IDA | Research Insights

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SMART Program Bolsters Quality of STEM Talent in Defense Civilian Workforce

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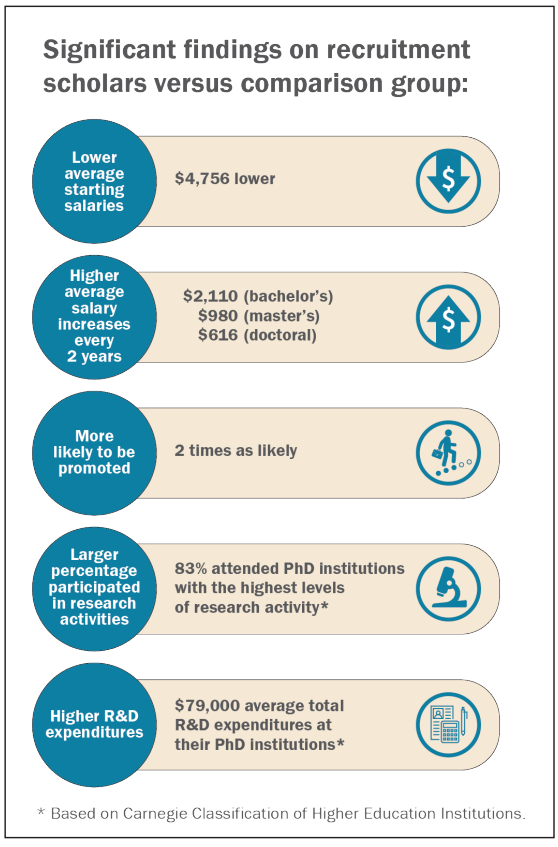
Science, Mathematics, and Research for Transformation (SMART) is a Department of Defense (DoD) program that provides scholarships for higher education students of science, technology, engineering, and mathematics (STEM). The program's goal is to recruit and retain highly educated and talented STEM students in the DoD civilian science and engineering (S&E) workforce. For each year of scholarship, scholars commit to working for one year as civilians in DoD laboratories, research and development (R&D) centers, and facilities.

IDA conducted an in-depth evaluation of SMART to determine whether the program's processes have been effective and whether the outcome has had the desired effects. Analyses of personnel data and of information gathered from interviews and surveys supported the evaluation. A comparison group of S&E civilian workers hired at the DoD with characteristics similar to SMART scholars was constructed and used as a control group in the analyses.

For the timeframe evaluated—2006 through 2016—87% of SMART scholars indicated the program benefited their careers and 94% of their managers reported being satisfied with the program. In that timeframe, the program awarded 2,021 scholarships (see table). The majority of awards (about 87%) went to *recruitment scholars*—talented STEM students who are new to DoD. A survey of these scholars revealed that 30% of them were not aware of S&E workforce opportunities at the DoD prior to applying for SMART. The remaining awards (about 12%) went to retention scholars—existing DoD civilian employees interested in pursuing higher education in their fields.



SMART Scholarships Awarded by Component and Degree Field, 2006–2016

Degree Field	Army	Navy	Air Force	Additional DoD Facilities	Total
Biological Science	39	1	10	7	57
Computer Science	89	100	93	16	298
Earth Science	31	20	2	4	57
Engineering	383	418	478	33	1,312
Mathematical Science	31	36	50	9	126
Physical Science	48	40	29	5	122
Psychology	23	12	13	1	49
Total	**644**	**627**	**675**	**75**	**2,021**

IDA also looked at quality metrics, including salaries, promotions, R&D expenditures of academic institutions attended, and PhD publication quality. These analyses revealed statistically significant differences between SMART recruitment scholars and comparable S&E civilians who came to DoD without the benefit of SMART (see illustration).

