

At the beginning of the course many students are satisfied with their own limited firsthand knowledge of such companies as John Deere and Ralston Purina. They are surprised, when forced to research potential employers, to discover there is more diversity of opportunity than they had imagined. Furthermore, they did not realize the wealth of information available to them about these potential employers. In time, the student begins to screen out those companies which do not meet his specifications; at the same time, he adds companies he had not considered potential employers before he began his research.

Many students resist accepting the two principles mentioned above. However, once they become involved in doing the homework required for the course, they begin to see the rewards that accrue from researching potential employers and from conducting a detailed assessment of their own talents and experiences. Generally, students make a transition in their thinking during the seminar, from considering their backgrounds in terms of experiences only to a recognition of their skills, abilities, and achievements resulting from these experiences. This transition enables them to write and to speak more convincingly about what they can do for the potential employer.

One student learned how to translate his skills as a member of an award-winning meats-judging team to talents useful to a meat processing firm. A college recruiter for such a firm was so impressed when he interviewed the student that he invited the student-applicant to Chicago for in-depth interviews with other company personnel. While in Chicago, the student was offered the kind of job he wanted at a good salary and was given one week to make up his mind about either accepting or rejecting the offer. He phoned various Ag 499 faculty members for advice. His dilemma, as he stated it, was: "If I can do this well on my first interview, maybe I can do even better on later interviews with other companies." He chose to take the position, and he has received several promotions since joining the firm in January 1975.

### Evaluation

Agriculture 499 receives excellent word-of-mouth recommendations from students who have taken the course. A post evaluation survey indicates 92 percent will recommend the course to friends. Students recommend the course because they feel it is excellent training in preparation for job interviews; moreover, they are enthusiastic about the confidence they gain as a result of this training. During the third semester that the course was offered for credit, enrollment was 175 percent of what it had been the corresponding semester of the previous year.

Many students judge the mock interviews as the most important part of the course; others say that being forced to assess themselves is the most valuable feature. Ninety-four percent of the class rate the seminar as either a "positive" or a "very positive" experience.

Success stories of individual students support the above evaluations. At one point in the course students

are encouraged to send out broadcast letters of application, particularly when they face a tight job market. Because the job market in ag-related fields is fairly open, relatively few students feel the urgency to try this approach. One student was delighted and surprised that the job offer he accepted came from a company with which his original contact had been a broadcast letter of application. He had decided he did not want to limit himself to those companies which come to the UN-L campus to recruit. Therefore, he sent letters to a dozen companies selling agricultural chemicals. Someone in a head office in California liked the letter well enough to send it to the regional office. The regional office asked the local Lincoln sales representative to interview this student. That interview was followed by interviews in the regional office, a trip to one of the company plants, more interviews, and finally a job offer.

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## An Approach To Curriculum Development

Phillip Zurbrick

### Abstract

*This interesting case report should cause readers to consider possible curriculum changes and to look at their entire institutional program of studies and its relevance to student needs.*

Criticism of the instructional program or curriculum is a common occurrence at most, if not all, educational institutions. Such criticism is commonly leveled by students, teachers, alumni, industry representatives, and employers of the institution's graduates. Much of this criticism is based upon prejudicial opinions or narrow sightedness which tends to focus upon the needs of a single individual, a particular industry, or a specific employer. Reacting to such criticism by altering the curriculum or instructional program often leads to even greater problems. This is not to say that instructional programs are above criticism or could not be improved. However, change for the sake of change based upon minority consensus could be disastrous. Many complaints about relevance, lack of articulation, and lack of

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direction within instructional programs are justly founded and need attention. The problems for educators is to devise a system to identify the valid weaknesses and to provide a basis for correcting those identified.

Anyone who has developed a curriculum or even prepared a course outline generally comes away unsatisfied as to its appropriateness and completeness. This concern seems to be a universal affliction of educators at all educational levels. It is perhaps of greater concern to those teaching within a specialized educational program than for those in a general education program.

### **Possible Solutions**

Many attempts have been made to satisfy the concern for appropriateness and completeness of instructional programs. Colleges and universities have utilized curriculum committees for many years as one means of reviewing and addressing the problem. Competency-based instructional programs have also been advocated and promoted as a solution to the dilemma. In addition, advisory committees composed of lay and professional people have been utilized to provide input into solving the problem. In some fields, professional standards and certification procedures have been developed to help insure that the educational programs provide competent practitioners.

The underlying rationale associated with all of the above-mentioned procedures is the development of an instructional program which is articulated, coordinated, and will provide graduates with those competencies needed to satisfactorily discharge their duties and responsibilities. In spite of all the procedures commonly employed to improve instructional offerings, they rarely provide sufficient guidance or direction useful to the teacher in determining appropriate subject matter for a specific course. As an example, certification standards for teachers commonly designate courses and number of units within subject matter areas. Such a procedure does not indicate what knowledge, skills, or attitudes are to be developed in the designated courses. The result is that professors decide for themselves what should be included in the course or worse yet rely upon their notes from such a class taken some time in the past. The resulting "hodgepodge" of unarticulated courses, which overlap one another and which omit necessary competencies, fall far short of providing the student with adequate employment preparation.

### **Core Competency Concept**

A solution to the dilemma does not appear to rest solely on any one of the above described procedures or techniques. One that does appear to merit further exploration involves the identification and utilization of competencies (skills and knowledge) as a means of developing a relevant and articulated instructional program. In 1973, a faculty committee in the College of Agriculture, University of Arizona, recommended the exploration and development of a set of "core competencies" in basic agriculture appropriate for all students in agriculture regardless of majors. The resulting effort was

both extensive and intensive. Teaching faculty along with current students, recent graduates, and industry representatives were included in the effort to identify and evaluate the "core competencies."

