

Mid-level scientists most likely to use new research tools, study says

August 4 2014

Scientists in the middle of the status hierarchy, not those at the top or the bottom, are the first to work with easy-to-use commercial products. They are also the most prone to imitate their prior collaborators' use of such commercial kits. These are among the findings of a study of scientists-as-customers appearing in *Marketing Science*, a journal of the Institute for Operations Research and the Management Sciences (INFORMS).

Nonmonotonic Status Effects in New Product Adoption is by Yansong Hu of the University of Warwick and Christophe Van den Bulte of the University of Pennsylvania's Wharton School. It currently appears in the Articles in Advance Section of *Marketing Science*.

"Our findings suggest that high-[status](#) scientists need not be the most effective seeding points for new commercial research tools," says Dr. Van den Bulte. "Even though they exerted the greatest influence on their peers, high-status scientists were actually slower to convert to using convenient kits. So, for companies introducing new products, targeting marketing efforts exclusively towards high-status scientists in the hope that they will influence others may slow down rather than accelerate their products' acceptance. "

The study analyzed how quickly 8,259 life scientists, spread across the globe, started using commercial kits to perform site-directed mutagenesis, a type of genetic engineering, in the period 1988-1997. Though that research technique was developed in the 1970s, it remained

cumbersome until 1988 when commercial kits appeared on the market, providing researchers with a proven set of materials and step-by-step instructions. Such kits allow life scientists to work faster, publish faster, and so improve their status.

Studying scientists as customers allows the study to measure status in two different ways: First, by how many times each scientist's work was cited by fellow researchers; and second, by how central each scientist was in the network of scientific collaboration. Studying scientists also allows researchers to measure the effects of status in a manner that is not confounded by differences in wealth or education.

The differences in scientists' behavior were rather large. The odds of a scientist in the top 30-40% of the citations hierarchy to start using a kit were about 50% greater than those of a scientist at the bottom 10% and about 100% greater than those of a scientist in the top 10%. The odds of a scientist in the top 40-50% of the citations hierarchy to start using a kit following the adoption by one additional prior collaborator were about twice those of scientists at the bottom 10% or the top 10%.

A similar pattern emerged when measuring status as being central in the network of scientific collaboration: Middle-status scientists were more likely to adopt the kits quickly and were more prone to social influence than either low or high-status scientists.

Experiments in social psychology provide an explanation for these findings. People of low status don't expect to improve their situation much by their actions whereas those of high status don't see the need to do so. As a result, people in the middle of the status hierarchy are most sensitive to opportunities and threats to their status.

"This work," says Dr. Van den Bulte, who teaches marketing at the Wharton School, "has some implications for firms and not-for-profit

organizations marketing new products to customers other than scientists. First, when the product is subject to peer influence, they may be better off targeting not only high-status prospects who are influential but also middle-status prospects who are easier to convert quickly. This is especially so for products that help users increase their status, like the commercial kits we studied. Second, conflicting findings on the power of opinion leaders have come from studies assuming that everyone is equally influenceable or assuming that the higher one's status, the lower one's susceptibility to peer influence. Our findings indicate that a more nuanced approach may be necessary to understand who influences whom."

More information: [pubsonline.informs.org/doi/abs/...
.1287/mksc.2014.0857](https://pubsonline.informs.org/doi/abs/10.1287/mksc.2014.0857)

Provided by Institute for Operations Research and the Management Sciences

Citation: Mid-level scientists most likely to use new research tools, study says (2014, August 4) retrieved 18 April 2024 from <https://phys.org/news/2014-08-mid-level-scientists-tools.html>

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