

Essays on Teaching Excellence

Toward the Best in the Academy

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Are we going to Cyberspace, or is this just another trip to Abilene?

William K. Jackson, *The University of Georgia*

Ironically, a few weeks after I penned the title of this essay, Vice President Gore announced that the backbone network being developed to support the Internet2 project will be called the Abilene network. Although the history of the city of Abilene makes it a good metaphor for what will be accomplished by Internet2, I am referring to the use of that location by Harvey to describe what he calls "The Abilene Paradox" (Harvey, 1996).

Harvey uses an ill-fated trip to Abilene, taken by his family one hot summer day, to describe a phenomenon that he contends is one of the most pressing issues in organizations. Just as all of the members of his family agreed to take a trip to Abilene that none of them thought was a good idea, Harvey states that organizations take actions contrary to the desires of any of their members and defeat the purposes they want to achieve.

The paradox is that a group can reach total agreement to do the opposite of what any of the individuals in the group think is a good idea. Although Harvey discusses the Paradox in the context of a single organization, I believe it can also apply across similar organizations such as colleges and universities. Is the pull of technology in higher education so strong today that we run the risk of finding ourselves on a journey to Harvey's Abilene?

The Cost of the Trip

Thanks to technology, never before have we been able to spend so much, so fast, to do potentially so little. At my institution we spend approximately 10% of our operating budget on information technology. At many colleges and universities students are being asked to pay technology fees amounting to hundreds of dollars per year; and at a growing number of institutions students are required to arrive on campus with a laptop or desktop computer costing over \$2000. In some instances, students will purchase or lease two computers during their four years of undergraduate study.

Academic departments are adding costly computer labs, networks, and servers and hiring expensive technical support personnel. A recent job listing for one of the two-year institutions in our university system announced an instructional technologist position, at the bachelor's degree level with a minimum of two years related experience, at an annual salary of more than \$38,000. The search was being reopened; so this institution, located in a major metropolitan area, must be having difficulty filling the position.

At the institutional level, centers to advocate and support teaching and learning with technology are becoming commonplace. Millions of dollars have been invested in initiatives such as the Glass Highway in North Carolina and the Georgia Statewide Academic and Medical System (GSAMS). New buildings such as George Mason University Johnson Center, the University of Michigan Media Union, and the University of Texas, El Paso Multimedia Teaching and Learning Center represent additional multimillion dollar investments in technology at the institutional level.

Indeed, the technological journey we are on is costly in both capital outlay and human resources, as well as in recurring expenses required to sustain and refresh equipment and software. Is our destination worth the price of the ticket?

Landmarks and Guideposts

As we make our way on our journey, a number of troubling landmarks can be observed. Many of the individuals left behind, and therefore not going our way, are labeled luddites or laggards. We accept without qualification observations that our students "have

spent their early lives surrounded by robust, visual, electronic media - Sesame Street, MTV, home computers, video games, cyberspace networks, MUDs, MOOs, and virtual reality" (Dunderstadt, 1999, p.7).

Along the way, we see institutional leader after institutional leader voicing the desire, for competitive purposes, to make their institution or program the most technologically advanced. Students are asked to invest in technology through the payment of technology fees or the purchase of personal computers, and the magnitude of this investment is creating the need for development of applications to make this investment by students and their parents worthwhile. In turn, the need for rapid application development places additional demands on faculty members and support units.

Regional groups such as the Southern Regional Education Board and the Western Governors' Association are investing in duplicative efforts to provide distance education via technology even though one of the greatest benefits of this application of technology is to eliminate constraints of place (region). Community colleges, the success of which has been based on their abilities to respond to local needs, are now seeking a national market through the creation of the Community College Distance Learning Network.

Large capital investments are made in hardware and networking amid a cacophony of concern over a lack of adequate human resources to support technology already in place and unfunded hardware upgrade and replacement strategies. Faculty positions are being cannibalized for technology support personnel who are then recruited away to higher paying opportunities outside academe.

We spend more time servicing our desktop, preparing our own documents, and responding to our e-mail and less time in face to face interactions (a problem soon to be "solved" by desktop teleconferencing). Courses seem to be separated into two categories: those that have websites and those that will soon have a website.

These landmarks are not signposts clearly labeled "Next Stop, Abilene"; however, they should cause us some concern about our ultimate destination.

Fortunately, our journey is not by train, on a set of rails, with a terminus that is determined the moment we leave the station. Adjustments are possible along the way; and some guideposts are available to direct us to other, more rewarding destinations than Harvey's Abilene. "The Seven Principles of Good Practice for Undergraduate Education" are available to guide our choices for the use of technology (Jackson, 1994; Chickering & Ehrmann, 1996), and the recently published 10 learning principles (Engelkemeyer & Brown, 1998) can be used in the same way. We know that time on task, frequent feedback, student-faculty interaction, student-student collaboration, and opportunities for active learning are among the key elements of a productive learning environment.

In the past, it has been difficult to integrate these elements into large lecture sections of 200, 300, or 400 students. Technology gives us that opportunity; and the success of initiatives like the Math Emporium at Virginia Tech (Olin, Rossi & Scruggs, 1998), where many of these elements appear to be present in classes of more than 1000 students, is an indication of the value of the use of technology.

The increased availability of sophisticated Web authoring systems such as World Wide Web Course Tools (WebCT) has the potential for reducing both the amount of faculty time required for the development of Web resources and the demand on support units for intensive, one-on-one support of individual faculty efforts. In addition, publishers are beginning to provide text specific web sites that should reduce the pressures on faculty members to construct content rich sites on their own.

Rather than establishing entirely new units to support instructional technology (the traditional add-on approach), institutions are experimenting with virtual or meta organizations formed through collaborative efforts among existing campus units like the teaching and learning center, computer services, the library, and specialized support units in individual colleges and schools. Facilities such as new student learning centers under development at The University of Georgia and Gore Hall constructed at the University of Delaware have been planned with an emphasis on what the appropriate, as compared to maximum, level of technology should be for various classroom configurations.

Concluding Observations

The costs of technology are high, and the options for its use are varied. In order to avoid arriving at a technological Abilene, we must continually ask and answer the question "what ought we do with technology?" and not "what can we do with technology?". Purpose must lead deployment. Otherwise, we risk expending great efforts and scarce resources to produce the educational equivalent of "Thank you for calling, press 1 if you. . .".

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Class in the Classroom

Lee Warren, Harvard University

Class is an often invisible form of difference. Yet it is there all the time, affecting how and what students learn at every turn. It pervades the values and the purposes of colleges and universities. It contributes to determining the courses offered and the books read and discussed. Still, it is a diversity issue rarely acknowledged.

