A REVIEW OF LITERATURE FOCUSING ON CURRICULAR REVISION IN COLLEGES OF AGRICULTURE

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ABSTRACT

As colleges of agriculture prepare for the 21st century, curricular revision becomes a topic of great interest. This paper explores not only the opinions of many involved in higher education toward the need for curriculum review in agriculture, but it also addresses the people involved in the process and the nature of change, plus the obstacles that change presents. Finally, it presents the knowledge and skills deemed by academicians in agriculture to be essential for the successful college of agriculture graduate of tomorrow.

Need for Curriculum Review

In 1990, Boyer declared that never before had the need been greater for connecting the work of the academy to the social and environmental challenges beyond the campus. In fact, Schuh (1986) maintains that the basic challenge for today's land grant university is to bridge the gap between society's current problems and the frontiers of knowledge. Unless colleges keep abreast of the changing needs of society when preparing student curricula, graduates will not be prepared to assume the essential roles for which they were educated and in which they are needed (Erpelding and Mugler, 1987). Substantial changes in industry have transformed food, agriculture, and natural resources (Kunkel, 1992). Changes have been so great that corollary changes must occur in the academic process, because graduates must be able to manage change, solve problems, make decisions, analyze data, and create new products.

A curriculum that addresses the needs of graduates in the 21st century is an "imperative priority" for faculty and administrators in colleges of agriculture (Darrow and Henderson, 1987, p. 54). Because the food, agriculture, and natural resources field is dynamic, curriculum needs to be reviewed often to meet the demands of evolving technical information, technology, changing demographics, dwindling resources, and the occupational requirements of the discipline (McAlpine, 1994; Wrye and Terry, 1993). The challenge for colleges of agriculture will be to construct a curriculum that will produce the desired "quality product" within a reasonable time frame and with the resources available to the institution (Bjoraker, 1987, p. 13).

In-depth curricular assessment and innovative curricular change have not occurred in the past quarter of a century for most colleges of agriculture (Sledge, 1987). A major restructuring and revitalization of the agricultural curricula--on an institutionally specific basis--must occur to maintain strong, viable educational programs that prepare students to cope with change (Darrow and Henderson, 1987; Erven, 1987; Miller and Hartung, 1987; Sledge et al., 1987). Colleges of agriculture must be certain that curricula are appropriate, relevant, and serve the needs of their students--not for yesterday or even today, but for tomorrow (Larson and Hoiberg, 1987). Colleges should evaluate the scope and quality of departmental undergraduate programs in the context of both their own institutional missions and the departments' educational objectives (The Carnegie Foundation for the Advancement of Teaching, 1978). Curricular planners need to answer such questions as "What will the world be like in the 21st Century?" and "What characteristics will our graduates need to be successful at the turn of the century?" (Sledge et al., 1987, p. 119).

People Involved in Curriculum Review

For the curriculum revision process to be effective, efficient, and politically sensitive, it must involve all who are affected by the program (Diamond, 1989; Sledge et al., 1987). Thus, teachers, students, administrators, alumni, and industry have essential roles for the input, development, acceptance, and outcome of the curricular revitalization effort (Bjoraker, 1987; The Carnegie Foundation for the Advancement of Teaching, 1978; Wilkinson, 1987). Traditionally, course improvement has been the responsibility of the faculty. Although efforts to redesign curricula are usually assigned to departmental committees (Diamond, 1989), every teacher should participate in curriculum planning "at least to the extent of gaining an adequate understanding of the ends and means" (Tyler, 1975, p. 126). Student involvement ensures that student needs are adequately considered, aiding in student acceptance and

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support of proposed changes. Administrators stimulate the faculty to action and allocate resources (Bjoraker, 1987). Alumni represent the proof upon which the success of the program can be measured. The agricultural industry represents the consumer or benefactor of curricular reform. It is a valuable resource for critical input and for measuring the quality of the academic program (Bjoraker, 1987; Wilkinson, 1987).

Curriculum Planning and Evaluation

Organizing a curriculum requires much pre-planning and planning throughout the process, for only in this way is it possible to get the "greatest cumulative effect" from the various learning experiences used (Tyler, 1975, p. 103). Larson and Hoiberg (1987) said the assessment and review needed before any realistic, innovative change in curricula is accomplished starts with an examination of the strengths and weaknesses of current curricular design. A curriculum framework is a document that serves as a foundation for the total curriculum. It clarifies what will be provided in the curriculum and the reasons why (Finch and Crunkilton, 1989). From it, specific goals and objectives can be developed.

