Remembering and Forgetting - Crash Course Psychology #14

Crash Course: Psychology
https://youtube.com/watch?v=HVWbrNls-Kw
https://nerdfighteria.info/v/HVWbrNls-Kw

It was midnight when Bernice got off work. She was exhausted after a long and terrible day, and just wanted to get home to a hot bath. She was driving down the street, flipping through radio stations, when she pulled up to a stop sign, and saw something weird. A shadowy figure ran up to an idling fruit truck, pushed the delivery man down, grabbed a crate of bananas, and ran off around the corner. Bernice was pretty shaken up, but she made sure the driver was okay, and then called the police, describing the thief as a pale, lanky man, wearing a dark jacket and a baseball cap. She gave the cops her information, and then she went home. A couple days later the police asked her to come down to the station to identify a potential thief--a guy who more or less matched her description, and was found eating a banana early that morning, near the scene of the crime. Although the guy professed innocence, Bernice said it was him, and they locked him up. But at the trial, the defense called a memory expert to the stand, and soon after that, the suspect walked. Today's lesson may not quite make you an expert worthy of the witness stand, but by the time we're done, you'll understand a lot more about how we retrieve memories we think we've stored, and why the accused banana thief was set free. [INTRO] We're all constantly retrieving memories throughout the day-- you're remembering where you parked your car, or if you fed the cat, or called your mom 'cause it's her birthday. You'll remember from last week that while our implicit memories--like how to talk and ride a bike--are dealt with on a mostly automatic and non-conscious level, our explicit memories--the chronicles of our personal experiences and general knowledge -- often require conscious, effortful work. Bernice had to notice, encode, store, and later consciously retrieve details about the crime she witnessed--what color was the guy's jacket, what did he look like, what did he steal, and where did he run? It takes a lot of work to retrieve memories from long-term storage, and the truth is, a lot can go wrong along the way. In order to understand all of the many fascinating ways you forget things, we need to talk more about how we remember. Our memories are not like books in the library of your mind. You don't just pluck a neatly-packaged memory -- about where you left your phone or the hair color of a fruit thief. Instead your memories are more like the spider webs in the dank catacombs of your mind--a series of interconnected associations that link all sorts of diverse things, as bits of information get stuck to other bits of information. Like, maybe Bernice remembers that the night of the crime was chilly with a full moon, and that Beyonce was on the radio, and the fruit truck had plates from California, which is where her grandfather lives. All those bits of information in the web of memory--the weather, the song, the plates--can serve as retrieval cues, kind of like a trail of breadcrumbs leading back to a particular memory. The more retrieval cues you inadvertently, or intentionally, build along the way, the better you can backtrack and find the memory you're looking for. This way of activating associations non-consciously is called priming, sometimes called "memoryless memory". It's how "invisible memories" that you didn't know you had can awaken old associations. Priming is how you often jog your memory. This kind of recall is sometimes referred to as context-dependent memory. Say you're reading in bed, and you want to underline a quote, but you don't have a pen. You get up and go into the other room to find your special light-up Hello Kitty pen, but you get distracted and suddenly you find yourself in the kitchen; you're like "Why? Why, mind? Why am I in the kitchen? What is here? Why am- there was a rea- and I don't know but I'm here now and agh!" It's only when you retrace your steps and return to bed, to the initial context where you read that quote and encoded that first thought of wanting that pen, that the memory comes back. And then you're like 'oh, I need to go get the pen. Ugh' If some memories are context-dependent, others are state-dependent, and also mood-congruent. This just means that our states and our emotions can also serve as retrieval cues. If I had a throbbing headache and a super bad day, I'm more likely to start recalling bad memories, because I'm priming negative associations. But of course if I'm relaxed and jolly, I'm prone to remember happy times, which are prolonging my good mood. Another funny memory-retrieval quirk speaks not to our location or emotions, but to the order in which we receive new information. So, say you make a grocery list in the morning, but a few hours later, you're at the store, you realize you left it at home. You'd be more likely to recall the first items on the list--bananas and bread--and the last items--pickles and cheese--than anything in the middle. This is known as the serial position effect. This might be because the early words benefited from what's known as the primacy effect, and made it into your long-term memory because they were rehearsed more. Meanwhile, the last words lingered in the working memory through the recency effect. But those poor middle words, they didn't benefit from either effect and therefore escaped your brain, which is why you now have no toilet paper, dog food, toothpaste, or cookies. Who forgets cookies? But even with all these tricks and associations, things still go wrong--memory can fail or become distorted, and of course we forget things. Forgetfulness can be as minor as those frustrating moments where you're like 'Ah, it's on the tip of my tongue. It's the guy, the guy's got hair, and a face, and, like, shoulders.' Or as major as Clive Wearing, whose neurological damage made it impossible for him to recall the past or create new memories. Of course, we all forget things, and typically we do it in one of three different ways: We fail to encode it, we fail to retrieve it, or we experience what psychologists call storage decay. Sometimes forgetting something just means it never really got through your encoding process in the first place. I mean, think of all the stuff that's going around you at any given moment. We only actually notice a fraction of what we sense, and we can only consciously hold so many bits of information in our minds at any given time, so what we fail to notice, we tend to not encode, and thus don't remember. Bernice noticed a dark jacket, Beyonce, and bananas, but she didn't encode much about the driver, or the color of the thief's shoes. Then again, even memories that have been encoded are still vulnerable to storage decay, or natural forgetting over time. Interestingly, even though we can forget things pretty quickly, the amount of data that we forget can actually levels off after a while. This means that Bernice would have forgotten about half of what she first noticed from the crime scene a couple days later, but what she still remembered, she'd likely hang on to, because the rate at which we forget tends to plateau. A lot of times forgetting doesn't mean our memory just faded to black, it means we can't call it up on demand because of retrieval failure. We all know the common tip-of-the-tongue phenomenon where you feel like you know the name of that weird-looking hard-backed animal that rolls up into ball. It's kind of cute and weird and I think they get leprosy or something…what is it?! This is where retrieval cues can come in handy. If I say is starts with the letter A, you may suddenly unlock the information--Armadillo! Sometimes these retrieval problems stem from interference from other memories getting in the way, essentially cluttering the brain. Sometimes, old stuff that you've learned keeps you from recalling new stuff -- like, if you change one of your passwords, but keep recalling your old one every time you try to log in. That's called proactive, or forward-acting, interference. The flip side is retroactive, or backward-acting, interference, which happens when new learning gets in the way of recalling old information, like if you start studying Spanish, it may interfere with the French that you've already learned. There's a lot of reconstruction and inferring involved when you try to flesh out a memory, and every time you replay it in your mind, or relate it to a friend, it changes, just a little. So in a way, we're all sort of perpetually re-writing our pasts. While this is an inevitable part of human nature, it can prove dangerous at times. Misleading information can get incorporated into a memory, and twist the truth - and yes there is an effect for this; it's called the misinformation effect. American psychologist and memory expert Elizabeth Loftus has spent decades showing how eyewitnesses inadvertently tweak and reconstruct their memories after accidents or crimes. In one experiment, two groups watched a film of a car accident. Those asked how fast the cars were going when they smashed into each

