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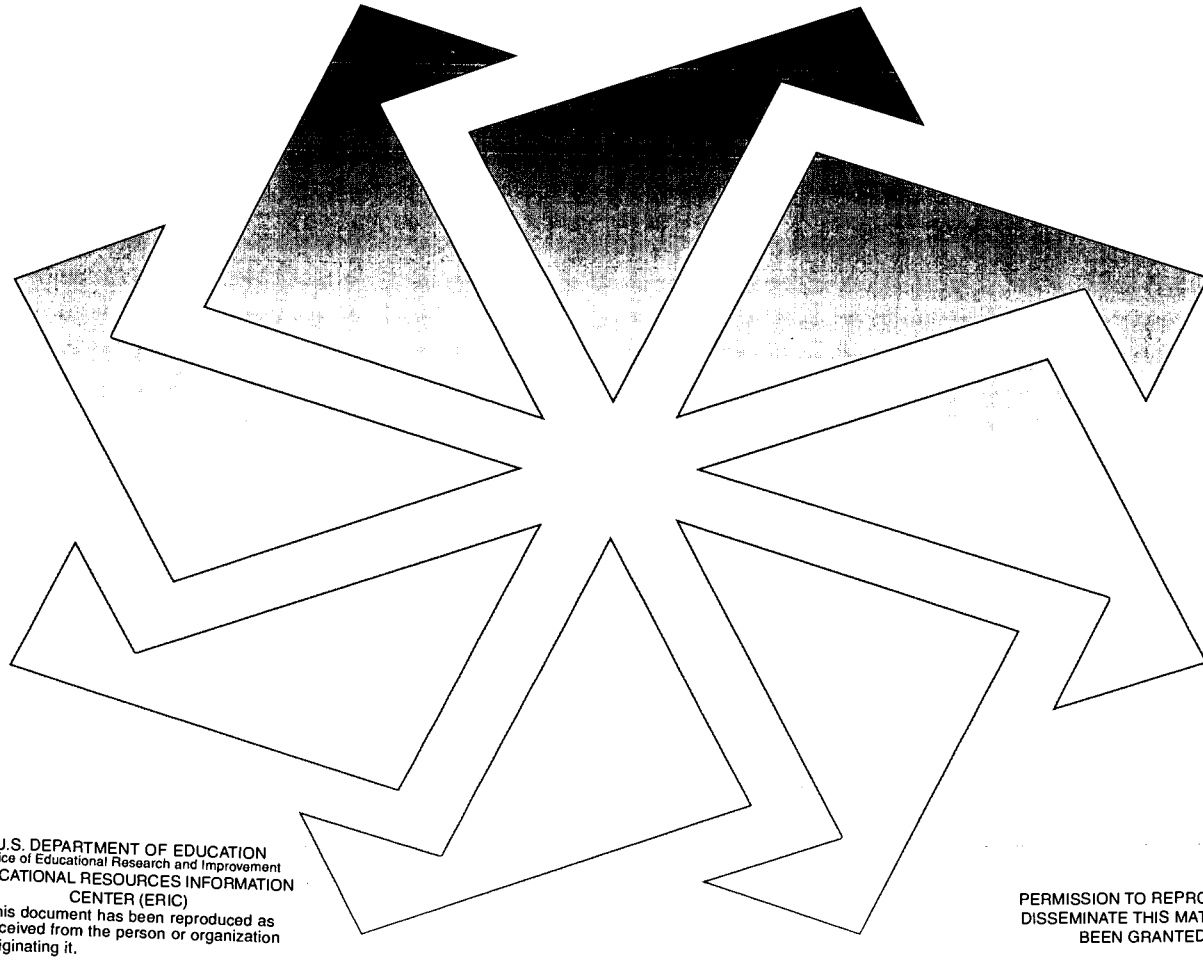
ABSTRACT

This report concerns integrating academic and occupational instruction at the community college level. Such integration would be conducive to preparing a competitive workforce, providing a broader educational foundation, shifting from teaching to learning, and building bridges between disciplines in the community college. There are several approaches to curriculum integration. The simplest and most convenient is to combine academic with occupational content, applying both in all classes. A second method is the use of multidisciplinary courses that emphasize broader social, political, philosophical, and ethical issues. A third method, using linked or cluster courses, involves "linking" two or more courses to provide an integrated, complementary effort. A fourth method, learning communities, clusters programs or coordinated courses into common core of outcomes. Finally, technology-enhanced integration facilitates learning by breaking down conventional educational barriers of time and place. Whatever the method used, integration is expensive, and leadership and commitment from community college administration are essential to its success. 39 references. (YKH)

Blurring the Lines:

Integrating Academic and Occupational Instruction at the Community College



Illinois Task Force
On Academic/Occupational Integration

October 1997

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A White Paper
by the
Illinois Task Force
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Executive Summary

The traditional method of using lecture as a means of teaching students in a postsecondary setting is under debate today. Research in the areas of classroom assessment and individual learning styles, and the changing structures and educational needs of the workplace have prompted the debate, leading to antagonism and confusion, but also change. One innovation being debated throughout the nation is the idea of integration of academic and occupational education.

Since 1991, the practice of integrating academic and occupational education within community colleges has grown substantially. More colleges are developing and implementing a broader array of curriculum integration methods than ever before. Numerous strategies exist to implement curriculum integration, yet because education is still experimenting with the concept, institutions have the freedom to experiment and create new strategies.

There are several approaches to curriculum integration currently, varying in the degree of integration intended and the extent of complexity in curricular designs. Some integration efforts, such as infusing academic and occupational content, require minimal alterations. This strategy is the least disruptive form of integration as it can be accomplished quickly and informally. Typically, it involves the application of academic content into occupational courses or the reverse, occupational content into academic courses.

Multidisciplinary courses are similar to applied academic courses because both infuse academic skills and knowledge with occupational subject matter. An important distinction between the two, however, is the emphasis of the multidisciplinary course on the broader and deeper social, political, philosophical, and ethical questions that surround work and the nature of the contemporary work environment.

Linked or cluster courses involve the linking of two or more courses to provide an integrated effort. Courses are usually taught separately, but syllabi and assignments are often coordinated to provide an educational experience that is complementary.

Clusters of programs or coordinated courses with a common core of outcomes are referred to as learning communities. Students move through learning communities as a cohort, and faculty work as a team to develop courses and programs that combine academic and occupational curricula with coordinated and unified themes.

Work-based learning experiences provide students with the opportunity to apply academic and occupational content in a "real world" setting. Different approaches to work-based learning yield different kinds and levels of academic and occupational integration. Current practices include professional-clinical training, cooperative education, formal registered apprenticeships, school-sponsored enterprises, and youth apprenticeships.

Finally, new educational and informational technologies provide faculty and institutions the opportunity to go beyond the four walls of a classroom and the confines of a calendar. Multimedia presentations, simulations, computer-assisted testing, customized texts, and electronic libraries are common applications, and the use of the Internet and world wide web is just being tapped.

Developing and implementing integration strategies are not one-time activities and do not

come without cost. The cost of collaboration for faculty release time and possibly increased staffing, the cost of reformulating existing policies, practices and systems, and the cost of engaging skeptical instructors and administrators can present challenges. Leadership and commitment from a community college's administration are essential elements to the success of academic and occupational integration.

Resources and support from state and national sources are also essential to easing the transition. Research, professional development and training, dialogue with key groups, and integration with pertinent state level policies and initiatives are various avenues by which state and national entities can and do provide assistance.

The contributions to the quality of education as a result of academic and occupational integration are unfolding and are validating the move from a teacher-centered paradigm to that of a learner-centered paradigm. When curriculum is relevant, students become active in the learning process and thus become more motivated to learn and to retain content. Integrative practices can also provide the opportunity for collegiality among individual faculty and the various divisions of a community college.

Introduction

At all levels of education, reform is the watchword. Real and significant changes are occurring in elementary, secondary, and postsecondary education today. In elementary and middle schools, youngsters experience cooperative teams to facilitate the learning of mathematic and science concepts and how to apply them to real-life problems. At the high school level, teachers experiment with new educational technologies to enhance student outcomes.

Significant changes are beginning at the community college level as well. Increased dialogue can be seen in the shift from a predominantly "teaching" to "learning" paradigm (Barr & Tagg, 1995; Boggs, 1995-96). The increasingly diverse student population served by community colleges demands that more attention be placed on curriculum and instruction to address students' varied learning needs.

Other levels of higher education are implementing changes as well. University faculty are encouraged to vary their instructional approaches by limiting the use of the lecture in favor of more active, learner-centered teaching. An important dialogue is surfacing regarding the role and function of the academic disciplines. In a recent issue of *The Review of Higher Education,* Mourad (1997) challenged faculty to consider the benefits of interdisciplinary approaches to higher education as new ways of creating knowledge more applicable to practical problems. As these ideas are moving from the margins to the center of academic debate, they are influencing how teaching and learning occur throughout the entire educational system.

