

the
Academy
in
Transition

Integrative Learning

Mapping the Terrain

Mary Taylor Huber and Pat Hutchings



Association
of American
Colleges and
Universities



THE CARNEGIE FOUNDATION
for the ADVANCEMENT of TEACHING

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About This Series

The Association of American Colleges and Universities (AAC&U) has a long history of working with college leaders across the country to articulate the aims of a liberal education in our time. AAC&U is distinctive as a higher education association. Its mission focuses centrally on the quality of student learning and the changing purpose and nature of undergraduate curricula.

AAC&U has taken the lead in encouraging and facilitating dialogue on issues of importance to the higher education community for many years. Through a series of publications called *The Academy in Transition*—launched in 1998 with the much-acclaimed *Contemporary Understandings of Liberal Education*—AAC&U has helped fuel dialogue on such issues as the globalization of the undergraduate curricula, the growth of interdisciplinary studies, how liberal education has changed historically, and the increase of college-level learning in high school. The purpose of the series—now including nine titles—is to analyze changes taking place in key areas of undergraduate education and to provide “road maps” illustrating the directions and destinations of the changing academy.

During transitions, it is important to understand context and history and to retain central values, even as forms and structures that have supported those values may have to be adapted to new circumstances. For instance, AAC&U is convinced that a practical and engaged liberal education is a sound vision for the new academy, even if the meanings and practices of liberal education are in the process of being altered by changing conditions. As the titles in this series suggest, AAC&U’s vision encompasses a high-quality liberal education for all students that emphasizes connections between academic disciplines and practical and theoretical knowledge, prizes general education as central to an educated person, and includes global and cross-cultural knowledge and perspectives. Collectively, these essays point to a more purposeful, robust, and efficient academy that is now in the process of being created. They also encourage thoughtful, historically informed dialogue about the future of the academy.

AAC&U encourages faculty members, academic leaders, and all those who care about the future of our colleges and universities to use these papers as a point of departure for their own analyses of the directions of educational change. We hope these essays will encourage academics to think broadly and creatively about the educational communities we inherit, and, by our contributions, the educational communities we want to create.

Debra Humphreys
Vice President for Communications and Public Affairs
Association of American Colleges and Universities

Foreword

*What do you consider to be the end purpose of education?
Is it not to bring about an integrated individual?*

—Krishnamurti

The impulse to connect is a universal human desire, and the ability to do so in sophisticated ways indicates intellectual and emotional maturity. While education has long been seen as a vehicle for learning how to integrate life experiences, formal study, diverse perspectives, and knowledge gained over time, the challenges of the contemporary world have brought a new urgency to the issues of connection and integration.

Integrative learning is clearly important for today's college graduates, who will face complex issues in their professional lives and in the broader society. In fact, it could be argued that in most fields except education—from the workplace to scientific discovery to medicine to world and national affairs—multilayered, unscripted problems routinely require integrative thinking and approaches.

Thirteen years ago AAC&U, in collaboration with a number of the learned societies, challenged the educational community to reform undergraduate majors so they would provide students with sustained opportunities to explore links across disciplines and with the world beyond the academy (see *The Challenge of Connecting Learning*). Educational innovation has advanced since 1991 with the call for such “connecting learning” resonating with external pressures (from employers, from policymakers, from the professions). However, isolated innovative practices have not yet progressed to the point where connecting learning can take its rightful place alongside breadth and depth as a hallmark of a quality undergraduate liberal education.

Recently, in its report *Greater Expectations: A New Vision for Learning as a Nation Goes to College*, AAC&U renewed its appeal for an education that helps students become integrative thinkers and doers. The report argues that schools, colleges, and universities need to change their practices to develop students as “integrative thinkers who can see connections in seemingly disparate information and draw on a wide range of knowledge to make decisions,” students who can “adapt the skills learned in one situation to problems encountered in another.” This integrative capacity characterizes learners prepared for the twenty-first-century world: who are intentional about the process of acquiring learning, empowered by the mastery of intellectual and practical skills, informed by knowledge from various disciplines, and responsible for their actions and those of society.

