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Author: Musante, Susan

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AIBS Study on Leading Change in Undergraduate Education

SUSAN MUSANTE

Advancing biology education has always been integral to the mission of the American Institute of Biological Sciences (AIBS). As part of AIBS's long-range planning process, the Education Committee was charged with identifying how this key part of the mission could be fulfilled most effectively. The Committee met in 2011 to discuss priorities for undergraduate biology education, to consider how to leverage efforts across the biological societies, and to identify what niche AIBS is best positioned to fill.

In December 2011, the Committee made three recommendations to the Board of Directors, proposing that AIBS develop a prototype leadership-development workshop focused on creating agents of change for undergraduate biology education, initiate a biology program review using the American Association for the Advancement of Science's (AAAS) *Vision and Change in Undergraduate Biology: A Call to Action* principles as a framework, and improve connections among scientific societies to promote effective practices for teaching, learning, and assessing student learning.

The Board was particularly interested in the Committee's recommendation that AIBS provide leadership support to biology department chairs and future leaders. The Committee therefore took their next steps on this new initiative by conducting a needs assessment. They surveyed individuals leading change within undergraduate life sciences departments to determine their level of interest in a leadership-development program and the kinds of academic leadership skills desired.

Nearly 500 responded—37 percent at research institutions, 26 percent at liberal arts colleges, 24 percent at regional or comprehensive universities, and 13 percent at 2-year or community colleges. Just over half of the respondents were female, and the overwhelming majority selected "white" as their race or ethnicity. Over half said that they currently are or have in

the past been department chairs, heads, or coordinators.

Approximately 45 percent of the respondents reported that *Vision and Change* or similar calls for the transformation of undergraduate biology education had already influenced their biology departments. Twenty-three percent believed that these national reports had not yet influenced their departments as a whole, and almost 20% of all of the respondents were unfamiliar with any of the reports. Just over 40% of the respondents' departments had begun implementing changes based on the *Vision and Change* report's principles and recommendations, 33 percent said that they had not, and 14 percent said that they did not know whether such changes were being implemented. When they were asked whether their institution's culture would welcome such changes, 55 percent of the respondents said that it would, 10 percent said that it would not, and 23 percent were unsure. Although *Vision and Change* was published in 2011, these data reinforce the fact that there is a need to build both awareness about *Vision and Change* and the capacity of those already implementing large-scale departmental changes.

Almost 55 percent of the respondents would like to participate in a leadership institute for department chairs or heads; the majority of those were at 2-year or community colleges. Thirteen percent were not interested, and 24 percent were unsure. Many of the respondents have already successfully employed skills such as building consensus and articulating a vision to lead their departments; however, there is a wide array of additional skills that they want to develop. These include a mix of those needed to keep department-level functions running smoothly and those required to envision and lead change.

Although the survey results provided valuable insights into the general needs of those leading change within undergraduate

life sciences departments, they also raised many questions. "Given the rapid changes in biology undergraduate education in the last decade, it is clear that the leadership of biology departments requires support beyond the management of departmental functions," says Muriel Poston, chair of the AIBS Education Committee.

Poston and the Committee determined that additional research was needed to more fully understand the needs of the target audience, specifically as those needs relate to the audience's different institutions, the diversity of those institutions' populations, and the limitations of the institutions' resources. In addition, the Committee recognized the importance of reviewing what is known through the literature and building on the leadership professional development programs that are already offered.

With support from the Howard Hughes Medical Institute, AIBS is taking its next steps to examine what is known about the effective development of academic leadership skills, the research on change leadership, key elements of existing programs, and further insights into what those leading change need in order to be successful. AIBS will also consult with two other national-level projects paralleling the timeline of our study: PULSE (the Partnership for Undergraduate Life Sciences Education) and the AAAS's *Vision and Change in Undergraduate Biology Education: Chronicling the Changes* conference. The project will culminate in the fall with a meeting that will bring together experts in the field to synthesize what we have learned and to identify evidence-based strategies for building the capacity and skills of those leading change within academic departments.

Susan Musante (smusante@aibs.org) is the AIBS education programs manager.

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