Already, educational reforms and restructuring are stimulating improvements in student learning. Even though few reforms are fully developed or formally evaluated, changes are occurring that deserve greater recognition and continued encouragement. Deserving utmost attention are reforms having a central goal of improving what and how learners learn. One such reform is the integration of academic and occupational education, an approach devoted to strengthening the connections between academic[1] and occupational[2] subject matter and instructional approaches. In recent years, the integration of academic and occupational education has become an important force in changing curriculum and instruction for students at both the secondary and postsecondary education levels.

To clarify what academic and occupational integration is and how Illinois community colleges can most effectively develop and implement integration strategies, the Illinois Community College Board and the newly formed Illinois Council for Occupational Education, in cooperation with the Illinois State Board of Education and the Office of Community College Research and Leadership at the University of Illinois at Urbana-Champaign, organized a task force on integration composed primarily of community college faculty and administrators.

The task force first met in September 1996 at Allerton Park near Monticello, Illinois. Members responded to the open-ended sentence "Integration is..."; reviewed and discussed various methods of integration currently implemented by community colleges in Illinois and throughout the nation; identified challenges and benefits of integration; debated the kinds of systemic changes necessary to develop and implement integration; and brainstormed how integration can be strengthened across the Illinois community college system.

Results of the Integration Task Force's discussions are summarized in this paper. The intent of the document is *not* to etch in stone methods currently used to integrate academic and occupational education nor to lay out a roadmap for implementing integration within an institution. Rather, the intent is to raise the level of awareness of the concept, to enhance the understanding of the strategies being used, to initiate dialogue among Illinois community college faculty and administrators, and to promote further inquiry into the topic.

The document is separated into five sections. The first section sets the stage for why academic and occupational integration is an issue for discussion. The second section discusses strategies currently used to integrate academic and occupational instruction. The third section describes generally how a community college can advance integration at its institution. The fourth section offers suggestions for national and state resources and support mechanisms. The final section contains a bibliography of references cited, further readings, and web sites that can be consulted for further research.

Notes

[1]Academic is used to describe any aspect of the general education or liberal arts and sciences curriculum.
[2]Occupational is used to describe any aspect of the vocational, technical, or any other aspect of work-oriented curriculum.

The Reasons for Academic & Occupational Integration

The rationale for integrating academic and occupational education is multifaceted. It affords the opportunity to prepare a more sophisticated and competitive workforce for the United States, and in particular the state of Illinois. It provides a broader educational foundation to produce a greater number of informed and responsible citizens. It supports the thinking that education should shift from "teaching" to "learning." It allows those involved in the process to move out of the rigid compartments of teacher and student perpetuated in the early 20th century and into a flexible and adaptable team being advanced in the late 20th century.

Preparing a Competitive Workforce

A prominent argument for integration is its linkage to workforce preparation. The world of work in the United States has changed from an agrarian and domestic industrial economy to one that requires competition for a myriad of products and services on an international scale. The demands of this changing economy are requiring a more highly and multi-skilled workforce, yet the products of education are in many ways being taught to the needs of the past.

Continuous change—seen as vital to keeping America's economy productive and healthy— puts demands on individual workers and the educational institutions responsible for preparing them. Several national task forces and commissions have made these claims, including the U.S. Department of Education's *National Assessment of Vocational Education* (NAVE) and the influential report of the Secretary's Commission on Achieving Necessary Skills (SCANS). The "emergence of a global economy, the development of new forms of organization in the workplace, and the continuing growth of technology" (NAVE, 1994, p. 9) are changes that have occurred in America's economy that influence directly the skills required of workers.

Bailey (1995) points out parallels between academic and occupational integration and high performance workplaces where workers are required to function at higher academic and technical levels than ever before. He emphasizes how integrated academic and occupational education can focus on problem solving, cross-functional teamwork, and continuous improvement. The National Coalition for Advanced Manufacturing, in its 1996 white paper titled *U.S. Industrial Strength for the 21st Century*, emphasizes the needs of the changing manufacturing environment:

> Industrial automation has replaced large quantities of unskilled, low-skilled jobs and single-craft jobs with positions requiring multi-skilled "techno-professionals" able to deal flexibly with information-based, computer-integrated technologies and to participate in decisions related to process and product improvements and scheduling. ...[T]hese workers must have the personal attributes, communications and business knowledge to work in teams, accept responsibility for customer satisfaction, and be fully accountable for their own actions (p. 32).

The state of Illinois is no exception to this

changing environment as was stated in the report, *Economic Leadership in Illinois: New Approaches for the 1990's*:

> The most critical deficiency and the most pressing need expressed across all [Illinois] industries was in the area of workforce quality. In particular, the need expressed was for workers that can meet changing needs (Center for Economic Competitiveness, SRI International & DRI/McGraw Hill, 1991, p. IV-5).

Students who have experienced integrated academic and occupational instruction will be better prepared to compete for jobs in high performance and changing workplaces and will be able to succeed when they acquire them.

Providing a Broader Educational Foundation

In spite of its critical importance, an economic argument for academic and occupational integration may not sway educators of the opinion that a concentrated liberal arts foundation is paramount. For them, curriculum integration needs to represent much more than improved workforce preparation. Faculty who believe education is fundamentally about enabling students to better understand and contribute to their world and freeing them to explore their full potential will question reforms overly focused on job training.

To ensure their support, the integration of academic and occupational education must be a liberating force that leads to multiple educational goals and that creates a more informed and compassionate citizenry. Badway and Grubb (1997) recognize the importance of integrating academic and occupational education for the purposes of broadening occupational education and strengthening its connection to civic goals, including:

> citizenship issues such as the role work plays in society, the causes and effects of technological developments, the evolution of American work ethic concepts, the role of individual workers within an organization, the history of occupations and labor movements, or public policies toward technology and employment (p. 12).

Set apart from the academic curricula, occupational education can be focused strictly on preparing learners for immediate employment, thus discouraging, indirectly or directly, their pursuit of further higher education or higher-wage careers. Academic and occupational integration, however, has the potential to offer a broader focus and subsequent opportunities for a more highly diverse group of students.

Strong occupational education has always been viewed as inseparable from strong academics. *Building Communities*, the influential Commission on the Future of Community Colleges' report, pointed out the importance of blending general and technical education: "Only by placing emphasis on *both* can all students help in the building of community" (1988, p. 20).

Shifting From Teaching To Learning

Integration of academic and occupational education also reinforces the shifting paradigm from teaching to learning. Classroom research (Angelo & Cross, 1993; Cross & Steadman, 1996) and performance-based assessments designed to determine how students learn best (Mabry, 1992) reinforce academic and occupational integration. Historically, some occupational education areas

have had stronger ties with academic subjects than others. Areas such as agriculture, business, engineering technologies, and health occupations have recognized traditionally that it is the rare learner who can connect complex academic and occupational education on his or her own. A healthy respect for and connection between academic and occupational education is indisputable. A recent League for Innovation in the Community College monograph on *Community College Innovations in Workforce Preparation: Curriculum Integration and Tech-Prep* makes this point:

> [M]ost students have trouble with integrating and applying materials from different disciplines.... Instructors often remark that occupational students take academic and general education courses only grudgingly, and that they often fail to see the relevance of general education to their occupational goals. Instead of requiring *students* to make the links among different subjects, the most promising approaches to curriculum integration place the responsibility for integration squarely on *instructors*, and create new courses and groups of courses to do so [emphasis added] (Grubb, Badway, Bell, & Kraskouskas, 1996, p. 4).

By borrowing from the strengths of teaching traditions in both the academic and occupational arenas, all faculty can develop a richer and deeper array of instructional strategies. As such, faculty are equipped to address the wider variety of learning styles and preferences that learners bring to the classroom and can help them to retain knowledge and skills for a longer period of time.

Building Bridges

Implementing integration practices within the community college provides the opportunity for true collegiality among individual faculty and among the various divisions within an institution. Research is showing that the practice of curriculum integration has potential for creating "community" within community colleges:

> The examples of community colleges that regularly support curriculum integration, learning communities, and collaborative approaches to teaching indicate that a college can establish an atmosphere where faculty regularly work with one another. In this way, curriculum integration can help bridge the distinct "islands" of activity within the community college... (Grubb, *et al.*, 1996. p. 16)

Finally, development and implementation of integration practices have occurred primarily at the secondary level in response to the Carl D. Perkins Act of 1990, which focuses on secondary education reform. It is believed that secondary-level students who have had experiences centered around academic and occupational integration are bound to seek similar instructional venues at the postsecondary level (Bragg & Layton, 1995).

