The Bobo Beatdown - Crash Course Psychology #12

Crash Course: Psychology
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It's 1961. You're wandering around Stanford University, looking for a sandwich or something when you happen to walk by a particular room in a particular lab, and see something a little unnerving. Namely, you find a woman punching an inflatable clown named Bobo in the neck. Over and over in its neck. This was the lab of legendary psychologist Albert Bandura, and in 1961 he was studying one of the most important phenomena in psychology.

See, while the woman was throttling that big inflatable clown, there was a child watching her. And after about ten minutes of observing this clown-beating display, the kid was taken to a room full of fun toys, which were soon taken away, and then the frustrated kid was left alone with Bobo, and Bandura watched what happened. And yeah, what happened was kind of scary. Kids who watched the woman beating the clown were much more likely to mimic her aggression -- kicking, punching, throwing, even attempting to maul Bobo with a hammer. But other children who saw an adult playing nicely with the doll, or just ignoring it, didn't respond the same way in their frustration.

Bandura's results may seem predictable now, but in those days, they challenged the dominant behaviorist views that we talked about last week -- the views that learning is solely about conditioning and association, rewards and punishments. Bandura's research focused on how learning can occur through observing and imitating someone else's behavior. And if that seems obvious to you, you have Bandura to thank for that. His research hastened the evolution of 20th century experimental psychology from pure behaviorism into what we now know as social-cognitive learning. While it was closely related to behaviorism, the social-cognitive models added profoundly new dimensions to what Skinner and Watson and Pavlov had observed in our feathered and furry friends. In other words, it showed us that -- just as there's more than one way to beat up a clown -- there's way more than one way to learn.

[INTRO]
Last week we talked about the differences between classical and operant conditioning in associative learning -- the kind of learning that comes from connecting different events and stimuli. In classical conditioning, this means associating a stimulus with some kind of involuntary response -- the whole dog slobbering at the sound of a bell phenomenon -- whereas operant conditioning makes associations between stimulus and a voluntary behavior -- like the rat pressing a lever to get delicious snacks, or jumping out of a cage to escape an electrical shock.

And that's all well and good, but if learning is the process of acquiring and retaining new behavior and information, then Bandura's experiments showed us that conditioning with external rewards, punishments, or other stimuli isn't the only way to do it. It's hard to deny that pretty much all animals are capable of learning certain things by association, but critics of behaviorists like Pavlov, Watson, and Skinner had a problem with their assertions that, when it came to learning, it didn't matter much whether you're training rats, pigeons, or people--it's all the same. Because, lots of research has demonstrated that an animal's capacity for conditioning is actually limited by its biology.

Consider this scenario: Say I get a raging case of food poisoning after eating my head-weight in raw oysters with my friend Bernice. I'm probably not going to want to touch oysters again for a long, long time, because I associate their smell and taste with the smell and taste they made when I was — when they were coming back out, is what I'm trying to say. But, that doesn't mean that the sight of Bernice, or the sound of the sea shanties they were playing at the restaurant would make me barf, because humans are, by our very nature, more taste averse than we are sight or sound averse. On the other hand, sight-oriented animals, like birds, may be biologically predisposed to avoid tainted food by sight, since that's how they hunt and forage. And presumably they go to restaurants that play better music.

Anyway, all of this tells us that species can more easily learn associations that help them thrive or survive, and that not all associations are learned equally. It's a lot easier to teach a pigeon to peck an X on the ground to obtain a food reward than it is get it to flap its wings to get that same reward, because pecking is a natural foraging behavior for a pigeon. In the same way, it would be much harder for the bird to learn to peck that X to avoid a shock, rather than to flap its wings to avoid the shock, because flying away from danger is what pigeons naturally do.

Learned associations are even more complicated in humans of course, because what we learn doesn't only influence our behavior, it also shapes our attitudes. Our cognition -- that is, our thoughts, perspectives, and expectations -- is important for learning, as is our social context, as Bandura figured out. So, Pavlov-style conditioning experiments that ignore those social-cognitive elements can really run into trouble. For example, someone under treatment for an alcohol addiction may be given booze laced with a nauseating drug. According to the pure classical conditioning model, that person would then equate booze with feeling nasty.

