



Why Integrative Learning? Why Now?

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The impulse to connect is a universal human desire and a critical component of intellectual and emotional maturity, and probably always has been. The challenges of the contemporary world, however, have brought a new urgency to the issue of connection and integration. An early cartoon in the always-insightful *Dilbert* series captures well one of the defining features of our time. In the cartoon, a character uses a teacup on its side to represent the human brain. An enormous fire hose sprays water in the direction of the cup to illustrate the information overload that characterizes so much of modern life. As one might expect, nothing stays inside the cup, while water sprays everywhere on the page. Today's college student needs more than ever a developed capacity to make sense of this flood of information flowing into his or her consciousness every day. That capacity depends fundamentally on how well she or he can see connections and integrate disparate facts, theories, and contexts to make sense of our complex world. For these reasons, in its new campaign, *Liberal Education and America's Promise: Excellence for Everyone as a Nation Goes to College*, the Association of American Colleges and Universities (AAC&U) is highlighting integrative ability as a key outcome of a quality undergraduate education today.

It is clear that integrative learning is essential to prepare students to deal effectively both with complex issues in their working lives and the challenges facing the broader society today and in the future. As the articles in this issue make clear, after years of

compartmentalizing knowledge, leaders across the educational spectrum are renewing efforts to connect fragmented learning. In fact, it could be argued that in most arenas outside the academy—from the workplace to scientific discovery to medicine to world and national affairs—multilayered, unscripted problems routinely require an integrative approach.

For these reasons, AAC&U suggested in its 2002 report, *Greater Expectations: A New Vision for Learning as a Nation Goes to College*, that schools, colleges, and universities should enable students to become “integrative thinkers who can see connections in seemingly disparate information and draw on a wide range of knowledge to make decisions.” These thinkers must learn to “adapt the skills learned in one situation to problems encountered in another: in a classroom, the workplace, their communities, or their personal lives” (21).

The *Greater Expectations* report, of course, was not the first to call for this kind of learning. Integration has become an ongoing topic of discussion among federal and state policy makers, campus and K–12 leaders, business leaders, and members of professional societies. The U.S. Department of Education's Goals 2000 project endorsed “interdisciplinary frameworks” and thematic teaching of “big ideas” (1998). The 1991 report *Science for All Americans* (Rutherford and Ahlgren) is critical of teaching scientific principles in isolation and calls for thematic approaches and for approaches that teach students to apply academic concepts to real-world contexts. The American Association

for the Advancement of Science also supports integrative learning and the application of scientific concepts to real-world situations through Project 2061.

Integration of knowledge and multidisciplinary perspectives are among the top priorities endorsed by the professions as well. In its report *Criteria for Accrediting Engineering Programs*, the Accreditation Board for Engineering and Technology argues for advancing integrative learning, including the capacity to work in multidisciplinary teams, as a target goal for future engineering professionals. The International Association for Management Education predicts interdisciplinary activity will reach a new level of sophistication as more problem-oriented courses and multidisciplinary units are developed in undergraduate and graduate business programs.

Leaders in the K–12 standards movements also advocate integrative learning. The National Council of Teachers of Mathematics includes “connections” as one of its standards, suggesting that “instructional programs . . . should enable all students to . . . understand how mathematical ideas interconnect and build on one another to produce a coherent whole; [and] recognize and apply mathematics” in contexts outside of the field (2002, 64–65). These sorts of standards are echoed in other subject areas.

The business community, too, is calling for integrative capacities in employees. As early as 1991, the U.S. Department of Labor SCANS Report (Secretary’s Commission on Achieving Necessary

Skills) argued that “workers are expected to identify, and integrate information from diverse sources” and that they “should understand their own work in context of work of those around them . . . [and] understand how parts of systems are connected” (22). The Business–Higher Education Forum’s report *Spanning the Chasm* argues that “requiring interdisciplinary courses and projects will benefit students by helping them integrate skills and by presenting them with a broader range of perspectives” (1999, 8).

Finally, the calls for integrative learning are supported by cognitive research. The National Academy of Science report *How People Learn: Brain, Mind, Experience, and School* suggests that [in] traditional curricula . . . though an individual objective might be reasonable, it is not seen as part of a larger network. Yet it is the network, the connections among objectives, that is important. . . . to understand an overall picture that will ensure the development of integrated knowledge. (Bransford, Brown, and Cocking, eds. 2000, 139)

Given the interest from many sectors and the exciting developments in integrative and interdisciplinary scholarship that are transforming so many fields of study, support for integrative learning appears to be quite strong. The challenge remains, however, to turn promising integrative learning innovations into coherent programs of study with progressively more rigorous expectations for *all* today’s undergraduate students. ■

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