

Using Research to Train Researchers: Surprising Evidence on Value of Boot Camps in Newly Published Study | CEHS

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Boot camps for graduate students are a rapidly growing trend in higher education. Short in duration format and high-intensity, these programs are widely thought to increase students' performance trajectory in several areas, including socialization, publication rate, and research and writing skills. This belief inspires robust funding for and participation in these programs.

Dr. David Feldon, professor of Instructional Technology and Learning Sciences at Utah State University, and his team spent the past three years gathering data from 294 graduate students in 53 institutions. The data amassed yielded surprising evidence: contrary to the notion that these programs improve students' success, the evidence indicated that boot camps failed to add value for students who participated compared to graduate students who did not. Outcomes measured included students' research skills, number of scholarly publications, confidence in their abilities, and feelings of belonging and engagement within their academic departments and disciplines. This week, the *Proceedings of the National Academy of Sciences* published Feldon's "Null Effects of Boot Camps and Short-Format Training for Ph.D. Students in Life Sciences." The [full version](#) is accessible online.

Feldon and his colleagues studied both traditional boot camps (typically between 2 days and 2 weeks) and other short-format training (e.g., bridge programs) provided during summers immediately before or after the first year of doctoral study. Even controlling for nationality, gender,

race, and prior research experience, his 3-year study found no quantifiable benefit from these programs.

Findings like these provide valuable information to university faculty, policy makers, and funders who want to produce top scientists. The field of graduate education has only just begun to embrace the notion of evidence-based practice to guide changes in the ways that future scientists are trained. In this case, finding evidence that a promising practice may not live up to its reputation is just as valuable as identifying those that do.

"Ironically, the concentrated information presented in such boot camps gives students a false sense that they are learning a great deal," said Dr. Alan Savitzky, professor and department head of the biology department at USU. "When in fact, the boot camp is less effective than acquiring the same skills gradually, over an extended period."

Federal funding through the National Institutes of Health and the National Science Foundation provided nearly \$28 million in active grants for graduate student boot camps and short format bridge programs in 2016. Hard data has not shown that these programs are effective in boosting students' performance by any metric.

Dr. Feldon has been invited to present his work at the National Academies' [Committee on Revitalizing Graduate STEM Education for the 21st Century](#), on November 6-7 in Washington, D.C.

Savitzky observed, "This study should remind us that the long path to graduate and post-graduate degrees is, in fact, the best way to produce strong scientists. I find that message very encouraging."



David Feldon: ITLS professor at USU