The term, "core competencies", was not and must not be confused with the concept of "core curriculum", or "core courses". The study committee which formulated the initial list of competencies was very careful not to think in terms of courses. Core competencies were defined as the skills and knowledge commonly required of all agricultural students regardless of majors for either job entry or as prerequisite to the development of more advanced or specialized competencies which would be required of students in specific areas of study (majors). Generally, specialized competencies would be developed in upper division courses and core competencies would be developed earlier. However, no effort was made to limit core competencies to lower division work.

### **Identification and Validation**

For the competencies to be useful they had to be rather specific relative to subject matter and had to be written in behavioral terms. Writing competencies in this manner was no big problem once an acceptable format was developed. A total of fifty-three competencies were described by the study committee from four subject matter areas; namely: 1) animal science, 2) plant science, 3) natural resources and environmental protection, and 4) management.

Validation of the competencies was achieved by means of a survey instrument submitted to the teaching faculty, a random sample of recent college graduates, and a random sample of industry representatives who had employed agricultural graduates. All respondents were asked to assess the "essentialness" of each competency for an agricultural graduate. To determine if the respondents were discriminatory in their appraisal of the competencies, two "check" competencies were included in the test. They were written in a similar format covering subject matter (skills) not considered essential by the study committee.

The collective judgment of the respondents from all four groups considered nine competencies "essential" (see table 1). Four competencies including the two "checks" were rated sufficiently low so as to be considered not essential. The remaining forty-two competencies received ratings sufficiently high to indicate that they should be included in the curriculum.

Analysis of the ratings by respondent groups showed some wide variations. Generally, the faculty and industry representatives were similar in their evaluations. Students and alumni tended to hold similar opinions which were often quite different from faculty and industry representatives. As an example, faculty considered nine competencies "essential" while industry representatives rated three "essential" with only one different from the faculty.

Similarly, students considered 32 competencies "essential" and alumni 33, including 25 competencies which both groups considered "essential." The rating on

**TABLE 1** Core Competencies Considered "Essential" in the Collective Opinion of Faculty, Students, Industry Representatives, and Alumni.

Competencies	Rank Order
Describe the basic physiology of plants, e.g., source mode of absorption and role of essential nutrients in plant growth and development; role of photosynthesis and respiration in plant growth and development.	1
Describe soil fertility including the soil's role in supplying plant nutrients; sources of information regarding fertilizer requirements and the common organic and inorganic fertilizers.	2
Identify the major classes of nutrients supplied by plants and animals and indicate their value in human nutrition.	3
Indicate how supply and demand interact to determine prices and the role of prices in allocation of resources.	4
Describe how genetic principles can be applied to change the characteristics of plants and animals.	5
Identify factors influencing plant growth and crop distribution, e.g., production practices, climatic factors, genotype-environmental interactions.	6
Describe the water requirements for agriculture including plants, animals, and domestic uses as related to total water use.	7
Identify the major classes of dietary nutrients and their functions.	8
Summarize the modes of reproduction (sexual and asexual) associated with plant and animal production.	9

Combining the core competencies with specialized or professional competencies needed for the various majors could provide a competency-based instructional program for each agricultural major. The resulting instructional program would thus have direction and purpose not often associated with programs built upon courses the content of which is frequently shifted by changes in instructors.

As previously stated, the solution to providing a relevant, articulated instructional program which possesses direction and purpose does not rest solely upon one particular method or procedure. However, use of the competency concept does appear worthwhile. 19 of the competencies showed a statistically significant difference in the mean ratings between one or more of the four groups of respondents.

The effort to identify and validate core competencies proved that such a task could be accomplished. Analysis of the resulting data showed that there were competencies common for agricultural graduates majoring in such traditional areas as plant science, animal science, natural resources, etc. The one major in which a majority of the developed competencies did not seem appropriate was landscape architecture. Further, it was obvious that industry representatives did not understand the concept of core competencies and instead were concerned more

with "job competencies" which in most cases were more closely associated with "specialized competencies" normally developed within a program major. This undoubtedly accounted for the relatively low ratings made by industry personnel.

### Future Efforts

Presently an attempt is being made to utilize the core competencies. It appears that use of the competencies by instructors in developing course outlines will tend to assure that the important knowledge and skills are taught. This will also provide the instructor with some assurance of the relevancy of his course content. When carried further by the curriculum committee or other appropriate person or group, the core competencies could help provide articulation between courses so as to avoid duplication and overlapping of instructional content.

# 3 Suggestions for effective teaching

C.T.K. Ching

## Abstract

*To improve teaching, an instructor should organize his course materials so as to teach the basics of thinking in his discipline rather than what people in the discipline think about; he should prepare clearly stated instructional objectives that allow students to know what they should be able to do when the course is over; and he should condense, abstract, and index information so that he can "lose" details not relevant to students.*

One of the more perplexing problems facing college and university administrators today is the quality of instruction. They know it is foolish to hire an economist to teach animal physiology. However, they may wonder why the economist might not be an effective economics instructor. Implicitly, college administrators err by assuming that a person who earns a doctorate has also acquired the ability to teach effectively. More correctly, a Ph.D. reflects achievement of a certain level of competency in a discipline and **not** teaching ability. This paper suggests three principles that might assist some instructors in becoming more effective teachers. In discussing these three guides, the author makes no claim for originality. Instead, some credit is claimed for synthesizing three concepts into a framework for effective university and college teaching.

The three suggested principles for effective teaching are (1) teach more with less, (2) prepare instructional objectives and (3) lose information in an orderly manner.

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