

How 'Limbic Capitalism' Preys on Our Addicted Brains
written by David Courtwright

One summer day in 2010, a Swedish graduate student named Daniel Berg approached me after a talk I gave at Christ's College, Cambridge. During the talk, I had casually mentioned internet addiction. Berg told me that I had spoken a truth larger than I knew. Many of his male friends at Stockholm University had dropped out of school and were living in crash pads, compulsively playing World of Warcraft. They spoke an argot more English than Swedish. It was all raiding, all the time.

"How do they feel about their circumstances?" I asked. "They feel angst," Berg said.

"But they keep playing?" "They keep playing."

This sort of behavior does seem like an addiction, in the sense of a compulsive, regret-filled pursuit of transient pleasures that are harmful to both the individual and society. For gaming, the personal cost was highest for Swedish men. "I am," Berg reported, "now the only male in my graduate program in economic history."

Back home in Florida, I noticed digital distractions exacting a more even academic toll. The smartphones that dotted the lecture halls were as often wielded by women as by men. But when I told Berg's tale to my students, they instantly recognized the type. One admitted that he had lost a year to compulsive gaming. He said that he was in recovery—precariously, to judge by his grades. Another student knew gamers who kept cans by their computers. They used them to avoid having to take bathroom breaks.

The can by the computer became for me a symbol of the shifting meaning of addiction. As late as the 1970s, the word seldom referred to anything other than compulsive drug use. Over the next forty years, however, the concept of addiction broadened. Memoirists confessed to addictions to gambling, sex, shopping and carbs. German sex therapists called internet porn a "gateway drug" that ensnared the young. A New York Times op-ed declared sugar to be addictive, "literally, in the same way as drugs." A toothless young New Zealand mother drank up to ten liters of Coke a day, then splashed the headlines when she died of coronary arrhythmia. A nineteen-year-old truant in Jiangsu Province made the news when he hacked off his left hand to cure his internet addiction. Chinese officials judged as many as 14 percent of his peers to be similarly hooked, and set up internet addiction rehabilitation camps. South Korea and Japan followed suit. Taiwanese legislators voted to fine parents who let their children spend too much time online, updating a law forbidding minors' smoking, drinking, drug-taking and betel-chewing. Only the last habit failed to appeal to Americans, 47 percent of whom showed signs of at least one behavioral or substance addiction disorder in any given year in the early 2000s.

Often they showed signs of more than one: Medical researchers have discovered that substance and behavioral addictions have similar natural histories. They produce similar brain changes; similar patterns of tolerance; and similar experiences of craving, intoxication and withdrawal. And they reveal similar genetic tendencies toward similar personality disorders and compulsions. The manic gambler and the casino barfly are apt to be one and the same. In 2013, the new edition of the bible of psychiatry, the Diagnostic and Statistical Manual of Mental Disorders: DSM-5, described gambling disorders in language indistinguishable from drug addiction. The editors ushered “internet gaming disorder” into the green room of addiction by designating it a “condition for further study.” In 2018, the WHO made it official by adding “gaming disorder” to the revised International Classification of Diseases.

Not everyone was happy with all the talk of addiction. Clinicians avoided it for fear of discouraging or stigmatizing patients. Libertarians dismissed it as an excuse for lack of discipline. Social scientists attacked it as medical imperialism. Philosophers detected equivocation, the misleading practice of using the same word to describe different things.

I give these critics a hearing. But in my own usage, I will stick to “addiction.” The word provides a usefully concise and universally understood way of referring to a pattern of compulsive, conditioned, relapse-prone and harmful behavior. The important job, and the goal of my new book, *The Age of Addiction: How Bad Habits Became Big Business*, is to explain why that pattern of harmful behavior has become more conspicuous and varied over time.

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Addictions begin as journeys, usually unplanned, toward a harmful endpoint on a spectrum of consumption. The journey can be rapid, or slow or interrupted. Casual indulgence, even of a drug like heroin, does not always lead to addiction. When it does, the condition is not necessarily permanent. Addicts can and do quit, either permanently or for long stretches of time. Nor is all excessive consumption necessarily addiction. People can gamble too much without being compulsive, just as they can burden their scales without being food addicts. Yet—and this is the crucial point—regular, heavy consumption has a way of shading into addiction, as when a steady drinker’s craving intensifies, erupting into full-blown alcoholism. An addiction is a habit that has become a very bad habit, in the sense of being strong, preoccupying and damaging, both to oneself and to others. The type of damage depends on the substance or behavior. Compulsive gamers may ruin their scholastic and marital prospects. They do not ruin their livers or lungs.