Class is also very difficult to define. Ask a group to divide itself according to class, and chaos ensues. What is the difference between rural and urban poor? What about professionals who make very little money? What role does education, neighborhood, or kind of work play in the definition? For the purposes of this essay, I am going to draw the roughest of cuts between working class, middle class, and upper class, recognizing the inexactitude of the division and assuming that most people have a general sense of what is meant -- even though this is discomfiting.

The descriptions offered here represent what people have said in workshops on the subject, in which they have discussed their own experiences as students.

How does class affect learning?

Lower Class

The biggest factor affecting learning for lower class students is a lack of confidence based on real or perceived weaknesses in preparation. These students often come to college with a lower level of academic skills and sophistication than their middle and upper class peers. Not surprisingly, this affects their performance in the classroom. It also

affects their perception both of their ability to do well and of their place in higher education. Although many are just as well prepared, uncertainty can lead them to be quieter and less visibly engaged in classroom encounters.

In addition, these students tend to be less able to work the system. They often have more difficulty navigating rules and regulations and finding the right people to help them; they don't always know what should be available to them. Moreover, many have trouble finding courses and majors that address their interests and needs and acknowledge their experience. Most of them need to work while attending school, which limits the amount of time available for study and can impact their program of study.

So these students often feel unwelcome. They are very aware of class and of place and position, and often feel a need to hide their background.

On the more positive side, working class students are keenly aware of the value of higher education, tend to be highly motivated, and know how to work hard. They are often characterized by a fierce determination and goal-orientation. They have a strong work ethic and often manage hair-raising schedules of work, family, and college, pulling off the demands of each with grit and a clear sense of purpose. Confusingly, they are both loyal to their class background and often in the process of moving to the middle class. This sometimes creates difficulties for them at home.

Middle Class

Middle class students are the least aware of class. They assume a place in the university, and they come fairly well prepared for higher education, although there is a wide range in their preparation. They are more protected than the lower class students, and somewhat more naive, as well as more confident. They assume they will succeed and are prepared to work hard. Many work outside of school (though not as much as lower class students), and they see working as both an advantage and a disadvantage. They know how to play the game, but not quite as broadly as their upper class colleagues. Often they need some help with academic skills but usually have the basics in place.

Upper Class

Upper class students generally come to college best prepared. They are also often skilled and sophisticated in the ways of the system. Their assumption that the system is there for them enables them to work the rules to their advantage. Because they are confident in their place, they are likely to speak up in class and to assume that their ideas will be heard; and they feel free to take risks because of their social and economic safety net. They experience a wide choice of careers and significant exposure to the world of travel, education, and art. They tend to be ambitious and value success, community responsibility, hard work, and excellence.

Many upper class students, like the lower class students, are intensely aware of class and may be embarrassed about their advantages. They often try to hide their class background, while at the same time taking their privileges for granted. They feel at a disadvantage in understanding and communicating with people of other classes and feel they have a limited perspective that can leave them insensitive to others' issues.

How can we recognize class differences in the classroom?

Class differences are not always easy to detect. However, some signals do exist. Even listing these signals is risky: for every example, there is likely to be a counter-example. Nonetheless, it is important to have some suggestions of what to look for if we are to become more sensitive to class differences and thus more inclusive pedagogically.

Language: In many parts of the country, class differences are sharply defined by accent: people talk like the neighborhood they come from. In addition to accent are varying vocabulary levels, which can signal levels of academic preparation and sophistication, often class-related.

Academic readiness: Differing levels of preparation and academic sophistication can sometimes be attributed to class background and the quality of previous schooling. They can also affect levels of participation. Quiet students are sometimes quiet because they are

not confident of their mastery of the material or of their ability to compete in the classroom with sophisticated verbal and conceptual gymnasts. It is a question of ease in the world of ideas.

Choice of examples: The choice of examples that students (and teachers) use in academic discourse can be very revealing of class background. One story is told of a student who stated that the reason pianos had been such an important social feature in this country is that everyone has one. Another student's eyebrows shot up: clearly pianos were not in every household that he entered. This story is relatively benign; others can be hair-raising.

Academic interests and perspectives: Students from different class backgrounds can have very different reactions to material presented and very different interests in the material. Asking for students' perspectives or reactions can reveal a great deal about students, and, as well, enhance everyone's understanding.

Dress: This is a deceptive category, because many upper class students dress down, but often the quality of clothing and of jewelry can reveal class background.

Pedagogical Implications

The first implication is the rule for all matters of diversity:

Learn as much as you can about all groups, but NEVER make assumptions about an individual student based on the group you think he or she might belong to.

This is the way out of the dangers inherent in listing signals of class difference. A student's accent or silence does not necessarily mean he or she comes from the lower class, for example; and that he or she comes from the lower class does not necessarily mean a lack of academic preparation or sophistication. Similarly, an upper class background does not guarantee intellectual sophistication. One must never make assumptions, but must always check out the situation with the individual student.

But beyond this caveat, what can we do to help level the playing field and include all students to the greatest extent possible in

learning? Some suggestions are institutional, some curricular, and some pedagogical.

Institutional suggestions: Institutions might engage in college-wide discussions about what it means to be educated, about the purpose of the institution and the values it embodies and promotes, using class as one of the factors for reflection. They can develop better student support systems, safety nets, and specific strategies for welcoming students who come without the requisite academic background so as to provide them with the learning and system skills they will need not just for survival but for success in higher learning.

Curricular suggestions: At most institutions, more attention can be paid to class experiences both in courses offered and in the content of many syllabi. Is there a place for students to learn about class backgrounds other than their own, as well as about their own? Is material included from every class? Is the absence of material from some classes discussed?

Pedagogical suggestions: Modes of classroom operation can be developed to enhance the learning of all students, regardless of their background. Specific suggestions applicable to many courses, and in some instances all, follow.

Be very explicit about classroom norms and rules of operation. Let students know how to play the game, and help those who seem uncertain.

Include readings from a wide variety of class perspectives.

Use examples that come from every class.

Acknowledge class differences and make class a topic for discussion. Look for class-based perspectives. Note value-laden language.

Ask about student experience and about personal reactions to material; include these in content discussions.

Get to know your students and their individual strengths and weaknesses. Teach to both.

Vary the kinds of assignments, to include a variety of learning styles.

Vary classroom activities, to include collaboration and small group work.

Provide the opportunity for rewriting papers, as a way to teach students still learning to work in that mode.

Protect the student who makes an unsophisticated comment.

Model the acceptance of various class backgrounds.

Conclusion

Class distinctions are difficult for everyone in this country. Our national belief is that we are a classless society and that class should not matter; but class is evident everywhere and matters immensely. The disjunction between our held belief and reality makes this a difficult area to understand and accept. We need to be sensitive to the embarrassment discussion of class differences almost inevitably involves. Lower class people are often embarrassed about their position, upper class people about their privileges; the middle class often isn't aware of class at all. When talking about class, both tensions and triumphs arise. This is difficult work, but critical to the creation of an academic environment open to all its members.