Illinois community colleges serve over one million Illinois citizens each year. These citizens seek community college programs to prepare them for new jobs or to retrain them for the changing workforce arena. They are also seeking to gain a broader understanding of the world in which they live and work, and they want to be active participants in the learning process. Curriculum integration is a sign that education is attuned to the changing economic, organizational, and social structures in which we live and work.

The Strategies for Academic & Occupational Integration

Since 1991 the practice of integrating academic and occupational education within community colleges has grown substantially, and more community colleges are developing and implementing a broader array of methods than in the past. The methods used to integrate academic and occupational education can benefit a range of programs that community colleges provide, including developmental education, English as a Second Language, as well as the traditional liberal arts and sciences. Regardless of program focus, integration can broaden and enrich students' and faculty's lives and revitalize institutions.

Sometimes integrated curriculum is called "contextual curriculum" or "contextual learning," but these concepts have similar meanings. Bolt & Swartz (1997) define contextual learning as "learning that occurs in the most effective and natural manner, associating classroom theory with real-world application" (p. 81). They also note that "just as there are many different approaches to integration, there are various approaches to realizing contextual learning" (p. 81).

Whether known as curriculum integration or contextual learning or by still another name, there are varying approaches to the degree and complexity of integration intended in different curricular designs. Some integration efforts require minimal alterations to existing curriculum and methodologies while others require extensive restructuring of instructional context and activities.

Armstrong (1980) offers four levels of curriculum integration that can bring academic and occupational curricula closer together. At the first level, students take a selection of courses from different disciplines and possibly departments, but none of the information is linked deliberately by the instructors. The students are responsible for integrating subject matter.

At the second level, classes are organized to facilitate the sharing of student learning, often through capstone courses[3]. Students still have the lion's share of responsibility for integrating subject matter.

At the third level, faculty become more involved in the integration process, creating courses that combine subject matter from different disciplines and sometimes involving team teaching. Although this level is much more deliberate than the prior two levels, the degree of interaction can vary widely here, often depending upon how closely the faculty relate their subject matter to one another during classroom and other instructional events.

Finally, at the fourth level, various fields of knowledge are combined into a "'new, single, intellectually coherent entity'. This step demands understanding the epistemologies and methodologies of other fields and, in a team effort, requires building common vocabulary and assumptions" (pp. 53-54). This fourth level of integration comes closest to what Mourad (1997) describes as "interdisciplinarity" or the combining of various disciplines to solve practical problems.

The strategies to be discussed in this section vary in the seriousness and formality with which they integrate academic and occupational curriculum. Listed from lower to higher levels of complexity, the strategies of integration presented include:

- infused academic and occupational content
- linked or cluster courses
- interdisciplinary or multidisciplinary courses
- learning communities

➢work-based learning experiences
➢technology-enhanced integration

Which integration strategy or strategies may be developed at a community college, it would behoove the institution to study and develop assessment strategies that more accurately test and document the knowledge students actually attain. As well, community colleges need to assess and document the viability of the institutions' curricula. A brief discussion of assessment closes this section on academic and occupational integration.

Infused Academic/Occupational Content

Infusing academic and occupational content usually involves the incorporation of academic content into occupational courses or the reverse. This method of integration is the least disruptive form as it can be accomplished more quickly than using other strategies. The infusion method is used most often to integrate academic competencies with occupational content to create applied academic courses. Academic or occupational instructors typically teach these courses, but rarely are they team taught. "In many cases, these courses have been developed as a way to serve the needs of occupational students more precisely, sometimes because of the perception that standard academic courses in math or English are too general, too abstract, or too lacking in appropriate applications" (Grubb, *et al.*, 1996. p. 6).

Cross-curricular efforts are also considered a form of infusion. Writing Across the Curriculum is the most widely adopted cross-curricular effort, where both academic and occupational instructors work to incorporate writing within their courses. Other cross-curricular efforts include Communication Across the Curriculum and Humanities Across the Technologies.

Whether faculty informally connect academic knowledge with occupational content, develop academic courses that use applied occupational content, or incorporate academic content throughout a curriculum, the infusion method may or may not involve collaboration between faculty or departments since the method can be applied to existing courses with fairly minimal planning time and cost. It can be difficult, however, to determine how much integration is actually occurring because infusion can occur within isolated classrooms.

Applied academic courses can be offered as transfer or non-transfer courses, and they can differ in significant ways accordingly. Badway and Grubb (1997) explain that transfer-oriented courses "typically address a range of complex cognitive capabilities, including problem-solving, reasoning, organizing resources and acquiring and using information" (p. 6), whereas non-transfer courses "emphasize work-related applications of conventional academic topics, explicitly connecting skills that are related in the classroom with their uses in everyday practice" (p. 7).

A recent national survey[4] by Badway and Grubb showed that over half of applied mathematics and communications courses were tailored specifically for business and technical majors where students carry out assignments such as report writing. They also reported that some community colleges (e.g., Broome Community College in New York, Kapiolani Community College in Hawaii, and Prince George's Community College in Maryland) offer occupational courses where students prepare to meet writing-intensive graduation requirements. At Volunteer State Community College in Tennessee, students can take three forms of an introductory English course, one of which features various workplace concerns, especially ethical dilemmas.

In 1997, the Illinois Task Force on Integration, assisted by the Office of Community College Research and Leadership at the University of

Illinois at Urbana-Champaign (UIUC), conducted a fax survey of all Illinois community colleges to determine how academic and occupational integration is occurring. Follow-up telephone interviews were conducted with over one-half of the community colleges to collect more detailed information about local integration policies and practices. Results of that survey research revealed that the infusion method is the most widespread approach used to integrate academic and occupational education in Illinois' community colleges.

Of the 44 community colleges responding to the survey (90 percent of all community colleges in Illinois), nearly all reported offering some academic courses specifically adapted to the interests of career students. Reviewing the names of all courses reported by the colleges in the survey, a wide array of applied academic courses are evident throughout the state system, including:

- technical, business, or practical writing
- business, industrial, health, agricultural, technical or liberal arts math
- math for teachers or nurses
- English for business or technical careers
- career speech for business or health care
- business or environmental law
- business statistics
- technical or applied physics
- business, technical, or agricultural communications

In addition to applied academic courses, applications can be infused into existing courses rather than treated as stand alone courses. Such is the case at *Illinois Valley Community College* where integrated modules are taught across the curriculum similar to the Writing Across the Curriculum concept. At Illinois Valley, integrated modules are used in the following ways: chemistry in automotive technology or agriculture, reading in child care, art in plastics or computer-aided design (CAD), and computer applications in humanities courses. Special thematic projects allow students from different curriculum areas to examine particular issues and concerns surrounding recycling and rivers.

Some community colleges in Illinois offer applied academic courses for transfer credit, although these courses are more rare than non-transfer ones. *Lewis and Clark Community College* offers Elements of Nutrition and Fundamentals of Medical Microbiology courses, *Olive-Harvey College* has courses titled Sociocultural Science and Consumer Education, both of which can be transferred. *Metropolitan Community College* offers two courses that transfer, Computer Literacy and Career Decision-Making, and *Rend Lake College* has a course in Architecture History and Theory that transfers. In addition, numerous colleges provide anatomy and physiology courses for occupational students, primarily in allied health fields that transfer.

Linked or Cluster Courses

This strategy involves the linking of two courses to provide an integrated effort. Linking two courses is a fundamental approach to implementing a learning community (Gabelnick, MacGregor, Matthews, & Smith, 1990), a strategy discussed more fully later in this section. In linked courses (also referred to as tandem or cluster courses), the content of each course is coordinated to compliment the content of the other course or courses.

Coordinating syllabi and assignments provides an integrated educational experience. Linked courses can be scheduled back to back, or they can be offered simultaneously through a block scheduling arrangement. More often, however, the courses remain separate, but academic and occupational faculty plan the courses collaboratively to ensure that appropriate relationships are built. As a result of this collaboration, faculty teaching loads can vary, and because linked classes can attract large

enrollments, they may add to a faculty member's teaching load.

Linking two courses in the liberal arts and sciences curriculum is fairly common, and transfer credit is sometimes granted. It is much less common, however, to find an academic and occupational pairing (Badway & Grubb, 1997). All the same, some academic and occupational courses are natural partners. Courses in engineering technologies and mathematics, business and English, and business and mathematics are examples.

Grubb, *et al.* (1996) reported finding linked courses in community colleges across the country. A few examples include the workplace psychology and welding courses at Waukesha County Technical College in Wisconsin, physical science and engineering materials at Southwestern Community College in Iowa, and medical terminology and anatomy/physiology at the Community College of Allegheny County in Pennsylvania.