other estimated much higher speeds than those who were asked about the cars hitting each other. Smash is the leading word that essentially altered the witnesses' memories -- so much so that a week later, when both groups were asked if they saw any broken glass, those who heard the word smash were twice as likely to report seeing bits of glass, when in fact, the original film didn't show any. In Bernice's case, chances are her memory of the robbery would be altered if the prosecution said the thief assaulted, rather than pushed the driver. This sort of interfering or misleading information may also manifest itself as source misattribution, like when we forget or misrecall the source of a memory. In the case of Bernice, when she saw the suspect in the courtroom, she thought she recognized him from the night of the crime, when in reality, he'd just served her coffee earlier that day. But her memory of the event had probably already been tweaked several times before she even made it into the courtroom. Like she re-lived the tale multiple times, in her own mind or when she told other people about it, and every time she introduced errors, filling in memory gaps with reasonable guesses. Not only that, but we know Bernice was already tired and stressed when she witnessed the event, and we know our emotions can influence both what we remember and what we forget. Because memory is both a reconstruction and a reproduction of past events, we can't ever really be sure if a memory is real just because it feels real. Elizabeth Loftus knows this. She's frequently called in to testify against the accuracy of eyewitnesses. In fact, of all the U.S. prisoners who have been exonerated based on DNA evidence presented by Innocence Project, a non-profit legal group, 75 percent of them were convicted by mistaken eyewitnesses. That is a lot of innocent people. Bernice meant well of course, she's an honest enough lady, but all these factors--the emotion, the retelling, the suggestions of outside sources-- combined with the darkness, the quick glimpse, the passing of time, maybe even the Beyonce, ended up leading to a mistake in the thief's identification. Turns out the human memory is actually a very fragile thing. We're all largely the product of the stories that we tell ourselves. If you haven't forgotten already, today you learned about how our memories are stored in webs of association, aided by retrieval cues and priming, and influenced by context and mood. You also learned how we forget information, how our memories are susceptible to interference and misinformation, and why eyewitnesses are often not as reliable as you might think. Thanks for watching, especially to all of our Subbable subscribers, who make this whole channel possible. To learn how you can keep these lessons coming while earning awesome perks, just go to subbable.com. This episode was written by Kathleen Yale, edited by Blake de Pastino, and our consultant is Dr. Ranjit Bhagwat. Our director and editor is Nicholas Jenkins, the script supervisor is Michael Aranda, who's also our sound designer, and the graphics team is Thought Café.