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Critical Thinking Requires Critical Questioning

Karen J. Thoms, *St. Cloud State University*

Just what is a critical thinker? According to Richard Paul (1990), a critical thinker is someone who is able to think well and fair mindedly about his or her own beliefs and viewpoints as well as those which are diametrically opposed. The critical thinker does not just think about these beliefs and viewpoints, but explores and appreciates their adequacy, cohesion, and reasonableness. Attitudes and passions are included. To become a critical thinker is not to be the same person you are now, but only with better abilities; it is to become a different person (p. iii).

Critical thinking is expected of students, but it does not automatically and quickly develop of itself. This skill must be developed, however; and it requires a great deal of effort on the part of teachers to help students learn to think critically. In order for students to develop these skills, teachers must learn to incorporate critical questioning into their classes. The responsibility for developing these skills then shifts from the student to the teacher as questioning becomes the guiding force. It is the teachers, not textbooks, that have the power to shape students' ability to think, which means that instructors must be prepared to lead the students toward critical thinking skills (Chalupa & Sormunen, 1995).

Some Erroneous Assumptions

Critical, or Socratic questioning, has come under fire with charges of it being a chaotic free-for-all, a type of classroom activity where teachers can "wing it" and not prepare for class, and a teaching

strategy which requires no talent or preparation. These myths must be dispelled.

Socratic questioning and discussion is, in fact, structured, has distinctive goals, and has ways to achieve these goals, as described below. Teachers must be better prepared in their discipline and the unit of instruction, because the students may, in their discourse, take a different path for discussion than what the teacher had planned.

Socratic Questioning

Socratic questioning is at the heart of critical thinking; it is more than eliciting a one-word response or an agreement/ disagreement from students. In a short sentence, Socratic questioning requires students to make assumptions, distinguish between relevant and irrelevant points, and explain points. It can be highly elaborated or undeveloped, and it may be mono- or multi-logical. Socratic instruction can take many forms. Paul (1990) states that Socratic questioning:

- raises basic issues;
- probes beneath the surface of things;
- pursues problematic areas of thought;
- helps students discover the structure of their own thought;
- helps students develop sensitivity to clarity, accuracy, and relevance;
- helps students arrive at a judgment through their own reasoning;
- and helps students note claims, evidence, conclusions, questions-at-issue, assumptions, implications, consequences, concepts, interpretations, points of view (p. 270).

These are the elements of critical thought.

Socratic questioning, however beneficial, must be learned-both by teachers and by students. It involves more than eliciting one-word responses, and it requires students to make assumptions. The following taxonomy, created and reported by Paul, explains the Socratic questioning format.

A Taxonomy of Socratic Questions

To make the Socratic questioning method readily usable by teachers, identifiable categories of questions have been established (Paul, 1990). These categories are as follows.

- questions of clarification - asking for verification, additional information, or clarification of one point or main idea, with students expounding on an opinion, rephrasing the content, or explaining a particular statement.
- questions that probe assumptions - asking for clarification, verification, explanation, or reliability.
- questions that probe reasons and evidence - requesting additional examples, evidence, reasons for making statements, adequacy for reasons, process which lead to this belief, and/or anything which might change the student's mind.
- questions about viewpoints or perspectives - searching for alternatives to a particular viewpoint, how others might respond to questions, or a comparison of similarities and differences between and among viewpoints.
- questions that probe implications and consequences - describing and discussing implications of what is said, results, alternatives, or cause-and-effect of an action.
- questions about the question - breaking the question into mini-questions and single concepts or determining whether an evaluation is necessary.

Socratic Questioning is Not Easy

Socratic questioning is not easy, and, in fact, places pressure and responsibility on the teacher. The teacher must be well prepared and ready to incorporate a variety of strategies based on student input. This type of discussion requires that teachers develop the art of questioning, develop a working relationship with the various types of questions, and develop a sensitivity to when to ask which questions.

Socratic Questioning Leads to Controversy

Critical questioning does lead to controversy, and it is also a means of bypassing the sponge model of education. Classroom controversy contributes to critical thinking, challenges the sponge model, and serves as a motivational device for encouraging students to think critically (Browne & Keeley-Vasudeva, 1992). Browne and Keeley-

Vasudeva also point out that to challenge the sponge model is commonplace, to combat it is exceptional.

If we support the idea that controversy contributes to the effectiveness of critical questioning and critical thinking, then what is the issue at hand about encouraging controversy? Some people are uncomfortable with controversy because it is almost like replacing the "comfortable old shoe" with a brand new pair. Some educators will tell you they have to sacrifice course content to use this questioning strategy while others say they cannot use it because there is no instructor's manual. This idea of controversy does challenge a teacher's skills; but controversy can, should, and will be a part of the Socratic questioning technique.

Here's What We See in Education

Educators voice displeasure with the sponge model, but praise development of critical thinking skills and rate this skill highly. Yet, we seem - in large measure - to pay little attention to these skills (Browne & Keeley-Vasudeva, 1992). The disparity between what educators say they want and what they strive to get lies in three areas: lack of skills and presence of disparaging/attitudes regarding critical questioning, lack of knowledge of the component parts of critical questioning, and a belief that osmosis works with regard to critical questioning and critical thinking. Paul has provided a lengthy discussion and examples in his book (1990).

Examples of Critical Questioning

As an example of critical questioning, assume the following situation. You are teaching your students to evaluate a WWW site, and your teaching strategies range from straight lecture, to small group discussion, to Socratic questioning. The following questions would be Socratic in nature.

- How do we determine a site's organizational affiliation?
- How does this site's affiliation relate to the site's credibility?
- Who created this Web site?
- Ashley mentioned copyright concerns. How does this relate to our discussion of evaluation of Web sites?
- Are you assuming all sites are reliable, accurate, and correct?
- You seem to be assuming that all Web sites with the edu. and org.

- domains are credible. Is this always the case?
- What would be an example of a credible Web site? Why?
 - How would you respond to a person saying that material found on the Web is "out there" and in the public domain?
 - How would others, such as publishers or authors of copyrighted materials, view your using materials because they are "out there"?

Conclusion

Critical thinking is based on critical questioning. By being well prepared with the discipline content and knowledgeable in the use of critical questioning, today's teacher can help students become critical thinkers. It is through understanding, preparation, and practice that instructors can be ready to meet this challenge.

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Interdisciplinary Teaching and Learning

Deborah DeZure, Eastern Michigan University

Interdisciplinary initiatives are proliferating throughout higher education at an unprecedented rate (Edwards, 1996; Gaff & Ratcliff, 1997; Klein, 1996). They can be found in general education, replacing and augmenting distribution requirements; in emerging disciplines, such as cultural and gender studies, environmental studies, and neuroscience; in new curricular designs, such as learning communities, capstone courses, and service learning; and in the new pedagogies, such as collaborative learning, discovery and problem-based learning, and the use of technology, particularly the Internet for instruction.

