that's kind of the gist I guess, but that's not what I'm asking about particularly.

Mafiya_chlenom_K

This is definitely possible, and related terms for this are "deliberate forgetting" or "intentional forgetting" and "suppression".

Here a useful link: http://brainblogger.com/2014/04/20/deliberately-forgetting-memories-easy-for-some/

Dr. Shaw, I don't have a question, but wanted to thank you for doing your last AMA. I used much of what I learned from your answers to write a short story I recently sold to an anthology in May. I look forward to reading your book!

EmpireFalls

Oh, wow! That's so cool! Can you send me the story? Would love to read it and Tweet about it!

Hi, I'm a student and I have a very big problem with memory; how can I fix this problem? (I'm studying engineering at university)

mensesblast

"a very big problem with memory" - having trouble studying for exams? What's relevant here is the kind of memory you are having trouble with :)