But the brain can override this association if it's aware that it's the added drug, and not the alcohol, is the thing that's causing the illness. Sometimes we can think our way out of intended associations. And by the same token, a person's social context - like, their friends, family traditions, or life stressors - can reinforce something like alcohol consumption more than the nauseating pill could ever punish it.

Plus, we also do a lot of latent learning, like without even knowing it. Have you ever been walking around a new city, someone stops you to ask directions, and you surprise yourself by actually being able to tell that tourist how to get to the park? That's because we're constantly developing cognitive maps, or mental representations of our surroundings, without explicitly telling ourselves to do it. We've all seen the experiments with in mazes: Well, those show us that even rats develop these cognitive maps, figuring out how to get around, even if there's no reward at the end. And days later, when they finally do get food at the end of the maze, they quickly demonstrate all that earlier latent learning by scuttling through the maze as fast, or faster, than rats that had been rewarded all along.

So, learning isn't just about associating a response with a consequence. There's thinking happening, too. And this kind of thinking is also a big part of observational learning, which is basically learning by watching other people, or being influenced by them in other ways. Because, you don't need direct experience to learn. You can just pick up stuff up through modeling -- not like modeling on the catwalk, I just mean observing and imitating specific behaviors.

Rats, crows, pigeons, primates, and other animals learn through imitation. Chimps learn how to use sticks to fish ants out of a nest this way. One study found rhesus macaques were usually slow to make up after a fight unless they grew up watching more forgiving older macaques, in which case they tended to make up more quickly. Of course we humans learn A LOT from modeling -- I mean, most of our popular culture is based on it: new slang, skinny jeans, foodie trends, pixie cuts -- they're all racing around the globe through observation and imitation. So it makes a lot of sense that social observation shapes behavior, especially in children.

Which brings us back to Bobo. Again, the fact that we learn by imitating, even when we don't mean to, seems pretty intuitive, but until Bandura's famous experiment, it hadn't been studied in a scientific way. I mean, these kids started abusing Bobo not just with

little toddler punches, but with hostile language and even using things, like toy guns, that they previously had no interest in -- and all because they saw aggressive modeling in action. And since Bandura's time, technology has allowed us to peer even deeper into this dynamic.

Neuroimaging in humans, for instance, has shown that when an individual watches someone else, especially someone whom they relate to, receive an award or score a goal or something, their own brain's reward systems light up vicariously. Italian researchers found this out pretty much by accident in the early 1990s: They were studying signals from key regions in a lab monkey's brain that were associated with planning and doing. Their brain-monitoring device buzzed softly when the monkey did something like pick up a piece of fruit and eat it. But one hot day, a researcher came back from lunch licking an ice cream cone, and suddenly heard the animal's brain monitor buzz -- the monkey was watching him, and his brain worked as if it was actually doing the licking.

Many scientists suspect that this is the work of a previously unknown type of brain cell called mirror neurons, which fire when a subject both performs an action, and when they observe someone else doing it. Mirror neuron research is still relatively new, and we're still figuring them out, but combined with Bandura's earlier work, it's revealing a strong connection between observation, imitation, and learning. So the takeaway here is: Models are important! And not just Gisele and Antonio Sabàto Junior. You can, if you want, observe and imitate them; I'm just saying that observational, social learning starts really early, and parental figures are powerful role models.

Positive, supportive, and loving models usually prompt similar behavior in others, just as negative, aggressive modeling can spark antisocial effects. And, as we'll talk about later, what we see and feel and learn as children is not easily displaced when we're adults. Literary giant George Bernard Shaw wrote, "Imitation is not just the sincerest form of flattery - it's the sincerest form of learning." And British statesman Lord Chesterfield once said, "We are, in truth, more than half what we are by imitation." Even if these ideas were only half-true, they'd still be a powerful lesson on who you choose to spend your time with, and how you choose to act.

If you learned anything by watching me today, hopefully it involved the limitations of classical and operant conditioning, the basics of cognitive, observational, and social learning, a look at mirror neurons, and how to beat up a Bobo doll.

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