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ABSTRACT

Designed as a forum on teaching and learning in Utah's two-year colleges, "Focus" seeks to promote originality, innovation, and needed changes in the state's two-year institutions. The 1994 volume of "Focus" includes the following articles: (1) "Competency Development and Community Colleges," by Phyllis "Teddi" Safman; (2) "Culture, Logic and Rhetoric in the Multi-Cultural Classroom," by Phyllis Prawl; (3) "Producing Your Own Educational Documentaries: A Case for the Low-Budget Approach," by Ron J. Hammond; (4) "Involving Students in Learning through a Reading/Writing Approach," by Linda M. Cunningham; (5) "Improving the Quality of Multiple Choice Questions Part 1: Eliminating Common Design Errors," by Michael Jay Shively; (6) "Reality-Based Learning and Interdisciplinary Teams: An Interactive Approach Integrating Accounting and Engineering Technology," by Robert L. Rogers and Michael J. Stemkoski; (7) "This Is English?" by Sandra Lanier; (8) "Teams for Success," by Jolayne Call and JoEllen Coppersmith; and (9) "Community Colleges and International Education: Broadening the "Community" in Community Colleges," by Victor Aikhionbare. Each article contains references. (MAB)

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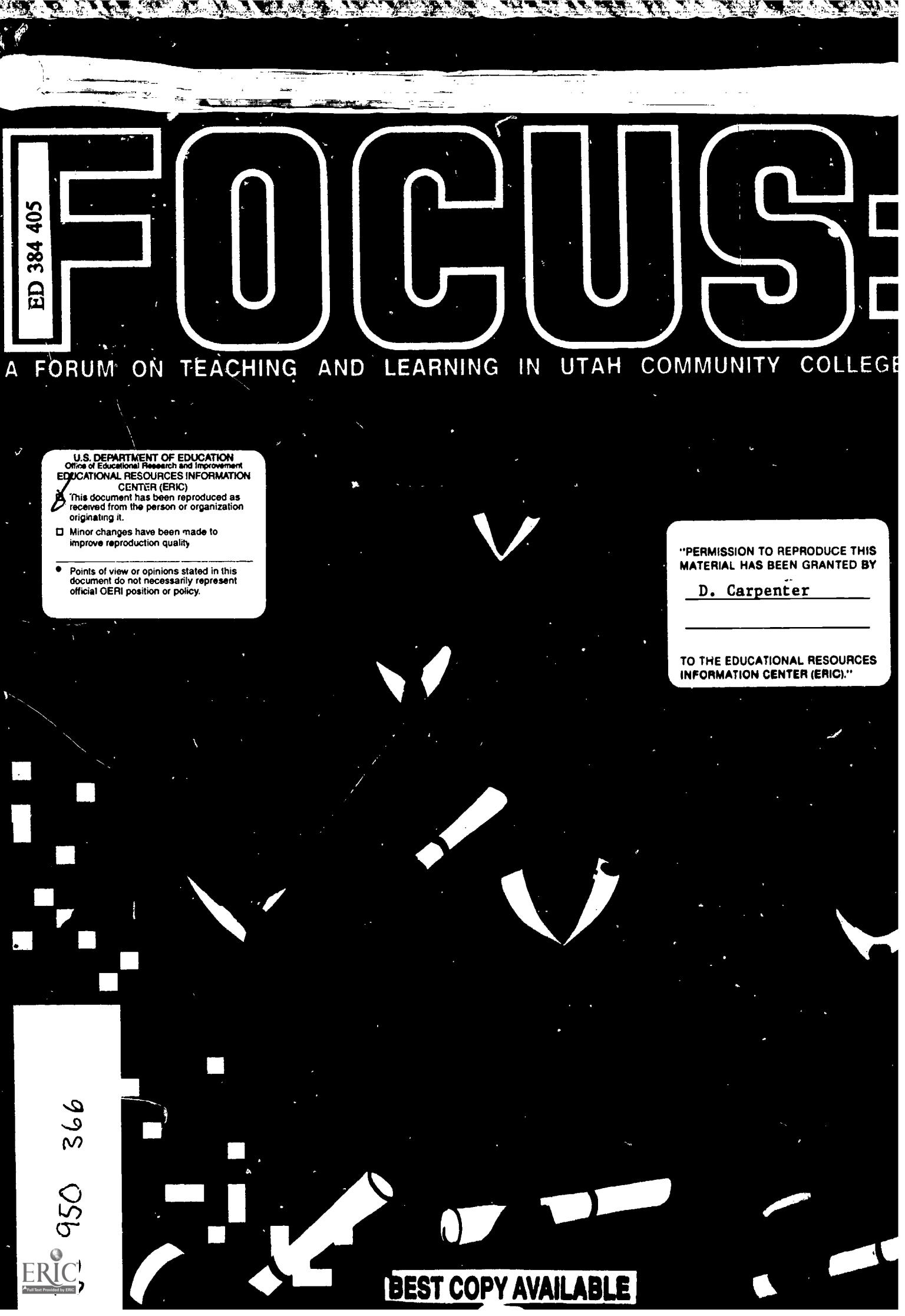

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A Forum on Teaching and Learning in Utah Community Colleges

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Competency Development and Community Colleges

by Phyllis Safman, Editor

Welcome to this year's edition of Focus: A Forum on Teaching and Learning in Utah Community Colleges. This edition features eight articles written by community college faculty. Topics range from enhanced learning for student teams and understanding speaking patterns in the multicultural classroom, to practical designs in the construction of test questions and strategies for effective reading and writing. All submissions were reviewed by a committee of faculty members representing all five community colleges.

One of the prerequisites of being the editor of Focus is a ready-made forum for sharing my thoughts on issues effecting community college faculty and students. Community colleges in the State of Utah serve large numbers of students. Their growth is not only remarkable but planned. The Board of Regents determined that students beginning their first two years in higher education should be encouraged to enter one of Utah's five community colleges. Thousands of students are registered and progressing through their academic careers. Most of these students are taking and completing general education courses which satisfy degree requirements and transfer easily to one of the public, four-year institutions within the system.

In Utah, we are taking a proactive stance in answering critics who believe that a general education curriculum has no benefit because it does not lead directly to employment. While the System is not likely to retort "it does so," faculty and administrators want to say with confidence that a general education curriculum will give students a set of competencies which will hold them in good stead no matter what path they follow.

Under the leadership of Dr. Reba Keele, Dean of Undergraduate Studies, University of Utah, and Dr. Ann Leffler, Professor, Utah State University, and under the auspices of the State Board of Regents, a Competencies Taskforce was formed. This taskforce is examining general education and identifying minimal competencies that learners ought to demonstrate upon completion of a general education curriculum. The taskforce has assembled subcommittees composed of faculty, librarians, technicians and public educators to determine competencies in specific areas such as math, writing, computer literacy and American institutions, a State-mandated course.

All subcommittees include representation from the community colleges.

Competency identification is not new; competency identification at the system level is rare. The University of Minnesota has one of the only state systems that has completed its competency identification. More unusual is a systemwide discussion of and agreement on the goals of general education. The outcomes of this process are to provide learners with competencies in general education and a seamless system that promotes transfer among the nine colleges and universities. Instead of setting requirements around a set of courses, the taskforce will propose that requirements be based upon minimal competencies that may be arrived at through various methodologies and content areas. Each institution will be free to add other competencies.

Questions asked by the taskforce include those related to technology:

1. Are there competencies that can be developed through the use of distance education technologies?
2. If so, what are these competencies?
3. What is needed to assure that both distance and on-site educators are engaged in the development of competencies?
4. How are these competencies to be assessed?

The work of the taskforce is taking place at the same time that faculty submissions for technology funding are being reviewed. Most of these proposals are for the purpose of developing or improving general education courses that are already being delivered through Channel Nine, a one-way video transmission, or through EdNet, an interactive video system.

Data are collected on learner satisfaction with distance education. For the most part, these data support our belief that learners, while they may prefer face-to-face contact with a class and instructor, appreciate access to coursework through technology.

We also know that comparisons between the delivery of course content through traditional and non-traditional, technological means indicate that roughly the same learning takes place in both settings.

However, we do not yet know if competency development can be delivered by both traditional and non-traditional means. And, once competencies are clearly defined and methodologies are put into place to assist learners with competency development, assessment procedures will be needed to answer the aforementioned questions. The University of Minnesota system has identified competencies but has not yet developed a method for assessment.

Opportunities abound for community college faculty. Anecdotal data and research are badly needed in the area of competency development and assessment. First, faculty from both community colleges and four-year institutions need to participate in discussions on goals of general education and competencies that learners ought to have. I think you have a unique opportunity to become significant players in competency development and assessment. Your participation is essential.

Culture, Logic and Rhetoric in the Multi-cultural Classroom

By Phyllis Prawl

Non-native speakers of English who enter an American classroom may display obvious communication problems in pronunciation, vocabulary, grammar, and syntax, which are expected to exist whenever one is learning a new language. First language interference is the biggest barrier to effective communication in a second language. However, the less obvious communication barrier between L1 and L2 is based on first language **cultural** differences, since culture determines logic and logic is the basis for rhetoric. Just as culture is not universal, neither is logic or rhetoric (Kaplan). In other words, learning a language's vocabulary, grammar and syntax are not enough to enable one to communicate in a foreign language. Nor will teaching these elements suffice if the goal of the teacher is to communicate knowledge to the students. Just as the language learner must understand the cultural logic of the second language in order to be proficient in it, educators must recognize that differences between cultures may impact rhetoric and cause writing and reading problems in the multi-cultural classroom. Addressing the problems of non-native speakers of English, who are not yet proficient in the language, is the objective. Obviously, many problems and issues presented here will not be evident in ESL students with advanced English skills.

English logic is predominantly direct and linear. This is reflected in its rhetoric. English rhetoric is ruled by unity and coherence, and an organizational pattern that flows from general to specific or vice versa. The adroit use of subordinators, not coordinators, is a valued skill (O'Shima and Hogue), but most L2 students in American classrooms come from cultures where such writing techniques are not valued because other logic systems prevail. These students will not use English logic when writing in English. Therefore, they will likely be judged as poor writers, even if their English grammar syntax come from Asian, Arabic and Hispanic countries. Relevant to the issue is how rhetorics differ from English, what problems this can cause in the writing and reading of English, and some solutions to these problems.

Asian culture has always been associated in the Western mind with mystique and inscrutability so it should come as no surprise that the English writing of Asian students may appear obtuse to a native speaker of English. Americans honor bold, "simple," straight-to-the-point writing techniques and usually teach these approaches in composition courses. Most Asian cultures consider such writing immature. Asian cultures stress the use of innuendo and subtlety; directness is considered rude. With such logic driving their rhetoric, Asian writers would naturally employ the indirect approach to a topic (O'Shima and Hogue). Asian writers are oblique in their analysis of a topic. They "dance" around the subject, never quite coming to the point as a native English writer would. When an American teacher encounters such writing, he or she will find it awkward or vague (O'Shima and Hogue).

Once this Asian writing approach of indirectness is recognized by the instructor, he or she can explain to the student how this technique is not appropriate for English rhetoric. Unfortunately, this is not the end of the problem. Often after Asian students alter their styles to match English logic, a new problem emerges—lack of development. Paragraph development goes from vague or awkward to almost nonexistent. Once Asian writers use a direct approach to analyzing a topic, they seem uncertain about how to supply appropriate and adequate development to support the thesis or topic sentence. They may state their thesis or topic sentence and follow it almost immediately with a conclusion. Their native language development strategies are quite complex but they have a difficult time adapting them to English and simplifying their writing. The tendency is to oversimplify, which then causes their writing to appear shallow. Fortunately, these students can

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easily surmount these problems with practice and further explanation. Awareness of the differences between the two writing approaches must occur before changes can be made.

If the Asian writer deliberately writes with innuendo and a crab's sideway attack of a subject, the Asian reader must be anticipating this approach when reading. An Asian reader will "fill-in-the-blanks" as he or she reads Asian writing. These readers will find unity in paragraphs where English readers may not (Hinds). What happens when an Asian reader reads English rhetoric may be what I call "hyper-extension." There may be a tendency to search for "clues" or see meanings that do not exist. If their search for meaning is unfulfilled, these readers will focus on the most minute details in a reading, thus hyper-extending their comprehension of the main points in a reading. These students will memorize the most arcane information in a reading and regurgitate it on an exam. They may totally misunderstand the main idea of a paragraph because they have spent so much time narrowing in on the specifics, searching for the "hidden" meaning they have been trained to expect in their native writing. This is a relatively minor reading problem that can be overcome by explaining the use and location of topic sentences in English paragraphs. These students may still memorize the minutiae, but with practice and time they will no longer look too deeply to find the controlling ideas.

If Asian writers and readers of English have relatively minor difficulties with the rhetoric of English, then Arab and Farsi speaking students are at the opposite end of the spectrum. The rhetoric of Farsi and Arabic follows a logic that is enigmatic to a native English speaker. The writing styles are so distinct that a native English speaker following Arabic rhetoric written in English, might judge the writing as bizarre. It is no surprise then that native English instructors are often baffled by the English writing of their Iranian and Arabic students. Arabic and Persian writers prize the use of coordinators rather than subordinators in their paragraph development. The English reader—whose logic prefers subordination—finds such writing immature and awkward (O'Shima and Hogue). Beyond the subordination-coordination issue, other constructions hinder the Arabic writer of English. Arabic and Farsi students use a type of "stop-and-start" method in their writing. One sentence will present an idea that will be almost immediately followed by a *non sequitur,* abruptly halting the train of thought of the reader. Then, the original idea, or a closely related point, will be reintroduced. This writing pattern zigzags as it takes the reader from one point to another in a stop and start rhythm. The paragraphs in this type of writing lack coherence because many sentences do not relate to the controlling ideas.

