

Integrative Learning: Mapping the Terrain

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A background paper for
Integrative Learning: Opportunities to Connect
An Initiative of
The Carnegie Foundation for the Advancement of Teaching and
Association of American Colleges and Universities (AAC&U)

One of the great challenges in higher education is to foster students' abilities to integrate their learning over time. Learning that helps develop integrative capacities is important because it develops habits of mind that prepare students to make informed judgments in the conduct of personal, professional, and civic life. On the other hand, even when higher education has identified such learning as a goal, it has been difficult to incorporate into the undergraduate experience because the normal structures of academic life encourage students to see their courses simply as isolated requirements to complete. How can campuses help students pursue their learning in more intentionally connected ways?

As documented in AAC&U's report, *Greater Expectations: A New Vision for Learning as a Nation Goes to College* (2002), many colleges and universities are creating opportunities for more integrative, connected learning through practices like first-year seminars, learning communities, interdisciplinary studies, capstone experiences, portfolios, and student self-assessment. Often, however, such innovative educational programs involve small numbers of students or exist in isolation, disconnected from other parts of the curriculum and from other reform efforts. What would it look like to design or link such programs so that all students have multiple and varied opportunities to develop and display the capacity for integrative learning throughout their college experience?

As The Carnegie Foundation for the Advancement of Teaching and AAC&U embark upon a new initiative with campus partners to explore these questions, we offer the following thoughts to help locate integrative learning in the larger territory of liberal education today.

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).

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 activities 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: 393). Integrative

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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 their enthusiasm, integration is more likely to happen. As E.M. Forster famously said in his novel, *Howard's End*, "Only connect the prose and the passion, and both will be exalted...."

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, with new areas of scientific knowledge emerging on the borders of old ones, and the humanities and social sciences 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. With flexibility and mobility the keywords of the new economy, people can no longer count on a career with the same employer or even in the same line of work. 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 when the need arises. To be sure, many educators remain wary about linking liberal education to vocational ends, but others are more sympathetic to the concerns of students and their families about preparation

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for work, and see in students' search for vocation a humane activity that liberal education should inform. As Ellen Lagemann 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" (2003: 8; see also Shulman 1997).

If students today would benefit from taking a more intentional, deliberative, and reflexive stance towards vocation, which requires integrative learning during and beyond their college years, the same is true for other parts of life. Scientific and technological development and globalization 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, but by the same token our own actions—even the food, clothing, and cars we buy—have immediate consequences for those far away (Giddens 1994). These conditions make high demands on our capacities for moral judgment and practical reason (Sullivan 2002). To participate responsibly as citizens, students must be able to synthesize learning from a wide array of sources, learn from experience, and make productive connections between theory and practice.

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 easier for some of us than for others. Whether one is talking about making connections within a major, between fields, between curriculum and co-curriculum, 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 it is unlikely to occur without commitment and creativity from our educational institutions. Today, many colleges and universities are developing new kinds of institutional “scaffolding” to support integrative learning—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. They cite academic departments and schools which often see their responsibility as socializing students into a particular discipline or profession; the split between general education and the major which exacerbates the problem; the bachelor’s degree that 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 that 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 (See Huber 2001). Other familiar disconnects include the gaps between programs in the

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professions and the liberal arts and sciences, the curriculum and the co-curriculum, and campus and community life.

Among the many organizational structures cited by Schneider and Shoenberg that create barriers to integrative learning, one of the more difficult to address is the course and credit system (1999:32-33; also see Wellman and Ehrlich 2003). Since the replacement of the required curriculum with “free electives” in the late 19th and early 20th century, 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. Recalling his doctoral studies in English Literature in the early 1960s, Gerald Graff writes:

I experienced graduate school not as an intellectual community that sharpened my thinking about important issues, but as a set of disconnected courses and mixed messages. I coped by giving each professor what he or she seemed to want, even when it contradicted what the professor the previous hour had wanted....In the end I internalized the compartmentalizations of the curriculum rather than wrestled with its conflicts, either resolving the conflicts too easily on one side...or ignoring them (2003:2-3).

Graff has made “teaching the conflicts” (and along with them, something about the nature of academic knowledge) a keystone in his ideas for pedagogical reform. Indeed, his work underlines the value of pedagogy as a key to integrative learning, even in contexts where curriculum and other structures work against it. Whatever the mechanism, 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 to attend more than one institution over their college

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career. The exact numbers of students who do so nationwide is not known, but one study indicates that fully half of the bachelor's degree recipients in 1992-93 took courses at more than one college or university (sometimes concurrently), including a fifth who attended at least three (McCormick 2003:17). Some are students who 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. Some educators see this trend as a reflection of more consumerist attitudes on the part of today's students (Levine and Cureton 1998; Fallon 2002). Certainly, these "swirling" patterns of enrollment make integrative learning across courses and contexts harder to achieve. They suggest, too, that curriculum cannot be the only solution. What's needed are approaches that develop students' capacity to make connections for *themselves* (See AAC&U 2002; Schneider and Shoenberg 1999:33).