It is against this background of persistent attention to integration that the Association joined with The Carnegie Foundation for the Advancement of Teaching to create the project, “Integrative Learning: Opportunities to Connect,” as part of an ongoing collaboration with the William and Flora Hewlett Foundation. The project's aim was twofold: (1) to help selected campuses advance practices that enhance

students' abilities to integrate knowledge, and (2) to develop resources for the entire higher education community.

To prepare for the project's launch, Mary Taylor Huber and Pat Hutchings, the Carnegie Foundation leaders of the project, expanded on the concept of integrative learning as articulated in *Greater Expectations*, enriching it with insights from research and providing a context for campus action. AAC&U elected to publish their work in this monograph as part of *The Academy in Transition* series. It is our hope that the authors' precise framings and eloquent arguments will stimulate all educators to help our graduates become skilled integrators of knowledge, experiences, and contexts as they prepare for careers and for engaged citizenship in a diverse democracy and an interconnected world.

Andrea Leskes

Vice President for Education and Quality Initiatives

Director of Greater Expectations

Codirector of Integrative Learning: Opportunities to Connect

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Integrative Learning: Mapping the Terrain

One of the great challenges in higher education is to foster students' abilities to integrate their learning across contexts and over time. Learning that helps develop integrative capacities is important because it builds habits of mind that prepare students to make informed judgments in the conduct of personal, professional, and civic life; such learning is, we believe, at the very heart of liberal education.

The good news, as documented in the Association of American Colleges and Universities' report *Greater Expectations: A New Vision for Learning as a Nation Goes to College* (2002), is that many campuses today are creating opportunities for more integrative, connected learning. First-year seminars, learning communities, interdisciplinary studies, capstone experiences, portfolios, student self-assessment, and other innovations are increasingly in evidence. The bad news is that they often involve small numbers of students or exist in isolation, disconnected from other parts of the curriculum and from other reform efforts. Indeed, the very structures of academic life encourage students to see their courses as isolated requirements to complete.

How, then, can campuses help students pursue learning in more intentionally connected ways? What does such learning look like? How might it be shaped by emerging cultural realities and by new thinking about learning and teaching? This paper attempts to situate integrative learning within the larger territory of liberal education and to set the stage for new thinking about what works, how, and why.

Learning That Is Greater Than the Sum of Its Parts

At the heart of liberal education lies the idea that learning should be greater than the sum of its parts. Resonant with the classical tradition of educating the “whole” person, liberal education has historically encouraged “breadth of outlook, a capacity to see connections and hence an ability to make fundamental decisions and judgements” (Rothblatt 1993, 28). Historically, this work of integration has been credited with countering the forces that narrow perspective, liberating students from the darker sides of human nature and social constraint, and preparing them for responsible participation in civic life. The promise that “integrative learning” leads to personal liberation and social empowerment inspires and challenges higher education to this day (see AAC&U 1998).

The concept of integrative learning inspires, in part, because of its intellectual appeal. The capacity to connect is central to scholarship broadly conceived—whether focused on discovery and creativity, integrating and interpreting knowledge from different disciplines, applying knowledge through real-world engagements, or

teaching students and communicating with the public (Boyer 1990). Done well, these facets of scholarship all require taking account of different dimensions of a problem, seeing it from different perspectives, and making conceptual links among those dimensions and perspectives (Suedfeld et al. 1992). Integrative learning also has emotional appeal. Indeed, emotion can be a catalyst for integrative learning. When students become passionate about their learning, when a topic ignites enthusiasm, integration is more likely to happen. As E. M. Forster famously wrote in *Howard's End* (147), "Only connect the prose and the passion, and both will be exalted...."

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Educators have long endorsed the value of integrative learning. Today, however, there is new appreciation of its importance to contemporary thought and life. For one thing, disciplines are now less bounded; new areas of scientific knowledge are emerging on the borders of old ones, and the humanities and social sciences are engaged in lively trade of concepts, methods, and even subject matter (Geertz 1983; Bender and Schorske 1997; Gallison 1997). Technology and globalization are transforming knowledge practices in all the disciplines, professions, and arts (Gibbons et al. 1994). Indeed, we are awash in information in all areas of life, challenging the integrative abilities of experts and students alike.