A few possible reasons for such writing techniques are culturally-based. Arab culture gave the world wrought iron of the most ornate design along with an elaborately florid writing script. The Arab rhetoric reflects this ornateness found elsewhere in the culture. Following the flow of ideas in a Persian student's English paper is almost like tracing the patterns of a wrought iron grille.

The Arab culture is also enamored of metaphors. This may be due to Islam's influence on the Arab world. For example, there are ninety-nine metaphorical names for Allah (God), which are recited in Islamic ritual. If, as some believe, the "way to understand the religion of Islam is to analyze the language and rhetoric of its users" (Sisson), might not the analysis of a culture's religion lead to an understanding of its rhetoric. (Acknowledging that not all Arabs or Iranians are Moslem, they still live in a culture dominated and influenced by the Islamic religion.) This use of metaphors can seem "overdone" to an English reader, and, at the very least, will appear distracting.

One other challenge for English instructors of Farsi/Arabic students is the attitude toward plagiarism. In American classrooms and society, plagiarism is a cultural taboo, punishable by expulsion from school or worse. American educators should know that this is not the attitude of the Arabic or Persian student. Copying another's writing is considered a form of flattery. These students may have been trained to memorize lengthy texts and later to insert them at will in their own writings without acknowledging the original author. They

will continue this pattern in their English writing, unless strongly discouraged from doing so. This may be devastating for these students in an American classroom. In America, plagiarism is a form of cheating, but convincing Farsi/Arabic students to desist is not always easy.

Trying to modify an Arabic student's writing style is challenging. It is easier for an Asian student to modify his or her writing to follow English logic patterns, but much more difficult for a Farsi or Arabic student. Undoubtedly, it would be just as difficult for a native speaker of English to alter his or her rhetoric to fit the Arabic method. By starting with the most concrete and basic problems, i.e., encouraging students to increase their use of subordinators and decrease the use of coordinators and metaphors, the larger blocks to understanding will eventually disappear. If plagiarism is a problem, frequent and strident denunciation of this "sin" is useful.

Just as Arabic students' writing confounds English logic at times, so does their reading comprehension. Memorization is stressed in the Arab education systems. Thus, students continue this learning pattern in English. They may read a text, memorize it, and on an exam, rewrite word for word, everything they remember. This makes it difficult to interpret their understanding. On the other hand, if they do not memorize the material, their answers to comprehension questions may not be the expected ones. They may respond to a question, not with the answer sought, but with a metaphor for the correct answer, or even a parallel. They believe they have understood the material, but, because they do not give the predicted response, they may not receive credit for the answer. Again, awareness of cultural differences and how they affect logic and culture can help both instructor and student rise above this impediment to learning.

While Arabic writers may fail to relate all sentences in a paragraph to the controlling idea of the topic sentence, Hispanic writers fail to relate all sentences in a paragraph to the topic itself. This is due to the influence of "Spanish rhetoric [which] does not follow the English rule of paragraph unity" (O'Shima and Hogue). These writers insert details in the text that are unrelated. Hispanic culture and language are "colorful" when viewed through Anglo eyes. Often, the digressions Hispanic writers insert in their writings are interesting, but they are distracting to the English reader whose logic does not allow digression in rhetoric. Hispanic rhetoric is sometimes more descriptive than English so Hispanic writers may have difficulty being brief in their writing. This is in sharp contrast to Asian writers who may be too brief when attempting to follow English rhetoric.

Because of their preference for lengthy descriptive writing, novice Hispanic writers of English often employ run-on sentences and comma splices. Though this writing problem could be first language interference, it may also be culturally based since Hispanic culture does not possess the Anglo world's attitude of "hurry up and get to the point." For an English reader, Hispanic writing is slow to make its point as it meanders from one digression to another. This is also how Anglos views Hispanic culture, slower-paced and more relaxing than their own. Spanish writers support their theses, but they take time doing it.

This comparison of Spanish rhetoric to English, should make solutions to writing problems obvious. Hispanic students may need to be taught that English paragraph structure requires unity and coherence, which are, in turn, directly related to the topic and its controlling idea. It is rather simple to delete extraneous text. As adequate paragraph development is usually already in place, students' writing can easily be modified to follow English rhetoric.

Hispanic students reading English text have few difficulties compared to Asian or Arabic readers. Most ESL Spanish readers can recognize the topic sentences and main ideas when reading English. When answering comprehension questions, they may relay more information than is requested, even giving tangential responses in addition to the requisite answer. These students generally do not zero-in on the details that an Asian reader finds so intriguing, nor will they answer with the Farsi students memorized response or apparent paralogism. Of the three discussed here, the Hispanic

culture has fewer rhetorical differences than English.

The following steps may be of use when teaching in a multi-cultural classroom: (1) explain how American readers are taught to react to written texts, e.g., look for topic sentences and supporting ideas; (2) encourage non-native speakers to look at how their own culture influences rhetoric; and (3) require students to rewrite and restructure their own writing to adapt it to English rules of rhetoric (Gonzalez). In all cases, the "target rhetorical form [English], not the students' supposed rhetoric, should be emphasized" (Shishin). It should be understood that no one rhetorical style is better or worse than another. None of the explanations of rhetoric or cultures presented here is meant to be judgmental. Rhetorical styles are different, not good or bad, and the ESL students must never be made to feel that English rhetoric is the "best" or "only" one. It is just the *appropriate* one for writing in English.

This paper is not exhaustive in its explanations or solutions to rhetorical obstacles in the multi-cultural classroom. If anything, this is a very simplified exegesis. There are many rhetorical elements involved in learning to communicate in a second language, such as memory, style, delivery and invention (Liebman-Kleine). These more complicated issues are avoided for the sake of brevity since the purpose is to create awareness of how culture influences rhetoric. This reveals *why* writing or reading comprehension of a non-native English speaker does not correspond to that of the native speaker. This awareness is the first step to solving communication problems. Communication is the primary obligation to our students.

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Producing Your Own Educational Documentaries: A Case for the Low-Budget Approach

By Ron J. Hammond, Ph.D.

The use of video documentaries in the classroom is prevalent among college instructors in almost all fields and academic disciplines. Many instructors utilize documentaries to provide students with exposure to a visual explanation of concepts, events and processes. Like pictures, "Videos are worth a thousand words!" Yet, all too often instructors are unable to obtain video documentaries, either because the videos they need may be inadequate, or worse, may not exist at all. All too often, instructors need a video for instruction and find there are insufficient departmental or school funds to buy or rent videos.

The purpose of this paper is to demonstrate how all community college faculty can create their own video documentaries at reasonable costs while meeting their specific needs. This paper will include a brief introduction to the concept of video documentary production; practical advice on how to see production through to completion; and a working example from a documentary produced by the Department of Behavioral Science at Utah Valley State College, Summer 1993.

Video Documentaries

Hayward defines a video documentary as "a video tape made by average people, composed of various documents and documentary data, which serves to relate a factual story by comparison of events, time, places or viewpoints . . . comparison is the key word. Without it there is no documentary" (11). For example, a video tape of a wedding is a video document. But if one includes video footage of the events leading up to it, other types of weddings or a wedding in another culture, then the video is a documentary. A documentary should include the following elements: comparative material; introduction, body, and conclusion; a definite point of view, either objective or subjective; credibility; reflection of real life; and an intended audience. The degree to which each of these elements should be emphasized in relation to other elements is best decided by the creators of the documentary. Ignoring or excluding any of these elements may greatly reduce the quality of the final product.

It should be mentioned at this point that one does not need to be an audiovisual expert in order to produce a quality video product. Services from technical experts can usually be obtained. Because the technical aspects of video production can be overwhelming, it is best to rely on consultation for such matters.

The most critical aspect of producing a video is to have a clear understanding, vision or dream of the final product. The seven steps presented below will facilitate the realization of that vision. First, decide what the subject is (crime, computers, homelessness, manufacturing, current events or famous people). Second, decide who the audience will be (college students, community members or public TV). Third, decide what the documentary's personality will be, such as news story, sociological, investigative, explanatory, experiential, historical or testimonial (Wolverton 126). Fourth, write down its intended purpose: to provide students with a visual presentation on how to assemble a computer. Fifth, do adequate research on what might already be available in this area, what is the state-of-the-art on the subject, what might be unique or represent a summary presentation of the research. The more research that is done the better the final product. Sixth, write down a statement of the concept encompassing all of the ideas listed above, such as "the purpose of this video is to provide students with a realistic observation of parental encouragement/discouragement of their children at little league soccer matches." Finally, write down details of how the video production will actually be facilitated. Work done in the development, taping, editing and mastering should coincide with the decisions and statements listed above.

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Practical Advice

1. **Be Tenacious.** Once the statement of the project is determined, and you are fairly sure that it represents the final statement, then stick to it! Be on the alert for diversionary input which may threaten the final product. Often the creators of the statement may be the only ones with a vision of the final product. Be careful of well meaning "armchair" producers who will inevitably catch a glimpse of what is happening, create their own final product (in their mind), and try to redirect production. While it is important to consider input from colleagues and technicians, be aware that the responsibility of seeing that the final product is realized rests with the creators. Staying on track may be one of the greatest challenges throughout the entire process.

2. **Be Cost Conscious.** Excellent documentaries can be very inexpensive or very expensive to produce. Consult with professionals before submitting a proposal. Categories of expenditures usually include blank tape. consultation, "volunteers," and access to professional equipment and technicians.

3. **Use the Experts.** Whenever possible use campus media facilities. Negotiations may reduce or eliminate massive production costs if you and the experts arrive at a mutually beneficial definition of your project and interpret this as part of the media center job description. Previous research indicates that each of the five community colleges in Utah has adequate facilities for documentary production except the College of Eastern Utah. (Faculty there may want to develop collaborative relationships that maximize the use of a neighboring college's production capacity.)

Some documentaries may be so inexpensive to produce that in-house funding is possible. If external funding is available, then carefully insure that the college or department, and not the external funding agency, owns rights to the final product. Realize that you do not have to be an expert in every aspect of the process. In fact, the more you solicit the help of others, the more you can focus on the final product.

UVSC Working Example

During Spring semester of 1993, a call for proposals was made by faculty from the former School of Health, Sciences and Health professions and the Center for International Studies at UVSC. Funding was available for faculty who wanted to enhance their curricula with international perspectives. The faculty of the Behavioral Science Department requested about $1,500 in order to produce a video documentary. The funds were approved and the video was completed six months later. Many campus departments and services were coordinated and utilized for the project. Most resistance came from those who did not understand the project. Once people understood, then most were enthusiastically supportive. Budget estimates were made in conjunction with the Director of the Media Center. Our budget categories included:

1. various types of tape - $300
2. technicians - $220
3. gifts for volunteers - $100
4. professional consultation reimbursing faculty for their time - $864.

The total came to $1,484. Actual costs were very close to these figures.

As psychology and sociology teachers, we felt that our students would benefit by observing gender from an international perspective. We were concerned about available documentaries which were either too long or too expensive for our budget. We wanted a video with numerous subject-specific segments, each no more than 5 to 10 minutes in length. We worked together in making decisions and creating the vision. The research aspects of this process were very enriching in terms of familiarity with current international gender issues.

Our next step was to find volunteers. Extensive networking with college employees and community leaders provided us with a list of people who were born and raised in a country other than the U.S. The studio and volunteers were scheduled for taping on two separate dates. Release forms were signed by each volunteer (see Hausman for examples of

release forms) enabling us to use their interviews. The result of those studio sessions amounted to 14 hours of unedited video footage.

The next step was to decide which scenes we would include and the order in which they would appear in the video. Our technician suggested using editing script sheets which were designed to sequence video, sound, and characters (words). The script sheet is produced by drawing three rows across the length of blank paper (a row for video, sound, and words). Video counter codes synchronize these three elements. It is estimated that for every hour of final product about 10 hours of editing are required. Accuracy in the editing script leads to a shorter editing process.

Many hours were spent in the editing bay while mastering the original footage according to the edit script. The master tape was made on broadcast grade metal tape (M2). Finally, the video documentary was completed. We wrote a users guide brochure to accompany the documentary. The brochure provided instructors with a ready reference guide and a list of possible classroom applications. A local duplication company was contracted to make professional grade copies from our master tape. The documentary is now available to twenty-two adjunct and five contract faculty in our department and is in use in other departments as well.

Textbook companies and national video distributors were contacted and contracts were signed for marketing the video. Thus far we have distributed over 100 copies nationally. Revenues generated by the sale of the documentary exceed the dollar amount of the original proposal. Proceeds go into a soft money account and will be used to fund other departmental video projects including the next documentary. This example from the Department of Behavioral Science at UVSC clearly illustrates that faculty can produce inexpensive, yet professional, video documentaries for the classroom and even for national distribution. As state employees, we are obligated to use taxpayer funds wisely and prudently. As teachers, we are obligated to provide the best education for our students. Producing our own video documentaries allows us to do both while increasing our professional skills and talents.