The addiction process is social as well as biological. Conditions such as stress and peer behavior help tip individuals into addiction, though the process ultimately manifests itself in

one's brain. Frequent resort to alcohol, drugs and drug-like behaviors causes changes in neurons, including altered gene expression. Over time, these changes occur in more and larger regions of the central nervous system, like drops of dye spreading on a taut sheet. The changes are long-lasting, particularly in developing brains. The earlier children and adolescents experience an addictive substance or pastime, the likelier they are to retain, even when abstaining, a powerful emotional memory of the behavior that once made them feel so good.

The nature of addiction has implications—more precisely, temptations—for businesses that sell habituating products. One is to encourage early and frequent consumption. Treat the lads, the saloonkeepers used to say, and you'll have their money in the till when they're adults. And the more they drink, the greater the profits. To this day, 80 percent of alcohol sales go to the 20 percent of customers who are the heaviest users, a pattern that applies across the business of brain reward. More than half of all marijuana finds its way into the lungs and stomachs of those who spend more than half their waking hours stoned. Insofar as addictions to marijuana, or to anything else, develop most often among the poor, the marginal and the genetically vulnerable, they are sources of inequality and injustice as well as illness.

These realities are well understood in the addiction-research and public health communities. Less well understood is how we got into this fix and why it keeps getting worse, despite the best efforts of those communities. I propose that the main source of the problem has been what I call limbic capitalism. This refers to a technologically advanced but socially regressive business system in which global industries, often with the help of complicit governments and criminal organizations, encourage excessive consumption and addiction. They do so by targeting the limbic system, the part of the brain responsible for feeling and for quick reaction, as distinct from dispassionate thinking. The limbic system's pathways of networked neurons make possible pleasure, motivation, long-term memory and other emotionally linked functions crucial for survival. Paradoxically, these same neural circuits enable profits from activities that work against survival, businesses having turned evolution's handiwork to their own ends.

Limbic capitalism was itself a product of cultural evolution. It was a late development in a long historical process that saw the accelerating spread of novel pleasures and their twinned companions of vice and addiction. The pleasures, vices and addictions most conspicuously associated with limbic capitalism were those of intoxication. Considerations of private profit and state revenue encouraged alcohol and drug consumption until rising social costs forced governments to restrict or prohibit at least some drugs. Or so I argued in *Forces of Habit: Drugs and the Making of the Modern World*, a 2001 book on the history of alcohol and drugs. Yet, even as I stated my case, I saw that it applied to more than the usual psychoactive suspects. It applied to all pleasures, vices and addictions that had become entwined in the emerging system of limbic capitalism.

This idea wasn't entirely novel. Victorian-era reformers saw alcohol and non-medical drug use as part of an ill-starred constellation of vice. Granted, vice is a slippery category. Chinese men considered sniffing and sucking the tiny, deformed feet of girls and women to be normal erotic behavior until missionaries and modernizers stigmatized foot binding. Yet, for all the cultural malleability of vices, the Victorians recognized two important things about them. One was that they had become big business. The other was that they were linked. Rare was the brothel without booze, or the opium den without a gambling house nearby. Victorians also supposed vices to be linked neurologically, with those who had inherited or acquired defective nervous systems being most inclined to them.

The last hunch was a good one. A century later, neuroscientists and geneticists were mapping these connections at the cellular and molecular level. They discovered that different substances and activities generate similar types of brain reward and craving. They showed that addicted brains are alike in that reward cues activate the same pathways in drug and behavioral addictions. Researchers began to use the term pathological learning for the process that occurs when addictive substances or behaviors augment release of the neurotransmitter dopamine, turning what evolved as a beneficial process into a pathological one. Dopamine does its work of reward and conditioning in pathways originating in or near the limbic midbrain, a key region for regulating mood, pleasure and pain.

The pleasurable effect depends, in part, on the intensity of the signal that dopamine produces after release into the synapses. In neurons as in life, first impressions matter. People keep on doing what their brains tell them is highly rewarding, often past the point where it is still pleasurable or beneficial. Addicts want something after they have ceased liking it, even if they realize its harmful effects. "I hate this shit," a Swedish heroin addict told his doctor, "and it doesn't give me much of a high. It is just that somehow, it seems I can't be without it."

