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## Virtual lemmings

Oct 13th 2010, 17:34 by J.P.



HUMANS are a gregarious lot. We appreciate company. And we appreciate our company appreciating us. One way to preserve this mutual appreciation is to emulate others. This gives rise to trends or, in a less charitable turn of phrase, herd mentality. We appear to be wired to find all manner of fads psychologically irresistible. Advertisers have long understood this. So have retailers—in increasingly tech-savvy ways. Some have been developing [smart trolleys](#), which relay information on their contents to digital displays on shelves. These, in turn, would inform passing shoppers how many other customers are about to plump for the same item. And no self-respecting online venture would be complete without a constantly updated "most recommended" box (just look at this screen, to the right of this blog post).

It's likely that such ruses work because [it made evolutionary sense](#) to copy neighbours, to avoid danger or find food and shelter. Sometimes, this atavistic tendency ends in tears, when it prompts us to act contrary to what is, on reflection, our self-interest. (Witness stock-market crashes, stampedes and tamagotchi.) What made sense to a relatively homogeneous gaggle of several dozen nomads needn't hold for millions of strangers.

As modern *Homo sapiens* migrates to the online savannah, trends have been spreading to ever greater numbers. So the wise men and women of our now-massive tribe have been tracking web versions of these ancient behaviours. However, most of the research (both on- and offline) to date has focused on either a small subset of users or the most successful herd-driven behaviours. Now Felix Reed-Tsochas of Oxford University's Saïd Business School and Jukka-Pekka Onnela from Harvard University have broached the subject with an admirably broad brush.

As the pair [report](#) in the latest *Proceedings of the National Academy of Sciences*, they pored over (anonymous) data of the entire Facebook population in July and August 2007 (around 50m at the time), and at all but a few of the 2720 apps available for download in the same period (the 15 that didn't make the cut were partly corrupted). This amounted to a total of some 104m app installations. At that time, a Facebook user's apps were all visible to friends, who were also notified when any new app was downloaded (a practice Facebook has since abandoned). This, along with a display of the total number of installations of each app, were the only ways apps were plugged, permitting the researchers to control for the effects of external advertising. Any effects observed would thus be wholly attributable to social influence, not canny ad men.

Dr Reed-Tsochas and Dr Onnela duly discovered that the social networkers' herd mentality was intact, with popular apps doing best, and the trendiest reaching stratospheric levels. A typical app was installed around 1,000 times, but the highest-ranked notched up an astonishing 12m users. What did come as something of a surprise, though, was that our inner lemming only kicked in once the app had breached a clear threshold rate of about 55 installations a day. Any fewer than that and users seemed oblivious to their friends' preferences. Interestingly, after some serious number crunching, the researchers found that this cannot be put down purely to the network effect, ie, the idea that adopting a certain innovation only makes sense if enough other people have done so. Indeed, this effect appeared less pronounced than might have been expected.

Moreover, the data suggest that the sudden spike in installations doesn't come about simply because a discovered threshold has been passed. This means the observed threshold rate is unlike an infectious disease's [basic reproduction number](#). (This is what epidemiologists call the average number of secondary cases caused by a typical infected individual in a population lacking immunity, with no efforts to control the outbreak.) In other words, it would be inaccurate to speak of an epidemic of popularity. Rather, Dr Reed-Tsochas and Dr Onnela suggest that two discrete behavioural patterns emerged. Users appeared to treat any app with more than 55 daily installations differently to those with fewer downloads. Under 55 daily installations, friend behaviour was an instrumental part of the decision to install. Over 55 daily installations, and friend behaviour didn't matter one jot. Virtual lemmings are, it seems, discriminating in ways we still don't quite comprehend. As is, no doubt, the offline troop.