A few community colleges in Illinois offer linked courses. The *College of DuPage* links speech and business courses and speech and photography portfolio courses. At *McHenry County College*, the manufacturing program has paired courses, with individual instructors coordinating their respective efforts to ensure that integration of content is occurring. In this case, students take the courses as a cohort. In the college's electronics program, three or more linked courses are being taught to a cohort of students. These courses are developed and coordinated by a team of faculty, and some of the courses are broken into one-credit hour modules to further enhance integration opportunities.

When more than two courses are linked, as in the case at McHenry County College, the integration effort is referred to as cluster courses. In addition to McHenry County College, these types of linked courses are evident at other Illinois colleges. At *Triton College*, for example, mathematics and communications courses are linked to occupational courses for students in the Ford ASSET and General Motor's ASEP programs. At *William Rainey Harper College*, "The Global Village" integrates an occupational course in international business with general education courses in geography, political science, and other academic courses.

At *College of DuPage*, courses are used by faculty in the business program to link seven business and marketing courses to create a flow-of-work simulation. "Students enrolled in these courses attend class at a common location and complete tasks which simulate the interdependence of information and production flow on the job, as well as learning the job-specific and generic technical skills necessary to operate business equipment, schedule output, and complete accounting and marketing tasks" (Grubb, *et al.*, 1996, p. 11). Similarly, *Illinois Valley Community College* offers the MIMIC project (Making Industry Meaningful in College) where students in business, engineering design, accounting, manufacturing, and electronics form teams to produce, market, and sell a product. A newly developed MIMIC service component replicates this approach for students in child care services.

Interdisciplinary Or Multidisciplinary Courses

Since curriculum integration is a relatively new concept, various terms have been developed to explain similar strategies, creating confusion for the novice. For example, Klein and Newell (1997) make an important distinction between multidisciplinary and interdisciplinary courses. According to these authors:

> In *multidisciplinary* courses, faculty present their individual perspectives one after another,

> leaving differences in underlying assumptions unexamined and integration up to the students. In *interdisciplinary* courses, whether taught by teams or individuals, faculty interact in designing a course, bringing to light and examining underlying assumptions and modifying their perspectives in the process. They also make a concerted effort to work with students in crafting an integrated synthesis of the separate parts that provides a larger, more holistic understanding of the question, problem, or issue at hand (p. 404).

Grubb, *et al.* (1996) make no such distinction between multidisciplinary and interdisciplinary. Rather, their definition of multidisciplinary seems closer to Klein and Newell's idea of inter-disciplinary in that they define multidisciplinary as an "application of academic subjects and their concepts and analytic methods to technological developments, working and its consequences, and other employment-related issues" (p. 7).

Using this definition, multidisciplinary courses are similar to applied academic courses because both infuse academic skills and knowledge with occupational subject matter in an attempt to strengthen academic competencies. An important distinction between applied academic and multidisciplinary courses, however, is the emphasis of the latter method on the broader and deeper social, political, philosophical, and ethical questions that surround work and the nature of the contemporary work environment.

The multidisciplinary approach is an intricate method of integrating academic and occupational education because deliberate planning time is required of faculty to collaborate to develop new courses. Team teaching often accompanies this approach, but it is not universal. Administrative considerations must also be made, such as the granting and transference of credits since these courses tend to transfer more often than the applied academic courses.

On the national level, multidisciplinary courses that integrate the humanities and liberal arts and sciences with technologies can be seen in courses such as History of Technology offered by New Hampshire Vocational-Technical College, Technology and Human Values at Yavapai College in Arizona, California's Industrial History at DeAnza College in California, and Connecting Technology and Our Lives at Sinclair Community College in Ohio (Badway & Grubb, 1997, p. 51; Grubb, *et al.*, 1996, p. 8).

Multidisciplinary courses are less evident in Illinois community colleges than applied academic courses, but they can be found. Several colleges offer courses in health, business, professional, and medical ethics, including *College of DuPage, Illinois Central College, Moraine Valley Community College, Rend Lake College,* and *Triton College.* An environmental/agricultural ethics course has been designed by *Lewis & Clark Community College,* and *Danville Area Community College* provides an environmental/science course. *Rock Valley College* combines science, technology, and social change, and a History of Business course can be found at *Highland Community College.* Finally, *Triton College* offers several multidisciplinary courses, such as The Worker in America, The Individual and Technology, and The Future of Technology.

Learning Communities

Learning communities are a form of curriculum integration that has experienced enormous growth over the past two decades. With its roots in early 20th century American higher education

(Matthews, Smith, MacGregor, & Gabelnick, 1997), the learning community can hardly be considered a new idea. Yet in many community colleges, they have emerged only recently and have taken on quite innovative teaching strategies. In their most fundamental form, learning communities provide clusters of programs or coordinated courses designed to produce a common core of student outcomes.

Distinguishing learning communities from the more basic integration models, students participating in learning communities move through clusters of courses as a cohort, and faculty work and usually teach as a team to offer courses and programs that combine academic and occupational curricula, with coordinated and unified themes. More complex forms of learning communities can be seen in *federated learning communities*, where thematically linked courses are taken by a cohort of students and a "master learner" (usually a faculty member) facilitates the integration/learning process for students, and *coordinated studies*, where students are taught in an intensive block mode using a central theme and a variety of teaching methods (Schaad, 1997). Complex learning communities may provide the greatest opportunity to model workplace realities in an academic setting; however, there is little evidence to suggest many community colleges are using these more complex models, either on the state or national level.

On the national scene, Matthews, *et al.* (1997) notes that the learning communities at LaGuardia Community College are some of the earliest documented in the two-year college setting. LaGuardia offers a cluster of academic and occupational courses to student cohorts, along with a one-credit integrating seminar to encourage integration across the various courses. Each of the several different clusters adopts a theme. Whereas planning occurs throughout the semester, the classes are not usually team taught.

Only a handful of community colleges in Illinois have implemented learning communities to integrate academic and occupational subjects. As part of a Tech Prep postsecondary demonstration grant, *McHenry County College* has pioneered the learning communities approach in an Office Systems Technology (OST) program. That program, along with the manufacturing and electronics programs mentioned earlier, are part of an *Academy for High Performance*, which focuses on preparing individuals for work in today's high performance technological and information society. The initial framework included

- integration of the general education curriculum with occupational education
- a significant work-based experience component
- a team effort with representation from various college and business constituents
- up-to-date standards and high expectations for occupational programs while incorporating industry-based and derived competencies
- general education requirements consistent with college policy

For the OST program, faculty involved in the initiative were from computer information systems, communications, humanities, mathematics and science, social sciences, and, of course, the OST area. A college counselor and employer representative were also part of the team, referred to locally as a "cell." This cell concerned itself with developing an integrated academic and occupational curriculum and a method of delivery that fostered such integration. Since the development of the OST learning community, McHenry County College has developed a plan whereby integration can be achieved in other program areas. Components of this plan include

- creating curriculum modules that are one-credit hour courses where each general education module, when completed in blocks of three, meet state guidelines for transferability
- using portfolios and journals to encourage

students to connect theory and practice
- providing problem-based curriculum based on case studies throughout the curriculum
- infusing team building activities and problem-solving/critical thinking components

At *Black Hawk College*, a freshman learning community is provided for a small cohort of developmental students. This learning community is a hybrid of the freshman interest group and coordinated studies approaches in that students engage in a one hour per week discussion group, and faculty act as planners and participants in all aspects of the program. A career decision-making course is included as one of five core courses to encourage students to focus on their career goals. Research results show this approach heightened students' attention to setting clear career goals since most students declared their goals by the end of the semester. Retention was also quite high. Only one of the group of nine left college (Schaad, 1997).

A few community colleges reported having learning communities outside of the occupational curriculum altogether, such as the QUEST program at *Illinois Central College*. Others mentioned plans to develop learning communities that integrate academic and occupational education, such as *Rock Valley College* and *South Suburban College*; however, these programs are not fully developed to provide a description of their various goals and components at this writing.

Work-Based Learning Experiences

Experiences that give students the opportunity to integrate and apply academic and occupational context in a "real world" setting are sometimes best delivered in the workplace. Learning imbedded in work can provide "a richer context than traditional schooling where the teaching of subject matter is abstract and decontextualized.... Work-based learning offers a means to bridge the gap between theory and practice that exists in many traditional school settings...." (Bragg & Hamm, 1996, p. 1). Although no one definition exists, a recent national study by Bragg, Hamm, and Trinkle (1995) defines work-based learning as follows:

> Work-based learning programs are instructional programs that *deliberately* use the workplace as a site for student learning. It is formal, structured, and strategically organized by instructional staff, employers, and sometimes other groups to link learning in the workplace to students' college-based learning experiences and career goals. Examples of work-based learning models identified in the study were professional-clinical training, cooperative education (co-op programs), formal registered apprenticeships, school-sponsored enterprises, and youth apprenticeships (cited in Bragg & Griggs, 1997, p. 8).