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Involving Students in Learning Through a Reading/Writing Approach

By Linda M. Cunningham

Teachers in community colleges across the country share an unfortunate common experience: teaching students who are bored, uninterested, and grade-oriented; students who have lost any sense of ownership over their own learning. Many of these students are reluctant to read or write and spend too much time trying to figure out "what the teacher wants." These all too common experiences are demoralizing for both students and teachers who spend weeks or months together without sharing any intellectual excitement or sense of collaboration in the learning adventure.

Putting Students at the Center of the Classroom

In the past decade, an important pedagogy has emerged in public schools and colleges. Founded on theory from cognitive psychology, the new pedagogy goes beyond territory won by writing-across-the curriculum and learning-across-the-curriculum programs. This new approach integrates the four primary language skills, reading, thinking, speaking, and writing, using a reading/writing base. The integration of language skills has occurred, as John Mayher notes in his book *Uncommon Sense*, because "all four modes of language use involve active meaning making and active learning . . . [and] all four modes [are] mutually reinforcing and interdependent" (206). In an article for the *Journal of Basic Writing*, Mayher points out that "the processes of language use are . . . so complex and subtly interconnected that attempts to atomize them for separate teaching doesn't [sic] correspond to the ways they are learned and used" (51). Constructing courses and classrooms that take advantage of the interrelationship of language skills has led to important changes in classroom environment, teaching methodologies, and curricula.

Donald Bartholomae and Anthony Petrosky, professors at the University of Pittsburgh, seeking "meaningful writing" opportunities for composition students, designed a reading/writing course around the theme of adolescent development. While theirs was a composition course, their model can work in a variety of disciplines. Recognizing that most of us have been educated in authoritarian classrooms and that students have come to expect them, Bartholomae and Petrosky acknowledge the difficulty of getting students to feel empowered and take responsibility and authority for their own learning. To accomplish the change, they assert, "a course in reading and writing . . . must begin with silence, a silence students must fill. It cannot begin by telling students what to say" (7). But silence isn't enough; the course design and the teacher's methodology must help students reflect on themselves as readers, speakers, and writers actively involved in making meaning for themselves and for those with whom they wish to communicate. Judith Langer and Arthur Applebee reinforce this point in their book *How Writing Shapes Thinking*, "Effective instructional tasks must allow room for students to have something of their own to say in their writing. It is this sense of purpose that will integrate the various parts of the task into a coherent whole, providing a sense of direction" (141).

To secure student involvement in the subject matter of our courses, we must recognize "the importance of the student's personal connections to the material being learned, and of his [or her] individual reasons to be learning it," echoes John Mayher in *Uncommon Sense* (79).

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Experimenting with a Reading/Writing Approach

Because of the reported effects of reading/writing methodology on students' interest and involvement in their learning, I chose to experiment with a reading/writing approach in a business English course for my Masters thesis project. Business English, an intensive grammar review course, has been taught at Salt Lake Community College for over twenty years. Initially, the course was an individualized grammar review, students moving at their own pace through programmed materials; for the past ten years, however, it has been taught using a lecture/workbook approach, the entire class moving through material at the same pace.

Virtually every student in Business 101 takes the course because it is a program requirement; a notoriously poor student motivator. To increase students' involvement, I felt that the reading/writing approach should offer them opportunity to direct some parts of the course toward their own interests; for instance, they could choose any business-related reading material they wanted and identify their own audiences for their writing assignments. These opportunities to direct their work in the course were intended to increase students' sense of ownership over their learning. Further, I hoped that once students had something to communicate that was important to them, they would care enough to pay attention to the details that make writing interesting and clear for a reader, and that this concern for clear writing would make them eager to learn a handful of essential grammar and style conventions. The reading/writing approach in business English also offered students a chance to become more involved in current business issues. I hoped that they would feel a greater sense of participation in their learning as they move into classes in their majors.

The experimental business English course for this project consisted of four elements:

- language awareness
- reading/writing/revising
- collaboration
- presenting/publishing

In Fall Quarter, 1993, I taught two sections of the course using a reading/writing approach similar to that described in Bartholomae and Petrosky's book Facts, Artifacts, and Counterfacts. I did not use a traditional textbook for the experimental course; instead, material for students' reading came from two business periodicals: Business Week and Fortune. Students chose articles from these periodicals to read, think about, and respond to in writing. Their responses to articles they read became our "texts" for the course.

Instruction in the conventions of Standard Edited English was limited to basic sentence terminology (subject, verb, object, modifier) and errors that occurred in these students' writing. We used students' writing as the resource for our grammar work, projecting their work on a screen from an opaque or overhead projector so that everyone could see it at the same time.

Students in these two sections of business English made solid gains in their writing ability. It appears that the work on grammar, punctuation, and style items actually yielded more growth than under previous methods because students were working with their own idiosyncratic texts, not sanitized workbook sentences.

Changing Roles for Teachers

To move students into a place of authority and activity requires more than allowing them to choose some of their reading and writing tasks. It also requires change in the way teachers work with students—in fact, a fundamental change in the relationship between students and teacher that helps students, as Kenneth Bruffee says, "regain confidence in their innate ability . . . to learn without being taught" (qtd. in Cooper & Holzman 44).

Many teachers who have used reading/writing approaches in their classes have experienced an unexpected shift in their role in the classroom. As students assumed more ownership of their own learning, teachers found that their role evolved from an authority-behind-the-desk model to coach and co-learner with their students. This shift can be very uncomfortable for teachers who believe that it is

their delivery of information that helps students learn. But our perception that we "teach" students may be faulty. As Parker and Goodkin note in *The Consequences of Writing*, "Because learning is located in, and flows from, the activities of students, at best teachers can arrange classroom conditions, working alongside students to support, assist, and direct the activities through which they construct their knowledge of the curriculum content" (55). A quick trip through our own personal learning history confirms that we have learned best when we have been driven by an internal curiosity or desire. Good teachers have helped us discover and promote our curiosity.

Changing Roles for Students

Students who have been turned off by even well-designed curricula that did not speak to them personally have discovered new energy for learning and improving their communicating skills. Reading/writing-based courses allow them room to explore their own intents and purposes and restore students' sense of authority and direction over their own learning. To develop a sense of authority as learners, students need to take charge of their learning, making choices and directing their gathering and communicating of information whenever possible. These activities help them discover their capacity to learn. In *Uncommon Sense*, John Mayher says, "Learners are, finally, responsible for their own learning. They have to set and solve the problems and develop the skills, but they will do so most effectively in an environment which takes their meanings and purposes seriously and which allows them to act as well as react" (105).

In most college courses, students are not entirely free to choose how much they will write or what kinds of documents they will produce. But within the frameworks of broad course requirements, teachers can design courses that allow significant choice and self-direction for writers. Furthermore, our courses can provide social systems that support, encourage, and reward reading, thinking, speaking, and writing to help students gain competence and authority. In an effective reading/writing classroom, students' peers, as well as their instructor, become real audiences who have real responses to their peers' thinking and writing. This interaction with an audience is basic to good thinking and writing, and effective communication. "Writers need to share their writing and hear others, particularly a sensitive teacher, talking about it with interest," writes Tom Romano in *Clearing the Way* (85). An audience of one's peers, argue Cooper and Holzman, helps students "[develop] the habits and skills involved in finding readers and making use of their responses" (12). Students aren't the only ones who benefit from this conversation about writing. Tom Romano maintains that the writing conversation allows teachers to "learn things about [their] students that will affect instruction" (85).

Building Community in the Classroom

Another benefit of reading/writing approaches is a strong sense of community among students and between students and teacher. Vera John-Steiner uses the word *communitas* to refer to "a way of being together" sharing work and enthusiasm "that strengthen[s] the bonds among the students themselves" (94). Of all the positive outcomes in my project, the sense of community and effective collaboration that developed in the two classes is by far the most important.

It feels risky to step aside from the teacher/authority role in the classroom and make space for students to develop relationships with each other and take control of their own learning. The teacher-as-authority style of teaching we experienced in our own schooling influences our behavior more than we like to acknowledge, and a lack of alternative models to draw from keeps us from risking innovation. In my graduate courses, I experienced student-centered, language intensive teaching that gave me the courage to try a reading/writing approach in my project classes.

For effective collaboration, students have to get acquainted with each other quickly and thoroughly and to develop trust in their peers. I designed the first two weeks of the business English course specifically to establish a sense of community and develop a climate of respect and trust. We got acquainted through paired interviews, by discussing

readings in small groups, and by reading each others' one-pagers (one-page, ungraded reflections on students' learning and classroom experience) on the computer network. The one-pagers, in particular, became a major influence in giving us a sense of our similarities as human beings, especially as writers.

Some instructors fear that this concern for how students feel in our classes will diminish the rigor of college courses. Educator and writer Parker Palmer asserts that a "learning space" must provide what he calls "hospitality," responding to each other and our ideas "with openness and care" (73, 74). Hospitality, in this sense, does not water down the curriculum, but provides support for students to undertake difficult things and succeed at them. Jesse, a student in one of my classes, discovered this principle in the first two weeks, "I know I can do well in the class because I feel comfortable in the class. For the first time in my life, [I feel] that I am not too bad of a writer. I never felt like that before. I now write with a little confidence." A young woman from Brazil noted that our early get-acquainted exercises and our explorations of language, in general, helped her "feel good, talking about my past, my experiences and listening to others' experiences."

On an end-of-quarter evaluation, I asked students to assess how working with other students in the course had affected their learning, their writing and their feelings about the course. Three-fourths of those responding made positive comments about the role of collaboration in their learning. "Collaboration with other students brings out new ideas and opinions. The more information you receive or learn, the more your brain is expanded," wrote one student about the group experience.

Students' article responses, one-pagers and the collaborative report were all intended for the peer audience as well as the instructor. Responses to articles and one-pagers were shared on the computer network; collaborative groups communicated their report findings to the class in a formal oral presentation. All three types of writing helped give students voice and gave them confidence to express their ideas openly, but the collaborative report project, more than any other activity, made authority and ownership a reality for most students. Two factors made this particular experience significant: (1) the fact that students generated their own topic ideas and then negotiated with others to arrive at a common theme they could work with, and (2) the fact that students had to inform themselves thoroughly about their chosen topic, particularly their area of specialization in the group, in order to produce the integrated report. The reports were short, just three to five pages. In fact, the relative shortness of the reports actually challenged groups to look at their collected information with a more critical eye to see what fit their topic closely and what they could do without.

Conclusion

When classroom environment and teaching methodology make room for students to explore ideas, and in the process, to create ideas, students can truly own their learning. Eleanor Duckworth, author of *The Having of Wonderful Ideas* maintains that students don't "have the idea unless [they've] created it. All else is just words" (qtd. in Meek 30).

In the closing chapter of *Language and Learning*. James Britton presents the choices this way,

> In the end, what we have to do [for students] is trust them . . . we have to trust them for their own sakes; there is in the long run no viable alternative . . . for teachers whose concern is for the individuals themselves, the alternative to trusting them is to try to be them, to live their lives for them. And this, of course, is a long, anxious road into failure (270).

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Improving the Quality of Multiple Choice Questions Part 1: Eliminating Common Design Errors

By Michael Jay Shively, D.V.M., M.S., Ph.D.

There are many different examination formats in use, and one may be of more value in some subject areas than others. For most courses, the "perfect" examination mode has yet to be devised. Essay tests are relatively easy to compose and give students an opportunity to express themselves and demonstrate their knowledge. However, essay questions require considerable faculty time to grade, and the answers are often difficult to evaluate with absolute objectivity and consistency. True-false tests are easily composed and have the advantage of being scored by machine.

However, when the 50-50 guessing statistics are examined, it becomes apparent that students actually score much higher than their level of true knowledge. On a 100 item true-false exam, a student who knows the answers to only 20 questions and guesses on the remaining 80 (getting 40 of those correct) will score 60/100. Likewise a student who "knows" 50 questions will receive a score of 75% (±) by guessing on the remaining 50 questions. Once, in my overzealous professional youth, I tried to employ the number-right-minus-number-wrong guessing correction factor and nearly had a mutiny on my hands. Amid a cacaphony of "unfair" I tried to explain the statistics—only to find that students aren't interested in any "facts" that lower their scores!

Short answer and fill-in-the-blank questions require manual grading but have the advantage of forcing students to compose their own answers. Matching formats can often be machine scored, but may not lend themselves to some subject areas and rarely are written above the cognitive domains of recognition/recall. Multiple-choice exams require a reasonably long time to compose, but they can be machine scored. Some studies have shown them to be superior to other examination modes (Bull; Cowles; and Cox). Certainly, they are among the most commonly used test formats. Unfortunately, multiple choice questions are often poorly written and often do not test knowledge and problem solving skills as well as they potentially can. It is not the intent of this commentary to condone or condemn the value of multiple choice questions. Instead, its purpose is to outline some of their pitfalls and design errors, and to suggest ways that defective questions can be improved.

