

Natasha Dow Schüll

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Assistant Professor  
M.I.T. Program in Science, Technology, and Society  
77 Massachusetts Avenue, E51-185  
Cambridge, MA 02139  
office: 617.253.9651  
nds@mit.edu

**Written Version of Testimony  
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My research (to be published in the Fall of 2008 by Princeton University Press) began in the early 1990's in Las Vegas, and concerns the dramatic turn that's taken place in recent decades from social forms of gambling, played at tables, to asocial forms of gambling, played alone at video terminals. Although classic green-felt table games or "live games" dominated casino floors as recently as twenty years ago, today gambling machines are the "cash cows," the "golden geese," the "work horses" of the industry.<sup>1</sup> Frank Fahrenkopf, president of the American Gaming Association, the commercial lobby that supports the Gambling Industry – has remarked that "*it's the slot machine that drives the industry today.*"<sup>2</sup>

As a social anthropologist, it fascinated me that gamblers were increasingly playing with machines rather than with each other, and I wanted to understand why. I moved to Las Vegas, where I lived for over 18 months, and spent countless hours observing and speaking with local gamblers, whom I met in casinos, bars, grocery stores, and Gamblers Anonymous (GA) meetings — where over 90% of those in attendance are exclusively video gamblers.

A full two thirds of those who reside in Metropolitan Las Vegas gamble.<sup>3</sup> Of these, two thirds do so heavily (defined as twice a week or more, with session lengths of 4 hours or more)

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<sup>1</sup> In 1980 forty-five percent of casino floor space in Nevada was dedicated to coin-operated gambling; by 1998 the figure had risen to 80% (WGCE, Sept 1999). Atlantic City experienced a similar shift (New York Times, Dec 17, 1998, p. G7; "Luck, be a Microchip tonight: Gambling goes Digital"). Depending on jurisdiction, today machines generate from 70 - 90% percent of total gaming revenue. In residential areas of Las Vegas where machines are heavily preferred over live forms of gambling, the devices generate as high as 90%—a figure that grows still higher when one considers the numerous machines operating in bars, supermarkets, and pharmacies across the city.

<sup>2</sup> Quoted in Rivlin, Gary. 2004. "Bet on it: The tug of the newfangled slot machine." *The New York Times Sunday Magazine*, May 11.

<sup>3</sup> <http://cber.unlv.edu/stats.html>; Data Sources: Clark County Comprehensive Planning, Las Vegas Convention and Visitors Authority, State of Nevada Gaming Control Board.

or moderately (1-4 times a month, with session lengths of 1-4 hours).<sup>4</sup> Half the revenue generated by this considerable gambling activity is captured by Station Casinos, a franchise that leads the locals market. Most residents live within a three-to-five-mile radius of one of its thirteen properties. Eighty-seven percent of Station Casinos' cash flow derives from slots and video poker, expressing residents' strong preference for gambling machines. In 1984, the annual Clark County Resident's Study, published biennially by the Las Vegas Convention and Visitors Authority, reported that 30% of gamblers play machines most often; twenty years later, that figure had reached 70% (see Figure X).

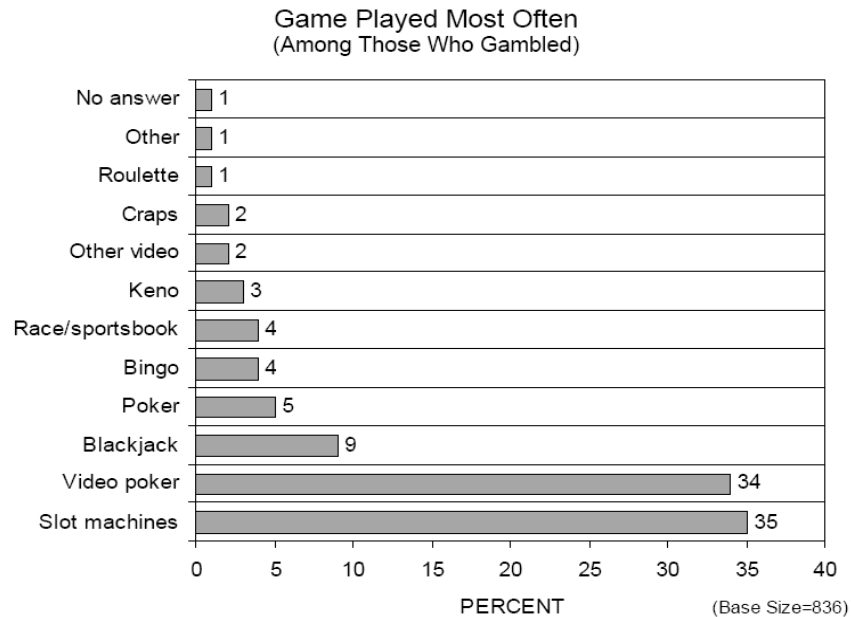


Figure X. Games played most often among residents who gambled in 2004.<sup>5</sup>

I learned a number of counter-intuitive things during my extended fieldwork among gambling regulars and addicts in Las Vegas. Although people typically think of gambling as an activity that is about fun and excitement, regular and addicted machine gamblers are motivated less by a desire for chance, excitement, or entertainment than by a desire for escape into a dissociative state of continuous flow. Without social element to keep them in check, they are able to exit the world and enter what they call the “machine zone” – a kind of anesthesia from human concerns that removes them from time, space, a sense of monetary value, or even embodiment. Gambling machines so completely concentrate players’ attention on a series of

<sup>4</sup> Shoemaker, S., and D. M. V. Zemke. 2005. The "Locals" Market: An Emerging Gaming Segment. *Journal of Gambling Studies* 21:379-410, p. 395. This study is more precise in its methodology than another study with similar numbers conducted by GLS Research in their 2006 *Clark County Resident's Study: Survey of Leisure Activities and Gaming Behavior*. Las Vegas Convention and Visitors Authority. See also G. Woo, UNLV Las Vegas Metropolitan Poll, Cannon Center for Survey Research, 1998, p.4.

