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The Challenge of Global Literacy

An Ideal Opportunity for Liberal Professional Education

PERSPECTIVES

What is global literacy, and how do we teach it?

WITHIN HIGHER EDUCATION in the United States and Canada, calls to promote global awareness and global literacy among undergraduate students have become increasingly urgent (Clark and Clark 2003; Hooker 2003; Burnouf 2004). Yet, there are multiple challenges in achieving these outcomes. One challenge lies in making this “literacy” authentic and relevant for diverse students aspiring to be professionals in different fields. A second challenge is reconciling the tension between teaching for deep mastery of knowledge in a subject area, on the one hand, and teaching for broader global awareness through a collection of courses or experiences, on the other. A third challenge is developing in students the tacit understanding that enables them to link the global and the local in ways that are meaningful and useful in their work and their lives. This is particularly relevant in science, technology, engineering, and mathematics, where the problems students see in the classroom are usually decontextualized, and where solutions are developed as if the broader (e.g., social, environmental, political) context were

irrelevant. Perhaps the greatest challenge of all is supporting faculty as they waded into the necessarily interdisciplinary nature of such teaching and learning.

The primary question, however, is: What is global literacy, and how do we teach it? In this article, we describe our attempt at Carnegie Mellon University to approach this question in a semi-empirical way by gathering the outcomes faculty members see as most salient for global literacy.

What is global literacy?

The Association of American Colleges and Universities (AAC&U) has proposed that colleges and universities “create settings that foster students’ understanding of the intersection between their lives and global issues and their sense of responsibility as local and global citizens” (2011a). In its *Greater Expectations* report, AAC&U recommended that “students should have sustained opportunities to learn about: the human imagination, expression, and the products of many cultures; the interrelations within and among global and cross-cultural communities; means of modeling the natural, social, and technical worlds; and the values and histories underlying US democracy” (AAC&U 2002, xii). But how do we make this advice concrete within our learning and teaching?

In this context, it is worthwhile to consider the definition of “literacy.” The term implies

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mastery of a particular vocabulary, of particular concepts and definitions, as well as a working knowledge of particular systems and a fluency in getting quickly to the core knowledge or skills needed to exercise this literacy in a specific context. Literacy is a means to being competent in society. Setting the goal of universal literacy, the United Nations (UN) proclaimed a “United Nations Literacy Decade” (2003–12) under the motto “Literacy as Freedom.” In doing so, the UN acknowledged an expansive understanding of “literacy”: “This motto reflects the fact that over the past few decades, the conception of literacy has moved beyond its simple notion as the set of technical skills of reading, writing and calculating—the so-called ‘three Rs’—to a plural notion encompassing the manifold meanings and dimensions of these undeniably vital competencies. Such a view, attending recent economic, political and social transformations, including globalization, and the advancement of information and communication technologies (ICTs), recognizes that there are many practices of literacy embedded in different cultural processes, personal circumstances and collective structures” (UNESCO 2004, 6). This definition emphasizes that “literacy” no longer signifies a narrowly defined set of “technical skills,” but rather encompasses a more complex notion of “vital competencies” that an individual should possess in order to function in today’s world as a participant in decision

making. In this sense, then, the expectations of global literacy overlap significantly with the aims of contemporary liberal education.

Especially since the 1960s, American colleges and universities have been largely successful in producing educational models that balance pragmatism and idealism. These models provide students with the means to pursue free inquiry with open minds and to make informed, autonomous decisions. The contemporary challenge for American higher education is to ensure that a liberal education continues to serve graduates well in today’s “global world.”

Leaders in engineering education began early to examine and articulate what it means to be “globally competent” within their discipline. When ABET—the organization that accredits college and university programs in the disciplines of applied science, computing, engineering, and engineering technology—revised its accreditation criteria in 2000, it added the following criterion: “the broad education necessary to understand the impact of engineering solutions in a global and societal context” (ABET 2011). Reviewing the need for globally competent engineers, Downey et al. propose the following learning criterion for engineering students: “through course instruction and interactions, students will acquire the knowledge, ability, and predisposition to work effectively with people who define problems differently than they do” (2006, 110). In a different vein,

Langran, Langran, and Ozment (2009) describe the competencies required of global citizens in legal, psychological, and political terms.