Researchers identified common risk factors. Genetic variations and life circumstances—stress, social defeat, neglect or abuse during critical periods of brain development—make some people more susceptible to addiction than others. They feel uncomfortable or depressed until they discover that alcohol, drugs, sugar, gambling, computer games or some other thrilling behavior temporarily banishes their blues. Frequent resort to these substances and behaviors further damages their neural control systems and, often, other parts of their brains. What the Victorians called vice really is a vicious circle. Self-destructive habits are constitutionally linked, downwardly spiraling, and socially expansive. "Addiction is a memory, it's a reflex," summed up the American psychiatrist Charles P. O'Brien. "It's training your brain in something which is harmful to yourself."

Or having your brain trained. The deeper truth is that we live in a world nominally dedicated to progress, health, and longevity but in fact geared toward getting us to consume in ways that

are unprogressive, unhealthful and often deadly. Understanding this paradox—the burden of my new book—requires going beyond neuroscience, beyond disordered neurons and defective genes. It requires understanding the history of novel pleasures, commercial vices, mass addiction and limbic capitalism’s ever-growing power to shape our habits and desires.

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Limbic capitalism did not spring full-blown onto modern history’s stage. On the contrary, it emerged from something primal: the efforts of our species to continuously expand our repertoire of pleasures. The search for pleasure preceded civilization and contributed to its foundation.

Civilization in turn had disparate consequences for pleasure. It made possible (for some) the higher pleasures of learning, musical artistry, theater and absorbing games of skill such as chess. But it also sickened, immiserated, and subjugated billions of humans by making intoxication more desirable, vice more tempting, and addiction more likely. Civilization also incubated the technologies that quickened the global quest for pleasure. Chief among them were the improvement and spread of agriculture; the expansion and monetization of long-distance trade; the rise of cities, empires and industry; and, in the recent past, the explosion of digital communication.

Along the way, there were smaller breakthroughs that nonetheless had large consequences. Among them were the isolation of plant-drug alkaloids such as morphine and cocaine; the application of photography to pornography; the blending of sugar, fat and salt in processed foods; and the rapid (now virtual) transport of people from one amusement to another. Innovations like these gave entrepreneurs and their state enablers the means to expand and intensify pleasures and to promote vices, increasing the amount of harmful consumption and the variety of addictions.

In brief, civilized inventiveness weaponized pleasurable products and pastimes. The more rapid and intense the brain reward they imparted, the likelier they were to foster pathological learning and craving, particularly among socially and genetically vulnerable consumers. Meanwhile, globalization, industrialization and urbanization made these seductive commodities and services more accessible and affordable, often in anonymous environments conducive to anomie and saturated with advertising. Accessibility, affordability, advertising, anonymity and anomie, the five cylinders of the engine of mass addiction, ultimately have found their most radical technological expression in the floating world of the internet.

Though the internet supercharged limbic capitalism, it did not invent it. In fact, no one invented it. It emerged from an ancient quest to discover, refine and blend novel pleasures. New pleasures gave rise to new vices, new vices to new addictions—for some people,

anyway. Addictive behavior was, to repeat, seldom majority behavior. But the risk of such behavior grew as entrepreneurs rationalized—that is, made more scientific and efficient—the trade in brain-rewarding commodities.

Ultimately this rationalization assumed the aspect of a global economic and political system, in the sense of being organized, interlocking and strategically active. By the nineteenth century, entrepreneurs were doing more than simply selling whatever new pleasures chance discovery and expanded trade made available. They had begun to engineer, produce and market potentially addictive products in ways calculated to increase demand and maximize profit.

They learned to play political hardball. They devoted a share of their profits to buying off opposition. They devised lobbying and public relations tactics to survive the big reform wave of the early twentieth century. They prospered in varying degrees during the mid-twentieth century, when some addictive behaviors were permitted, others winked at, and still others repressed. After the Cold War, their enterprises became increasingly varied, legitimate, and global. They created, not merely an age of addiction, but an age of “addiction by design” that is both the hallmark of limbic capitalism and the clearest demonstration of its inversion of the forces of reason and science that made it possible.

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