The workplace, too, has been transformed. The "knowledge society" places a premium on higher education, making college a virtual necessity for American students aspiring to a middle-class style of life. "Flexibility" and "mobility" are the watchwords of the new economy; a career spent with the same employer, or even in the same line of work, is fast becoming the exception rather than the rule. Accordingly, students are now advised that the knowledge they gain in their majors will not be useful for long unless coupled with skills and dispositions that enhance their ability to find and take advantage of new opportunities as they arise. To be sure, many educators remain wary about linking liberal education to vocational ends. Others, however, are more sympathetic to the concerns of students and their families about preparation for work, and they see in students' search for vocation a humane activity that liberal education should inform. As Ellen Lagemann (2003, 8) argues, "one might even venture that vocation, broadly defined...tends usually to be the theme that links the different experiences that define an individual's education" (see also Shulman 1997).

Students today would benefit from taking a more intentional, deliberative, and reflexive stance toward vocation, which requires integrative learning during and beyond their college years, as well as toward other parts of their lives. Whether one is talking about jobs, health, or the environment, globalization and developments in science and technology have made everything more complex, bringing many advantages to the fortunate, but also exacerbating inequalities and elevating risk for all (Beck 1992). We no longer live in a world where it is easy to feel in control or empowered to affect what is happening in our neighborhoods, much less in the nation or the world, yet our own actions—even the food, clothing, and cars we buy—have immediate consequences for those far away (Giddens 1994). As University of New Hampshire scientist Berrien Moore (2004) commented on the results of a massive international study on air pollution, “What happens in Beijing will affect Boston, what happens in Boston will affect Paris, et cetera. And I think that that’s something that we will have...even as we begin to solve local problems, this connectivity of the planet will come back at us time and time again.” These complex conditions of twenty-first-century life make high demands on our capacities for moral judgment and practical reason (Sullivan 2002). To participate responsibly as local citizens, people must also be “citizens of the world,” aware of complex interdependencies and able to synthesize learning from a wide array of sources, to learn from experience, and to make productive connections between theory and practice (Nussbaum 1997).

Our colleges and universities can play an important role in helping students develop this integrative cast of mind, and many campuses espouse such a goal. College catalogs make powerful promises about students’ personal and intellectual development as thinkers and citizens—and certainly there are inspiring models and “existence proofs” to show what may be possible (Colby et al. 2003). To meet these commitments to integrative learning more fully, and to meet them for all students, is the difficult challenge ahead.

Against the Grain: Challenges to Achieving Integrative Learning

Integrative learning does not just happen—though it may come more easily for some of us than for others. Whether one is talking about making connections within a major, between fields, between curriculum and cocurriculum, or between academic knowledge and practice, integrative learning requires work. Of course, students must play a role in making this happen—a theme we will return to shortly—but integrative learning is unlikely to occur without commitment and creativity from our educational institutions. To support integration, many colleges and universities

today are developing new kinds of institutional “scaffolding”—courses that invite students to take different perspectives on an issue, capstone projects that ask students to draw on learning from earlier courses to explore a new topic or solve a problem, experiences that combine academic and community-based work, or systems of journaling and reflection like those known as “learning portfolios.”

Such developments meet obstacles at every turn. As Carol Schneider and Robert Schoenberg (1999) suggest, organizing for integrative learning goes against the grain of many structural features of campus life: academic departments and schools often see their responsibility as socializing students into a particular discipline or profession; the split between general education and the major exacerbates the problem; the bachelor’s degree is defined more in terms of courses and credits than by a vision of what the degree should mean; systems of faculty roles and rewards have been slow to recognize interdisciplinary and applied scholarship, not to mention the extra efforts entailed in designing, teaching, and assessing courses aimed at integrative learning (also see Huber 2001). Other familiar disconnects include the gaps between programs in the professions and the liberal arts and sciences, the curriculum and the cocurriculum, and campus and community life.