The challenge of global literacy for students—especially those in technical and scientific fields, who spend most of their time thinking in context-independent domains—is knowing when to invoke the required global knowledge, and recognizing which questions are appropriate. For this to happen, global awareness needs to be thoroughly integrated into a student’s framework for problem solving and decision making. Students need to be able to think about relevant global issues and questions as automatically and fluently as they

of global issues and disciplinary problem solving often develop in separate spheres and fail to coalesce in ways that are meaningful for students.

For this reason, embedding a global dimension in subject-matter courses across the disciplines—the approach we have taken at Carnegie Mellon—may have special promise. In what follows, we describe how we went about articulating a mission for global education, embedding global content in the subject areas, and developing a preliminary set of global literacy objectives to inform assessment and pedagogy. It should be understood that this is a work in progress, so we end by describing the steps we intend to take next. Moreover, this is only one piece of a broader program of global education at our university (see www.cmu.edu/global/education).

Figure 1. **Vision and mission statements for global education**

Vision

Carnegie Mellon students will be aware, socially responsible leaders and citizens of the global society of the 21st century. They will develop an appreciation for the diverse perspectives and historical contexts of the cultures of the world and for the range of ways of working, learning, and living. This is our context for a “global education.” Such an education, fully realized in the Carnegie Mellon environment, will assist our students to become engaged citizens of the world, reflective, informed and compassionate in their actions and decisions. They will have a positive impact on the world through the cultural awareness and competence they bring to their professions and through their participation in their communities.

Mission

We strive to create a community—faculty, staff, and students—that is dynamically engaged with other peoples and other cultures through their interactions abroad, at Carnegie Mellon, and within the curricula of their various specializations. Central to such an engagement is an understanding of history, culture, and worldviews; the mastery of the relevant systems of knowledge; an exploration of the interaction and transformation of the world through technology and the full ramifications of the modern technological systems in the global context; the critical thinking and knowledge of analysis about the great intellectual debates in history and in the contemporary world; as well as an ability to work with people of diverse cultures and in diverse countries.

read and think in their own disciplines. Indeed, their very “mental models”—those deeply held models of the world that we summon automatically—have to be both global and local, as befits the context. This level of fluency requires the kind of expertise that develops over time. Yet, students often encounter global issues only through intermittent exposure in select courses, or through experiences of living and working abroad that are separated, geographically and intellectually, from their growing disciplinary competence. Thus, knowledge

Articulating a mission

At Carnegie Mellon University, we have been evolving a form of global education that fits our educational philosophy and ethos—one that weaves global literacy into subject-area courses. The philosophy of liberal professional education articulated by President Robert Doherty and his faculty at the Carnegie Institute of Technology in the 1940s sought to educate professionals who have the skills to “discover order in the apparent chaos of reality” (Teare 1948, 4). This principle still forms the basis of a Carnegie Mellon education, and it is surprisingly consonant with AAC&U’s definition of a liberal education as one that “helps students develop a sense of social responsibility, as well as strong and transferable intellectual and practical skills such as communication, analytical and problem-solving skills, and a demonstrated ability to apply knowledge and skills in real-world settings” (AAC&U 2011b).

In 2003, we launched the Educating for Global Awareness project. In this project, we undertook a two-pronged effort to define global-literacy objectives. A global working group conducted an inventory of existing courses with global content, interviewed diverse campus leaders, and worked over the course of a year to define a practical mission and vision for global education that was consistent with our overall educational philosophy. The group articulated the resulting mission and vision statements, and then revised them

in consultation with the deans of each of the university's seven colleges (see fig. 1). In addition to the specified knowledge and skills, we included "an ability to work with people of diverse cultures and in diverse countries."

Developing global content in the subject areas

To realize our vision, we invited committed faculty members to incorporate global learning into their disciplinary courses. That is, rather than dictate the desired outcomes for global literacy, we shared the mission and vision statements with faculty members and, in a request for proposals, invited them to design "global content" within or as the main theme of their courses. The university president provided competitively selected faculty members with seed grants to support course development. The funding lasted for three cycles, with the understanding that the courses would then become institutionalized; that is, they would continue to be offered following the cessation of funding. Faculty members were able to use these grant funds at their own discretion to design, teach, and refine their courses. Some faculty members used the funding to bring in expert speakers for module development, to purchase telecommunication equipment, or to cover travel expenses; some used it to support course content preparation during the summer.

The seven courses selected for funding are shown in figure 2. The only condition of the award was that the faculty members had to agree to teach and refine their courses over the three cycles during the three years of the project. The project participants met once per semester to report on the progress of their courses and to share lessons learned.