In a national study of work-based learning, Bragg and Hamm (1996) identified seven factors that contribute to the success of work-based learning programs. Two of these seven factors involve the integration of academic and occupational education.

The first factor is the importance of having a school-based learning component that builds on strong faculty relationships within and across a college, also optimizing the linkages between student services and curricular activities: "Multiple teaching, learning, and support strategies are very evident in exemplary programs. Their presence helps to support the notion that teaching—and learning—associated with work-based learning is indeed practical, realistic, and applied, while also

being academically challenging" (Bragg & Hamm, 1996, p. viii).

The second factor contributing to a successful work-based learning program that involves academic and occupational integration is the ability of a program to capitalize on innovative teaching strategies by using capstone courses, individualized career plans, mentoring systems, articulation agreements between the secondary and postsecondary levels, and mixed-methods of work-based learning (i.e., co-op programs along with a school-sponsored enterprise or internships combined with youth apprenticeships). Research supports the idea that positive change does not occur because of one intervention, but with the use of multiple strategies working in concert with one another.

Furthermore, different approaches to work-based learning yield different kinds and levels of academic and occupational integration. For example, in the clinical-professional approach, allied health students link theory and practice in the protected setting of a college laboratory before assisting patients in an actual health-care setting. Such approaches are also used to prepare students for the education and legal fields (U.S. Congress, Office of Technology Assessment, 1995). Other methods, such as co-op programs, can facilitate academic and occupational integration, particularly if they provide an accompanying on-campus seminar while the student participates in an internship experience. Such approaches can be found in the marketing program at Phoenix College in Arizona and the Early Childhood Education program at Rowan-Cabarrus Community College in North Carolina (Bragg & Hamm, 1996).

Across the Illinois community college system, students can gain work-based learning experiences in almost any occupational field; however, work-based learning experiences tend to be more intensive and integrated where they are required for licensure or certification, such as in health care, service, or formal apprenticeship areas. Indicative of community colleges that provide fairly intensive work-based learning experiences, *Joliet Junior College* requires work-based experiences in the following areas: all Agriculture and Horticulture degrees, Interior Design, Fashion Merchandising, Law Enforcement, and Marketing Management. Of course, professional-clinical programs require work-based learning as well. These programs at Joliet include Automotive, Child Development, Culinary Arts, Nursing, Special Education Aide, and Teacher Aide.

Several community colleges speak of campus-wide efforts to examine work-based learning and to reconsider its role in the curriculum. Administrators at *Rock Valley College* and *Waubonsee Community College* express genuine interest in enhancing and expanding work-based learning opportunities to improve academic and occupational integration, but both also recognize there are barriers, including involving adult students who already are employed full-time, satisfying contractual issues held by faculty, meeting the differing needs of occupational programs, and working with employers in a coordinated, non-burdening manner.

Technology-Enhanced Integration

Ever shrinking computers, sophisticated software, access to unlimited information, and an expansion of the ability and ease to communicate with others are just a few of the technological innovations available to enhance teaching and learning. Due to the rapid advance of these and other technologies, however, application within instruction is in its infancy.

Yet, technology provides faculty and institutions the opportunity to go beyond the four walls of a classroom and the confines of a calendar and permits faculty to serve as facilitators of the learning process rather than as purveyors of

information. In his essay, *Transforming Teaching and Learning Through Technology,* Doucette (1994) relates how technology can be used:

> First, powerful and increasingly economical networks can enhance communications between students and faculty, students and students, and everyone and college resources.... Second, related networking technologies can provide ever richer sources of information... The third, and perhaps the most important, way...is by providing educational resources tailored to the diversity of learning styles, cultural differences, skill levels, motivations, and educational objectives of an increasingly pluralistic student body (p. 222).

The most widely used technology in the learning process is computer-assisted instruction. This instruction can be used either as a supplement to or a replacement for classroom instruction. It allows students the opportunity to work at their own pace, and it can be used to inform, to reinforce, or to be an interactive tool. Multimedia presentations, simulations, computer-assisted testing, customized texts, and electronic libraries are common applications.

Utilizing the Internet and world wide web allows students to experience first-hand a global perspective related to their studies. In summarizing the opinions of a national panel of experts on how community colleges are likely to use the Internet, world wide web, and related technologies in the future, Layton (1997) concludes:

> [C]ommunity colleges might use these new technologies to provide more flexible learning opportunities, to prepare students for an increasingly technological world, to manage and operate the institution in a more efficient way, and to keep the institution up to date by staying as advanced as possible and using cutting-edge technology... (p. 125).

A recent study by Green (1996) showed that, while 88 percent of community colleges nationwide have Internet access (an undefined concept that could range from a single connected computer to every computer on campus), only 32 percent have world wide web pages (cited in Layton, 1997). According to the American Association of Community Colleges, less than 25 percent of the member schools have web sites available to the public (cited in Layton, 1997). Such statistics show clearly the distance these innovative technologies must go before significant inroads can be made in curriculum and instruction in the community colleges.

Most if not all community colleges in Illinois report having computer laboratories accessible to students, along with the deliberate use of computer technologies across the curriculum, particularly in composition/writing, mathematics, and science courses. Beyond this fundamental level, *Illinois Central College* has incorporated software called ADAM in both its biology and health programs. This software is used to show animated dissection of anatomy for medicine. *Rend Lake College* uses software in the Engineering Technology and Industrial Technology programs to enhance students' abilities to solve mathematics, science, and engineering problems. Another example of technology-enhanced integration occurs at *Moraine Valley Community College* where child care and nursing students are tutored by adjunct faculty to remediate their skills in computer applications, English, and mathematics. In a special enrichment activity at Moraine Valley, a week of seminars provides students re-entering the

nursing program the opportunity to review academic and occupational skills using technologies.

Assessment

As the intent of curriculum integration is to make academic subjects and content relevant and meaningful to students, so must assessment techniques central to such efforts be relevant and meaningful. To do so, a shift away from predominantly quantitative methods of assessment is necessary.

The issue of assessment has been a point of discussion over the past 12-15 years, primarily as a result of financial exigency and of politicians calling for demonstrated accountability from higher education. In response, many states have established sophisticated accountability systems to measure the effectiveness of higher education institutions. In the state of Illinois, this system is known as the Priorities/Quality/Productivity (PQP) Initiative.

A piece of this system requires the review of existing curricula within higher education, with each institution reporting on locally determined indicators. Historically, program reviews in higher education have centered on the value of faculty credentials and recognition within their field of teaching. Assessment of student learning was limited, according to Gentemann, Fletcher, and Potter (1994):

> The review may question the quality of students in the program, expressing concerns about their basic skills on entering the curriculum.... However, the review may generally conclude that, despite these difficulties, students do succeed. Evidence to support this conclusion may include the number of graduates who have pursued [further] studies in the field or taken jobs related to the discipline (p. 33).

While the competition for shrinking local, state, and federal funding has intensified, a student population with more diverse goals and needs are seeking postsecondary education (Ewell, 1994). To perpetuate an "effective learning" environment within community colleges, Ewell (1994) asserts that indicators for program review depend on the program area to be reviewed: "Relevant performance characteristics [in transfer education] include successful transfer of credits, persistence at a senior institution, baccalaureate degree completion, grades earned, and course completion rates" (p. 81). In contrast, he states that, in occupational education, "effective learning" must also recognize the goals of the students:

> For students seeking job entry, effective learning is manifested in obtaining and maintaining initial employment in their fields of training. For those seeking jobs or skill upgrades, continuing technical skill development, or recertification, the appropriate test...is promotion and enhanced job permanence.... As in the case of transfer education, moreover, further distinctions are needed.... One set of these, of course, has to do with the particular knowledge and skill base required for the occupation.... Equally important ...is a set of more basic work-related knowledge-building skills... (p. 81).

As community colleges develop and implement integrated academic and occupational strategies, they should review the indicators used currently for program assessment to confirm or negate their

relevance to the strategy being implemented within a particular program area. Similarly, they should review for appropriateness the methods used to assess student learning.

Cross (1994) notes that the demands of the day of higher quality with fewer resources are forcing colleges to consider alternative approaches to student learning. This is especially critical given the state and national climate for establishing skills standards and credential systems which will hold institutions accountable for validating the appropriate content and level of skills achievement provided by a curriculum.

Collecting periodic data from students in the classroom through such innovative techniques as the "minute paper," "chain notes," and "interest/ knowledge/skills checklist" allow instructors to understand the students who they are teaching and how well those students are learning the subject matter throughout the class term (Angelo & Cross, 1993; Cross, 1994). Selection procedures used within the world of work can provide examples of relevant and meaningful assessment of student performance as well. Cappelli (1992) offers three such assessment tools — ability tests, bio-data, and work samples. Ability tests typically include achievement tests, "which focus on organized learning" and aptitude tests, "which focus more on informal experiences and information" (Cappelli, 1992, p. 4).