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 it is called in *Greater Expectations*, 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 idea. Intentional learners have a sense of purpose that serves as a kind of "through line" (as the playwrights call it), connecting the sometimes far-flung and fragmentary learning experiences they encounter. They approach

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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 life-long 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 good news for educators committed to integrative learning is that the concept of intentional learning—though the phrase may be new for many—offers 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, for instance in medicine and social work, where we find several decades of attention to “self-directed learning,” a fairly scripted process in which the student reflects on and formulates her 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 of “learning how to learn.” A recent volume on new classroom approaches describes three abilities 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 (Fink 2003). Or, consider Claire Ellen Weinstein's framework of the “strategic learner,” characterized by student knowledge in five broad categories: 1) knowledge about themselves as learners, 2) knowledge about

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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 (1996: 49-50).

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, 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 learn (1984).

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 highlights the connection between thought and action as a key foundation of learning in which “doing and thinking are complementary” (1983: 280). Through reflection, Schon argues, 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...” (1983: 61). Schon's work focuses primarily on professional education and practice but the role of reflection in undergraduate education has also garnered attention. For instance, a current project of the Carnegie Foundation has identified “structured reflection” as one of six pedagogies in preparing students for political engagement. In composition studies, reflection is seen as a key component in the writing

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process and a necessary ingredient, therefore, in the teaching of writing, one in which “we call upon the cognitive, the affective, the intuitive, putting these into play with each other,” says Kathleen Yancey (1998: 6).

Indeed, in her recent volume on the role of reflection in the teaching and learning of writing, Yancey’s description of the process pulls together elegantly 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 (1998: 6).

Reflection. Metacognition. Learning how to learn. Whatever the language or lineage, the idea of making students more intentional, self-aware, and purposeful about their studies is a powerful one. What’s also clear is that 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 cross-cutting 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.

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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 in 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 are focusing their efforts on culminating experiences, with a goal, as one of them says, of creating “a set of experiences that captivate, encapsulate, synthesize, and demonstrate learning” (Hamilton, 2002).

Whether as part of a culminating experience or 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.

Intentional 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 (in theory at least) they can be carried with the student as she moves from setting to setting.

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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. In part, this involves designing better opportunities for students to connect their learning within and between courses and contexts. It means getting smarter about the look and feel of integrative learning so that students’ efforts can be recognized and fostered. And it also means 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 and inquiry into the specific challenges and dilemmas faculty face in the classroom—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.”

A scholarship of teaching...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).

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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 n.d.) 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 (see www.carnegiefoundation.org), 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.

Integrative Assessment

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, integrative assessment would seem to imply more collaboration among faculty to identify key points and elements of integration. That is, to develop

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assessment instruments and approaches 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?), 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 also 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.

Integrative assessment may also raise conceptual questions about how, exactly, students develop such abilities. 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.

Integrative assessment almost certainly implies more focus on student self-assessment, as well—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 (highly relevant to integrative

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learning) but some campuses are employing the approach around a broader set of outcomes, as well (Cambridge 2001). Capstone experiences, similarly, can serve both a learning and an assessment function.

More indirect measures may also be an important part of the mix. The National Survey of Student Engagement, used by 437 four-year colleges and universities in spring 2003, 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 newer community college version.) Although it is too early to tell if data from these instruments get “down” to a level that faculty can use to improve their courses and advising, early findings are already suggesting to administrators and policymakers that colleges and universities can do better at providing opportunities to develop their students’ capacities to connect.

Still, the challenges of assessing integrative learning run deep and will not be easily met. 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 college students—the image of undergraduate education set forth here is unfamiliar in a number of ways. 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

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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; AAC&U 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 living productively, responsibly, and meaningfully amidst the uncertainties of the world today.

To this end, the Carnegie Foundation and AAC&U are seeking eight to ten campuses to participate in a joint project, *Integrative Learning: Opportunities to Connect*. Selected both on the basis of work already accomplished and on a desire to extend that work, participants will develop new models to provide students with more purposeful, progressively challenging, integrative educational experiences. Campuses could choose, for example, to scale up student participation, expand the number of opportunities, better link opportunities to explicit learning goals and to other parts of the curriculum, and assess students' ability to integrate knowledge across fields and experiences. Campuses could also propose to implement new practices to complement and supplement existing programs. Whatever the specific student experience or curricular structure selected as the focus of work, we are seeking institutions that will be deliberate about promoting integrative learning throughout a student's undergraduate career, serious about assessment, and committed to knowledge-building.

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 to share what they are finding out about integrative learning, to develop new

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ideas about assessment, and to learn from each other's designs. Local efforts can be reinvigorated by participation in a community of educators working towards 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.

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