Ph.D.-trained scientists are essential contributors to the workforce in diverse employment sectors that include academia, industry, government, and non-profit organizations. Therefore, best practices for training the future biomedical workforce are of national concern. To complement coursework and laboratory research training, many institutions—including UNC-Chapel Hill—now offer professional training to enable career exploration and help students develop a broad set of skills for various career paths.

The National Institutes of Health funded academic institutions to design innovative programming for professional development through a program called "Broadening Experiences in Scientific Training" (BEST), which includes career panels, skill-building workshops, job-search workshops, site visits, and internships. Because doctoral training is lengthy and requires focused attention on research, some researchers feared students participating in additional training activities might diminish their research productivity or delay graduation. To find out if that was true, research staff from several leading institutions and led by UNC-Chapel Hill's Office of Graduation Education analyzed metrics from ten NIH BEST awardee institutions.

"We've known for several years that many faculty PIs have had concerns that their trainees' time spent out of the lab on career training activities might come at a cost of reduced papers or delays in obtaining their degrees," said co-lead author Patrick Brennwald, Ph.D., professor in the UNC Department of Cell Biology & Physiology. "There was an implicit assumption by many faculty—myself included—that significant time spent on career training must come at a cost, but to our knowledge this assumption had never been tested."

The researchers used time to degree and publication records as measures of efficiency and productivity.

"Comparing doctoral students who participated to those who did not, our results show that across these diverse academic institutions, there were no differences in time to degree or manuscript output," said co-lead author Patrick Brandt, Ph.D., Director of Career Development and Training and Director of Science Outreach at UNC-Chapel Hill.

This study was unique in that it compiled doctoral degree durations, recorded individual participation in career and professional development activities in terms of dosage, and tracked individual engagement at ten different universities in real-time rather than relying on surveys sent to trainees after graduation.

"Participation in career and professional development activities, including internships, did not decrease efficiency or productivity," said co-lead author Rebekah Layton, Ph.D., Director of Professional Development Programs at UNC-Chapel Hill. "Our findings support the policy of supporting career and professional development opportunities intended to prepare students for a variety of diverse and important careers in the..."
workforce."

The study is reported in *PLOS Biology*.

**More information:** *PLOS Biology*, [DOI](https://doi.org/10.1371/journal.pbio.3000956)

Provided by University of North Carolina Health Care


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