

Creativity is not just for the young, study finds

Two career paths revealed for Nobel laureates in economics

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Summary: If you believe that great scientists are most creative when they're young, you are missing part of the story. A new study of winners of the Nobel Prize in economics finds that there are two different life cycles of creativity, one that hits some people early in their career and another that more often strikes later in life.

FULL STORY

If you believe that great scientists are most creative when they're young, you are missing part of the story.

A new study of winners of the Nobel Prize in economics finds that there are two different life cycles of creativity, one that hits some people early in their career and another that more often strikes later in life.

In this study, the early peak was found for laureates in their mid-20s and the later peak for those in their mid-50s.

The research supports previous work by the authors that found similar patterns in the arts and other sciences.

"We believe what we found in this study isn't limited to economics, but could apply to creativity more generally," said Bruce Weinberg, lead author of the study and professor of economics at The Ohio State University.

"Many people believe that creativity is exclusively associated with youth, but it really depends on what kind of creativity you're talking about."

Weinberg did the study with David Galenson, professor of economics at the University of Chicago. Their study appears in a special issue of the journal *De Economist*.

In the study, the Nobel Prize winners who did their most groundbreaking work early in their career tended to be "conceptual" innovators.

These type of innovators "think outside the box," challenging conventional wisdom and tend to come up with new ideas suddenly. Conceptual innovators tend to peak early in their careers, before they become immersed in the already accepted theories of the field, Weinberg said.

But there is another kind of creativity, he said, which is found among "experimental" innovators. These innovators accumulate knowledge through their careers and find groundbreaking ways to analyze, interpret and synthesize that information into new ways of understanding.

The long periods of trial and error required for important experimental innovations make them tend to occur late in a Nobel laureate's career.

"Whether you hit your creative peak early or late in your career depends on whether you have a conceptual or experimental approach," Weinberg said.

The researchers took a novel, empirical approach to the study, which involved 31 laureates. They arranged the laureates on a list from the most experimental to most conceptual.

This ranking was based on specific, objective characteristics of the laureates' single most important work that are indicative of a conceptual or experimental approach.

For example, conceptual economists tend to use assumptions, proofs and equations and have a mathematical appendix or introduction to their papers.

Experimental economists rely on direct inference from facts, so their papers tended to have more references to specific items, such as places, time periods and industries or commodities.

After classifying the laureates, the researchers determined the age at which each laureate made his most important contribution to economics and could be considered at his creative peak.

They did this through a convention of how academics rate the value and influence of a research paper. A paper is more influential in the field when other scientists mention -- or cite -- the paper in their own work. So the more citations a paper accumulates, the more influential it is.

Weinberg and Galenson used two different methods to calculate at which age the laureates were cited most often and thus were at the height of their creativity.

The two methods found that conceptual laureates peaked at about either 29 or 25 years of age. Experimental laureates peaked when they were roughly twice as old -- at about 57 in one method or the mid-50s in the other.

Most other research in this area has studied differences in peak ages of creativity between disciplines, such as physics versus medical sciences. These studies generally find small variations across disciplines, with creativity peaking in the mid-30s to early 40s in most scientific fields.

"These studies attribute differences in creative peaks to the nature of the scientific fields themselves, not to the scientists doing the work," Weinberg said.

"Our research suggests that when you're most creative is less a product of the scientific field that you're in and is more about how you approach the work you do."

The researchers were supported by grants from the National Science Foundation, the National Institute on Aging, the National Institutes of Health's Office of Behavioral and Social Sciences Research and the Ewing Marion Kauffman and Alfred P. Sloan foundations.

The special issue of *De Economist* that includes this study commemorates the first Nobel Prize in economics given in 1969. One of the recipients was the Dutch economist Jan Tinbergen.

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