At Carnegie Mellon, global courses are offered in a range of disciplinary contexts and employ diverse strategies to incorporate a global dimension. In Technology for Global Development, for example, faculty from computer science, public policy, and history examine various dimensions of development and their contexts for technology. After completing a final project on a particular case, students have the option of applying for Technology Consulting in the Global Community, a summer experience in a developing country where they help a governmental agency with projects needing expertise either in computer science

or design or in information systems.

In both Global Project Management and International Collaborative Course Management, students from several different countries work collaboratively on a problem in one of six countries. Working in teams, the students are connected through video technology for group meetings and consultation. As they try to bring their technical expertise to new contexts, the students see how local context shapes what they had thought of as universal technical knowledge and practices. The cognitive dissonance they experience in these situations provides a deep and lasting learning experience. In one extreme situation, two American

Figure 2. **Educating for Global Awareness courses**

Course	Core Discipline	Location
Disastrous Encounters	History	Pittsburgh, Doha
Technology for Global Development	Computer Science	Pittsburgh
Mapping Urbanism	Architecture	Pittsburgh, Doha
Global Project Management	Information Systems	Pittsburgh, Doha, Singapore
Health, Development & Human Rights	Philosophy	Pittsburgh
International Collaborative Course Management	Civil Engineering	Pittsburgh, Brazil, Turkey, Israel
Biotechnology Impacting Our Selves, Society, and the Sphere	Biology	Pittsburgh

engineering students who were dubious about the technical building practices suggested by their Turkish counterparts raised money to visit Turkey and found to their surprise that these practices really did work.

Through a few of the global courses, students on Carnegie Mellon's campus in Pittsburgh, Pennsylvania, have been connected with students on our campus in Doha, Qatar. This classroom-level connection between the campuses has resulted in especially rich discussion among students from more than

Figure 3. **Components of global literacy**

Intellectual Skills and Knowledge

Students will be able to

- analyze global issues in political, economic, socio-cultural, historical, and environmental context;
- describe global systems—their characteristics, components, dynamics, evolution and implications;
- trace global connections historically and in the contemporary world, linking the global and the local in meaningful ways;
- apply appropriate models to explain and predict global trends and evaluate policies with global implications;
- explore diverse cultural perspectives before framing problems or proposing solutions;
- challenge assumptions based on particular cultural and historical backgrounds;
- critically analyze the nature and merit of claims about global events and relationships.

Social/Cultural Competencies

Students will be able to

- observe carefully and analytically in unfamiliar contexts to identify meaningful patterns of interaction;
- listen respectfully, recognizing differences in communication style and etiquette across cultures;
- communicate effectively in various media (from face-to-face interactions through remote technology) with people from different backgrounds;
- utilize local resources and knowledge appropriately to answer questions and solve problems;
- work productively in teams across time, distance, and cultural/disciplinary differences;
- adapt flexibly to diverse cultural contexts, uncertain circumstances, and unanticipated obstacles.

Ethical Dispositions

Students will

- recognize shared interests—how the lives and fates of people in other parts of the world intersect with their own;
- develop ethical positions about global issues that are informed, thoughtful, and nuanced;
- engage in actions and behaviors that demonstrate a sense of global responsibility.

twenty countries. In the global faculty working group discussions, faculty members often cited the interactions among different worldviews as the most significant learning experience for their students.

Defining global literacy outcomes

In order to extract the set of global learning outcomes that faculty members implicitly had built into the courses, we interviewed fourteen of the instructors of global courses. These instructors represented a range of disciplines, and their courses included some from the president's project and some from the approximately forty-five other global courses offered across the university. The instructors were asked what "global literacy" meant to them in the context of their particular courses, and how they assess whether students have, in fact, achieved this literacy. Based on these interviews, we identified an overarching set of global literacy outcomes that we believe encompass the specific goals of these instructors. Perhaps not surprisingly, and despite the different disciplines embodied in the courses, there was a high degree of convergence among the goals. We then organized the outcomes into three general categories: knowledge and intellectual skills, social/cultural competencies, and ethical dispositions (see fig. 3). While we recognize that no single course would or should seek to meet all these goals, our hope is that by refining this list with feedback from a wider group of faculty, we can identify global literacy outcomes that are both broadly conceived and disciplinarily meaningful.

