



## From the President

Stacey Kiser  
NABT President – 2014

### A Change of View

*There is nothing permanent except change.*  
Heraclitus, 535–475 BCE, Greek philosopher

*When you are through changing, you are through.*  
Bruce Barton, 1886–1967, American author  
and politician

Change is as inevitable, and important, in education as it is in life. The recent *Vision and Change* report on the state of postsecondary biology education clearly calls on us to change how biology is taught (AAAS, 2011). Alas, not everyone is as enthusiastic about change as the rest of us. And therein lies the problem. We need to reach beyond enthusiastic individuals to transform whole departments.

My teaching career started with a project immersed in change. I was a TA and then a research assistant for the Workshop Biology Project at the University of Oregon. This project was driven by a self-selected group of award-winning faculty at the University of Oregon who were dissatisfied with the state of general-education biology classes (Udovic et al., 2002). As part of that project, I participated in their discussions of biology education research, aided curricular experiments in classes, observed the postclass discussions, assisted in data analysis, and attended presentations at various conferences. Three years later, I began my own teaching career with a set of curricular training wheels and an enduring belief in the value of continuous change and improvement.

Over the years, I have maintained my positive attitude toward change. I annually attend professional development workshops that not only present me with new information and valuable skills, like bioinformatics and Big Data, but also with new ideas that challenge me to consider *how* I teach. My current professional “challenges” to myself include conducting undergraduate research at a two-year college and teaching a general education class for honors students.

So why, in what might be called a midlife crisis in my teaching career, do I find myself frustrated by additional calls for more change? My frustration, I think, is with our failure to utilize research on organizational change to attain large-scale reform of biology education. My quick review of the research on change in higher education suggests that there are many hurdles to overcome – hurdles that take deliberate attention, time, and resources. But it can be done.

Perhaps the biggest step we can take is to make change a part of instructional culture. Researcher Adrianna Kezar reviewed change models specific to pedagogical reform efforts in higher-education

STEM programs. She identified two change models to consider. The “mutual adaptation model” addresses the need for all reform efforts to adapt to local conditions, while the “social movement model” overtly addresses incentives to support change. Kezar cited an evaluation of the National Science Foundation’s large-scale reform efforts (Elmore, 1996) that concluded, in part, that “the problem of scale will not be solved so long as incentives remain limited and innovation is viewed as an individual trait of charismatic innovators, rather than as a normative requirement of good teaching” (Kezar, 2012, pp. 40–45).

The number of hours of professional development matters greatly. Teachers were much more likely to implement inquiry-based science if they had at least 80 hours of professional development a year (Darling-Hammond et al., 2009). How much time do you get to plan, implement, assess, and reflect on new pedagogy? Getting enough time to be a true professional impacts the success of pedagogical reform (and I would argue, the likelihood of attempting change again).

Unfortunately, for some, despite professional development opportunities, we may not truly adopt new approaches to teaching. A negative correlate to adoption of new pedagogical perspectives is the number of years teaching (Ebert-May et al., 2011). It behooves us all to remember how to be a student when we are learning a new teaching strategy. Mastering new information requires a deep understanding and practice with feedback. We should also remain purposefully open to new approaches, especially from enthusiastic early-career teachers.

So my advice is to embrace change personally and join with other NABT members as change agents. Together we attend conferences, write for *The American Biology Teacher*, and organize state and regional teacher activities. The simple but rewarding act of attending an NABT conference feels like you immerse yourself in at least 40 hours of professional development. Read and suggest *ABT* articles to colleagues. Face-to-face NABT networks address challenges and spread successes unique to states and regions. NGSS and Common Core are being implemented in many states. NABT change agents can help lead discussions to successfully transform existing curriculum to meet new goals.

NABT is changing as well. New (and even some older) members are using social networking to promote change. Tweet your teaching trials and errors. Share new classroom activities on Facebook. Keep in touch after the conference and use NABT’s online support community to implement and reflect.

Use NABT as your support network of change agents (#IamNABT). For more information on my professional development activities, see <http://bioquest.org>.



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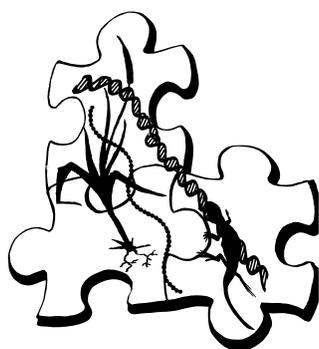
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## Editor's Note

One reason why *ABT* features a full-color cover and associated blurb is to provide a small “teachable moment.” One of our readers has provided an unintended such moment directed at me associated with the April 2014 cover photo.

Dr. Janice Swab, emerita professor from Meredith College, pointed out that I stated “[a]ll *Rafflesia* flowers smell like rotting meat, designed to attract flies...” She wisely criticized my choice of the word “designed” and suggested that this term might embolden those who fail to understand that evolution has provided the *Rafflesia* with this odoriferous ability, not a “designer.” Most certainly the *Rafflesia* were not purposefully designed, but only through natural selection and other evolutionary mechanisms can we explain why these giant flowers have this interesting trait. Thanks Dr. Swab for reading the cover blurb so carefully and teaching me a useful lesson.

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Editor



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