Interdisciplinarity is not new of course. Disciplines like sociology and geography have long considered themselves interdisciplinary disciplines, and all disciplines have imported aspects of other fields to clarify their own disciplinary perspectives. What is new is the intentionality with which these initiatives seek to promote connected learning beyond the discipline as a primary goal---pursuing knowledge that integrates and synthesizes the perspectives of several disciplines into a construction that is greater than the sum of its distinctly disciplinary parts.

What is Interdisciplinary Learning?

Klein (1990) defines it as the synthesis of two or more disciplines, establishing a new level of discourse and integration of knowledge. It is a process for achieving an integrative synthesis that often begins with a problem, question, or issue. It is a means of solving problems

and answering complex questions that cannot be satisfactorily addressed using single disciplinary approaches. Klein (1990, p. 55) notes that interdisciplinary initiatives are often described by the form or structure they take (e.g., team-teaching), the motivation behind them (e.g., to serve societal or employment needs), how the disciplines will interrelate (e.g., math will be taught *in the service of* chemistry), or by labeling the level of integration (e.g., from *borrowing* to *synthesis*). It is sometimes used loosely to refer to cross-functional groups, but the mere presence of individuals from different disciplines does not signify interdisciplinary collaboration. Thus the term *interdisciplinary* is used variably as a concept, a methodology, a process, a way of knowing, and even a philosophy.

In this essay, the term refers to a process to construct knowledge in which students and instructors come together to analyze differences in disciplinary approaches to a problem and to work toward a synthesis - a new, more comprehensive view than allowed by the vision of any one field. This is in contrast to *multidisciplinary*, which is a process for providing a juxtaposition of disciplines that is additive, not integrative. The disciplinary perspectives are not changed, only contrasted. Team-taught courses in which faculty provide serial lectures are often multidisciplinary. *Transdisciplinary* approaches provide holistic schemes that subordinate disciplines, looking at the dynamics of whole systems, such as structuralism or Marxism. *Cross-disciplinary* methods view one discipline from the perspective of another, e.g., referring to examples of expressionism in literature in an art history class on expressionism.

Armstrong (Klein, 1996) identified levels of interdisciplinary curricular integration. In level 1, students take courses in different disciplines without formal opportunities to connect learning in these areas, e.g., distribution requirements. Level 2 provides opportunities for students to share insights from different disciplines as in a capstone course, but the integration is often left to the student. Level 3 invites students and faculty to join in the process of integration as in team-taught courses, but faculty often maintain their roles as representatives and advocates for their disciplines. And level 4 provides a conscious effort on the part of students and faculty to integrate material into an intellectually coherent entity based on an understanding of disciplinary frameworks, tools, and methods and

the contributions of each to this new whole (Klein, 1990, p. 57).

Why Pursue Interdisciplinarity?

Simply put: life is interdisciplinary. First, there are pressing social problems (crime, poverty, AIDS) that cannot be resolved by a single disciplinary perspective. Second, students and faculty rail against the artificial fragmentation of knowledge, asking for more connected learning and coherence in the curriculum. Third, employers want college graduates who are prepared to meet the multidisciplinary needs of the work world, integrating what they have learned in disparate fields. Fourth, administrators hope to make more efficient use of resources and equipment by sharing them across disciplines. Fifth, there are dynamic changes in knowledge construction, blurring disciplinary boundaries across fields, e.g., cultural studies. Scientific breakthroughs, research and funding patterns for research have transformed disciplines such as neuroscience and bioengineering (Klein, 1990). And sixth, electronic technology and the Internet are transforming the way we organize and seek knowledge, replacing linear models with hypertext links that disregard disciplinary boundaries.

Instructional Approaches

Several models and structures exist to promote curricular integration (Klein & Doty, 1994). Many courses are organized around a theme, topic, issue, problem. Colleges are introducing first-year seminars and capstone courses in the major. Culminating assessments provide opportunities for integration across the disciplines, e.g., a thesis, project, portfolio and other forms of self-assessment of the collegiate experience. Team-taught classes are increasing along with learning communities in which students co-register as a cohort for integrated coursework across disciplines (Gabelnick, MacGregor, Matthews, & Smith., 1990). Courses are infused with integrative concepts such as feminism, multiculturalism, and postmodernism. Both co-curricular and academic service-learning are now on over 500 campuses in the United States. Field-based courses, study abroad, and residential living-learning communities and theme houses have long traditions in American higher education and are being reconceptualized.

Instructional approaches to promote interdisciplinary learning are also proliferating. They are often based on active learning strategies

and promote higher-order critical-thinking skills (defined as *analysis*, *synthesis*, *application* and *evaluation*). These methods include collaborative/cooperative learning, discovery and problem-based learning; writing and math across the curriculum, and methods of assessment that are multidimensional, including qualitative and quantitative measures, normed measures, and self-assessments. Student portfolios are increasingly used to document interdisciplinary learning outcomes. The Internet and the World Wide Web provide unlimited possibilities to engage individuals from across the disciplines in on-line discussions and problem-solving.

The use of writing offers an effective tool both to promote interdisciplinary learning outcomes and to assess them. Haynes (1998) has identified a developmental sequence of writing experiences to support disciplinary analysis and interdisciplinary integration. A preliminary step is to help students identify and make explicit the thinking of the disciplines under study: their assumptions, frameworks, methods, foci, and key questions. (This is not to suggest that disciplines speak with one voice because there are often deep divides; and they too should be identified, offering rich material for connections across disciplines.) Subsequent assignments ask students to analyze a problem using different disciplinary frameworks, later moving to assignments that require comparison and contrast among the analyses. This is followed by integrative assignments in which students must draw on the methods and insights of several disciplines, reconciling them in an integrative synthesis. Note that this model is grounded in the disciplines. It requires metacognitive skills to critique the limits, biases, and unique opportunities offered by both disciplinary and interdisciplinary solutions; and it requires all four dimensions of higher-order critical thinking from analysis to evaluation. The process is designed to increase awareness of the lenses through which we seek and perceive information and through which we construct knowledge.

Conclusion

Two points in closing. First, if we want our students to engage in complex intellectual tasks to integrate the insights of different disciplines, then let's join them in that task, modeling it and sharing the difficulties and the richness of its possibilities. Second, interdisciplinarity is not a rejection of the disciplines. It is firmly

rooted in them but offers a corrective to the dominance of disciplinary ways of knowing and specialization. As Newell (1998) points out, we need the depth and focus of disciplinary ways of knowing, but we also need interdisciplinarity to broaden the context and establish links to other ways of constructing knowledge. It is this dialectic between analysis and synthesis that provides the creative tension from which we will all benefit in a world in which crossing intellectual boundaries is increasingly the norm.