Multiple choice examinations fall into the category of *objective* (vs *subjective*) tests, which theoretically evaluate the examinees with little interference from the whims and prejudices of the examiner (Bull; and Murphree). The questions are designed with an initial portion (termed the *premise* or *stem*) followed by several choices. The premise may be a simple question which one of the choices answers, or a fill-in-the-blank statement which one of the choices correctly completes. The premise may also be a directive requiring examinees to evaluate the choices using certain criteria *(An overdose of which one of the following drugs is most likely to induce hypoglycemic shock in a diabetic individual?)*. Regardless of the premise type, examinees are supposed to select the correct choice or *answer* which is "hidden" in a group of wrong choices called *distractors* ("Instructions for the Construction"). Multiple choice questions can be considered to be groups of true-false questions in which the answer is "true" (according to the criteria established by the premise) and the distractors are "false."

It is intuitively obvious that the premise, answer, and distractors should fulfill a number of basic tenets. The premise should consist of a clear and complete expression of the problem to be solved. After reading it, the examinees should know precisely what to look for among the choices. The answer should completely satisfy the premise and none of the distractors should "fit" its restrictions. Answers and distractors should be clearly stated,

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grammatically correct, logically parallel, and free of "give-aways." To gain appreciation for higher quality multiple choice questions, ten examples of poor question design will be presented along with some suggestions for corrections.

1. **Too few or too many choices.** The optimum number of available choices is subject to debate. Fewer than four choices credits random guessing too often and more than six may overburden the selection process. The "guessing" statistics are easily calculated (Table 1). An individual who knows nothing about the subject matter can, by guessing, score 25.0 percent on four- choice questions, 20.0 percent on five-choice questions and 16.7 percent on those with six choices. There is no "best" number of choices, but question authors should be aware of these statistics.

Table 1

The statistical "chance" of selecting the correct answer to a multiple choice question is inversely related to the number of choices.

Number of Choices	Chance of "Guessing" the Correct Answer
2	50.0
3	33.3
4	25.0
5	20.0
6	16.7
7	14.3
8	12.5
9	11.1
10	10.0

2. **Any number of correct choices.** Sometimes exams are written in which questions can have multiple answers (multiple answer, multiple choice questions). These exams should be graded by scoring each choice as a separate entity (making the exam, in effect, a true-false test). Sometimes an unfair scoring system is used which requires students to mark an exact combination of choices on a given question (such as A. C *and* D) to receive credit (Kock). This does not distinguish between a student who knows most of the information within a given question (and marks only one choice incorrectly) and another who knows nothing about the question (and mismarks several choices). Another misuse of this type of question is a scoring system in which students can lose more points by answering incorrectly than they can gain by answering correctly (Melzer).

3. **All of the above are true (or false).** This statement is sometimes used as the last choice on a given question. Depending on the composition of the premise, it may weaken the question's discriminatory capabilities and may even create more serious flaws. In its simplest misuse, "all of the above" allows students to correctly answer a question without *knowing* "all of the above." For example:

Which one of the following is true?
A. Fish can swim.
B. Sparrows can fly.
C. Grass is green.
D. Sugar is sweet.
E. All of the above are true.

If A, B, C and D are all true, examinees can immediately select E as soon as they realize that any two of the choices are correct without critical evaluation of the remaining choices. Therefore, a student who selects choice E in this example does not necessarily have to recognize that all of the choices are true. In the book of multiple choice question crimes, this is a simple misdemeanor, but the following is a felony:

Which one of the following is false?
A. Rocks can swim.
B. Dogs can fly.
C. The sky is green.
D. Salt is sweet.
E. All of the above are false.

If A, B, C, and D are all false (as in the above example), this question has several inherent problems. First, as noted in the previous example, as soon as the examinees recognize that any two of the choices are false, they can select choice E without critical evaluation of the other choices. Second, the stated relationship between the premise and choice

E is incorrect under these circumstances because E is not false but, in fact, true. Finally, keen observers may note that if only one of the first four choices is false (and is the intended answer), choice E becomes a false statement and technically satisfies the premise as well! No problem, you say - everybody understands what is *meant!* Just wait until you have a good attorney in one of your classes! The undesirable characteristics of both of these examples can be eliminated by an "all of the above" structure which has true (or false) in the premise and the opposite in choice E:

Which one of the following is false?
A. _____
B. _____
C. _____
D. _____
E. If all of the above are true, choose this response.

This design eliminates any cognitive dissonance between the stem and choice E by indicating separate consideration of A through D and then E. It also prevents the premature selections without critical evaluations which the first two examples allowed. The converse example of this question (with "true" in the stem and "false" in choice E) presents these same desirable features.

4. **Nonparallelism.** This may occur between the premise and choices and it may also be present among the choices. Nonparallelism is a common design error ("Instructions for the Construction"). Sometimes it forms a give-away (see item 5). The most frequent forms of nonparallelism involve:

A. The use of different verb forms or tenses in the choices of a question.

B. Significant variation in the lengths of the choices.

C. Choices which are not parallel by virtue of their content. Note the nonparallelism in the following example between choice E (a specific type of very fast sports car) and the other choices which are general types of land transportation. How is a student supposed to reconcile choice C and choice E?

The fastest form of land transportation is by:
A. Bus

B. Truck

C. Car

D. Train

E. Maseratti

5. **Give-aways.** These include a myriad of specific workings, structural characteristics, and various other peculiarities which aid the students in the selection of answers in ways not related to their knowledge of the subject. Incorrect use of "all of the above" as outlined above is one form of give-away. Others include:

A. The natural tendency of some question writers to make certain choices the answer. Some authors frequently make C the answer on four-choice questions and D the answer on five-choice questions. This may occur because of the examiners' desire to force the consideration of several distractors before presenting the answer. While an absolutely equal number of A's, B's, C's, etc. as answers is unnecessary, a heavy imbalance should be avoided.

B. Stating the answer to one question within the premise or a choice of another question. This give-away may be done intentionally but it sometimes occurs unintentionally as well.

C. Making the answer longer than the other choices by adding embellishments. These may be modifying phrases intended to clarify and prevent examinees from eliminating the intended answer for the "wrong reasons". To avoid this give-away, distractors in a question should be developed to the same degree as the answer.

D. Nonparallism between the premise and some choices. If the premise asks for a certain number or type of items, any choices not meeting those pre-requisites can automatically be eliminated.

Which breed of companion animal has the greatest expected longevity?
A. Horse
B. Collie dog
C. African Gray Parrot
D. Snake
E. Siamese Cat

Discriminating test takers can eliminate choices A and D because *horse* and *snake* are not breeds, (they are species). Also, some individuals would automatically eliminate choice D because they don't consider snakes to be companion animals. (The correct answer to the question above, incidentally, is C-parrots often outlive their owners.)

E. Indiscriminate use of *never* and *always*. These are dangerous words because students can often find exceptions. In fact, if exceptions exist, students will find them!

6. **Incorrect grammar or composition.** Grammatical and compositional errors in questions are relatively common but they rarely present serious difficulty for the examinees because they are usually either intuitively obvious or the examinees will ask for clarification. Examples include:

A. Using singular (or plural) subjects or verbs in the premise with the converse in the choices.

B. Failing to punctuate a question with a question mark and failing to end complete statement choices with a period.

C. Having choices, which are intended to complete a premise, not couple correctly with the premise. Notice the coupling problem between the premise and choice C in the following example.

7. **Inappropriate choices.** Inappropriate choices are those which do not fit within the frame of reference of the premise. Although they exist in various forms, perhaps the most common one is the use of poor distractors. Ideally, distractors should be absolutely incorrect but they should seem plausible. One or more choices which are totally ridiculous are not really *distractors* but are *give-aways*. Distractors which are partially correct may tend to frustrate and irritate the examinees. Sometimes questions are designed intentionally to force examinees to select a best answer from several feasible ones.

Which one of the following is *not* a vital organ?
A. blood
B. brain
C. heart
D. kidney
E. skin

This question has numerous problems that include appropriate choices. First, blood is vital to life, but it is a *tissue* and not an organ—thus it is an answer. Kidneys are organs and they are vital as a pair, but one kidney can be removed in a healthy individual without serious consequence. Skin is an organ, and as a whole it is vital, but large areas of it can be damaged without loss of life.

8. **Ambiguity**. Ambiguity in the premise or choices is a complaint often voiced by examinees, but they frequently apply the label to most any question which they miss. Nonetheless, it is a very real problem and its cause is related partially to authors of questions who are so deeply involved in their specific construction that they often cannot objectively evaluate their clarity. Having one or more reviewers familiar with the subject matter read through the exam helps to alleviate this problem (as well as many others). Note the ambiguity in the following example:

Which one of the following is the dog of choice for protection?
A. Chihuahua
B. German shepherd
C. Dashund
D. English pointer
E. Irish wolfhound

How is this animal supposed to protect? By making noise? (The Chihuahua and Dashund would be the best choices.) Is the dog supposed to physically attack? (The German Shepherd would be the best bet.) Is the size of the dog supposed to deter would-be assailants? (The gentle Irish wolfhound would be the best choice and the German shepherd and English pointer would be good choices. Nobody is intimidated by dogs that can get lost in tall grass.)

9. **Trick questions.** Trick questions are probably best avoided since they have a tendency to trick the more knowledgeable individuals as frequently as the others and, therefore, are not a valid testing device ("Instructions for the Construction"). In addition, they have a tendency to irritate the examinees and erode student-teacher rapport. Sometimes, however, we expect students to make finite distinctions that *they* consider tricky but are still expected to discern. I expect my anatomy students to know the difference between the ileum (part of the small intestine) and the ilium (a bone forming part of the pelvis). Once I make this distinction in class and alert them of my expectations, I consider a question such as the following to be fair and *not* tricky:

Which organ is matched *incorrectly* with the system to which it belongs?
A. heart - cardiovascular system
B. kidney - urinary system
C. ilium - digestive system
D. femur - skeletal system
E. If all of the above are correctly matched, choose this response.

The answer is C because the *ilium* is part of the skeletal system. The ileum is a segment of small intestine. "But," (a student says) "I thought that ilium was just a typographical error." (But, I say, *any time we correctly spell an anatomical structure, it is that structure and* is *not a misspelling of another one.)*

10. **Double jeopardy.** There are various forms of "multiple-choice" questions which contain stacked odds against the student. One example which already has been discussed is the any-number- of-correct-choices format which is graded such that the examinee must have marked the exact combination of correct choices for each question to receive credit. Other examples of stacked odds are various forms of paired statements. In the following example, the student is directed to select choice A or B if one of them is true and the other is false, but if they are both true or false, C or D is to be selected.

A. Humans are mammals.
B. Snow is composed of crystallized water.
C. Both A and B are true.
D. Both A and B are false.

This question format does not separate the students who make incorrect decisions about A or B from those who decide incorrectly about both A *and* B. (In other words it equally penalizes the individuals who make one or two errors.)

Another variation of this type of double jeopardy consists of pairs of statements with choices concerning them as follows (Moore):

Statement I.
Statement II.
A. Both of the above are true and related.
B. Both of the above are true but unrelated.
C. I is true and II if false
D. II is true and I is false.
E. Both of the above are false.

Like the previous example, this design also tends to penalize equally students who make only one incorrect judgment with a question and those who make two or more. Another problem is how the students interpret *related* or *unrelated* in regard to choices A and B.

Student are quite adept at recognizing situations where bias exists, and double jeopardy questions present a serious threat to student-instructor rapport. Many of the instructors who have used these types of questions, however, have admitted that until it was brought to their attention, they did not realize their questions were unfairly designed. A select few refuse to believe the mathematics or continue to use them with stubborn disregard of logical reason or student opinion. Their names rarely crowd the outstanding teacher lists.

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Reality-Based Learning and Interdisciplinary Teams: an Interactive Approach Integrating Accounting and Engineering Technology

By Robert L. Rogers and Michael J. Stemkoski

Introduction

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Objectives

The objectives of the team-based interdisciplinary project were to have accountants and engineers learn the technical knowledge in the courses they where taking and enhance their abilities through interdisciplinary team-based learning. They were to learn and enhance their:

- Ability to effectively communicate orally and in writing.
- Ability to think creatively and listen effectively.
- Ability to resolve conflict and develop knowledge in leadership.
- Ability to develop team-based unstructured problem solving skills.
- Ability to make suitable inquiries and gain an awareness of the benefits of continuous self-directed learning.
- Ability to organize effectively and meet deadlines.
- Ability to integrate quality and process improvements in product development.
- Ability to integrate technology and ethical considerations in product development, and
- Ability to reorganize problem solutions through cooperative team-based analysis.

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[illegible]

These "interactive qualities," sought by industry, are widely supported by current literature. The MIT Commission on Industrial Productivity wants to:

> Create a new cadre of students and faculty characterized by (1) interest in, and knowledge of, real problems and their societal, economic, and political context; (2) an ability to function effectively as members of a team creating new products, processes, and systems; (3) an ability to operate effectively beyond the confines of a single discipline; and (4) an integration of a deep understanding of science and technology with practical knowledge, a hands-on orientation, and experimental skills and insight (Dertouzos 157).

Future graduates must be able to cross boundaries and function in many capacities. Steven R. Rayner states in his book *Recreating The Workplace: The Pathway To High Performance Work Systems* "Today, virtually every major corporation is experimenting with team-based work design, up from a tiny percentage a decade ago. It is staggering to consider that by the turn of the century half of all employees will find themselves operating as members of a team" (5).

