

Researcher develops formula that can ID music industry payola

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A University at Buffalo researcher has invented a statistical method that can detect payola-like corruption in the music industry, a system that gives law enforcement an inexpensive statistical guide to identify potential music corruption and to better target more traditional and much more costly hands-on evidence-gathering.

The statistical formula, developed by Ming Ming Chiu, PhD, professor learning and instruction in the UB Graduate School of Education, also can be applied to seemingly unrelated processes, such as how often consumers use new products or embrace new ideas.

"[Music](#) sociologists have known anecdotally that record companies bribe radio stations to play specific songs so that listeners would buy more of them -- it's called payola -- but they could not show it systematically," says Ming, who has earned national recognition for his research on how overconfidence among teenage students can inhibit crucial reading skills

"When the New York State Attorney General published its evidence of payola for some songs, I used it to develop a statistics method to show that radio stations' airplay of payola songs vs. other songs differed," says Ming.

Gabriel Rossman, PhD, assistant professor of sociology at University of California at Los Angeles, framed the problem and was first author of the study. Ming solved the problem by inventing a new statistical method -- Multilevel Diffusion Curves (or MDC) -- to analyze which factors

influence when [radio station](#) disc jockeys play specific songs.

"Songs, like other products and ideas, spread through a population in two ways," says Gabriel. "It's either external diffusion -- by an external agent, for example, record company payola -- or internal diffusion -- by word-of-mouth from current users to new users. External diffusion has a large initial effect and then tapers off. When many radio stations take payola, for example, they play a specific song in one week, with fewer additional radio stations playing the song in later weeks."

On the other hand, Ming says, work-of-mouth or internal diffusion starts small, grows over time and then tapers off, resembling an S-shaped growth curve.

"For example, one radio station disc jockey initially plays a song, tells another DJ about it and then both DJs play it," Ming says. "Next, both DJs talk with a few more DJs who play it, and so on, increasing the rate of growth.

"When lots of DJs are spreading the song, the number of new DJs playing the song skyrockets, similar to Malcolm Gladwell's tipping point. Eventually, they run out of DJs who might play this song, so growth slows."

Multilevel diffusion curves can be used to study when people use multiple new products or ideas, according to Joeri Mol, PhD, coauthor and assistant professor of management at the University of Melbourne in Australia. Some applications for the statistical formula include: consumers buying books; people's beliefs in competing ideas, ideologies or religions; doctors prescribing new medicines; people's uses of birth control; decolonization; central bank independence; and privatization of public utilities.

Ming says his formula is useful as an effective and economic alternative for investigators looking into patterns that may indicate bribing disc jockeys to play specific songs.

"District attorneys can use inexpensive statistics to identify potential music corruption before costly evidence gathering," Ming says.

And although the more celebrated days of disc jockey payola occurred decades ago, music industry corruption endures, even in this age of electronic and cyberspace music, Ming says.

"The death of payola is something of a myth," says Rossman. "Payola scandals appear like clockwork every 15 years: 1959, 1974, 1990, 2004. When record labels and musicians need radio publicity to sell their music, they try to buy it. Hence payola keeps coming back in different forms: royalties in the '50s, cocaine in the '70s, the mob in the '80s and, most recently, underwriting radio station promotional campaigns. Before radio, sheet music publishers bribed vaudeville performers."

With this method, statistics has taken a step toward uncovering payola and opening a path for future equations to shed light on other crimes, according to the three researchers.

Provided by University at Buffalo

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