Among the many structural barriers to integrative learning cited by Schneider and Shoenberg (1999; also see Wellman and Ehrlich 2003), the course and credit system is, perhaps, the most difficult to address. Since the replacement of the required curriculum with “free electives” in the late nineteenth and early twentieth centuries, the provision of content through courses counted in standard credit units has long encouraged faculty and students alike to think of learning in course-like modules or chunks. Warning that “colleges are depriving students of a connected view of scholarship,” Gerald Graff (1991, 1-2) writes that

one of the oddest things about the university is that it calls itself a “community of scholars,” yet it organizes itself in a way that conceals the intellectual links of that community from those who don’t already see them. I trace this oddity to...the assumption that the natural unit of instruction is the autonomous course, one not in direct dialogue with other courses. The classes being taught at any moment on a campus represent rich potential conversations between scholars and across disciplines. But since these conversations are experienced as a series of monologues, the possible links are apparent only to the minority of students who can connect disparate ideas on their own.

Elsewhere, Graff (1992; 2002) argues that making “potential conversations”

between scholars, courses, and disciplines into “real conversations” should be a keystone of educational reform. Indeed, this position underlines the value of pedagogy as a key to integrative learning, even in contexts where curriculum and other structures work against integration. Whatever mechanism is used, helping undergraduates develop strategies for going beyond the tacit message of curricular fragmentation in order to connect their learning is becoming a priority at many colleges and universities today.

The need to find ways to help students connect their learning is underlined by the fact that a growing proportion are now taking advantage of the portability provided by the course-credit accounting system and attending more than one institution over their college careers. The exact number of students who do so nationwide is not known, but one study (McCormick 2003) indicates that fully half of the bachelor’s degree recipients in 1992-93 took courses at more than one college or university, including a fifth who attended at least three. Some students transfer from two- to four-year institutions; others experiment with their first college to see if they like it and then transfer to another; some accelerate their programs by taking one or two terms elsewhere; others just take a supplementary course or two. This trend may reflect more consumerist attitudes on the part of today’s students (Levine and Cureton 1998; Fallon 2002). Certainly, by further fracturing undergraduates’ college experience, these “swirling” patterns of enrollment make integrative learning across courses and contexts more difficult. They suggest, too, that curricular changes cannot be the only solution. What we need are approaches that develop students’ capacity to make connections *for themselves* (see AAC&U 2002; Schneider and Shoenberg 1999).

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Intentional Learning

The idea that integrative learning depends on students to make connections is hardly a new one. Indeed, the burden of integration has traditionally fallen primarily on the learner, with campuses assuming that bright students would have the wit and grit to pull the pieces together as they moved through their studies. What’s new, perhaps, is a conviction that “intentional learning,” as called for in the *Greater Expectations* report (AAC&U 2002), is a capacity that we can and should help all students develop as a key to integrative learning.

Several core insights lie at the heart of this conviction. Intentional learners have

a sense of purpose that serves as a kind of “through line,” as playwrights might call it, connecting the sometimes far-flung and fragmentary learning experiences they encounter. They approach learning with high levels of self-awareness, understanding their own processes and goals as learners and making choices that promote connections and depth of understanding. They know how to regulate and focus their efforts as learners—how to make the most of their study time, to practice new skills, to ask probing questions. They are, if you will, on the road to lifelong learning. In a nutshell, intentional learning entails “cognitive processes that have learning as a goal rather than an incidental outcome” (Bereiter and Scardamalia 1989, 363).

The idea of making students more self-aware and purposeful—more intentional—about their studies is a powerful one, and it is key to fostering integrative learning.

The good news for educators committed to integrative learning is that, although the term may be new to many, the concept of intentional learning comprises a powerful set of ideas and tools. Several established lines of work offer lessons for students and teachers seeking to connect learning in meaningful ways.

One relevant line of research and practice can be traced to adult learning and professional education—in medicine and social work, for instance. There we find several decades of attention to “self-directed learning,” a fairly scripted process in which students reflect on and formulate their own learning goals (Brookfield 1986; Sabral 1997; Taylor and Burgess 1995). Advocates of this approach point to the power of explicit goals in which students are personally invested to propel meaningful learning.