Since industry is using cross-functional teams, we felt a need to implement the team-based learning experience with a practical real-world problem. Technology programs throughout the country claim to be different because they offer practical experience, along with laboratory or engineering classes. Practical experience enhances real-world awareness within these classes. To create a practical experience and achieve the required technical skills and the interactive course objectives, we designated the following characteristics to be necessary:

1. A real-world, team-based and cross-functional project was needed to transfer echnical and interactive skills to the students.
2. A real-world, team-based project was needed to provide the industry outcomes desired for cross-functional, interdisciplinary work skills.
3. The students needed to understand the objectives of Integrated Product Development (IPD).
4. Evaluations were needed to determine if interactive abilities have improved.
5. The project proposal needed to be completed in one term.
6. The interdisciplinary approach needed to effectively place the student at the center of the learning process.
7. The students needed to develop work-ready product development and team-building skills.

Even though we still had more questions than answers, we decided to go ahead with the classroom experiment. Students were intuitively analyzing the cost and benefits. A common question was: "What about our other courses?" The students agreed to participate and enter the unknown, but there was skepticism. They questioned the amount of time and work the project would take. A student questionnaire was completed and exchanged with everyone. This questionnaire assessed student talents, interests, hobbies, work experience, technical skills and other pertinent information. Students formed four teams, with each team consisting of six accountants and two engineers. Teams decided to choose their own names by color: red, green, blue and gold. The teams received project description sheets, a project proposal outline, evaluation criteria, presentation suggestions, reading lists and a pat on the back. They were empowered with the responsibilities of choosing their own coordinators and developing the entire project.

However, team problems arose immediately. There was a lack of interest, concern and respect for each others responsibilities. Leadership skills, confidence, and trust in each other was lacking.

The Project

The mission of each team was to develop a waterslide park that could engender funding. The students' mission was to identify how their education in this project would relate to industry and product development. The waterslide project was chosen because it included elements of fluid systems design and major accounting issues. The design involved complex water distribution

networks, pumping systems and environmental issues. The accounting functions included the generation of financial forecasts and budgets, coordination of information flow and evaluation of results. The accountants and engineers jointly determined the rate of return on investment (ROI), organizational structure, legal structure, marketing and pricing decisions. The responsibilities of the engineers and accountants involved cross-functional decision-making for estimating costs, determining equipment specifications, developing the product design, and detailing site plans.

The idea of successfully proposing a waterslide park in Klamath Falls would be a difficult task. The area is located at an elevation of 4,000 ft. and usually has harsh spring weather. The population of the area is about 60,000.

Two weeks into the project, the teams convened on campus for an introductory meeting with the industrial panel. The panel included an attorney/certified public accountant who handles acquisitions for a large international company, a banking executive who manages commercial lending for a large bank, two entrepreneurs, a city planner and a mechanical engineer. Each industrial panel member spoke for ten to fifteen minutes, explaining critical factors considered important in funding a project. Rate of return on investment was emphasized along with organizational structure and design possibilities. Environmental and traffic issues were discussed. Sample business plans were presented. The panel advised that teams maintain a spirit of cooperation. In interest of good-will, they created skits while competing against each other for prizes. The skits were effective "ice breakers." Although sessions were video-taped throughout the term, students were encouraged to do additional taping of their individual team meetings.

The relaxed atmosphere of this first meeting was short-lived as pressure and stress mounted. Some team members become over zealous in promoting their own ideas. Three weeks after their first meeting, the teams returned to the auditorium to present oral and written preliminary reports to their peers and instructors. This was the first "shake-down" session. Five weeks later, the panel read final reports, judging the projects for fundability. The schedule seemed overwhelming to the students and tension increased as deadlines approached. The compression of time and interaction among team members required students to direct their own learning. We had successfully placed the student (learner) in the center of the educational and training experience. R. C. Heterick, President of EDUCOM, states, ". . . we must find a way to put the learner at the center of the educational experience. Yet we live in a world where the teacher is at the center of the educational experience." EDUCOM is a non-profit consortium of over 600 colleges and universities and 100 businesses, focused on leading the nation's education community in integrating information technology into the disciplines.

Cross-Discipline Teamwork

This project brought together accounting and engineering students into project teams, facilitating creativity through cross-functional teamwork. There was cross-functional use of technology, with interdisciplinary learning in Computer Aided Design (CAD), financial spreadsheets and energy issues. In his book *Reengineering—Leveraging the Power of Integrated Product Development,* Hunt states,

> At the heart of Boeing's Developmental Operations (DO) approach is the Product Development Team (PDT) initiative. The Product Development Team is a multi-functional team with a common goal of developing a specific product (78).
>
> Chrysler . . . adopted a platform team approach and this meant forming a small multifunctional team composed of specialists in engineering, manufacturing, and marketing as well as outside suppliers (84).

Like Boeing and Chrysler, our project engineers were learning from accountants, and accountants were learning from engineers. Students were learning how to complete a team project, while discovering the need for cooperation. From the first meeting with the industrial panel, the students knew

it would take a *high quality* presentation, with *integrity* and *valid* information, to obtain financing. The business panel became the teams' "customer" during the financing stage. Students realized the project had many customers; governmental agencies, utility companies, vendors, suppliers and waterslide park trade associations were all customers.

The teams experienced difficulties with coordinators and leadership. There were delays in telephone calls and getting organized, meeting deadlines, and team member scheduling. Student journals kept throughout the project referred to lack of direction by the instructors. The frustration emerged as anger at other students in the group for not doing their share and annoyance at not being told step-by-step what to do and how to do it. Competitiveness of team members versus cooperation hindered progress. Individuality versus team-building caused delays on decisions that were critical to advancing the project. Students realized that diversity, though helpful to the creative process, needed to be melded together if success was to be achieved. Mere awareness of the need for cooperation and recognition of barriers did not result in immediate solutions. Barriers needed resolution in order to improve performance. Barbara Cofsky, CMA, CFA and general accounting manager for the Eastern Financial Management Center of Digital Equipment Corporation writes,

> Both between teams and between members, we should focus on each other's strengths and positive qualities in order to build off and benefit from them. High performance work teams not only allow a business to do more with less, but they provide an excellent vehicle for employees to grow, improve and constantly challenge the status-quo.

The immediate response between the engineers and accountants was "Us and Them!" In the beginning, bickering between the two groups was common. Part of the problem was defining and handling individual responsibilities. Students found it difficult to assign responsibility when there was a conflict. If a cost was involved it was accounting, but if it was an equipment specification decision it was engineering. Equipment purchases involved costs and engineering specifications that often conflicted with the initial budgets and the required ROI. Revisions were needed and conflict resolution was necessary.

At mid-term, a *progress report presentation* was given by each team. The instructors were merely observers. The team members were responsible for presenting their conceptual ideas and were questioned by their peers. The tension was extreme. Some teams felt competitive and chose not to share information with the other teams. Other teams felt an alliance and knowledge link with each other and elected to share their information. Team members began noticing the behavior and strategy of the different teams. Although the groups all performed well, dressed formally, and presented professionally, the underlying theme was that of "us engineers and them accountants."

The progress report revealed that information collected from vendors, realtors, and governmental agencies was similar for all teams. None of the teams seemed to have a competitive advantage. The students began exploring different measures to gain a competitive advantage and add value to their project. How was an advantage going to be achieved? Team members began to discuss ways to improve their project through process improvement initiatives. Students learned the need for creativity and self-direction in coming up with new ideas to add value to their projects. Alliances with existing businesses and institutions became part of the financial solution. We observed the progress of the students from the information gathering stage to the stage where they began using information to create new ideas. The standards of excellence had increased since the first meeting. Teams were trying to find advantages to out perform their competitors. With only five more weeks until "show time," the students were having to deal with more pressure.

Breaking Down Barriers

Effective melding of the accountants and engineers became apparent in some teams and not in others. Each team was working against deadlines and trying to organize workloads. The teams using

information and knowledge to meld the two disciplines of accounting and mechanical engineering technology were performing the best. They developed a high quality product that satisfied or exceeded engineering and customer's requirements while meeting financial objectives.

In the eighth week, the industrial panel evaluated the students' written rough-drafts and gave feedback to the teams. With one week left before their final report, corrections suggested by the panel needed to be made by the team members. Figure 1 (page 31) gives an example of the panels feedback to the teams.

Figures 2 (page 32) and 3 (page 33) illustrate some of the evaluation points considered by the panel in evaluating the students' written reports and oral presentations.

At the final presentation, engineers provided drawings and scale models in a trade-show atmosphere. Accountants displayed graphs, charts, marketing materials, forecasts, and financial information in the lobby. The atmosphere was professional, with printed brochures, music, and refreshments. The panel and students' names and responsibilities were listed in the brochure. We discovered from the students' journals that the brochure listing the students' names and responsibilities was extremely important to students. Students included total quality initiatives into the evening. They displayed pride with special guests, friends, faculty, and administrators present. The professional atmosphere helped to motivate the students.

The stage was arranged similar to a congressional hearing with table cloths, microphones, and name plates. This format modeled development team presentations found in industry. The panel was provided with final written proposals listing each team member's responsibilities in the project. Teams were allowed fifteen minutes to make their oral presentation. The panel was allowed to ask questions for ten minutes. The teams were well prepared and enthusiastic. We observed teams evaluating each others performance. After the last team presented, the industrial panel took twenty minutes to evaluate the teams. This gave the audience and teams time for refreshments and informal discussion. The panel, returning to the stage, announced that two of the projects qualified for funding and gave each team feedback on their presentations. Panel members discussed what they felt was outstanding and what they thought could be improved. The teams not funded, though greatly disappointed, recognized their own accomplishments. We observed the non-funded team members having some difficulty in accepting the decision of the panel. After all, every team put a lot of work into this project.

This behavioral and social experience provided the students with ethical dilemmas on handling team-based learning and competition. During the next class period, time was taken to review the process. Open discussion and written evaluations were conducted by the students and instructors. Recognition was given to all team members for their accomplishments.

Fictitious rewards of $10,000 were given to each team as a financial bonus to be allocated to team members. Distribution of the money was the means to assessing the work done by each team member. Team coordinators received the highest allocation of the bonus from the team members, usually from $4,000 to $6,000. Team members receiving the smallest allocations were usually those who allocated their $10,000 equally. The team members generally allocated bonuses to themselves fairly consistent with the bonus received from others. Those receiving lower bonuses usually gave themselves higher amounts than what they received.

Journals kept by the students were useful in assessing outcomes and giving continuous accounts of setbacks and achievements. These journals evaluated the project from the learner's perspective and were not graded. The students indicated the corrective actions they would have to take to improve team work and organization on future projects. Students expressed how they would have used presentation software and bulletin boards more effectively. Many students stated the project built their confidence. This indicated that the students could make self-assessments and implement

elements of continuous learning and process improvements. The non-funded team members wrote about their feelings regarding the results and revealed to us the experiences of students handling disappointments. The journals were read at mid-term and at the end of the term. The journals provided students with an outlet. They expressed humor, frustration, and anger with us for the amount of work and pressure put on them. Students felt they had learned a great deal, but were uncertain of the degree of technical knowledge they had acquired.

Team Problem Solving

Teams divided up the workload in a baseball team style with each member having a particular responsibility. When an individual did not fulfill his/her responsibility, the team was unable to respond adequately to the required change. Most teams individualized the project. Students used over the wall engineering versus moving toward concurrent engineering. Their journals reflected their resistance toward change and the difficulties of working together, trusting, and listening to each other. The journals gave the instructors and the students the opportunity to speak to each other in an open, non-threatening manner.

The funded teams were not made up of the highest GPA students. In fact, the highest GPA student team had difficulty agreeing and making decisions. This resulted in bottlenecks and lack of participation. The psychology behind this observation is not obvious. Perhaps it suggests that the traditional structure of education promotes individual competition instead of cooperation.

Findings

The groups who practiced teamwork and surmounted disciplinary boundaries, produced the greatest achievements. Cofsky states, " . . . they must orchestrate the work and the processing particularly in terms of integrating them with other organizations." The need for cross-functional teamwork is obvious, but the means for developing this end is not readily discernible. The main elements in this project that developed the "interactive qualities" are as follows:

1. The project had a unique structure of being reality-based, cross-functional, and team oriented.
2. The unstructured nature of the project provided costs and benefits to the students.
3. The project was open-ended and allowed for an increase in scope.
4. The interdisciplinary nature of the project enabled students to learn from one another as in a one-room schoolhouse.
5. The project allowed alliances and knowledge links outside their own discipline for helping each other.
6. The journals facilitated communication among students and instructors.
7. The project gave students the opportunity for interdisciplinary peer review and feedback throughout the process.

Conclusion

Through review of journals, open discussion with the students, and overall observations, a significant conclusion can be drawn from this project. Interactive characteristics of students are poorly measured by traditional individual testing. Methods for giving valuable weight for interactive characteristics in addition to traditional testing for technical skills is necessary for complete evaluation. Interdisciplinary team projects may be the answer to identifying self-starters, hard workers, and communicative individuals. Integration of interactive qualities and technical knowledge throughout a students educational experience is needed to satisfy industry's needs.

