

Slot machine sounds can manipulate players, researchers say

By Meeri Kim, Published: July 6, 2013

Whether you're in Las Vegas or the small-town casino down the street, slot machines sound more or less the same: jangly music, the whirl of spinning reels accompanied by loud beeps and chimes.

A recent [study](#) shows that some of those noises can easily fool our brains into thinking that we have won — even when we have unequivocally lost money.

“The way slot machines are designed, sound is a really crucial component of player feedback,” said lead author and behavioral neuroscientist [Michael J. Dixon](#) of the University of Waterloo in Ontario.

Because the jubilant sound effects are always tied to wins or even partial losses — “losses disguised as wins,” Dixon calls them — they act as positive reinforcement and can skew our perception of lost money.

Say you wager \$1 for a single spin on a modern video slot machine. If you hit a winning combination and win \$5, you are rewarded with flashing animations and celebratory winning jingles made to give you a sense of accomplishment.

In the other extreme, when you win nothing, the machine goes into a quiet state of rest with no lights or music. It just sits there, waiting for you to play again.

The catch is, even when you win just a portion of your wager back — for instance, 25 cents out of the dollar you put in — the machine still gives you happy noises and such, similar to when you really win. So even though you have actually lost money, you come away feeling like a winner.

Dixon's team of scientists had 96 gamblers play a slot machine simulator with and without sound and had it programmed to win exactly 28 times out of a total of 200 spins. Afterward, they asked players how many times they had won out of 200.

For both conditions, players overestimated their number of wins, but by significantly more when the sound was on.

Dixon said these games — [particularly multiline slots](#) that allow bets on multiple rows and combinations on a single spin — can be so complex that often people will rely on the machine to tell them whether they have won or lost via sound and lights. So they will listen for those sounds as a cue and think that they have won — no matter what the actual outcome.

“I don’t think [slots are] a level playing field,” Dixon said, adding that he finds the manipulation of slot machines disconcerting.

The findings were [published online Tuesday](#) in the Journal of Gambling Studies.

Dixon, along with computer scientist Kevin A. Harrigan, also of the University of Waterloo, formed the [Gambling Research Lab](#) after Harrigan got hold of the design documents for slot machines. Through analysis of the underlying math and computer algorithms, they realized how deceptive the machines can be by pushing irrational behavior and giving players an illusion of control.

In a prior study, they describe preprogrammed “near misses,” or what Harrigan calls the “Awww Shucks Effect.” This happens when, for instance, you spin and two of the reels match up on a high-paying symbol, and the last reel stops just above or below that same symbol.

Harrigan found that modern machines are weighted to hit near misses far more often than if the odds were truly random. A near miss makes players feel as if they almost won a huge jackpot and that if they play some more, they will win. Slot machines are engineered to provoke those exact emotions.

They also looked at whether the effect of sound was more pronounced in those with gambling problems. While they found “hints” pointing toward that conclusion in the data, Dixon said that sound generally seems to affect players across the board — both gamblers and non-gamblers.

Dixon describes a high incidence of depression among those addicted to slots. He said addicts use slots as a form of escape.

“Players refer to it as ‘getting in the zone,’” he said, citing the nonstop and hypnotizing nature of slots. Players can hit the spin button every couple of seconds and gamble many times per minute, whereas in other forms of gambling they would have to wait longer between plays.

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