A related line of work goes by the label “learning how to learn.” A recent volume on new classroom approaches (Fink 2003) describes three capabilities associated with this term: how to be a better student, how to conduct inquiry and construct knowledge in certain disciplines or fields, and how to be a self-directing learner. Or, consider Claire Ellen Weinstein’s (1996) framework of the “strategic learner,” characterized by students’ knowledge in five broad categories: (1) knowledge about themselves as learners; (2) knowledge about different types of academic tasks; (3) knowledge about strategies and methods for acquiring, integrating, thinking about, and using new knowledge; (4) knowledge about how prior content knowledge can be applied, and (5) knowledge of present and future contexts in which new information could be useful.

Work from cognitive science, which is increasingly invoked in discussions of teaching and learning (Bransford, Brown, and Cocking 1999; Halpern and Hakel 2003), also reinforces emergent notions of intentional learning. Most notable

perhaps is the emphasis on “metacognition,” a term that speaks to a very robust area of research—and to common sense about how learning happens. As summarized by Glaser (1984), for instance, metacognition entails knowing what one knows and does not know, predicting outcomes, planning ahead, efficiently apportioning time and cognitive resources, and monitoring one’s efforts to solve a problem or to learn.

Finally, intentional learning can be viewed through the lens of extensive work on reflection. Echoing Dewey in many ways, Donald Schon’s work on reflective practice (1983, 280) highlights the connection between thought and action as a key foundation of learning in which “doing and thinking are complementary.” Through reflection, Schon argues (1983, 61), we “surface and criticize the tacit understandings that have grown up around the repetitive experiences of a specialized practice, and can make new sense of...situations of uncertainty or uniqueness.” Schon’s work focuses primarily on professional education and practice, but the role of reflection in undergraduate education also has garnered attention. For instance, a current project of the Carnegie Foundation has identified “structured reflection” as one of six pedagogies that prepare students for political engagement. In composition studies, reflection is seen as a key component in the writing process and a necessary ingredient, therefore, in the teaching of writing.

In her recent volume on the role of reflection in the teaching and learning of writing, Kathleen Yancey (1998, 6) describes the process in a way that elegantly pulls together many of the themes of intentional learning:

In method, reflection is dialectical, putting multiple perspectives into play with each other in order to produce insight. Procedurally, reflection entails a looking forward to goals we might attain, as well as a casting backward to see where we have been. When we reflect, we thus project and review, often putting the projections and the reviews in dialogue with each other, working dialectically as we seek to discover what we know, what we have learned, and what we might understand.

Reflection. Metacognition. Learning how to learn. Whatever the language or lineage, the idea of making students more self-aware and purposeful—more intentional—about their studies is a powerful one, and it is key to fostering integrative learning. Assisting students to develop such capacities poses important challenges for campus reforms around teaching and learning.

Intentional Teaching

Efforts to promote intentional, integrative learning are clearly on the rise. General

education curricular reform around explicit crosscutting outcomes, such as critical thinking or problem solving, offers opportunities for students to see connections as well as differences among disciplines. Learning communities, which link courses with each other in various configurations, often around interdisciplinary themes, are opportunities to help (and indeed require) students to connect concepts from one course with those of another. When experiences like these occur in the first year, students may begin to develop habits of connection-making that can be cultivated and refined in subsequent years.

At the other end of the trajectory, some campuses are now creating or recreating capstone courses and experiences. Typically, the capstone course has been situated within the major, and often it has been framed as a transition or rite of passage for students going on to graduate school. But capstones *can* serve more broadly integrative purposes. Several faculty working with the Carnegie Academy for the Scholarship of Teaching and Learning, for example, are focusing their efforts on culminating experiences. The goal, as one of them says (IUPUI 2002), is to create “a set of experiences that captivate, encapsulate, synthesize, and demonstrate learning.”

Whether included as part of a culminating experience or located earlier in the curriculum, experiences that connect course content with more applied contexts also represent steps toward intentional, integrative learning. The service-learning movement, for instance, requires students to test out and refine academic concepts in community-based settings. While such experiences are typically elective, some campuses—including several featured in Carnegie’s recent volume, *Educating Citizens*—require all students to engage in some form of community-based learning, and to do so at several points in the curriculum.