Technology classes should contain a practical project demonstrating students' future roles in industry. Industry-based projects give the students the opportunity to work on "real-world" problems. Projects should involve industrial panels and mentors for evaluation and feedback for the students and instructors. Projects help develop a cooperative and professional student/teacher relationship with industry. Students at higher or lower achievement levels are capable of benefitting from

reality-based learning. Graduate programs often utilize reality-based projects for learning, but reality-based learning can also be utilized at the undergraduate level. Project solutions and experiences may be more or less valuable depending on the knowledge and motivation of each team member and their ability to work together. The project process and dynamics are part of the educational endeavor.

The reality-based project should relate to technical information presented in class. The project may integrate a job function where students participate in the work environment. Classes at the lower- and upper-division design levels can easily incorporate an interdisciplinary project. For example, a static class could include a project involving the static analysis of a bicycle frame, while a thermodynamics class could incorporate a study of the heat balance at the local power plant. There are many accounting and engineering problems on campuses that allow for integration of real-world problem solving.

Reality-based learning should be practiced at every opportunity, not only in senior projects. Many of the concepts learned by our students are being practiced in elementary school with group learning and mentoring. Projects can be instituted on a term, semester or roll-over basis with many disciplines. From homework assignments to senior projects, interdisciplinary teamwork can be used. We learn cooperative problem solving techniques through experience. It makes sense to introduce this experience into the classroom, where risks are minimal, rather than on the production floor where risks involve lives and major monetary commitments. Interdisciplinary teamwork is an enhancement in the educational process and does not replace individual technical assessment of students.

An interdisciplinary reality-based project requires faculty to take a risk and be receptive to handling the dynamics of team building. This integrated approach benefitted us and required a risk by our students and ourselves. We often participated in each others classes. We learned from each other and gained many of the same benefits as our students. Personal commitment of individual faculty in different disciplines is the key element to the success of this type of cooperative effort. The educational reform required to meet industrial trends needs to come from a "grass roots" faculty effort. It is essential to involve industry as a functional discipline in reality-based project education.

The nature of our project resulted in the American Accounting Association and the Boeing Corporation recognizing the project as one of the "outstanding innovations in accounting education." Our conclusion regarding reality-based learning may not represent the right organizational approach for all, but it certainly is worth a look.

Marshal and Tucker, in their book, *Thinking For a Living: Education and the Wealth of Nations*, sums up the skills needed "to power an emerging economy" as follows:

- A high capacity for abstract conceptual thinking,
- The ability to apply that capacity for abstract thought to complex real-world problems,
- The capacity to function effectively in an environment in which communication skills are vital,
- The ability to work easily and well with others (80).

Reality-based learning has information retention benefits for the students when they learn by "doing the real thing." Figure 4 (page 34) presents the Cone of Learning which demonstrates a students retention rate through "doing the real thing." It is not necessary for a real-world project solution to work like a problem solution at the end of a chapter in a text book. It is better if it doesn't. Part of learning is working out creative solutions to problems that emerge during the process. This approach gives students the opportunity to use their knowledge, be creative, and be at the center of learning.

One project can foster other expanded projects. For example, we are exploring the possibilities of an international team-based experience. Students from Utah Valley State College, Oregon Institute of Technology, and American-Ukrainian College of Business in Kiev are considering networking a

project. Steve Teeter, Department Chair of Accounting, Utah Valley State College, will be teaching at the Kiev campus. This would allow students in the U.S. and Ukraine to experience an international real-world engineering/accounting problem. Difficulties will be experienced in this international arena. Experiential learning creates an active learning environment and motivates students to expand their understanding by using and applying their knowledge.

Acknowledgments

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Figures

Figure 1. Illustration of Industrial Panel Feedback to Teams (Partial).

Figure 2. Illustration of Written Evaluation Form (Partial).

Figure 3. Illustration of Oral Evaluation Form (Partial).

Figure 4. Illustration of Learning Activity and Retention Rates.

Assuming this is a preliminary proposal and that further development would be undertaken to consummate a final proposal, please consider the following questions:

GOLD TEAM

1. Your Proposal reflects a ROI for investors or 20%. How are you calculating this figure? What is the NET ROI? Without a pro-forma Income Statement this will be difficult to substantiate.

Question: In the proposal, we mention using a $6.00 admission price as the basis for our Income forecast. Why did we use $8.00 in the actual calculation? The result of this calculation was $706,320 as the "most likely" scenario.

Question: Earlier in the proposal the short term sales objectives (one year) was $750,000. The difference is material.
Question: Why the difference?

4. Your forecast of profitability reflects first year profit to be approximately $225,000.

Question: Is this before tax or after tax, and does it contain interest associated with any borrowing you may need to undertake to complete your project?

5. Will this operation require Working Capital? If so, how much? If working capital is required, is it included in the amount requested as a bank loan?

6. How do you intend to capitalize this project?

7. Who is going to own the project and what operating structure (i.e. Not-for-profit, trust, corporation, partnership) is the operation going to be. As you may know the operating entity can have a material influence on the profitability and the return to investor.

PROJECT BLUE

1. Your Proposal reflects a start up cost of just over ???? including land acquisition, equipment, etc. with the plug figure being the Loan Fee and Working Capital. Congratulations...you did remember that you will need some working capital! In reviewing your start up costs, the land acquisition figure is easily reconciled. The figure for the Equipment/pool appears to be an exact figure, however I don't locate any kind of engineers equipment cost breakdown to substantiate this figure.

7 Question: As a potential investor, exactly what tangible assets am I purchasing with my investment? How did we arrive at the daily cost of operation of the equipment?

Figure 1. Illustration of Industrial Panel Feedback to Teams *(Partial)

Written Proposal Review

Reviewer_____.

Proposal Submitted by_____.

Day and time proposal received_____.

1. At first glance, does the written proposal appear well organized, neat, and professional?

Note strong and weak points, please.

2. Does the "Proposal Summary" or "Executive Summary" quickly answer these questions?

	Y	N
• How do the benefits justify the commitment of resources to the project?		
• What general or special resources will be required to accomplish the project?		
• How much will the project cost?		
• What are the major project phases?		
• How long will the project take?		

Are there aspects of this section that are especially noteworthy? Please note them.

4. A proposal's technical details need to be communicated effectively. Communication includes organization, layout, grammar, spelling, use of illustrations, and so on. Please indicate how well you feel the ideas in each area were communicated.

5 Communication was extremely effective.
Very easy to understand, well formatted, clear, unambiguous, well written, well documented, well illustrated, no grammar or spelling errors.

3 Communication was fair.
Understandable, ideas generally in order. Grammar, spelling generally OK.

1 Communication was poor.
Difficult to understand, poor grammar, spelling errors, inaccurate illustrations, hard to follow, disjointed, illogical, does not read well.

	5		3		1
• Executive Summary					
• Sponsor's Background & Problem Statement					
• Solution Proposal & Benefits Summary					
• Costs/Benefits Analysis					

Figure 2. Illustration of Written Evaluation Form (Partial).

Oral Proposal Presentation.

Reviewer_____.

Presentation by_____.

Day and time presented_____.

Please read the written proposal in preparation for the oral presentation. Please be prepared with questions to clarify issues that occurred to you as you read the proposal.

Please evaluate aspects of the presentation using a scale of 0 to 10, with 10 representing "Excellent, Outstanding" and 0 representing "Very Poor".

	10					5					0
Were the purpose of the presentation and the main points to be covered presented in the first 30 seconds to 1 minute ?											
Did the presentation hold your attention ?											
Did the speaker maintain eye contact?											
Was the speaker confident?											
Was the speaker animated?											
Did the information presented support that in the written proposal?											
Was the speaker organized?											
Were the visual aids effective?											
Did the speaker field questions well?											
Was enough time allowed for questions?											

Please note here any strong points in the presentation.

Please note any weak points or points that could be improved.

Figure 3. Illustration of Oral Evaluation Form (Partial).

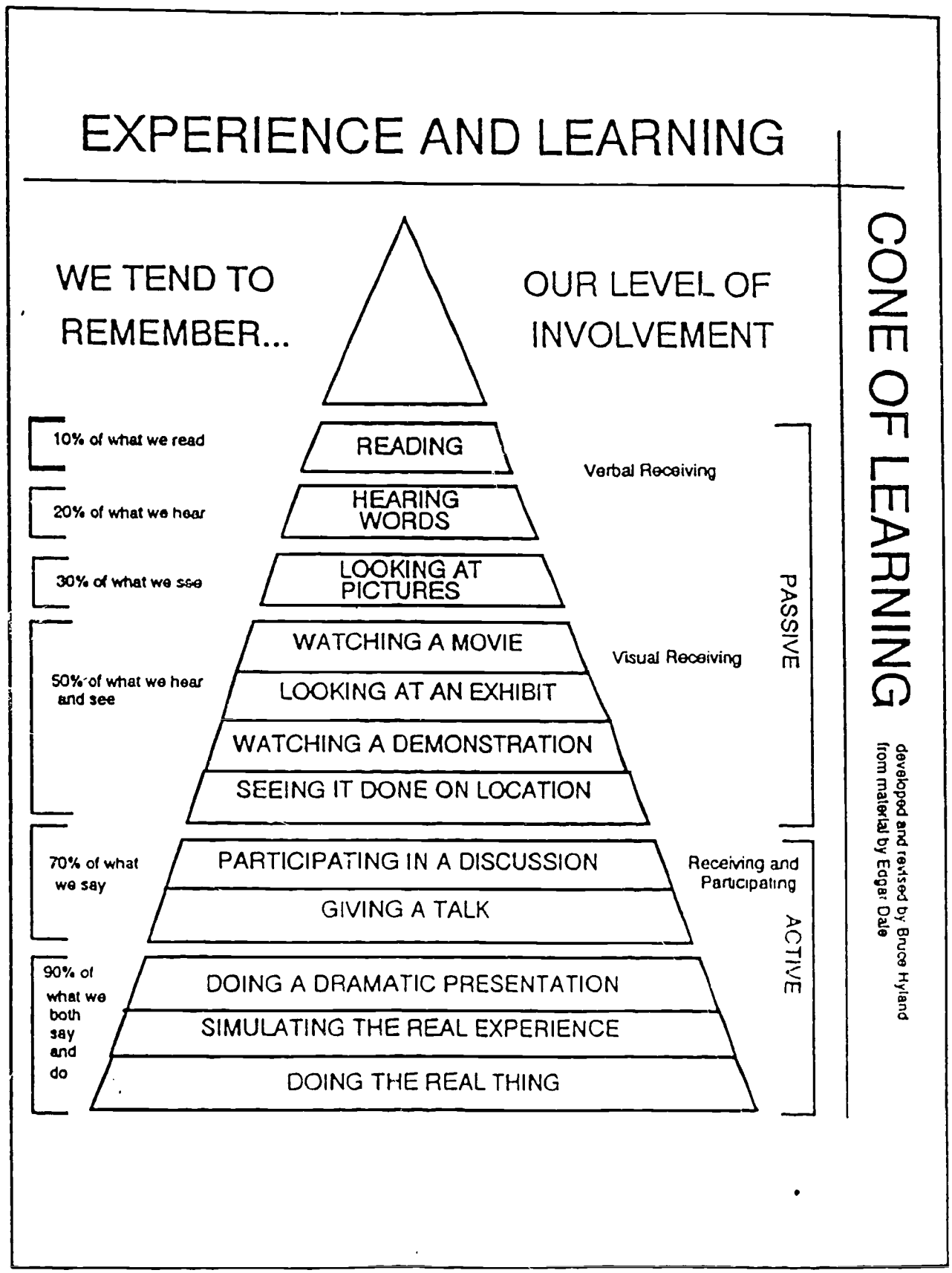

Figure 4. Illustration of Learning Activity and Retention Rates

This is English?

By Sandra Lanier

Too frequently educators fall into the trap of categorizing educational fields and teaching each subject as if it were independent of all others. Often this gives students the sense of subject isolation and justifies their rationale for picking and choosing which disciplines they really want to learn, and which they will simply endure, if they must, but not necessarily bother to grasp. Unfortunately, too often the very areas they avoid are the ones they will need most in their lives, such as written communication skills that are addressed in the classes generically referred to as "English." Far too often even college-bound students have not grasped the fact that not only is English their most practiced area of study, it is the basic fibre from which their feelings are examined and their thoughts are formed. Arguably, language itself is the most personal possession we own. Unfortunately, if students do not have a natural ability in the subject, a background where English is spoken and used correctly in the home, or experience with inspired teachers who love the language as well as their students, they view proper English as a subject to be endured, but never one to be really comprehended or enjoyed. Further, writing across the curriculum has become such a prevalent activity that students find themselves frequently frustrated by their lack of good English skills.

One of the successful strategies I have used to meet this attitudinal problem is to employ the concepts found in the disciplines of history, sociology, math, biology, philosophy, and even football.

Knowing that the barriers of attitude and fear must fall before real learning can occur, I begin each quarter with a history lesson. I go over the different marauding groups that swept over Great Britain and all of the languages that, consequently, blended together on that relatively small island. We talk about how the merging of the Germanic and Latin-based tongues has given remarkable freedom to the English language and allowed it to change and grow with the times. We then move across the sea and talk about the melting pot of America. My question to the students becomes one of focus on their own linguistic backgrounds; that is, did a friendly language specialist wait to greet and teach correct English usage to each new immigrant or frontier settler as he/she settled the area of the present day United States of America? As a result of the struggle of various groups in grasping a new language or living in relatively isolated areas, independent kinds of grammar and pronunciation sprang up regionally. These dialects are to be celebrated, validated, and preserved, but kept in perspective as to where they are best used. As long as people in a particular region need only talk with each other, communication is relatively easy. Yet given the conditions of modern society, where we can sit in our local businesses or even our own homes and have instant access to businesses and groups everywhere nationally and internationally, it becomes obvious that communicating with people outside of our immediate culture must require some semblance of structure and uniformity if we wish to communicate clearly.