Authenticating experiences can offer a more valid means of evaluating students' learning experiences: "Practice sets, applications and classroom simulations offer demonstrations of competency similar to those used in everyday practice. One form of authentic assessment, the capstone project, culminates a program of study and draws together a multitude of communication, mathematical, technical and productivity capabilities" (Badway & Grubb, 1997, p. 15).

In all, these forms of assessments can enable students to assume significant responsibility for and evaluation of their learning experiences. They also provide to faculty and community colleges a clearer and more substantive understanding of what students are learning within their classrooms and subsequently carrying with them to their jobs, homes, and communities.

Integration strategies can be as unique as each community college is unique. How a community college may choose to integrate academic and occupational instruction, the benefits for doing so affect students, faculty, and entire community college communities. Students can become engaged in the education process and motivated to learn. Faculty can be re-energized by the collaborative process and carry their enthusiasm into the classroom. Communities can be revitalized with citizens who contribute positively to the economy and quality of life within their neighborhoods, towns and cities, and ultimately the state of Illinois.

Notes

[3]Capstone courses occur near the end of the two-year curriculum, requiring that students draw together what they have learned across different disciplines and apply it in a work-related project that is executed individually or by a group.

[4]Throughout this report, examples of integrated curriculum identified in national studies conducted by Grubb, *et al.* (1996) and Badway and Grubb (1997) are cited. These reports provided valuable insights into the possibilities for academic and occupational integration in Illinois. Without doubt, the work of the Task Force on Integration in Illinois was shaped heavily by the contributions these authors have already made to the literature. For additional information on curriculum integration activities on a national basis, readers are highly encouraged to read the full text of these important documents.

Advancing Academic and Occupational Integration Within the Community College

Institutionalizing the integration of academic and occupational education may be an arduous task for a community college to undertake; however, it is a task worth striving toward. Fundamental to any substantive change is the commitment of leadership to such a change. Advancing academic and occupational education within the community college requires the commitment of leadership to nurturing an environment that supports innovation and to providing resources that support planning, development, and implementation.

Innovative Environment

Boggs (1995-96) indicates that community colleges were founded as "teaching" institutions, in contrast to postsecondary institutions which centered on research and scholarship. The focus on teaching, however, created the "instruction paradigm," within which faculty are viewed as the purveyors of abstract concepts, and students are responsible for interpreting and integrating that knowledge.

Recent studies on learning styles and delivery methods prompted the introduction of a new paradigm of teaching and learning, which Boggs (1995-96) refers to as the "learning" paradigm:

> Under the instruction paradigm, faculty are primarily lecturers. Students are often competitive and individualistic. Faculty members carry out their functions independently of one another. Teachers classify, sort, and grade students. In contrast, under the learning paradigm, faculty are primarily designers of learning methods and environments. They are managers, promoters, and facilitators of student learning in much the same way as a coach facilitates the very best performance of an athlete. They and their students work in teams with each other and with other college staff. The teacher's job is to develop every student's competencies and talents (p. 26).

Many colleges are evaluating where and what they are and how they do business as they look to the new millennium. Vision statements are being adopted and mission statements are being refined that support more fully this shift from being teacher-centered to being learner-centered.

Encompassed under the umbrella of vision and mission statements are the myriad of policies, procedures, and processes that colleges develop and implement to achieve the goals set forth in their vision and mission statements. These, too, should be evaluated when introducing innovative strategies, such as those developed to integrate academic and occupational instruction, and modified, if appropriate, as strategies are developed for implementation at a particular institution. Examples of policies and practices that may be affected by academic and occupational integration include those that drive curriculum development, student and program assessment, scheduling, and the registration and student record systems.

Since academic and occupational integration is a

curricular reform, the processes for developing new curricula and revising existing curricula might be a first step when reviewing a college's policies and practices. Questions that spur creativity and innovation, such as those posed by O'Banion (1994) in his essay *Guidelines for Auditing the Effectiveness of Teaching and Learning*, would be natural starting points for discussion. Encouraging both academic and occupational faculty to attend local career advisory committees to gain their input in developing and revising curricula is one practice colleges should consider to support an institutional environment conducive to testing innovative integration strategies. Community colleges might also consider policies and practices used in selecting curriculum materials. Hull & Souders (1996) suggest that "community colleges should support the development of curriculum materials at the postsecondary level that are contextually based" (p. 17).

As discussed previously, assessing institutional effectiveness has been brought to the forefront of educational policy and practices over the past 12-15 years. As institutions continue to move in the direction of a more learner-centered environment, and innovative strategies are developed and implemented, colleges will need to review and modify what measures most aptly and ably reflect a learner's level of competency and confirm a curriculum's effectiveness in delivering the appropriate level and scope of instruction. Further, colleges will need to review and modify policies and practices to make modifications in curricular content and delivery in response to the data gleaned from institutional studies (McMillan 1994).

Spence and Campbell (1996) report that, in community colleges striving to be learner-centered environments, "what traditional institutions now consider alternative delivery modes of instruction and learning would be the constant. This college will operate year-round and 24-hours a day, and all student learning styles are accommodated successfully" (p. 27). Typically, community college classes are scheduled for 50 minute time periods certain days a week or a one-time per week two and three-quarter hour period for a three credit hour course. As integration strategies are developed, policies and practices surrounding scheduling should be on the list for review and evaluation. Particular to community colleges that want to develop and implement the more intensive integration strategies, curricula that attract full-time cohorts may be a better starting point since these students would lend themselves more easily to a flexible class schedule, such as block scheduling or a module format.

As colleges review the policies and practices associated with developing and revising curricula, student and program assessment, and class scheduling, the impact on faculty scheduling will become evident. Community colleges will want to work closely with their local faculty unions to ensure that faculty contracts allow for experimentation with new modes of scheduling and for faculty to set aside time to plan and develop integration strategies for their community colleges and to implement strategies within the classroom.

Policies and practices driving registration and student record systems also need to be evaluated when developing and implementing academic and occupational integration strategies. Block scheduling, the use of module formats, and alternative methods of student assessment may require alterations to these systems to reflect an appropriate level of credit and subsequent transfer of credit to other postsecondary institutions.

As community colleges foster innovative approaches to their policies and practices, they must also remain cognizant of accreditation standards established by national accrediting entities, such as those of the North Central Association (NCA). For example, the NCA *Handbook of Accreditation* stipulates that "faculty

teaching general education courses hold graduate degrees that include substantial study (typically 18 semester hours at the graduate level) appropriate to the academic field in which they are teaching" (1994, p. 24). This stipulation may restrict the implementation of a college policy that promotes team teaching by traditional academic and occupational faculty. On the other hand, NCA guidelines on student assessment can support the promotion of contextual learning if alternative methods of student assessment substantiates greater student comprehension and performance.

Resources

Human and fiscal resources are essential ingredients to the success of academic and occupational integration. Efforts to review, evaluate, and modify college policies and practices come with the costs of time, talent, and funding. In addition, time, talent, and funding are necessary to develop and implement the strategies outlined in the preceding discussion.

With the shifting paradigm from teaching to learning, the demand on faculty will be time-consuming. Some faculty may view integration as the "reform du jour," a fad that will pass as have others. Educating faculty as to the merits of such an endeavor is, therefore, critical. Hull and Souders (1996) recommend that community college faculty be connected with secondary faculty that have established integration practices at their schools:

> Dialogue with secondary teachers involved in these courses can provide information on implementing a contextually based curriculum and offer valuable insights into student expectations, performance, and attitudes (p. 17).

Faculty would also benefit from the research produced thus far on integration strategies, contextual learning theory, and the shifting paradigm from teacher-centered to learner-centered education. References to some of the research available on these topics is included in the bibliography found later in this document.

The opportunity to participate in local, state, and national workshops and conferences is critical as well. "Experience at the secondary level has shown that faculty who have attempted to teach contextually based courses without training often become frustrated" (Hull & Souders, 1996, p. 17). Informational sessions and networking opportunities are avenues for both academic and occupational faculty to learn about and share local efforts with their colleagues.

Each community college district develops a schedule of inservices throughout the academic year that could be used to showcase integration practices within the institution and at other institutions. Learning what their colleagues are doing can lead to visits to other institutions where fresh ideas can be identified and brought back to the home college for experimentation and implementation.

Perhaps most beneficial to faculty development is direct experience in the private sector. Both academic and occupational faculty report the value of such experiences. While limited in the number of individuals the state sponsored instructor practicum supports, the idea can be transferred to the local level by recruiting local business partners to provide stipends to both academic and occupational faculty for them to work in the private sector during the summer months.