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Learning Outside the Box: Making Connections between Co-Curricular Activities and the Curriculum

Myra Wilhite and Liz Banset,
University of Nebraska-Lincoln

How many hours a week do students spend under the direct influence of an instructor? Say the average course load is 12-15 credit hours; be generous and add five hours for library time, study group sessions, visits to instructors' offices; give credit to the more industrious students and throw in another five hours of study time. So even in the best of cases, students spend 22-25 hours - approximately 20 percent of their waking hours - each week on curriculum-related activities. College programs that focus only on curricular activities are apparently ignoring 80 percent of a student's time.

The university experience is incomplete if students only take classes, no matter how hard they work at them. Any college or university graduate can attest to the value of experiences beyond the classroom that contributed to development of self-awareness, general knowledge, values, and attitudes.

The co-curricular component of a complete education - which takes place in the 80 percent of a student's time spent outside the classroom - is every bit as important to the process as is the formal curricular component. Yet, most institutions and their faculties focus a disproportion of their energies on the smaller piece of a much larger

whole.

Co-Curricular Experiences and General Education

Everything a student does at an institution, both inside and outside the classroom supports (or opposes) the process of learning. Programs with the strongest impacts on academic and personal development and persistence result from purposeful, programmatic efforts to integrate students' intellectual and social lives. Participants in the Project on Strong Foundations for General Education (1994) proposed 12 principles to help institutions sustain the gains made in general education in the past ten years. Among them are: to teach social responsibility, to attend carefully to student experience, and to reach beyond the classroom to the broad range of student co-curricular experiences.

An essential obligation of a general education program is to provide opportunities for growth in these areas: personal, intellectual, and career development; health and wellness; cultural understanding; arts appreciation; values and ethics; and social responsibility. It is, however, asking a great deal of an institution to provide all of that within the confines of the formal curriculum.

What if we could tap into the unintentional learning that occurs outside the classroom and make students' co-curricular experiences intentionally meaningful in the larger context of their whole education?

Benefits of Co-Curricular and Curricular Linkage

Students have much to gain from the integration of co-curricular activities into the curriculum. In out-of-class experiences, students tend to take greater responsibility for their own learning; they learn from one another as well as their instructors. In addition, co-curricular activities promote personal growth, physical and mental health, academic achievement, social and cultural awareness, and help students formulate short- and long-range goals.

Successful co-curricular programs encourage the development of friendships, a sense of belonging, enhanced intellectual awareness, improved academic performance, an appreciation of different perspectives, and close interaction with faculty and staff members

who really care about students.

Studies indicate that success in the first year of college depends on how effectively students connect to the institution - both academically and socially. Bringing together curricular and co-curricular activities may make a significant difference in student retention.

Barriers to Co-Curricular Learning

Banta and Kuh (1998) suggest that the best way to improve the quality of the undergraduate experience is to bring together the two groups that spend the most time with students - faculty and student affairs personnel. Yet, the traditional division between academic affairs and student affairs does little to prepare students for post-college life, where the quality of job performance, family life, and community activities are interdependent.

A necessary first step to blur the boundaries between classroom and out-of-class experiences is a stronger partnership between student affairs and academic affairs. To do so means overcoming some institutional barriers (Zeller, Hinni, & Eison, 1989):

- Many faculty members believe their primary role is to create knowledge and all other roles are secondary; therefore, activities that divert student energy from "class work" are counter-productive.
- Faculty members identify strongly with departments, not with the larger campus community.
- The value of faculty time is critical and faculty members prefer to spend their time on activities that are rewarded.
- Student affairs professionals and faculty members occupy separate domains; the faculty deals with the intellectual domain, student affairs with the affective and social. Consequently, one doesn't know much about what the other does, sometimes leading to mistrust or misunderstanding.

Encouraging Co-Curricular Learning

Zeller et al. (1989) identify four trends that support interdivisional links and may make it easier to reduce the barriers identified in the previous section. They cite renewed interest in:

- promoting educational goals outside the classroom,
- enhancing teaching and learning inside the classroom,
- restoring the role of general education,
- and emphasizing active involvement throughout undergraduate education.

To encourage co-curricular learning and integrate it into academic programs, faculty and student affairs professionals can collaborate on instructional programs that encourage students to capitalize on the learning that occurs in their out-of-class time. Such a collaboration can occur at either the individual or administrative level.

Course Design. Individual faculty members can work with student affairs staff to design courses with co-curricular components that allow them to "take the academic discourse of the classroom into the community" (Project on Strong Foundations, 1994, p.70).

An example from the Strong Foundations report shows how a single course can make students' co-curricular experiences more intentional. In a University of Hartford general education course on epidemics and AIDS, students participate in a health campaign both on and off campus. Guest speakers come to the residence halls; students teach and work off campus to raise AIDS awareness; music students in the course perform concerts in an AIDS hospice; art students have auctioned their work to benefit the hospice.

On a simpler level, math students could go to a local art gallery, study an artist's body of work, then evaluate and write about the artist's use of geometric shapes and mathematical constructs. Food science students could research foods of other cultures by attending dinners sponsored by various cultural groups on campus.

Service Learning. Instructors who add service learning components to their courses allow students to use academic skills and knowledge to meet community needs. Service learning also provides structured time for students to think, talk, and write about their experiences; fosters an ethic of caring for others; and encourages them to value diversity (Meyer, 1998).

Faculty who want to integrate service learning can work with student affairs personnel to identify agencies or businesses willing to form a

service learning alliance.

Students in an English course who are learning to write for varied audiences can work with community agencies to develop grant proposals, brochures, and newsletters. Business students might develop strategic business plans for non-profit organizations. Habitat for Humanity could rely on construction management students to help build a home.

Internships. Internship programs in which students spend a semester or more practicing what their teachers have preached have been formalized for a number of years in such areas as engineering, journalism, and education. But faculties and student affairs offices may collaborate to discover additional internship opportunities for students in other fields, as well.

Learning Communities. A more institutionalized vehicle for integrating the co-curricular with the curricular is the learning community. Learning communities may be defined in a number of ways, but at the heart of the learning community experience is the opportunity for students to find an education outside the walls of the classroom in their interactions with friends and their day to day encounters with others.

Last Thoughts

Making learning that happens outside the classroom more intentional doesn't really require great changes in the way we teach. It requires only a change in the way we think about teaching and learning and about who is responsible for it. An active partnership between the faculty and the student affairs office to help students use the resources available in their lives outside the classroom is the first step toward a more enriching and encompassing education.

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Listening in the Classroom: A Two-Way Street

***Elisa Carbone, University of Maryland
University College***

The Story

Several weeks ago on my way home from teaching an evening class, I decided to stop in for ice cream from the local 7/11. The small convenience store was bustling with activity. As I checked out next to a bin of long-stemmed roses, a little girl came skipping in with her father. She wore a pink party dress that twirled and swirled as she bounced with five-year-old energy.