This, then, introduces the basic goal of communicating clearly with everyone with whom we come in contact, including classmates, friends, business partners, and even spouses and significant others. These are really sociological issues. We swap horror stories of relationships damaged or destroyed because of poor ability to express ourselves and clearly state what we mean. Furthermore, we explore the value (and not just the frustration) of the flexibility of our language when we compare its 20 percent efficiency with the 90 percent efficiency of the Russian language, and we analyze the cultures in which they are spoken. By this time student interest begins to peak, and students are ready to take a new look at an old subject!

For those left-brain dominant students who crave structure and feel that English languishes on the

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shoals of the abstract, we look at the definite structure that gives English a solid foundation when we study such problems as singular/plural relationships. Students seem fascinated to know that while plurals of nouns are generally made by adding "s," the opposite function applies to verbs; i.e. singular verbs often take "s," but plural verbs do not. Thus, one dog barks, but two dogs bark. Clearly, the opposite functions of multiplication and division come to mind, and the mathematically minded feel a little more at home.

And what do principles of biology have to do with English? Actually this "living" language does indeed share some common concepts. Nuclei and subjects perform somewhat the same function in individual cells and sentences in that they give direction. A group of specialized cells creates organs with specific functions just as paragraphs treat particular parts of an essay or story. Then organs work together to create a unique individual, just as combined paragraphs create a finished piece of work. Similarly, when a part of a cell, organ, or organism is misfunctioning, it must be healed or fixed, just as breakdowns at the sentence, paragraph, or entity level must be revised if a paper is to flow cohesively. Science types, who often chaff at the thought that they must continue to write even in their main fields of study, seem to appreciate the connection between the two disciplines.

For those erudite students who struggle with such mundane trivia as mechanics, a simple lesson in philosophy seems apropos. I have the class imagine what it would be like to visit a new city on a sightseeing bus and enjoy the view when, suddenly, all of the traffic lights cease to work. What would happen? Would there be freedom of movement—or anarchy? To what would our attention be drawn? Of course the consensus of the class is that the view would be secondary to the disastrous standstill of the traffic. Humans simply do not function well without some direction. That is when the parallel of mechanics to traffic signals can be drawn. Commas, semicolons, apostrophes and all of our carefully thought out mechanical rules are like traffic signals in a paper. Correctly placed, they are not even noticeable, but allow the reader freedom to cruise through the content of the paper unimpeded and to enjoy the full impact of the scenery on subject at hand. Incorrectly used, the freedom to enjoy the content is abruptly ended; at the least, a few mistakes make the reader irritated, and at the worst, many violations make the reader confused and uninterested. Mechanical anarchy is serious business! Students become eager to save their readers from this unfortunate fate and want to learn how to maneuver their way safely through their papers with correctly placed signals. Freedom of expression through rules is heady stuff to consider, whether in English or philosophy.

And for those whose grasp of football is significantly greater than that of English, the latter becomes easier to understand when the subject of a sentence, the topic sentence of a paragraph, or the thesis of an essay is compared to the function of the quarterback of a team. It is his place to call the plays and give direction, but all of the other players need to do their part to back up that decision and follow that play. Unity and direction of team play is not all that different from the unity and direction found in a well written paper. And if students find themselves confused about fragments or subject/verb agreement, the diagrams of where the subject and verb and other parts of speech go are really no more complicated and are just as important as the X and O diagrams on a coach's board. Both explain the game plan for clear patterns of movement. Given this interpretation, football players have generated some winning performances on paper as well as on the field!

As a matter of fact, I feel free to borrow from all academic fields, or any other points of reference found in day to day life, that would increase understanding of how to use the written language more confidently and competently. How remarkable English becomes when students discover its relevance in their lives.

Teams for Success

by [illegible]

[illegible]

This juxtaposition of economic and societal change, coupled with educational stagnation, has generated enormous pressures on our education system, pressures that need solutions.

Dr. Weber suggested we build an ark, that we prepare for the flood. That makes good sense, but we at this college already have an ark available. We are speaking of cooperative or collaborative learning or ways of routinely and specifically organizing students to learn from each other (Kail [illegible]). In fact cooperative learning goes back as far as [illegible]. Bruffee in *College Composition and Communication* explains Dewey's ideas as a foundation for cooperative learning (113). Dewey argues for schoolrooms which develop students' capacities to cooperate rather than schoolrooms which mirror the competition of the commercial world (11). However, cooperative learning is still often regarded as innovative (Kail [illegible]).

Accelerating change has led to urgent educational needs that can be met at least partially with collaborative learning or team learning. Astin, director of the Higher Education Research Institute at the University of California, Los Angeles, states that "[illegible] only hope for the future is a cooperative world [illegible] I believe that all significant human progress has come as a result of cooperation" (19).

Change has created problems in three areas crucial to education, problems that cooperative learning can help solve. The first area is that of changed socialization practices. Students today generally do not come to school with the same [illegible] skills once common. They are not as respectful, caring, helpful or cooperative as they were twenty years ago (Kagan 3). In Kagan's [illegible] changes [illegible] major contributing elements Kagan points to are the increasing instability of the family unit and the effects of TV. The latter has come to be, by default, a substitute teacher (3-4). Students graduating from high

school will have watched 18,000 hours of TV. TV is pointed to as full of antisocial content, as promoting advertisements that promise everything if you buy something. TV is also given responsibility for eroding family communication (2:2). However, Kagan states that "all social and affective development among all students is improved" (3:1) when learning groups are used.

A second crucial area for educators is that of changing demographics. The trend to urban living continues, accompanied with increasing societal diversity and the rise of a new majority. Kagan points out that "By the year 2000, Hispanics will comprise the largest single segment of school-aged children in the state of California" (2:5). The danger, according to current statistics, is that almost 50 percent of Hispanic children drop out of formal education before they finish high school. This leaves the largest segment of California's young population without exposure to higher education. In addition, Kagan feels the "potential for a race-relations crisis is frightening" (2:5).

Here, once again, groups for learning can make a great contribution. They have been found "to improve race relations in all integrated schools where they have been used" (Kagan 3:1). They have also been useful in keeping minorities in school longer, due to their focus on cooperation, which is more in harmony with minority-cultured values than with non minority, competitive school activities (Kagan 3:1).

The third area of concern to educators is our transformed economy. Our economy has moved from agrarian through industrial and into the information society. "The transformation from agriculture to an industrially based economy took about 100 years, but the transformation from an industrially based to an information-service based economy took only thirty years" (Naisbitt 11; Kagan 2:5). Not only are changes taking place, but these changes are happening at an ever accelerating rate (Naisbitt 14).

Once more, cooperative learning has something to offer. One of the results of using group learning is "higher academic achievement than competitive and individualistic learning structures across all age levels, subject areas and almost all tasks" (Kagan 3:1). Nobody loses with this ark.

Why is team learning effective? With so many integrated factors, it is difficult to isolate them in order to decide which ones are really doing the job. But here are a few:

- Students like to talk to each other and so actually spend more time on tasks (Kagan 3:3-4).
- Teams also function on Bloom's higher cognitive levels (analysis and synthesis), which, according to a study done at Johns Hopkins University, increases retention dramatically (Sillito 101).
- The rewards are immediate and dispensed by the group itself—often in the form of praise for each other's work (Kagan 3:4).
- Anxiety levels are reduced, as students feel connected to and supported by their peers (Kagan 3:5).
- Team learning is active learning, which is more effective than passive learning. It catches students' interest and keeps it, motivating students to a level that would cause teacher burnout if maintained (Michaelsen 120).

Alfred North Whitehead said, "The task of a university is to weld together imagination and experience" (93). Team learning seems to do just that. It welds the imagination and experience of all concerned, teachers and students, creating a synergistic effect.

Method and Application

If, as Kenneth Bruffee states, "Students learn better through non-competitive collaborative group work than in classrooms that are highly individualized and competitive" (43), then why is it sometimes difficult to motivate ourselves, as teachers, to undertake cooperative teaching? Reminded of the anxieties of second-semester composition students as they approach the research assignment, we can, perhaps, identify with their fears as they so often exclaim, "I never learned the process of how to do it right, so I don't do it very well." As we think of

some of our own less-than-satisfactory experiences with collaborative learning, we know the failures are attributed to not knowing the right steps.

Another reason teachers lack enthusiasm about the team learning approach is that they feel displaced as the central figure in the classroom. If the collaborative assignment is a truly successful one, then the students will work independently, needing little, if any, assistance from the instructor during the class hour. Such an experience can bring about feelings of loss of control, or "I don't feel like I'm doing my job." Finally, teachers, they fear, will not be able to cover all the course objectives. Team learning may seem to require a slower method of teaching. Lectures, chalkboard or overhead presentations appear to be more efficient. Some teachers believe that collaboration interferes with serious goal orientation. We know these concerns to be very real, but we also know the rewards that come from team learning far outweigh the challenges.

Developing confidence in cooperative learning is a matter of starting with the basics. Obviously, to be successful at anything, it helps to know the rules. The following steps are a compilation from our own experiences, as well as some guidelines from those known for their work in the field.

Steps To Effective Teamwork

1. **Setting the Mood.** Jack Shrawder describes two Business 121 sections taught at the same time in adjacent classrooms. Both teachers have separated their classes into cooperative learning groups that have been given assignments requiring an analysis of a complicated case as well as recommendations for solutions. Both classes are able to finish the assignment by the end of the class period. However, the end result shows significant differences. The groups in the first class have mediocre, less than innovative responses, compared to the second class of students who have devised more skillful, "comprehensive" conclusions. The difference in the results can be attributed to the second teacher's pre-group instruction. Shrawder concludes that for team learning to be successful, it is essential to teach principles of "dialogue and discussion." He quotes Peter Senge's The Fifth Discipline for some important preliminary rules. Students must be prepared to:

A. Accept each other as equals regardless of professional, educational or personal differences.

B. Expose their assumptions to personal and public view.

C. Allow a facilitator to help guide the group through an inquiry process to find the truth (2).

Rules can be individualized, but need to be established at the onset of teamwork, usually at the beginning of the semester. If concepts of dialogue and discussion are preset, then feelings of trust and cooperation will develop within the group.

2. **Arranging the Seating.** Kail and Trimbur list as their number-one priority for successful collaborative work a classroom that can provide flexible seating arrangements. If desks and chairs can't be moved, Kail and Trimbur describe collaborative learning as "quite literally a pain in the neck and not profitably organized" (4). Therefore, the first step after preparing students for interactive discussion is to arrange the seating so that they are sitting in groups, face to face. For some instructors, random grouping seems to work well, with members of the group changing throughout the semester. On the other hand, Larry Michaelsen, in his pamphlet *Team Learning: A Comprehensive Approach for Harnessing the Power of Small Groups in Higher Education*, champions "permanent and purposeful heterogeneous work groups" (109). We have found that the choice of method sometimes is dictated by the makeup of specific classes. What works well with some students and situations may not with others.

3. **Assigning the Task.** Groups need a specific goal or goals to address, or the effort at peer grouping can quickly become a waste of time. Kail and Timbur use an example from Kenneth Bruffee's A Short Course in Writing, to demonstrate the step-by-step written instructions that can produce effective team work:

English 212 Intermediate Composition
January 21, 1994

A. Please introduce yourselves.

B. Please introduce yourselves again!

C. Someone in the group will need to take notes and speak for the group. Please select someone to act as "recorder" for the group.

D. Have one person (not the recorder) read the attached passage to the rest of the group.

E. Decide together which words in each sentence of the paragraph make direct connections backward to something said in a previous sentence or forward to something said in a later sentence. Draw an arrow under each of these words showing the direction of the connection, backward or forward.

F. List the different kinds of connecting words that the paragraph uses (5).

Because these directions are written, the students are able to follow them without having to ask the instructor for explanations. The assignment also demands work on a concrete problem. Kail and Trimbur note that:

A. Opportunities for participation are built-in.

B. The task begins where the students are ready to begin.

C. The task is sequenced (6-7).

Notice that the task can be measured at the end of the group activity either by having the groups give an oral report on their findings to the class, or by having them submit written work to the instructor.

4. **Establishing Grading.** Neglecting accountability in cooperative grouping is an invitation to failure. Kail and Trimbur point out that "if students sense (or are told) that grading will be distributed on a curve . . . collaborative learning will fail for the simple reason that there are no grounds within such a reward system for students to work together and try to help each other" (22). If the purpose of grouping is explained at the beginning of the course and emphasis is placed on each student working to full potential, then, according to Kail and Trimbur, there can be no ceiling on high grades (23). Implied, then, is that sub-standard work will not be rewarded or accepted, but collaborative work needs to offer students an environment for working to optimum success.