When utilized properly, evaluation can help ensure that the curriculum is of a high quality and that deficiencies are identified before they cause major problems to arise. Evaluation must be an integral part of the curriculum development process, with the success of all instructionally related projects being measured on the basis of changes in student performance as stated in the objectives (Diamond, 1989; Tyler, 1975). Results of evaluation serve as a basis for determining if and when appropriate educational changes are made.

The Change Process

To understand the process of change, Rogers (1983) explained that it is helpful to recognize five characteristics that explain why a new curriculum may or may not be readily adopted. First, individuals involved must perceive the curriculum to be better than the one it supersedes (a relative advantage). Second, the curriculum must be perceived as being consistent with existing values, past experiences, and needs (compatible). Third, the curriculum must not be too complex or hard to understand. Fourth, the curriculum should be trialable. This means that one may experiment with it on a limited basis. Finally, the curriculum should be observable, its results visible to others.

In general, those curricula that are perceived as having a greater relative advantage, compatibility, trialability, observability, and less complexity will be adopted more readily than others (Rogers, 1983). Also, orderly change is usually more effective than highly publicized, extensive change attempted all at once (The Carnegie Foundation for the Advancement of Teaching, 1978). Fewer revolutionary changes are necessary if a meaningful evolutionary process is in place and is operating each year (Allen, 1992; Diamond, 1989).

Obstacles to Curriculum Change

Ideally, the curriculum developer would have unlimited resources and flexibility to shape content; however, real-world considerations often dictate the scope of the content. Factors such as time and money, internal and external pressures, and legislative requirements have the potential to affect the means by which content is determined for a particular curriculum (Finch and Crunkilton, 1989). Although not all curricular changes require additional funds, administrators and others often cite financial constraints as a major limitation to large-scale curricular change.

Diamond (1989) said that one of the first problems facing an established instructional development unit is getting academic departments and faculty to commit to instructional innovation. Reward systems on most campuses do not encourage faculty to become heavily involved in curricular change. Administrators who fear losing faculty positions and student credit hours as a result of change may resist the efforts. Students who wish to be trained rather than educated and employers who seek to hire "trained" students often argue persuasively against change that does not improve vocational capabilities (Darrow and Henderson, 1987). Ultimately, the outcome depends on how well the change fits the institution in which it is attempted (The Carnegie Foundation for the Advancement of Teaching, 1978).

Knowledge and Skills for the Future

Since no one can predict the issues of the next century, no one can determine exactly what courses students should be taking today. Nevertheless, any program, if it is to be successful, must incorporate the thinking of outstanding practitioners and researchers in the field and be future-oriented (Diamond, 1989). Furthermore, Allen (1992) noted that too often the changes that do occur in courses and the curriculum are determined by who is retiring and who is hired. He called this an "increasingly unacceptable" way to modify curricula, given the rapidity with which information changes and expands (p. 190).

Both the quality and the character of the college curriculum are determined in part by the investment of talent and financial resources that society is willing to invest in it (The Carnegie Foundation for the Advancement of Teaching, 1978). Educators should be certain that their students--even those in specialized disciplines--emerge from

their universities well rounded, able to function in a society that looks on "expert" with a mix of both admiration and suspicion, and with a level of scientific literacy that helps them respond intelligently when public policy issues affecting science arise (Kunkel, 1992). It is important to train the coming generation to consider the ethical, economic, environmental, and social impacts of their work.

Colleges of agriculture are critical in the transformation of knowledge for the benefit of society. Kunkel (1992) said that graduates must be prepared to address change, constructive conflict, and communication and cooperation among the players: industry, regulators, scientists, extension personnel, farmers, legislators, and the general public. An integrated system would embody the basic sciences, their applications, and the markets and consumers of knowledge. Faculty members should openly address relationships among general education, professional education, and disciplinary specialization. Holistic training (i.e. teaching students to become more aware of how their ideas, responses, and decisions affect themselves, their local community, and their global environment) will help students successfully face the ambiguity of a changing environment (Agunga, 1992; Anderson, 1992).

Summary

From the preceding discussion, it is apparent that curricular review is a necessary and integral undertaking in colleges of agriculture nationwide. Without curricular review, countless graduates would be unprepared not only for their careers but also for the demands of society at large. A periodic assessment of curriculum, though not without its inconveniences, makes certain that students are equipped to face the challenges of the future. And is that not, after all, the reason for education in the first place?

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