To this day, community colleges have funded integration efforts primarily through special grant funding. In many cases, this is not a stable stream of funding, thus any activity with which it is funded is undermined. Grubb, *et al.* (1996) assert that funding "should come from the general

funding of community colleges...[because] the tendency of multidisciplinary courses and tandem courses to disappear once special-purpose funding evaporates is a similar indication of how fragile changes are that are supported with external funds" (p. 28). While internal funding may be limited, Boggs (1995-96) believes that

> [u]nder the learning paradigm, the definition of productivity becomes the cost per unit of learning per student.... Funding is, at least partially, based upon student learning outcomes. There may be many ways of increasing student learning that do not involve increasing class sizes or increasing teaching loads. Appropriate uses of technology, for example, might increase student learning at a decreased cost (p. 26).

Whatever resources the community college has at its disposal to fund integration activities, it is a task worth pursuing. As high schools incorporate more practices within their institutions, more students will be entering community colleges expecting these innovative and alternative methods of teaching and learning. It, therefore, behooves Illinois community colleges to pursue the integration of academic and occupational education to prepare for, rather than react to, this changing climate.

Resources and Support

The climate is ripe for innovation within education, and one educational innovation that attempts to respond to the needs of the changing economic and social environments is the integration of academic and occupational education. To assist Illinois' community colleges in the development and implementation of integration on a statewide basis, support from state and national resources is available. Research, professional development and training, dialogue with key groups, and integration with pertinent state level policies and initiatives are various avenues by which state and national entities provide assistance.

Research

Knowledge of and access to information from community colleges throughout the nation as well as within the state of Illinois, either in printed form or through electronic means, benefit Illinois' community college faculty and administration as they strive to develop and implement integration strategies. Much of the work of integrating academic and occupational education has occurred within the secondary school system, thus more research is available that describes academic and occupational integration at the secondary level. At the same time, however, studies of community college involvement have been undertaken and are becoming more common. For example, the most recent study by the National Center for Research in Vocational Education by Badway and Grubb focuses specifically on the topic of integration at the postsecondary level.

As it becomes more readily available through the Internet, the state can increase access to available research on the topic of academic and occupational integration. A web site that links to community colleges implementing integration strategies and to clearinghouses that retain studies and papers for distribution, such as the ERIC Clearinghouse for Community Colleges and the Illinois State Curriculum Center, is a resource the state can make available in the future. In the meantime, web site addresses for current connections can be found in the following section.

Professional Development And Training

While access to written information is valuable, interaction with colleagues is also important. Conferences on the national and state levels provide opportunities to gather more detailed information than what might be available in an article, monograph, or study. Academic and occupational faculty also have the opportunity to participate in practicums that are designed to provide practical experiences that can be transferred to the classroom.

Each year, national and state entities sponsor conferences at which the topic of academic and occupational integration can be found. The National Tech Prep Network and the National Council for Occupational Education routinely sponsor conferences in October of each year. In Illinois, the Connections Conferences are held in two locations in the state to allow for wide participation by elementary, secondary, and postsecondary faculty and administrators, and the Teaching and Learning Excellence Conference provides a forum for community college faculty in particular. In 1997, a jointly sponsored workshop was planned for community college faculty specific to the topic of academic and occupational integration.

Since 1986, Illinois' Vocational Instructor Practicum (VIP) has provided over 12,000 instructors and counselors with short-term worksite experiences. From these experiences, participating instructors and counselors develop an understanding of the forces affecting the workplace and use their experiences to improve the quality of occupational instruction within public education. In 1996, the state worked with employers and involved unions, school administrators, teachers, and counselors to expand the concept of the program to include academic teachers in Tech Prep programs and to expand opportunities for faculty to participate in worksite learning.

Key Groups

Paramount to the success of integrating curricula is the commitment of the administrative bodies within the community college and of the faculty who need to modify teaching planning and practices associated with the development of courses and curricula. Through state level associations that represent groups of administrators and faculty, information can be provided, support gained, and activities developed jointly.

Academic and occupational integration has been a topic of discussion among community college career deans for several years. In addition, the Illinois Community College Faculty Association provides a natural forum for discussing the issue of integration with faculty representatives. Assistance from the Association has helped to promote and support the concept of academic and occupational integration at the local level. Dialogue with discipline-specific associations can also be undertaken to discuss integration and are potential forums for developing articulated curricula employing integration strategies.

Integration with Pertinent State Policies and Initiatives

While acceptance and commitment may be achieved among key groups associated with community colleges and within individual community colleges, the state should also ensure that, as colleges develop and implement academic and occupational integration strategies, state policies and initiatives complement and support these activities.

As required by Federal statute, the Tech Prep Initiative has promoted academic and occupational integration, and as mentioned, much of the work to integrate academic and occupational instruction has occurred at the secondary level. In 1995, the state of Illinois recognized the need to strengthen integration efforts at the postsecondary level. State Tech Prep funding was awarded to seven community colleges at that time to enhance their Tech Prep initiatives and to serve as demonstration sites for other community colleges. Five of the sites focused their attention on developing and implementing integration strategies and have been highlighted throughout this document.

The efforts of the Illinois Articulation Initiative (IAI) are also moving in the direction of recognizing academic and occupational integration. To date, several of the curricula developed as part of the IAI have included the participation of secondary faculty, particularly on those panels developing curricula that include the Associate of Applied Science (AAS) degree. These faculty bring the personal experience with them of developing and implementing integration strategies and the competencies achieved by their students. In addition, articulation panels reviewing courses to be included in the General Education Core Curriculum of the IAI are evaluating courses that may employ academic and occupational integration strategies.

There are a number of initiatives underway related to the identification and use of performance indicators for various purposes, including the Illinois Common Performance Management System, Performance-Based Funding, the revised community college Recognition process, and the model AAS degree. To avoid duplicating reporting processes, the state's program review process will be evaluated to identify measures that are included in other reporting systems. A task force composed of community college faculty and administrators will be convened to examine the program review process and to recommend appropriate revisions to ensure that the process supports and does not duplicate other systems of performance indicators. Recent initiatives, including the integration of academic and occupational curricula, will be considered as they relate to program review.

Whereas academic and occupational integration is a viable and innovative avenue for delivering education, a commitment to the concept and its promotion is needed to better serve the varied and unique individuals who turn to Illinois community colleges for learning. It is the hope of the Illinois Task Force on Integration that, through this document, the issue of academic and occupational integration has been raised to a new level in the state of Illinois.

Bibliography

References

Angelo, T.A. & Cross, K.P. (1993). *Classroom assessment techniques: A handbook for college teachers.* Second edition. San Francisco, CA: Jossey-Bass Publishers, Inc.

Armstrong, F. (1980). Faculty development through interdisciplinarity. *Journal of General Education, 32*(1), pp. 52-63.

Badway, N. & Grubb, W.N.. (1997). *Curriculum integration and the multiple domains of career preparation: A sourcebook for reshaping the community college.* Berkeley, CA: National Center for Research in Vocational Education, University of California at Berkeley.

Bailey, T. (1995). The integration of work and school. In W.N. Grubb (Ed.), *Education through occupations in American high schools, Volume 1*, pp. 26-38. New York: Teachers College Press.

Barr, R.B. & Tagg, J. (1995, November/December). From teaching and learning: A new paradigm for undergraduate education. *Change, 27*(6), pp. 13-25.

Boggs, G.R. (1995-96, December/January). The learning paradigm. *Community College Journal 66*(3), pp. 24-27.

Bolt, L. & Swartz, N. (1997). Contextual curriculum: Getting more meaning from education. In E. Farmer & Cassy Key (Eds.), School-to-work systems: The role of community colleges in preparing students and facilitating transitions (pp. 81-88). *New Directions for Community Colleges, 97.* San Francisco, CA: Jossey-Bass, Inc.

Bragg, D.D. & Griggs, M.B. (1997, Spring). Assessing the community college role in school-to-work systems. *New Directions for Community Colleges, 97.* San Francisco, CA: Jossey-Bass, Inc.

Bragg, D.D. & Hamm, R.E. (1996, April). *Linking college and work: Exemplary policies and practices of two-year college work-based learning programs.* Berkeley, CA: National Center for Research in Vocational Education, University of California at Berkeley.

Bragg, D.D., Hamm, R. & Trinkle, K. (1995, February). *Work-based learning in two-year colleges in the United States* (MDS-721). Berkeley, CA: National Center for Research in Vocational Education, University of California at Berkeley.

Bragg, D.D. & Layton, J.D. (1995, Spring). Tech prep implementation in the United States: The once and future role of community colleges. *Community College Review, 22*(4), pp. 3-16.

Cappelli, P. (1992). *College and the workplace: How should we assess student performance.* Philadelphia, PA: National Center on the Educational Quality of the Workforce.

Center for Economic Competitiveness, SRI International, & DRI/McGraw Hill. (1992). *Economic leadership in Illinois: New approaches for the 1990's.* Springfield, IL: Illinois Department of Commerce and Community Affairs.

