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### Diversity and Democracy

## Global Learning and Scientific Literacy at the Crossroads

By: [Kevin Hovland](#) and [Susan Elrod](#)

"Global learning" is a term whose meaning continues to evolve, and higher education's stakeholders struggle to agree on a working definition. Most colleges and universities see themselves as global in some way or address globalization at some level, and the majority are trying to become more global in their approaches and institutional identities. The range of what they mean by "global," however, is wide and can include faculty research agendas, international student bodies, partnerships with institutions in other countries, and, of course, study abroad.

While the adjective "global" retains a broad array of meanings, there is growing agreement about the outcomes and goals—if not the methods and measures—of twenty-first-century education. Current debates about student learning have reached toward a consensus that bridges what is known about how students learn and what kinds of literacies and competencies students will need to be able to recognize, evaluate, and address complex real-world problems with local and global consequences (see AAC&U's LEAP Essential Learning Outcomes, for example). These debates provide a framework for describing global learning in practice even as higher education struggles to define it.

Imagining such practices was one of the primary goals of AAC&U's 2011 Annual Meeting, "Global Positioning: Student Success, Essential Learning, and the Currency of US Degrees." It was also the focus of the 2011 premeeting symposium, "Integrating the Sciences, Arts, and Humanities: Global Challenges and the Intentional Curriculum," cosponsored by Project Kaleidoscope and the Shared Futures initiative. This issue of *Diversity & Democracy* continues the conversations initiated at those events by focusing on the relationship between science education, student learning, and big global questions.

### From Culture to Contextual Integration

What do students need to know about a world defined by interconnections and interdependencies? What skills will they need to navigate such a world? Working backward

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from these questions, what should the curricula look like if they are to provide sufficient opportunities for students to develop such knowledge and practice such skills? How can educators ensure that a global approach to student learning occurs not only in disciplines that focus on culture, but across the entire campus? What will science courses look like, both within the disciplines and in general education, if they are framed as global learning experiences? What will teaching across all disciplines be like if faculty members focus on integrating learning through application to real-world problems?

In this issue of *Diversity & Democracy*, Indira Nair, chair of the Shared Futures Global Learning Leadership Council, raises such questions in her exploration of the "new literacies" that are "requisite to participation in a globally interconnected world." Lisa Gentile and Kathy Hoke of Project Kaleidoscope's Facilitating Interdisciplinary Learning project describe a curricular innovation at the University of Richmond that frames an introductory science course around inquiry about global problems. Additional articles focus on sustainability and public health, providing examples of places in the curriculum and cocurriculum where students are integrating multiple perspectives and applying their learning on the ground. By focusing on contextual integration, these articles force us as educators to broaden our understanding of global learning and to consider the implications of our most ambitious student learning goals for the curriculum and for faculty expectations.

### The Evolution of Global Learning

A decade ago, when AAC&U queried its members about their definitions of global learning, our questions were most often forwarded to the offices primarily responsible for international education—in most cases meaning study abroad. Things have changed considerably in the years since. Global economic crises and climate change, avian flu, 9/11, and similar trends and events have focused greater attention on questions of the world's interdependence and interconnection. At the same time, campuses have spent more time and energy defining and assessing undergraduate learning outcomes in general education and in the majors. Attention to these topics converges on questions of purpose and outcomes, encouraging educators to reimagine the curricular and cocurricular pathways they provide for students to test their learning in the context of increasingly complex, real-world issues.

In their mission and vision statements, colleges and universities are increasingly linking definitions of high-quality education to the ability of their graduates to act as global leaders, stewards, and citizens. While institutions are translating these aspirations into a wide variety of learning experiences and curricula, we at AAC&U have noticed two related but distinct ways that globalization has

captured the imaginations of higher education leaders.

The first focuses on global competition. Thomas Friedman and others are concerned with the relatively low number of science and engineering degrees awarded to US students. In a globally structured economy (or a "flat world," as Friedman describes it), US educational policies must be geared toward ensuring that US students are better prepared for participation in the interconnected and highly competitive global knowledge economy. Thus Friedman advises his daughters: "Girls, finish your homework—people in China and India are starving for your jobs" (2005, 279).

This is essentially a national security argument with an economic and educational focus. While the United States is falling behind in technical skills and entrepreneurial spirit, US students don't know nearly as much about the rest of the world as students in the rest of the world know about the United States. Plenty of evidence attests to American students' lack of interest in foreign languages and lack of basic knowledge of world history and geography. Consequently, it is not enough to simply encourage more students to become engineers. It is also necessary to rethink how those engineers are educated, focusing on content and pedagogy as well as completion rates. Without this broader approach, the number of US engineers may increase, but their success in the global knowledge economy will not.