(continued)

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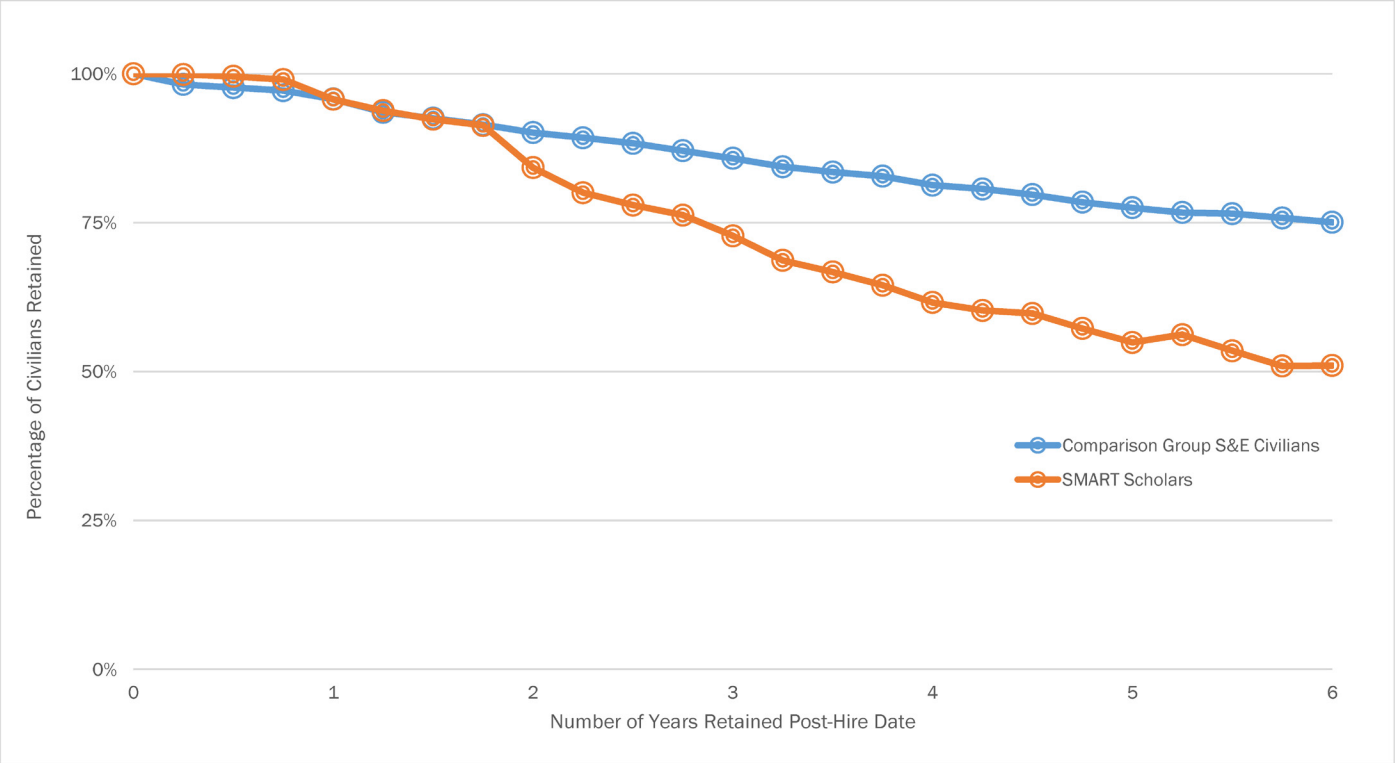
On average, SMART scholars exhibited higher quality performance than civilians hired through other mechanisms.

While most scholars fulfilled their commitments to DoD, IDA found that SMART recruitment scholars were less likely than comparable S&E employees to remain with DoD after completing their service commitment (see chart). However, retention scholars were more likely than comparable S&E employees to remain with DoD.



IDA provided recommendations that may help DoD recruit higher quality scholars and increase long-term retention. **SMART could continue to attract STEM talent to long-term DoD employment if the program's goal were more closely aligned with individual service needs.** A workforce demand analysis could help DoD determine what those needs are.

Based on IDA Document D-9262, *Science, Mathematics & Research for Transformation (SMART) Outcome Evaluation Report*, A. Balakrishnan, H. Acheson-Field, R. S. Buenconsejo, J. C. Mary, C. A. Summers, S. M. Vitkin, V. Peña, D. A. Bernstein, S. T. Lane, and J. Belanich, September 2018. Research sponsored by the Office of the Assistant Secretary of Defense (Research and Engineering).