Commission on the Future of Community Colleges. (1988). *Building communities: A vision for a new century.* Washington, DC: American Association of Community Colleges.

Cross, K.P. (1994). Involving faculty in TQM through classroom assessment. In T. O'Banion (Ed.), *Teaching and Learning in the Community College* (pp. 143-159). Washington, DC: Community College Press, American Association of Community Colleges.

Cross, K.P. & Steadman, M.H. (1996). *Classroom research: Implementing the scholarship of teaching.* San Francisco, CA: Jossey-Bass Publishers, Inc.

Doucette, D. (1994). Transforming teaching and learning through technology. In T. O'Banion (Ed.), *Teaching and Learning in the Community College* (pp. 201-227). Washington, DC: Community College Press, American Association of Community Colleges.

Ewell, P.T. (1994). The assessment movement: Implications for teaching and learning. In T. O'Banion (Ed.), *Teaching and Learning in the Community College* (pp. 73-96). Washington, DC: Community College Press, American Association of Community Colleges.

Gabelnick, F., MacGregor, J., Matthews, R., & Smith, B. (1990). Learning communities: Creating connections among students, faculty, and disciplines. *New Directions for Teaching and Learning, 41.* San Francisco, CA: Jossey-Bass, Inc.

Gentemann, K.M., Fletcher, J.J., & Potter, D. L. (1994, Winter). Refocusing the academic program review of student learning: The role of assessment. *New Directions for Institutional Research, 84.* San Francisco, CA: Jossey-Bass, Inc.

Green, K.C. (1996). *Campus computing, 1995.* Encino, CA: Campus Computing.

Grubb, W. N., Badway, N., Bell, D., & Kraskouskas, E. (1996). *Community college innovations in workforce preparation: Curriculum integration and tech-prep.* Mission Viejo, CA: A joint publication of the League for Innovation in the Community College, National Center for Research in Vocational Education, and National Council for Occupational Education.

Grubb, W.N. (forthcoming). Not there yet: Prospects and problems for "education through occupations". *Journal of Vocational Education Research.*

Hull, D. & Souders, Jr., J.C. (1996, October/November). The coming challenge: Are community colleges ready for the new wave of contextual learners? *Community College Journal, 67*(2), pp. 15-17.

Klein, J.T., & Newell, W.H. (1997). Advancing interdisciplinary studies. In J.G. Gaff, J.L. Ratcliff, and Associates (Ed.), *Handbook of the Undergraduate Curriculum* (pp. 393-415). San Francisco, CA: Jossey-Bass, Inc.

Layton, J. (1997). *Community colleges on the internet: Uses and impacts.* Unpublished doctoral dissertation, University of Illinois at Urbana-Champaign.

Mabry, L. (1992, December). Performance assessment. In D. Bragg (Ed.), *Alternative approaches to outcomes assessment for postsecondary vocational education* (pp. 109-128) (MDS-239). Berkeley, CA: National Center for Research in Vocational Education, University of California at Berkeley.

Matthews, R.S., Smith, B.L., MacGregor, J., & Gabelnick, F. (1997). Creating learning communities. In J.G. Gaff, J.L. Ratcliff, and Associates (Ed.), *Handbook of the Undergraduate Curriculum* (pp. 457-475). San Francisco, CA: Jossey-Bass, Inc.

McMillan, V.K. (1994, Winter). Assessing and monitoring changing student needs (pp. 19-29). *New Directions for Institutional Research, 84.* San Francisco, CA: Jossey-Bass, Inc.

Mourad, R. P. (1997, Winter). Postmodern interdisciplinarity. *The Review of Higher Education 20*(2), pp. 113-140.

National Assessment of Vocational Education. (1994). *Final report to Congress.* Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education.

National Coalition for Advanced Manufacturing. (1996). *U.S. industrial strength for the 21st century.* Washington, DC: The National Coalition for Advanced Manufacturing.

North Central Association of Colleges and Schools. (1994). *Handbook of Accreditation: 1994-96.* Chicago, IL: North Central Association of Colleges and Schools, Commission on Institutions of Higher Education.

O'Banion, T. (1994). Guidelines for auditing the effectiveness of teaching and learning. In T. O'Banion (Ed.), *Teaching and Learning in the Community College.* Washington, DC: Community College Press, American Association of Community Colleges.

Phelps, D.G. (1994, August/September). 2000+: What lies ahead for community colleges as hurdles towards the 21st century. *Community College Journal, 64*(6), pp. 22-25.

Spence, C.C. & Campbell, D.F. (1996, October/November). Building learning communities: Indicators for a new vision for community colleges. *Community College Journal, 67*(2), pp. 24-27.

Secretary's Commission on Achieving Necessary Skills (SCANS). (1991). *What work requires of schools: A SCANS report for America 2000.* Washington, DC: U.S. Department of Labor.

Schaad, D. (1997). *The social and academic integration of community college students participating in a freshman learning community.* Unpublished doctoral dissertation, University of Illinois at Urbana-Champaign.

U.S. Congress, Office of Technology Assessment. (1995, September). *Learning to work: Making the transition from school to work,* (OTA-HER-637). Washington, DC: U.S. Government Printing Office.

Further Readings

Copa, G., Ammentorp, & Kresbsbach, S. (forthcoming). *New designs for the two-year institution of higher education.* Berkeley, CA: National Center for Research in Vocational Education, University of California at Berkeley.

Day, Jr., P.R. (1996, May). *Responding to the challenges of workforce and economic development: The role of America's community colleges.* Washington, DC: American Association of Community Colleges, Commission on Workforce and Community Development.

Erwin, T.D. (1991). *Assessing student learning and development: A guide to the principles, goals, and methods of determining college outcomes.* San Francisco, CA: Jossey-Bass, Inc.

Falcone, L. & Mundhenk, R. (Eds.) (1994). *The tech prep associate degree challenge: A report of the tech prep roundtable.* Washington, DC: American Association of Community Colleges.

Grubb, W.N. & Badway, N. (1995, June). *Linking school-based and work-based learning: The implications of LaGuardia's co-op seminars for school-to-work programs,* (MDS-1046). Berkeley, CA: National Center for Research in Vocational Education, University of California at Berkeley.

Jacobs, J. & Teahen, R.C. (1997, February). *We're doing it: Michigan models for academic and occupational integration.* A roundtable discussion at the League for Innovation's Workforce 2000 Conference, Orlando, FL.

Journal of Vocational Research, 22(2). The spring 1997 issue is devoted to integration of academic and vocational education and contains a few articles related to postsecondary education.

King, M.C. & Crouse, T.T. (1997, August/September). Opening the bottleneck: Using computer-mediated learning to increase success and productivity in developmental algebra, *Community College Journal, 67*(7), pp. 18-22.

Luskin, B.J. (1997, August/September). Unlocking the power of media through psychology, *Community College Journal, 67*(7), pp. 29-32.

New Directions for Community Colleges, 97. The spring 1997 issue is devoted to School-to-Work and contains several articles which are applicable to academic and occupational integration.

Norton, A. (1995, Fall). Curriculum integration at Illinois Central College, *Update Newsletter*, *7*(1), pp. 4-5.

Oklahoma Department of Vocational and Technical Education. (1996). *Implementing a local school-to-work partnership: 13th and 14th+* (pp. 31-39). Stillwater, OK: Oklahoma Department of Vocational and Technical Education.

Rifkin, J. (1996, April/May). Preparing the next generation of students for the civil society, *Community College Journal, 66*(5), pp. 20-22.

Teahen, R.C. (1997, February). *We've started talking, and now we're doing it! A perspective on curriculum integration.* Paper presented at the annual conference of the Liberal Arts Network Development, Grand Rapids, MI.

Warren, W. (1996, Summer). Discovering modernity. *Workplace, National Council of Occupational Education Newsletter, 7*(1), p. 9.

Web Sites

Center on Education & Work, University of Wisconsin-Madison: http://www.cew.wisc.edu.

Center for Occupational Research & Development, Waco, TX: http://www.cord.org.

El Paso Community College, El Paso, TX: http://www.epcc.edu/Projects/IVALP/info1.htm.

ERIC Clearinghouse, University of California-Los Angeles: http://www.gseis.ucla.edu/ERIC/eric.html.

Global Campus, California State University-Long Beach: http://www.csulb.edu/gc/index.html.

Illinois State Curriculum Center, Springfield, IL: http://www.uis.edu/~iscc

National Center for Research in Vocational Education, University of California-Berkeley: http://vocserve.berkeley.edu.

Office of Community College Research & Leadership, University of Illinois-Urbana/Champaign: http://hre.ed.uiuc.edu/occrl.

Teaching and Learning on the World Wide Web, Maricopa Community Colleges, Maricopa Center for Learning and Instruction, AZ: http://www.mcli.dist.maricopa.edu/tl/.

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