The second strand emphasizes the unique opportunity that global interdependence offers students and educators to engage profound questions of personal and social responsibility. If Thomas Friedman is the champion of a competitively educated *global workforce*, philosopher Martha Nussbaum is the voice for an intentionally educated *global citizenry*. In *Cultivating Humanity: A Classical Defense of Reform in Liberal Education*, Nussbaum argues that "campuses are producing citizens, and this means that we must ask what a good citizen of the present day should be and should know." She identifies three capacities of the student prepared for global citizenship: "critical examination of oneself and one's traditions"; "an ability to see [oneself] not simply as [a] citizen[] of some local region or group but also, and above all, as [a] human being[] bound to all other human beings by ties of recognition and concern"; and narrative imagination, or the "ability to think what it might be like to be in the shoes of a person different from oneself, to be an intelligent reader of that person's story." Nussbaum concludes that "cultivating our humanity in a complex, interlocking world requires a great deal of knowledge that American college students rarely got in previous eras" (1997, 9-11).

### **Science's Role in Educating for Humanity**

Nussbaum's vision of education for global citizenship has deeply influenced AAC&U's Shared Futures initiative. As

we described the initiative in 2001, Shared Futures puts "questions of diversity, identity, citizenship, and responsible action at the heart of global learning. This approach challenges students to explore the relational nature of their identities—identities that are variously shaped by the currents of power and privilege, both within a multicultural US democracy and within an interconnected and unequal world". We are currently striving to find new language and develop new frameworks that retain these goals while avoiding the misperception that this humanistic approach is the only pathway to global learning.

Thus we are asking anew what role the sciences and notions of scientific literacy play in preparing students to address and participate in solving large global problems. We are not simply adding STEM (science, technology, engineering, and mathematics) disciplines to existing conversations about global learning that have already been framed by the humanities and social sciences. Instead, we are seeking common ground around complex global questions, opening spaces where faculty members and students can create richer opportunities to explore how the tools, perspectives, and insights of the arts, humanities, social sciences, and sciences might be brought to bear on solving problems. How will the resulting conversations shape the content we expect students to master and change the competencies we expect from all graduates? How will these conversations change curricular designs, and what kinds of faculty development will be required as a result?

These are some of the questions we began asking when AAC&U and Project Kaleidoscope (PKAL) joined forces in 2010 to advance and amplify work on improving undergraduate education in mathematics, the sciences, and engineering. PKAL brings to AAC&U deep expertise in creating experiential and engaging learning environments for undergraduate students in STEM programs. For example, PKAL's recent project on facilitating interdisciplinary learning explored the rich territory of interdisciplinary student learning outcomes and their assessment, as well as the issues in campus culture and leadership that need to be addressed in order to create more integrative learning experiences.

As we work at these crossroads, we have found inspiration in the metaphor of the "trading zone," which framed the 2011 PKAL-Shared Futures symposium. Through our partnership, we find ourselves creating our own "trading zone"—a promising field of inquiry much like the ones that appear when faculty explore the languages, cultures, and expectations of their disciplines in an effort to better understand their strengths and assumptions. In the PKAL-Shared Futures trading zone, we are working collectively to help both faculty and students more effectively negotiate the boundaries between disciplines in order to more creatively apply knowledge in context. We continue to learn

from one another and to enrich our understandings of global learning and scientific literacy.

The symposium and this issue of *Diversity & Democracy* are just two examples of a more comprehensive PKAL-Shared Futures effort to rethink what a twenty-first-century undergraduate degree should mean. Can higher education test that meaning not simply against the ability of graduates to get jobs and compete in a global economy (as important as that is) and not simply against expectations of ethical and compassionate citizenship (as important as those are), but against the ability of graduates to apply their learning to urgent problems that face the world? It's a challenge we are taking up together, and we invite you to join us.

### References

Friedman, Thomas L. 2005. *The World is Flat: A Brief History of the Twenty-First Century*. New York: Farrar, Straus and Giroux.

Nussbaum, Martha. 1997. *Cultivating Humanity: A Classical Defense of Reform in Liberal Education*. Cambridge, MA: Harvard University Press.

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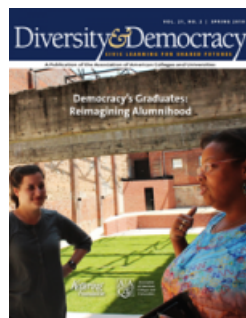
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