"Mommy would love some flowers, wouldn't she Daddy?" She tugged at her father's sleeve and pointed to the roses.

"Wouldn't she, Daddy?" But the young father was captivated by a newspaper he'd just picked up off the stand.

"Uh- huh," came his supremely distracted reply.

"Don't you think Mommy would love some flowers?" the little girl asked again. But this time her voice trailed off into that void children go to when they know no one is listening.

I left the store, then stood and watched the father through the plate glass windows. Something in the sports section had riveted him: some big game, some team's victory-or loss. But the most tragic loss was happening that very moment as his daughter learned that what

she had to say wasn't important.

I took my ice cream and went home. Yet, over and over again I've imagined what I wish I'd done:

I push open the heavy glass door and walk back into the store. I watch the man for a moment. He's short and slightly chubby, with kind, intense eyes. "Excuse me, sir?" I venture timidly.

He looks up from his newspaper, surprised.

"She was talking to you." I gesture toward his daughter.

Now he's even more surprised, but he's listening.

"She was saying something to you. *Listen* to her. It's the most important thing you'll ever do."

He folds the newspaper and crouches down to better comprehend at five-year-old height.

"Yes, I think you're right," he says, looking straight into his daughter's eyes and touching her shoulder gently. "Mommy would love some flowers."

The Importance of Listening

Pure, undistracted listening is one of the greatest gifts we can give each other as human beings. And refusing to listen can be one of the most damaging. During Victorian times, children who disobeyed were sometimes "put into Coventry." For a prescribed period no one was allowed to listen to them. In interviews with these individuals after they had become adults, many of them said they would rather have endured a physical beating (Dexter & Jordan, 1988). In some primitive societies, if a member of the group seriously violates tribal law, he or she is declared a non-person. All listening is withheld. As a result, the individual ceases to exist in his or her own mind and wanders off to die. The withholding of listening is, in this circumstance, a form of capital punishment (Dexter & Jordan, 1988).

Listening in the Teaching and Learning Setting

In our classrooms and offices the absence of listening is not, perhaps, as emotionally damaging as in the previous examples. However, it still has at its roots the same insidious invalidation. It is disheartening, alienating, and a colossal waste of everyone's time. How can we improve listening in the classroom? How can we encourage students to use good listening skills? How can we listen to our students better? And why should we listen to them?

No one can be *forced* to listen, but listening can be taught. It can be demonstrated through example, and it can be encouraged through the creation of a supportive environment. And listening to our students can be part of revitalizing our own teaching.

I always do a bit of listening instruction at the beginning of each semester. For example, I use the following exercise to demonstrate to students how good attending behavior creates good listening: I ask for two pairs of volunteers. In each pair one student will tell a story and the other will listen. One of the listeners will exhibit good attending behavior, and the other will not.

As the class watches, the first student tells her story. The listener gives good eye contact, faces the speaker and leans slightly toward her, says "oh" or "I see" at appropriate times, and does not become distracted with other activities. Then the second pair of students takes the stage. As the second student tells his story, the listener fidgets, checks her watch, looks around the room, turns away from the speaker, interrupts with unrelated comments, and may even start glancing over her notes. As onlookers, the class members always find that they are much more able to concentrate on the first story than the second one. The first listener can recall the story he listened to, and the second listener cannot. Attending behavior creates good listening.

I make sure to practice good attending behavior when listening to my students as well. I give plenty of eye contact, nod and say "uh-huh," and resist any urges to glance at my watch. This communicates to each student that he or she is being listened to and creates a supportive environment.

Thought speed is estimated to be about 500 words per minute while speech speed is only about 125 words per minute. This means, roughly speaking, that we have about 400 words of extra thinking time during each listening minute (Nichols, 1987). The differential between thought speed and speech speed leaves a lot of time for the mind to wander, and once the mind has wandered it may be difficult to get back to listening. I encourage my students to counteract this by using the extra thought time to mentally summarize the lecture material. In one-on-one communication situations with, for example, one student during office hours, I put this summarizing into practice. I use not only mental summaries, but also verbal paraphrases: "What I hear you saying is..." or "It sounds like you're..." It lets the student know I'm paying attention and avoids potential misunderstandings.

Listening, and processing what has been heard, takes time. Another way to encourage students to be good listeners is to allow them time to think about and process what they have just heard and to become curious about what is coming next. For example, even in large classes, the use of the one-minute paper can be an excellent thinking and processing break (Angelo & Cross, 1993; Carbone, 1998; Harwood, 1996). Ask a couple of simple questions such as the following. 1) What is one main point presented in today's lecture? And 2) What is one question you have about this topic? Students take a moment to write their answers and hand them in. It takes under five minutes and gives students a chance to mull over the material and become clearer about what they are hearing. Formulating a question about the material helps them to anticipate what may be coming next and to become curious about further exploration of the topic.

Listening to our students has benefits for us, too. It can help keep us motivated and inspired and can enliven our teaching. I recently sat in on a lecture in the business department in which the professor used many examples from current student culture -everything from rock bands to clothing trends. It was a class of about 500 students, and I was amazed at both the high level of attendance and the high level of attention. The students were tuned-in to the lecture because the professor had taken the time to listen to them and find out what kinds of examples would be relevant to their lives and interests. In an interview with the professor later, I learned that he has been teaching

for many years and feels he needs to continually listen to his students. The examples and stories he uses in his lectures change as the student culture changes over the years. This helps keep the material alive for him, and for them.

Conclusion

Listening to our students creates a supportive environment in which students feel respected. If students feel respected and valued, they will be less afraid to ask questions, express opinions, and share insights; and they will be more likely to listen to each other during discussions. This is an environment conducive to the enhancement of learning.

It is well worth taking the time to teach students how to improve their listening habits. Let them know about the differential between thought speed and speech speed. Encourage them to do mental summaries of your lecture while you're speaking. Have them act out the storytelling demonstration described above with good and bad attending behavior. Show them how good attending behavior will improve their listening comprehension. Through exercises that teach listening skills and through setting a positive example by practicing good listening ourselves, we can increase listening effectiveness in our classrooms and thereby increase learning.

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The Nature of Expertise: Implication for Teachers and Teaching

Ronald A. Smith, *Concordia University*

Richard G. Tiberius, *University of Toronto*

How do teachers become experts at teaching-at helping their students become experts? In a culture dependent on high performance, teachers need to understand the nature of the expertise that their students want to acquire as well as the nature of their own expertise. How we view expertise determines the goals we set for our students, as well as the standards we use to inform and measure our own development as experts in teaching.

Expertise as Knowledge

The bedrock view of expertise is that is based on special knowledge, skills, or talent. (See Figure.) For generations our institutions and teaching methods have been in tune with this view-the better learners were those who memorized more material and recalled more of it on exams; the better teachers transmitted more information to their students.