<sup>5</sup> GLS Research, Clark County Resident's Study: Survey of Leisure Activities and Gaming Behavior. *Las Vegas Convention and Visitors Authority*, 2004, p. 19.

specific game events that anything troubling about their life situation – physically, emotionally, or socially – is blotted out. The aim is not to win, but instead, to “keep going.” Winning not only stops mattering but actually becomes undesirable, for it interrupts the flow of play. As one gambler told me: “*It may start out being about the winning – but that’s just a drive-in to something else.*” A gambling addict who wins does not get up and go; one woman told me of the dread she felt on hitting a jackpot at 4 AM one morning: “*Now I have to sit here for two more hours until it’s gone.*” As gambling addicts often told me during my research, “*leaving with money is not an option.*”

I came to realize that to fully understand what was motivating people to play machines in increasing numbers – and what was addicting some of them – I had to learn not only about what was going on inside individual gamblers, but also what was going on inside the machines they were playing. To that end, I expanded the scope of my research and began interviewing engineers, designers, and marketers of gambling technologies, in their labs and at major trade conferences like the Global Gaming Expo, which I have been attending since the mid-1990’s. In such settings, the aim of technology design is no big secret: how to get people to play longer, faster, and more intensively. Amongst themselves, game developers and marketers freely discuss how they can better harness technology to keep gamblers seated “*for as long as humanly possible,*” as one designer put it.

Every feature of gambling machines – mathematical structure, visual graphics, sound dynamics, seating and screen ergonomics – is geared to increase “*time on device*” and encourage gamblers to “*play to extinction,*” as the industry jargon goes (in other words, until their funds are depleted). While gamblers talk about “the zone” of continuous play flow, game developers talk about “continuous gaming productivity.” Machines are designed to match up more and more perfectly with certain human fallibilities – and in some cases, vulnerabilities. Their ability to do this has increased exponentially.

Today’s machines are a far cry from the “one-armed bandits” whose primary role in the 1950s and 60s was to occupy the female companions of gamblers playing table games. Instead of handles and reels, the devices have buttons and screens; instead of coins, they take player credit cards; and instead of a few games per minute, hundreds can be played. Instead of actual reels, they have virtual reels that rely on complicated algorithms whose workings few people in the gambling industry itself understand — much less policymakers or citizens considering these machines in their own communities.<sup>6</sup>

If we actually look at what these algorithms are doing, it’s a kind of high tech version of “weighting the deck” or “loading the dice” – which no self-respecting casino would ever think of doing. Unlike casino table gambling, in which traditional card games with transparent rules are adapted to include a house edge, gambling machines descend from carnival games whose workings have always been played against the house, have always included deception, and have

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<sup>6</sup> For a video tutorial of how machines work, see software developed by [GamePlanit.com](http://GamePlanit.com).

always been concealed in a box. Given that such devices are “driving the industry” (as the AGA president tells us), it makes sense that we should open them up to the same kind of public scrutiny directed at other consumer products, like toys imported from china, to make sure they stand up to consumer protection laws on deception and misleading graphics. Legislators involved in the decision to expose citizens to these machines and draw on their revenue to augment the state budget should make sure they understand how these machines work.

Just as it is a mistake to view all forms of gambling as homogenous in nature, potency, and effect, it would be a mistake to treat all gambling machines as alike; these computerized devices are not the same as the mechanical slots of the 1960s. Internationally, machine gambling is associated with far higher rates of pathology than traditional forms of gambling.<sup>7</sup> Large epidemiological studies in Australia and Canada have estimated that problem gamblers lose 17 times as much money as other patrons, generating 42 to 53% of net machine revenues.<sup>8</sup> A study in Nova Scotia was surprised to find that 50% of regular machine players gambled problematically, generating 80% of revenue from machines.<sup>9</sup>

The discussion around “problem gambling” and “pathological gambling” tends to focus on what might be wrong with individual gamblers. The fact that some might come into the world more susceptible than others to developing addictions – a fact that is not in dispute here – does not mean that it isn’t important to also consider the fact that some machines come into the world better prepared to addict those who engage with them.<sup>10</sup> Addiction is understood in the scientific literature as *relationship* that develops between a person and an activity or substance. Diagnostic and prevention efforts should focus on both sides of this relationship.

I do not believe that creating addicts is the aim of the gambling industry; like other businesses, the aim is to maximize profits. Yet attempts to make devices more and more effective at extracting money from consumers renders products that – for all intents and purposes – treat every player as a potential addict, in other words, as an individual who will keep playing until their means are thoroughly exhausted.

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<sup>7</sup> Prevalence measures for pathological and problem gambling are plastic. AGA’s website, citing research that it funded with casino endowments, claims that 1% of the U.S. adult population gambles pathologically. Various researchers have estimated rates between 6 and 8 percent among Las Vegas locals (e.g. Gemini Research, 2005).

<sup>8</sup> Australian National Productivity Commission, 1999; Focal Research, 1998; each study had more than 10,000 respondents.

<sup>9</sup> Some argue that the greater market penetration of gambling machines accounts for the greater numbers of those addicted to them; still others fail to see why this should be an argument against curtailing their density.

<sup>10</sup> A study found “no significant relationship between control over gambling and age, employment, relationship status, education or distress from significant life events. Control over gambling was, however, significantly related to duration and frequency [of machine play]” (Scannell, et al. 2000. Female’s Coping Styles and Control over Poker Machine Gambling. *Journal of Gambling Studies* 16, p. 248