Integrative learning may also require scaffolding that extends beyond individual courses. In this spirit, we find a growing use of portfolios as vehicles for students to document, connect, and reflect upon their learning *across* courses. More explicit rubrics for self-assessment, sometimes connected with portfolio development, may also serve powerful integrative purposes by making students more self-aware, self-directed learners (Loacker 2002). Strategies such as these are particularly relevant to the challenge of shifting enrollment patterns since, at least in theory, they can be carried with students as they moves from setting to setting.

Behind these developments is a move toward asking students to “go meta” with their learning in order to identify, assess, and strategize about next directions. But many educators would argue that students are unlikely to develop such habits of reflection and intentionality if *faculty* do not do the same. Helping students to “go meta” involves designing better opportunities for them to connect their learning

within and among courses and contexts. It involves faculty getting smarter about the look and feel of integrative learning so that students' efforts can be recognized and fostered. And it also involves faculty modeling, through their teaching, the thoughtful approach to learning that they want their students to develop.

In fact, teaching and learning are *both* complex processes—situations of “uncertainty and uniqueness,” to use Schon’s phrase—in which particular circumstances trump general rules and theories. What is needed in teaching for integration, then, is similar to what is needed in learning: an intentional approach. For faculty, this means systematic reflection on and inquiry into the specific challenges and dilemmas faculty face in the classroom; it means bringing the habits, skills, and values of scholarship to their work as teachers. “Intentional teaching” thus entails what many today are calling “the scholarship of teaching and learning.” This form of scholarship “requires a kind of ‘going meta,’ in which faculty frame and systematically investigate questions related to student learning—the conditions under which it occurs, what it looks like, how to deepen it, and so forth—and do so with an eye not only to improving their own classroom but to advancing practice beyond it” (Hutchings and Shulman 1999, 13).

Here, too, there is great progress to report. Over the past decade, the scholarship of teaching and learning has come to represent a set of practices and commitments around which new communities of faculty are forming, both within disciplines and across them. Understood broadly, such work draws on a variety of approaches from a range of disciplines that support a more scholarly, intentional approach to the work of the classroom (see Hutchings 2000; Huber and Morreale 2002; Huber, Hutchings, and Shulman n.d.; McKinney 2004). Faculty working with the Carnegie Academy for the Scholarship of Teaching and Learning, for example, have used focus groups, design experiments, close readings of student work, and course portfolios to explore questions about their students’ learning, including, in many cases, questions about whether and how their students are able to integrate learning across various settings and contexts. Indeed, evidence about learning, and thus assessment, is an essential ingredient in the kind of intentional teaching and learning that is needed for the work of integration.

More explicit rubrics for self-assessment, sometimes connected with portfolio development, may also serve powerful integrative purposes by making students more self-aware, self-directed learners.

Assessment of Integrative Learning

Like learning and teaching, assessment is a complex process, and its challenges

are magnified when complex forms of learning are its focus. Indeed, assessment that captures significant forms of integration is the exception rather than the rule. Whether at the institutional, program, or classroom level, it is far easier to document simpler forms of learning.

What then would be entailed in focusing assessment more sharply on integrative outcomes? For one thing, the assessment of integrative learning would seem to imply more collaboration among faculty to identify key points and elements of integration. That is, to develop instruments and approaches appropriate for assessing integrative learning, one would need to know not simply that connections are a goal but to specify what kinds of connections (between theory and practice? across disciplines?),

Assessment that captures significant forms of integration is the exception rather than the rule.

in what contexts (a service learning requirement? a capstone experience?), and in what ways they would be demonstrated. Assessment aimed at such learning needs to go beyond the individual classroom but may stop short of the full program, focusing instead on clusters

of related courses and experiences. This “middle ground” has thus far been fairly underdeveloped assessment territory.

Assessing integrative learning may also raise conceptual questions about how, exactly, students develop the capacities for connection this kind of learning requires. Surely we would expect graduating students to engage in different kinds and levels of connection-making than we would expect of first-year students. How does integration correlate with, say, the developmental stages mapped out in the work of William Perry (1970)? How can assessment tap into the kinds of integration that adult learners with extensive life experience bring to their academic work? Progress with integrative assessment will require that we think through questions like these.