In the grading process, having both individual and group accountability provides a balance. For example, students could be given a reading assignment with a written summary exercise to be done outside class. At the next class meeting the students would then be placed in groups and asked to respond to specific questions about the assignment, with each group submitting a written response. Both individual summaries done outside of class and the group written response would be required as part of the evaluation of the assignment.

Overcoming Other Obstacles

Once the "how to's" are mastered, the question of relinquishing the role of "teacher" may still bother many college instructors. The old adage, "a guide on the side instead of a sage on the stage," comes to mind. Computer-assisted writing courses often refer to the instructor as facilitator. A parallel can be drawn in the arts or sports disciplines with the teacher as coach. These models are similar to the role of the teacher in the collaborative classroom, where the instructor's "primary role shifts from dispenser of information to manager of a learning process" (Michaelsen 109).

In answering the other question, "How can I cover everything in the semester unless I give the information to the students," Michaelsen observes that often we set our course objectives without really understanding what our students already know or what they have learned from each other. He suggests that course objectives need to be more fluid, that "it is possible to set day-to-day operational aspects of a course so that they will also be mutually supportive" (111). In addition, while cooperative learning can be used exclusively as a pedagogy, it can also be effectively combined with lecture and media presentations, class question and answer sessions, role-playing and modeling, or computer-assisted classrooms. Cooperative learning truly is a teaching method that has application in every classroom.

Issues and Outcomes

Kagan states:

> At an accelerating rate we move into a rapidly changing information-based, high- technology, and interdependent economy. Along with the traditional role of providing students with basic skills and information, increasingly schools must produce students capable of higher-level thinking skills, communication skills, and social skills (2:1).

One solution to this need is the use of cooperative learning in the classroom. Student learning groups provide at least partial solutions to problems of socialization and affective development. They improve race relations and encourage minorities to remain in school. They increase both the quantity and kind of learning that takes place in our classrooms, while also increasing retention and motivation. They provide us a way to better meet current educational needs and prepare students more completely for the workplace and society they will enter. As students engage in an interactive, interdependent model of learning that duplicates changing workplace and social conditions, they learn needed processes, skills, attributes and attitudes essential for their success. In fact, these student groups are models of what is currently happening in society and business outside education's halls. May we suggest you prepare for the flood and board the ark? Try collaborative learning. Try teams for success. Teams work.

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Community Colleges and International Education: Broadening the "Community" in Community Colleges

by Victor Aikhionbare

In an increasingly complex world, people and nations have become highly interdependent. The international environment is constantly undergoing major changes that will determine the future of the international community. It is obvious that the emergence of the global economy and the impact of communications and technology bring new dimensions and new issues to world affairs as we move toward the beginning of the 21st century. As a result, it seems appropriate that the traditional role of community colleges must also change to keep up with the changing world. More than ever, community college students should be exposed to international education if they are to better understand their place in our complex and interdependent world. Exposing community college students to international education is imperative to the survival of this country in the changing global order.

The New Mission

Perhaps the most important challenge facing the community college in the 21st century is how to serve the global community while affirming its primary mission of providing lifelong learning and service to its immediate geographic area. Historically, there has been a false geographical division placed on community colleges. The community college's "service area" continues to be viewed as limited to the county or district in which it resides. There continues to be a tendency toward narrowness of mission by distinguishing between what is "global" and what is "community."

Therefore, is it any surprise that our students remain conspicuously ignorant about others outside the traditional "service area" of the community college? Unfortunately, many students graduating from community colleges are largely ignorant about other countries around the world. In fact, a large number of people all over this country cannot identify on a world map other countries, their capitals and leaders, located in geographic proximity as close as Mexico and Canada, and as far away as Nigeria and Cameroon. Worse, there are some community college students and graduates who are uncomfortable with people who happen to speak languages other than English. This xenophobic behavior maybe displayed toward people from other countries.

Should community colleges, which are the largest single sector of higher education in this country, continue to take what Siegfried Ramler views as "a provincial approach to curriculum" (44) and what the Commission on the Future of Community Colleges characterizes as a "parochial" mission" (32)? The answer to this question is obvious. Community colleges cannot afford to continue such provincialism and parochialism in approaches to curriculum. As the world becomes more and more interdependent, the interests of one community can be seriously affected by the decisions or actions of the others. Linkages connecting the world's peoples and nations make international education, and the understanding of those linkages, more important than ever. Utah, like all other states, is becoming increasingly involved in activities that connect the world at large: international trade, foreign investment, immigration, and cultural exchanges. All of these activities affect virtually every community and every segment of the global society. Today, international awareness has become essential to the social, political, and economic well-being of every community. A local example, the LDS church, demonstrates these linkages. As the church expands its mission to other parts of the world, many people from outside the United States are attracted to Utah.

In Michael Leavitt's inaugural speech, he expressed the state's commitment to a "world-class education" (1993). In a Report to the Campus Community, President Frank Budd included as part of his vision for SLCC "the preparation of students

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for success in the global, international arena" (1992). In fact, many other leaders, educators, and scholars share a similar vision. A common understanding is emerging, which is summed up in the words of Roselle K. Chartock, "The bonds that connect us to others in the human family are easily found in every community and can be used to design instruction that heightens students' local and global awareness" (50).

The new mission, is one that is clearly designed to address international dimensions of the community college in the 21st century. This new mission must be one that encourages faculty, staff, and students to become involved internationally and encourages students to view an international experience as an integral part of their college education. Students need to have opportunities both on campus and abroad that will foster the development of their skills, attitudes, and knowledge within a global society.

Conceptualizing International Education

The term "international" or "global" education was coined over 20 years ago. Since then there have been noticeable efforts in academic circles to provide greater understanding of what is meant by international education. Educators Kenneth A. Tye and Willard M. Kniep define international education as "learning about those problems and issues which cut across national boundaries and about the interconnectedness of systems—cultural, ecological, economic, political, and technological." They also contend that global education "involves learning to understand and appreciate our neighbors with different cultural backgrounds from ours" (47). To this, R. Hanvey adds that it "involves perspective taking; seeing things through the eyes, minds, and heart of others; . . . the realization that while individuals may view life differently, they also have common needs and wants" (1976).

Ramler conceptualizes international education as having "a strong ethical dimension: a value system that calls us to accept responsibility for the well-being of our planet." She writes, "This value system requires loyalty that, while in the interests of one's particular nation, is not exclusive to that nation: a loyalty that is a commitment beyond national (and community) boundaries" (45). This, in my opinion, is what the Commission on the Future of Community Colleges refers to when it urges the community college to build community "in its broadest and best sense, encompass(ing) a concern for the whole . . ." In its "Vision for a New Century," the Commission defines community as " . . . not only a region to be served, but also as a climate to be created" (7).

It is important to note that these conceptualizations of international education and the "community" unequivocally reject the distinction between the traditional "service area" of the community college and the world at large. Such distinction is, in this day and age, not only vague and ambiguous, but also limiting in scope. The tendency toward narrowness, which is often demonstrated by a lack of global vision in general education, must also be unequivocally rejected by community colleges as we move toward the beginning of the 21st century. Now is the time for the community college to be inspired by a larger vision and expand its sense of community.

To be internationally conscious does not mean that community colleges should abdicate community values. To be aware of other peoples' cultures and beliefs does not mean that community colleges should teach students to accept ideologies, political beliefs, and practices from other cultures without exposing them to the local community's values. International understanding and community values are not mutually exclusive. Rather, they should complement each other.

Impact on Students

There is a growing realization that the academic community brings essential resources to international challenges. The community college cannot be over looked in a world-wide effort to meet these challenges. There is no doubt that international education will widen our students' horizons and enable them to extend their perspectives and skills, for successful and productive participation as citizens in an international environment. Our schools should not only be a place for students to attend

class, but also a place for the gestation of thought, ideas, and passions about the world in which we live. International education can provide the foundation for developing socially responsible students who recognize that the first step in solving common problems is to see themselves as part of the international community and as part of the human family.

It has long been the assumption of classical liberalism that the more we know about one another, the greater the chances for "peace" in the world. It has also been argued that the realization of our interdependence and our common destiny makes "war" unlikely because nations who have come to rely upon one another for vital commodities cannot afford it. Classical liberalism equally suggests that the understanding of the various cultures around us causes people to become more sensitive to each other's concerns. Hence, it reduces the likelihood of misunderstanding. There is no doubt that education at its best prepares students who are knowledgeable about the world in which they live. With international education, students will be able to put their lives in historical, and social perspective and be prepared to meet their global, social, and civic obligations.

International Education and the Curriculum

It is becoming more and more obvious that higher education throughout the world will join its counterparts in adapting to rapidly changing circumstances in the global community. We may have reached the moment in our history when international education is finally seen as an essential curriculum element in our schools rather than a temporary response to some crisis. The Commission on the Future of Community Colleges recognizes "the urgent need to provide a core experience of common learning" in community colleges (6). The question is how best to integrate a global perspective into the curriculum.

The core curriculum suggested here is more than a grab bag of unrelated courses. Effective general education will provide community college students with a more integrated view of knowledge and a more authentic global view of life. Community colleges have the opportunity to meet this challenge by using flexible, innovative programs that accommodate low enrollments, meet the requirements of the traditional student, and also fulfill the needs of the growing number of non-traditional students. Thus, a general education core curriculum with an international perspective can be articulated with four-year colleges and universities for the purpose of transfer.

Suggested is a core curriculum that focuses on language, the sciences, mathematics, the arts, and health. Such a core curriculum must introduce community college students to their heritage, to membership in groups and institutions, to science, technology and the environment. Such a curriculum should not only give students essential knowledge, but should also help them to make connections across the disciplines. In the end, they should be able to apply their knowledge to contemporary international issues that affect society.

I do not call for simply adding foreign language courses or a unit of international relations to existing core curriculum. Certainly, this core curriculum should not be limited to the social sciences. The proposal here is for current English core curriculum to do away with the reliance almost exclusively on European literature by paying sufficient attention to the contributions of others. If the community college student is to understand other cultures, literature is an ideal medium because it reflects universal values and problems. We do not have to limit students to Western traditions in art and music. We can bring non-Western arts into the classrooms and enrich our curriculum by using resources now available in many of our local communities.

If we are to ever prepare community college students for the global task ahead of us all, we must continually strive to offer instructions that help them learn to see "through the eyes, minds, and hearts of others." This is why the National Commission on Social Studies in the Schools recently recommended that U.S. history, which is usually taught as a separate subject, be combined with world history in a multi-year sequence. This recommendation recognizes that integrating

national and world history will allow students to place American history within the larger international context. "The more we understand about the international influences on our past, the more prepared we will be to play a strong role in the global affairs of our future" (1989).

It is true that there may never be an ideal recipe for global curriculum to fit any given school or any given region. A committee of the ASCD International/Global Education Commission, under the leadership of Jim Becker of Indiana University, has developed the following working draft of principles in this regard.

1. All teachers, as well as all students, should have opportunities to learn about and work with individuals whose ethnic and cultural backgrounds are different from theirs.
2. International education should be viewed as cross-disciplinary, involving the arts, humanities, sciences, and mathematics, as well as foreign languages and social studies.
3. The impact on individuals and society from the increase in transnational interactions should be included in the curriculum, reflecting interdependence between other nations and the United States in a global economy.
4. The changing role of nations in the world system should be explained throughout instructional materials, and the increasing number and importance of international organizations should be highlighted wherever possible.
5. The changing and evolving role of the United States in world affairs should be included in the study of international trends and developments (1990).

Central to this draft is the principle that international education is a particular perspective to be infused into the existing curriculum, not a new subject to be added to an already heavy curriculum. Our priority should, therefore, be to help teachers identify places to infuse this global perspective, and then provide them with the materials and techniques they need to do so.

Conclusion

There is an urgent need for community colleges to adjust to global demands. One of the unique characteristics of community colleges is the ability to respond quickly and creatively to changing educational mandates. It is encouraging to see that some community colleges are already responding to these 21st century challenges by establishing Centers for International Studies which are designed to develop, intensify, and expand the international scope of the college. But this effort requires more than just lip service. There must be a strong commitment and continuous support from administrators, coupled with a willingness of purpose from instructors. If we are ever going to build what B. Tye calls a "cosmopolitan culture" (281) within our schools, we must be willing to provide repeated experiences that brings the world into our classrooms. If we define and understand our responsibility as administrators, teachers, and developers of curriculum in helping community college students become knowledgeable about our world and current issues, we must be willing to infuse an international perspective into the learning process in our schools.

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CALL FOR PAPERS 1995

Faculty of Utah community colleges are invited to submit articles for inclusion in FOCUS, an annual forum on teaching and learning in Utah's two-year institutions of higher education. The Editorial Board will also consider articles submitted by administrators, staff, students, and others addressing topics of interest to Utah community colleges.

Subject: Manuscripts may deal with curriculum, theory, research, teaching strategies, instructional models, student issues, faculty concerns, advocacy, governance, or any matters pertinent to Utah community colleges.

Format: Manuscripts should be typed, double spaced, and concisely written in about 2,000 to 3,000 words or less. **They must be submitted with hard copy and floppy disk in standard word processing format.**

Deadline: Manuscripts are Due June 23, 1995 to the campus Editorial Board representative and June 30, 1995 to the Editor in the Commissioner's Office, 3 Triad Center, Suite 550, Salt lake City, Utah 84180-1205.

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