Expertise as Intuition

Current theories of expertise do not reject the central role of information in expertise, but add to it. They distinguish high performers from others by the way they think and solve problems rather than simply by their knowledge (Anderson, 1985; Dreyfus & Dreyfus, 1986). After a great deal of experience, the way people solve problems appears to change. Experienced problem-solvers deal

with issues with hardly any thought or effort. They recognize recurring patterns in their work and develop learned procedures to deal with these. This kind of efficient, intuitive problem solving is an important addition to the old concept of expertise. The new view of expertise (the second bar of our figure) has become the most popular among cognitive theorists. Highly experienced teachers have their information organized into packages consisting of examples, explanations and questions designed to overcome student misconceptions for particular learning objectives. These packages or "scripts" (Putnam, 1987; Shulman, 1987) enhance efficiency because they give teachers the flexibility to teach interactively in response to students' questions. Highly experienced teachers can sense whether to use another example or to move on after asking a few questions or pausing to gather information. In contrast, novice teachers are often rigidly focused on their notes. They cover the material as if they were dictating. When asked a question that is out of sequence, they might answer, "I'll be getting to that later." There is a downside to intuitive expertise. Experienced teachers, characterized by instant recognition of problem situations and efficient actions, tend to make decisions without deliberation, without being aware of the rules, or without having rules. Such teachers often have difficulty explaining to students their thoughts or actions that constitute expert practice. They make decisions on the basis of subtle, contextual features of the situation, features that are unavailable to the novice.

Expertise as Progressive Problem Solving

Recently a third layer has been added to the growing concept of "expertise." Bereiter and Scardamalia (1993) argue that not all experience leads to expertise. The kind of efficient, intuitive approach to problems that we have been discussing happens to everyone after a sufficient amount of experience, whether they are successful at what they do or not. Despite having had lots of experience, some performers do not achieve expertise. Not all senior faculty are expert teachers!

Bereiter and Scardamalia (p. 109) argue that, although experience can lead to intuitive expertise through routinizing, it may also lead to a deepening rut. Teachers can become resistant to new ways of doing things and may disengage from the course and the class. Such teachers fail to accommodate to the students, the subject, or the

context. The extra time and energy that they gain from having their teaching "organized" is invested in research. In some institutions these teachers are normative and supported by the institutional values. True expertise, it is argued, is not a static feature, to be achieved once and then abandoned, but a continual process over time, an approach toward one's career.

Of course, some routines are useful. Who wants to reflect continually on taking out the garbage or brushing one's teeth? These are tasks we would rather do by routine, reserving our energy and attention for more important things. But in higher education, teaching can rarely be "canned." The current situation requires a high level of expertise in the sense that Bereiter and Scardamalia mean it: reinvesting time and energy and continually learning to meet new challenges.

Teachers who are progressive problem-solvers become more efficient in carrying out their tasks; they tend to shift their focus to new aspects of their environment. First they focus mainly on content. With more experience they begin to focus on delivery, that is, teaching performance. Eventually, when both the content and the delivery become second nature, they begin to notice the social and personal aspects of their students. This is the good news. Efficiency in one component of teaching provides extra time and energy that allows the teacher to move on toward mastery of another component.

The true test of an expert, according to Bereiter and Scardamalia, goes beyond knowledge and beyond intuitive problem solving. The feature that really distinguishes experts from others is their approach to new problems. The pattern recognition and learned procedures that lead to intuitive problem solving are only the beginning. Pattern recognition and learned procedures increase one's efficiency. The key to expert behavior is what the expert does with this bonus of time and energy. The expert invests it in what Bereiter and Scardamalia call progressive problem solving, that is, tackling problems that increase expertise rather than reducing problems to previously learned routines. (See Figure).

Building a Definition of Expertise^{*}

Bereiter and Scardamalia's View

Expertise as investment and progressive problem-solving and a willingness to tackle challenging problems that increase expertise (Bereiter & Scardamalia, 1993)

View from Cognitive Science

Expertise as a way of solving problems efficiently by making use of patterns and learned procedures (Dreyfus & Dreyfus, 1986; Anderson, 1985; Salthouse, 1991)

Traditional View

Expertise as knowledge -- everyone is an expert at something but society normally reserves the term for those learners whose knowledge is distinguished as particularly valuable.

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Those who wish to become professional teachers must engage in progressive problem solving. They need to think of their automated skills as building blocks of new skills that are not automated. For example, the experienced chess player acquires many learned patterns and procedures, but for the expert they do not become stereotyped, predictable, moves that restrict thinking. Instead, they are used as building blocks for increasingly sophisticated analyses. Experienced teachers recognize familiar patterns in the classroom or in interaction with students or in grading papers, but resist responding in stereotypic fashion. Instead they continually redefine the classroom situation and reinterpret the individual student. Teachers learn about students and about teaching as students are learning about the material.

Suggested Strategies

How can teachers and developers become more expert in this third aspect of the concept? We have drawn from Bereiter and Scardamalia's (1993) suggestions for building an environment that would encourage reinvestment and progressive problem solving.

- Use Classroom Research methods (Angelo and Cross, 1993) to investigate the impact of their own actions on their students in their classroom.

- Organize departmental pedagogical colloquia to make conversations about teaching a regular part of departmental life.
- Arrange reflective practica (Donald Schön, 1987) where practitioners, students and teachers, can share their thinking about real problems. The key is to require "explanations" in addition to solving problems-to develop theories to account for facts and to criticize others' theories by confronting them with facts.
- Use teaching dossiers not only for assessment, but for reflection and growth as well. They encourage us to think deeply about our work with a view toward learning from colleagues.
- Develop ways to connect with novices. Teachers might connect with novice students by using classroom assessment techniques such as reviewing student notes or interviewing students. Teachers should encourage students to respond to one another's work and teach them how to do so in helpful, supportive ways.
- Engage in discussions aimed at changing the reward structure to recognize and encourage the development of the various aspects of expertise as we have described it. The current system seems to encourage faculty to "satisfice" on teaching, to get it so that it is good enough, then move all their attention to research.

Conclusion

Our concepts of expertise influence what we do to become experts, as well as how we try to help others develop their expertise. In this essay we have argued that teachers need to engage in progressive problem solving at the edge of our competence and that we need to encourage our students to do the same.

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The Uses of Uncertainty in the College Classroom

Virginia S. Lee, The University of North Carolina at Chapel Hill

For many students and even some instructors the unspoken purpose of teaching and learning is the reduction of uncertainty. In a teacher-directed, content-oriented teaching approach--a conceptualization held by many instructors, the primary role of the instructor is the presentation of content in a clear and organized fashion primarily through the traditional lecture (Kember, 1997). According to Perry's well-known stage theory of intellectual development, many college students believe that knowledge consists of right answers and learning the memorization and reproduction of these answers, a notion quite compatible with the teacher-directed, content-oriented approach to teaching (Perry, 1970). An implicit but clear contract exists between teacher and student: "I'll tell you what you need to know, and you show me that you know it."