The assessment of integrative learning also implies more focus on student self-assessment, an approach that carries intentional learning to its logical conclusion. As suggested by work at Alverno College, a pioneer in this regard, self-assessment, taken seriously, implies not just a general injunction for students to reflect on their work but more structured frameworks for that reflection (Loacker 2002). Such frameworks have yet to be developed on most campuses.

Again, however, there are signs of progress. Student portfolios, mentioned earlier as a vehicle for fostering integrative abilities, can also be a vehicle for assessment. A typical focus of portfolio assessment is writing ability, which is highly relevant to integrative learning. But some campuses are employing the approach to assess a broader set of outcomes as well (Cambridge 2001). Capstone experiences, similarly, can serve both learning and assessment functions.

More indirect measures also may be an important part of the mix. The annual National Survey of Student Engagement, used by 437 four-year colleges and universities in spring 2004, provides evidence of experiences that might contribute to integration—for instance, participation in community-based learning, writing across the curriculum, and opportunities to test out academic learning in co-curricular settings. (There is also a Community College Survey of Student Engagement, recognizing that many students begin undergraduate studies in two-year institutions.) Although it is too early to tell whether data from these surveys get “down” to a level that faculty can use to improve their courses and advising, many colleges and universities display some or all of their institution-wide results on the Web, making it possible for faculty, administrators, policymakers, and the public to get a general sense of the opportunities students are taking to develop their capacities to connect (see, for example, NSSE 2003).

Still, the challenges of assessing integrative learning run deep and will not be easily overcome. They are both technical and political, both theoretical and practical. They underline how important it is for educators to work together to build knowledge about the varieties of integrative learning, how they are best fostered, and how they can be most helpfully assessed.

Building Knowledge about Integrative Learning

For many college-educated adults of a certain age—the parents and grandparents of today’s traditional college students—the image of undergraduate education set forth here is unfamiliar. To be sure, most undergraduate programs are still comprised of general education requirements, a major concentration, and free electives, as they have been for much of the last century. Periodic reforms have brought renewed attention to general education (that part of the program that is more or less shared by all students) and to the major, in the attempt to keep the curriculum coherent and in tune with educational goals of the time (see Boyer and Levine 1981; Association of American Colleges 1991). More recently, as we discuss in this paper, educators have begun to focus on creating opportunities for students to develop capacities for integrative learning that will prepare them for productive, responsible, and meaningful lives.

The Carnegie Foundation and the Association of American Colleges and Universities, for example, are working with ten campuses in a joint project called “Integrative Learning: Opportunities to Connect.”* Selected on the basis of work

* Campuses participating in the integrative learning project include two community colleges (College of San Mateo in California and LaGuardia Community College in New York); three baccalaureate institutions (Carleton College in Minnesota, the Massachusetts College of Liberal Arts, and the University of Charleston in West Virginia); three master’s universities (Philadelphia University, Salve Regina University in Rhode Island, and the State University of New York College at Oswego); and two doctoral/research universities (Michigan State University and Portland State University). For further information on project activities, see the Carnegie Foundation Web site (www.carnegiefoundation.org).

already accomplished and a plan to extend that work, participating campuses are developing new models to provide students with more purposeful, progressively challenging, integrative educational experiences. Although the particulars differ, assessment is a key element of work on all of the campuses, as is a commitment to building knowledge that can be used by educators in other settings. One hundred and forty campuses from across the spectrum of institutional types applied for the program, so it is clear that there is wide interest in and demand for new ideas about integrative learning.

Indeed, we believe that efforts to strengthen programs that foster integration cannot be effectively pursued alone. Too often, good work in teaching and learning remains with its creators, unavailable for others to consult, review, and build on. Campuses need to work together, sharing what they are finding out about integrative learning, developing new ideas about assessment, and learning from each other's designs. Local efforts can be reinvigorated through participation in a community of educators working toward similar goals, and that community, in turn, can contribute to building knowledge that can inform efforts to foster integrative learning at colleges and universities around the country and around the world.