While skills such as critical analysis and obtaining and analyzing information are part of all higher education objectives, there is an expansion of the scope of such analysis when faculty members articulate these as objectives for global learning. In the knowledge and skills category, the context and system dependence of solutions are novel aspects introduced by the global-literacy requirement—especially for faculty in science, technology, engineering, and mathematics. The sets we called "social/cultural competencies" and "ethical dispositions" emerged quite clearly from discussions with faculty as essential elements of global literacy, yet many of those same faculty members said they were surprised to see these competencies identified as distinct learning objectives.

Next steps

Having identified a set of preliminary global literacy outcomes, our next step will be to seek feedback on them from a wider group of faculty in order to identify gaps, determine whether some objectives envelop others, and refine the list. Our goal is to construct a core set of global literacy outcomes that grow directly out of disciplinary applications of global knowledge and skills. This set of outcomes can then serve as the baseline for developing appropriate course-level or university-wide assessments of global literacy, as well as appropriate pedagogies for developing global dispositions and competencies. In addition to informing assessment and instruction, we believe that the simple identification of a robust set of global literacy objectives will prompt faculty members to think about how to foster global knowledge and skills in their own courses.

Conclusions

In an overarching way, attaining global literacy involves developing a broader perspective and the ability to bring considerations of a larger than immediate and local context to examining issues, gaining understanding, and solving problems. The kind of learning experiences that accompany linguistic and cultural immersion, and that lead to the development of deep knowledge about a set of environments that are very different from one's own, can provide the scaffolding for a globally literate way of knowing, thinking, and acting. With fifty years of experience in international education as part of general education, American educators have reached the point where integrating global learning across all we teach is an imperative.

Culling from the experiences of various faculty and global education projects, we may be able to come to a well-defined set of competencies that comprise global literacy from the perspective of the disciplines. In this article, we have described our first foray into a systematic study of these elements. The convergence of the set of skills defined by faculty members in diverse disciplines points to the feasibility. Integration of global literacy skills into the content areas of a major begins to address the various challenges we discussed at the beginning of the article. The literacy skills students

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gain are authentic to the individual disciplines and contribute to deep learning, rather than being in tension with it. And faculty members are in the comfort zones of their expertise. The advantages of embedding global literacy skills into courses in the majors are that students are given opportunities to practice and hone these skills at advanced levels, and that they can learn to use them within the context of their future professional work. □

To respond to this article, e-mail liberaled@aacu.org, with the authors' names on the subject line.

REFERENCES

- AAC&U (Association of American Colleges and Universities). 2002. *Greater Expectations: A New Vision for Learning as a Nation Goes to College*. Washington, DC: Association of American Colleges and Universities.
- . 2011a. "Global Learning." Association of American Colleges and Universities. Accessed November 15. <http://www.aacu.org/resources/globallearning/index.cfm>.
- . 2011b. "What Is Liberal Education?" Association of American Colleges and Universities. Accessed November 15. http://www.aacu.org/leap/what_is_liberal_education.cfm.
- Burnouf, L. 2004. "Global Awareness and Perspectives in Global Education." *Canadian Social Studies* 38 (3). http://www2.education.ualberta.ca/css/css_38_3/ARburnouf_global_awareness_perspectives.htm.
- Clark, R. P., and R. Clark. 2003. *Global Awareness: Thinking Systematically about the World*. New York: Rowman and Littlefield.
- Downey, G. L., J. Lucena, B. Moskol, R. Parkhurst, T. Bigley, C. Hayes, B. Jesiek, L. Kelly, J. Miller, S. Ruff, J. Lehr, and A. Nichols-Belo. 2006. "The Globally Competent Engineer: Working Effectively with People who Define Problems Differently." *Journal of Engineering Education* 95 (2): 107–22.
- Hooker, J. 2003. *Working Across Cultures*. Stanford, CA: Stanford University Press.
- Langran, I. V., E. Langran, and K. Ozment. 2009. "Transforming Today's Students into tomorrow's Global Citizens: Challenges for U.S. Educators." *New Global Studies* 3 (1): 1–20.
- Teare, R. 1948. "The Use of Problems and Instances to Make Education Professional." *Proceedings of the Inter Professions Conference on Education for Professional Responsibility*. Pittsburgh, PA: Carnegie Press.
- UNESCO (United Nations Educational, Scientific, and Cultural Organization). 2004. *The Plurality of Literacy and Its Implications for Policies and Programmes*. Paris: UNESCO.

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