In contrast, a variety of sources suggest that genuine uncertainty and doubt are the natural provocations for real learning. According to Jean Piaget all human beings are amateur scientists whose cognitive development advances through continuous interaction with and exploration of our environment. Repeatedly new experiences cause us to question and ultimately modify our existing theories or "schemas" about how the world works and is organized. Similarly the foundation of American pragmatism and the later work of John Dewey, the philosopher and progressive educator, rests on the seminal work of Charles Pierce. An empiricist, Pierce characterized the rhythm of real thinking as corresponding to scientific methods of inquiry. Like Piaget, he asserted that "the action of thought is excited

by the irritation of doubt, and ceases when belief is attained". Each belief is at once a "stopping-place [and] a new starting-place for thought" (Pierce, 1878, p. 121).

Psychological research has corroborated the importance of uncertainty to learning at the psychophysiological level. Recent studies in brain dynamics have demonstrated that the brain manifests an inherent variability that increases with the presentation of new stimuli. This psychophysiological uncertainty plays a significant catalytic role in learning, It opens up the organism to experience, causing it to investigate the environment with enhanced receptivity, preparing it for different behavioral actions, and facilitating the central processing and encoding of information received from such renewed exploration. Searching, exploring, and trial-and-error behaviors indicate psychophysiological uncertainty and accompany the appearance of reorganization, stability, and progressive development or learning (Germana & Lancaster, 1995).

While strategies of traditional instruction like the lecture still have their place in the classroom, their exclusive use actually undermines the process of learning and incapacitates student inquisitiveness and initiative, the prime movers of real learning. As a result of traditional schooling, many students believe that uncertainty is undesirable because it implies a lack of understanding and fundamental intelligence. Consequently, uncertainty becomes a source of anxiety, rather than a natural provocation for learning. Instructors often reinforce these beliefs through the teaching methods and types of evaluation they use. Instead, there is a variety of strategies which instructors can use to incorporate uncertainty into their classrooms as a natural companion to learning.

Discussing the Process of Learning

Because few students will understand the role of uncertainty in learning, teachers should make a point of talking explicitly with their students about the process of learning: its inherent "messiness" and the positive and even essential role uncertainty plays as a stimulus to inquiry and eventual learning. This discussion might include a review of students' prior learning experiences, both formal and informal. Teachers might ask students to recall a time when they taught themselves how to do something, what motivated them to do so, and

the nature of the learning experience itself. Most of these experiences will include several components not associated with traditional schooling: strong intrinsic motivation, curiosity, doing, messiness, frequent questioning, trial-and-error, sustained attention, practice, mastery, and deep satisfaction. Instructors should also encourage conversations about students' learning experiences in their own classrooms, the reasons for their design, and the way learning occurs through them. Various classroom assessment techniques can stimulate these discussions as well (Angelo & Cross, 1993).

Using Selected Teaching Methods

Some teaching strategies such as discovery and problem-based learning incorporate uncertainty naturally as a source of intrinsic motivation and a stimulus to learning. They mimic the natural learning process and its refinement in the various methods of inquiry in academic disciplines. In discovery learning, rather than telling students a given principle, as is traditionally done, instructors prepare the conditions of the learning experience so that students can discover the principle for themselves. Stimulated by "the irritation of doubt" before the problem posed, students, like amateur scientists, form provisional hypotheses and test them through repeated confident of their mastery of the material or of their ability to compete in the classroom with sophisticated verbal and conceptual gymnasts. It is a question of ease in the world of ideas.

Choice of examples. The choice of examples that students (and teachers) use in academic discourse can be very revealing of class background. One story is told of a student who stated that the reason pianos had been such an important social feature in this country is that everyone has one. Another student's eyebrows shot up: clearly pianos were not in every household that he entered. This story is relatively benign; others can be hair-raising.

Academic interests and perspectives. Students from different class backgrounds can have very different reactions to material presented and very different interests in the material. Asking for students' perspectives or reactions can reveal a great deal about students and, as well, enhance everyone's understanding.

Dress. This is a deceptive category, because many upper class

students dress down, but often the quality of clothing and of jewelry can reveal class background.

Pedagogical Implications

The first implication is the rule for all matters of diversity:

Learn as much as you can about all groups, but NEVER make assumptions about an individual student based on the group to which you think he or she might belong.

This is the way out of the dangers inherent in listing signals of class difference. A student's accent or silence does not necessarily mean he or she comes from the lower class, for example; and that he or she comes from the lower class does not necessarily mean a lack of academic preparation or sophistication. Similarly, an upper class background does not guarantee intellectual sophistication. One must never make assumptions but must always check out the situation with the individual student.

But beyond this caveat, what can we do to help level the playing field and include all students to the greatest extent possible in learning? Some suggestions are institutional, some curricular, and some pedagogical.

Institutional suggestions. Institutions might engage in college-wide discussions about what it means to be educated, about the purpose of the institution and the values it embodies and promotes, using class as one of the factors for reflection. They can develop better student support systems, safety nets, and specific strategies for welcoming students who come without the requisite academic background so as to provide them with the learning and system skills they will need not just for survival but for success in higher learning.

Curricular suggestions. At most institutions, more attention can be paid to class experiences both in courses offered and in the content of many syllabi. Is there a place for students to learn about class backgrounds other than their own, as well as about their own? Is material included from every class? Is the absence of material from some classes discussed?

Pedagogical suggestions. Modes of classroom operation can be

developed to enhance the learning of all students, regardless of their background. Specific suggestions applicable to many courses, and in some instances all, follow.

- Be very explicit about classroom norms and rules of operation. Let students know how to play the game, and help those who seem uncertain.
- Include readings from a wide variety of class perspectives.
- Use examples that come from every class.
- Acknowledge class differences and make class a topic for discussion. Look for class-based perspectives. Note value-laden language.
- Ask about student experience and about personal reactions to material; include these in content discussions.
- Get to know your students and their individual strengths and weaknesses. Teach to both.
- Vary the kinds of assignments, to include a variety of learning styles.
- Vary classroom activities, to include collaboration and small group work.
- Provide the opportunity for rewriting papers, as a way to teach students still learning to work in that mode.
- Protect the student who makes an unsophisticated comment.
- Model the acceptance of various class backgrounds.

Conclusion

Class distinctions are difficult for everyone in this country. Our national belief is that we are a classless society and that class should not matter; but class is evident everywhere and matters immensely.

The disjunction between our held belief and reality makes this a difficult area to understand and accept. We need to be sensitive to the embarrassment discussion of class differences almost inevitably involves. Lower class people are often embarrassed about their position, upper class people about their privileges; the middle class often isn't aware of class at all. When talking about class, both tensions and triumphs arise. This is difficult work, but critical to the creation of an academic environment open to all its members.

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