Appendix

A Statement on Integrative Learning

Fostering students' abilities to integrate learning—across courses, over time, and between campus and community life—is one of the most important goals and challenges of higher education. The undergraduate experience can be a fragmented landscape of general education courses, preparation for the major, cocurricular activities, and “the real world” beyond the campus. But an emphasis on integrative learning can help undergraduates put the pieces together and develop habits of mind that prepare them to make informed judgments in the conduct of personal, professional, and civic life.

Integrative learning comes in many varieties: connecting skills and knowledge from multiple sources and experiences; applying theory to practice in various settings; utilizing diverse and even contradictory points of view; and, understanding issues and positions contextually. Significant knowledge within individual disciplines serves as the foundation, but integrative learning goes beyond academic boundaries. Indeed, integrative experiences often occur as learners address real-world problems, unscripted and sufficiently broad to require multiple areas of knowledge and multiple modes of inquiry, offering multiple solutions and benefiting from multiple perspectives.

Many colleges and universities are creating opportunities for more integrative, connected learning through first-year seminars, learning communities, interdisciplinary studies programs, capstone experiences, individual portfolios, advising, student self-assessment, and other initiatives. Often, however, such innovations involve only small numbers of students or exist in isolation, disconnected from other parts of the curriculum and from other reform efforts. But a variety of opportunities to develop the capacity for integrative learning should be available to all students throughout their college years, and should be a cornerstone of a twenty-first-century education.

Students need programs of study that will help them understand the nature and advantages of integrative learning and assist them in pursuing their college experience in more intentionally connected ways. They also need courses designed by creative faculty that model and build integrative skills, and curricula that define pathways that encourage integrative learning within and across fields. Wider collaboration between academic and nonacademic staff, college and community, four-year and two-year institutions, higher education and K-12 will create further opportunities for integrative learning throughout students' educational careers.

It is important for educators to work together to build knowledge about integrative learning in its many varieties, and about how it is best encouraged and assessed. Developing students' capacities for integrative learning is central to personal success, social responsibility, and civic engagement in today's global society. Students face a rapidly changing and ever-more-interconnected world, in which integrative learning becomes not just a benefit ... but a necessity.

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Association of American Colleges and Universities

AAC&U is the leading national association concerned with the quality, vitality, and public standing of undergraduate liberal education. Its members are committed to extending the advantages of a liberal education to all students, regardless of academic specialization or intended career. Since its founding in 1915, AAC&U's membership has grown to 1000 accredited public and private colleges and universities of every type and size.

AAC&U functions as a catalyst and facilitator, forging links among presidents, administrators, and faculty members who are engaged in institutional and curricular planning. Its mission is to reinforce the collective commitment to liberal education at both the national and local levels and to help individual institutions keep the quality of student learning at the core of their work as they evolve to meet new economic and social challenges.

Information about AAC&U membership, programs, and publications can be found at www.aacu.org.

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Founded by Andrew Carnegie in 1905 and chartered in 1906 by an act of Congress, The Carnegie Foundation for the Advancement of Teaching is an independent policy and research center with a primary mission "to do and perform all things necessary to encourage, uphold, and dignify the profession of the teacher and the cause of higher education." The improvement of teaching and learning is central to all of the work of the Foundation. The Foundation is located in Stanford, California. More information may be found on the Web site at www.carnegiefoundation.org.

One of the great challenges in higher education is to help students integrate their learning. The capacity to make connections is essential to the conduct of personal, professional, and civic life, and is at the very heart of liberal education. It is also, arguably, more important than ever, and more difficult to achieve, as students transfer among multiple institutions and struggle to balance work and study. Indeed, many of the basic structures of academic life encourage them to see their courses as isolated requirements to complete. This paper explores the challenges to integrative learning today as well as its longer tradition and rationale within a vision of liberal education. In outlining promising directions for campus work, the authors draw on AAC&U's landmark report *Greater Expectations* as well as the Carnegie Foundation's long-standing initiative on the scholarship of teaching and learning. Readers will find a map of the terrain of integrative learning on which promising new developments in undergraduate education can be cultivated, learned from, and built upon.



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