In recent years, members of the higher education community have called for major revisions to the way undergraduate biology is taught. These reforms are intended to meet the needs of students learning biology in the 21st century. As a result, the National Science Foundation – in partnership with the Howard Hughes Medical Institute, the National Institutes of Health, and the American Association for the Advancement of Science – launched a national initiative called “Vision and Change in Undergraduate Biology.” Carol Brewer, conference co-chair and professor emeritus of biological sciences at the University of Montana said that “We all have work ahead of us to ensure that the transformations we make in biology classrooms around the country reflect the biology we do in the 21st century.”

The Vision and Change report is available at http://visionandchange.org/files/2011/03/Revised-Vision-and-Change-Final-Report.pdf. It highlights that for a student to be biologically literate, he or she needs to have an understanding of five core concepts. These are (1) Evolution, (2) Structure and Function, (3) Information Flow, (4) Pathways and Transformation of Energy, and (5) Systems. The report calls for these core concepts to be integrated with core competencies and disciplinary practices, including (1) the ability to apply the process of science, (2) the ability to use quantitative reasoning, (3) the ability to communicate and collaborate with other disciplines, and (6) the ability to understand relationships between science and society. If you compare these core concepts and core competencies to the “big ideas” and science practices in the AP Biology Curriculum Framework, it is clear that there is a lot of overlap between AP Biology and an introductory biology class.

However, reform and transformation are not easy, as many AP Biology teachers, including myself, know all too well. After sliding down the hill by the seat of my pants during the school year, I can tell you I felt some extra bumps along the way as I taught AP Biology with the Framework. It was a difficult but rewarding experience. Furthermore, I am here to tell my colleagues teaching undergraduate biology, embrace Vision and Change. Implementation will be a challenge, and it will take time. While many institutions are embracing Vision and Change with open arms, others are completely resistant to vision and scared to death of change. But this is not another fad in education that will come and go. Vision and Change is here to stay, and many agencies have money and resources available to help make sure it is implemented, evaluated, and leads to the outcomes outlined in the Vision and Change report.

Across-the-board consensus and implementation of Vision and Change is especially critical at a time when over half of the introductory biology courses are taught in 2-year institutions, where many adjunct instructors are employed. Two-year colleges serve a diverse population of students, including nontraditional and underrepresented students. To ensure that all undergraduate biology students are exposed to a 21st-century biology education, it is imperative that all instructors of undergraduate biology embrace Vision and Change.

There is no “one size fits all” model for how Vision and Change is going to work – just as with AP Biology. However, there are models that work, and they need to be presented, shared, and discussed. This is where NABT comes in. Whether you are looking to expand your core content knowledge, enhance your pedagogical skills, or compare challenges and successes, NABT has ways for you to connect.

A nice place for discussion about instructional models and other issues and concerns is the NABT Ecosystem site at http://www.nabt.org/ecosystem. There is a discussion group ready for your input and a resource section ready for your tools. The NABT Conference in Atlanta will feature sessions focused on implementation from actual implementers. Articles in The American Biology Teacher will show you “How-To-Do-It.”

Last year, NABT played a major role in facilitating meetings at the NABT Professional Development Conference by providing opportunities for 2-year and 4-year leaders to attend symposia, summits, and events that allowed them to discuss ideas. NABT will continue to be a key player in the Vision and Change movement.

For the call to action outlined in Vision and Change to be successful, real science reform is necessary. For reform to be successful, a whole community must come together to make it happen. NABT members are coming together, and we are learning from each other. I would encourage 2-year and 4-year biology instructors to interact with K–12 teachers and learn new strategies for classroom practice. I encourage K–12 teachers to learn from the great content experts at the undergraduate level.

At the AP Biology Reading, undergraduate educators work side-by-side with AP Biology instructors grading more than 200,000 student responses on the AP Biology Exam. It is a great opportunity for high school, 2-year, and 4-year educators (many of whom are NABT members) to discuss content and pedagogical strategies.

For all of the educators embracing Vision and Change, I encourage you to accept and endure the bumps along the road because in the end, you will find it to be a very rewarding experience.