PRIORITIES FOR UNDERGRADUATE EDUCATION AND THE INCLUSION OF INTERNATIONALIZED CURRICULUM IN COLLEGES OF AGRICULTURE: INTERPRETING THE "COMPARISON DILEMMA"

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Abstract

To adapt to major social, cultural, technological, and globalization forces, scholars frequently discuss the purpose, structure, and content of higher education in agriculture. Most agree that change in the curriculum is imperative. The questions are who will champion the change, who will implement it, and whether faculty are willing to be an essential part of the process. So, the purpose of this study was to analyze what the faculty of the colleges of agriculture (COA) of the University of Georgia and Texas A&M University perceived to be priorities for the curriculum and the degree of relevance associated with internationalizing it. Accordingly, the respondents' perceptions were considered to be proxies for their future behaviors. A census of undergraduate teaching faculty in the two COA responded to an online questionnaire. Interviews of selected faculty were also conducted. Faculty gave preference to improving student development of analytical and communication skills over enhancing technical content. Increasing international awareness ranked last in priority; however, internationalization of the curriculum was viewed as very relevant. The tendency to compare issues often dilutes the emphasis given to internationalization, especially if viewed as a mutually exclusive alternative. That tendency to compare is herein referred to as the "comparison dilemma." Selected findings and conclusions are discussed accordingly.

Introduction

Throughout the years, higher education scholars have discussed the purpose, structure, content, and rigor of higher education in the United States, resulting in numerous changes in content, process, quantity, and quality of the core curriculum, and in institutional reorganizations. Figure 1 summarizes the rationale behind some of these changes.

Mirroring what has happened to general education, the undergraduate agricultural curriculum has also experienced many changes influenced by social, cultural, technological, and globalization forces. It was already clear during the 1990s that managers were more interested in their employees' personal attributes and behavioral abilities than cognitive skills and valued communication, analytical, problem solving, and interpersonal skills more highly than academic performance or technical knowledge (Boland & Akridge, 2004; Harvey, Moon, & Geall, 1997; Hayes, 1995b; Townsend & Kunkel, 1996). In addition, the interest in employing individuals with a global outlook and the ability to perform in international and multicultural contexts has grown "exponentially" during the last two decades. Interestingly, many COA reviews indicate that stakeholders consider the curriculum to be successful in developing students' professional and technical competence, but it is still deficient in developing students' communication, interpersonal, analytical, and global competence (Johnson, von Bargen, & Schinstock, 1995). In response to these perceived deficiencies, educators in agriculture have often indicated that "change is imperative….The traditional approaches

can no longer suffice" (Kunkel, Maw, & Skaggs, 1996, p. 3). Or, as Ratcliff, Johnson, La Nasa, and Gaff (2001) put it, "for the curriculum to be alive and engaging, it must be dynamic and resonate to the needs and interests of current constituents, while fulfilling its perennial obligations of providing students with essential content, skills, and personal qualities" (p. 17). The questions are, then, why we have not experienced a radical transformation of the agricultural curriculum, and who will get that done? Lunde (1995b) argued that "higher education and its faculty…[are] notoriously resistant to change" (p. 1) and yet indicated conversely that, in most cases, it is faculty who are "the major agents of change in reforming curricula, renewing themselves, and improving instruction" (Lunde, 1995b, p. 2; see also Association of International Education Administrators, 1995; Baker & Thomas, 1995; Barrett, 1993; Cavusgil, 1993; Hayes, 1995a; Lunde, 1995a; Vietor, John, Thompson & Kunkel, 1996). So, for any curricular change to succeed, it needs "to be the product of individual and collective faculty thought and debate" (Nelson, 1996, p. 108).

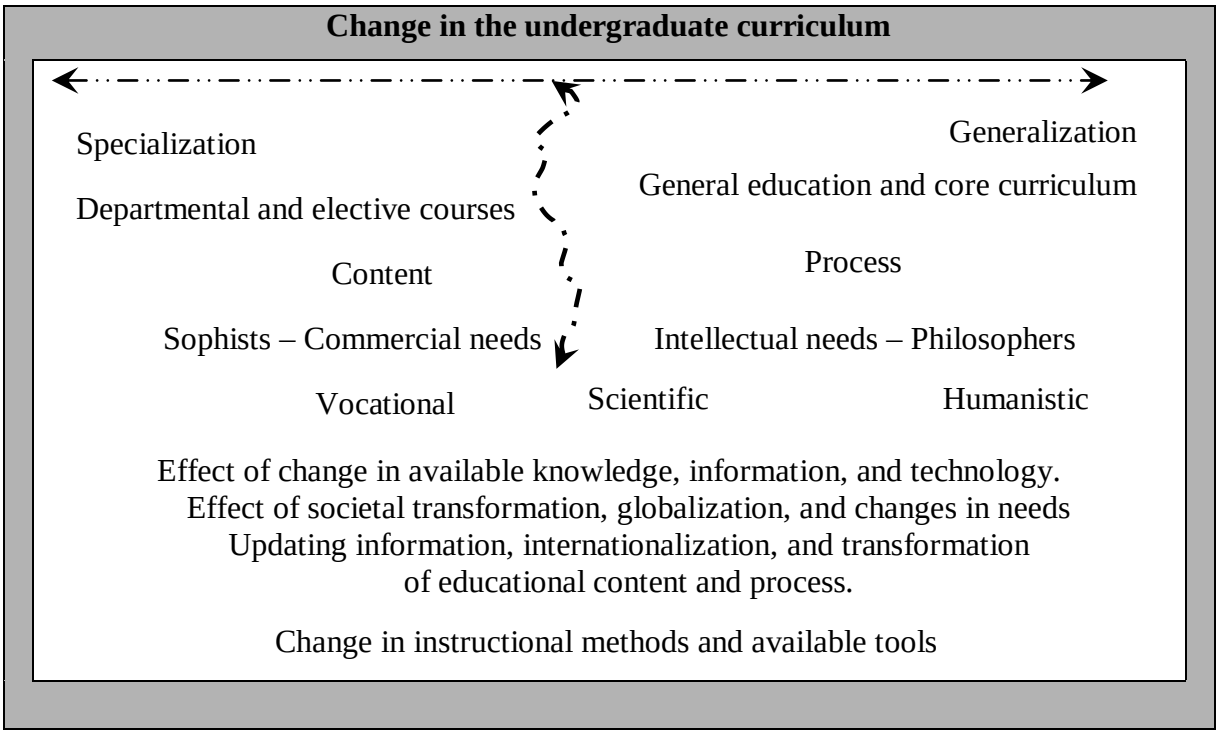

Figure 1. Rationale supporting transformation of the undergraduate curriculum.

Some of the factors that affect faculty participation in curricular reform are the environment and context in which faculty are working; the level of support from the administration, incentives, resources, and development opportunities; and personal priorities, knowledge, and perceived needs (Navarro, 2004). What is more, in the case of internationalization, additional hurdles and questions complicate the process: Lack of opportunity and clarification of what is meant by internationalization (Carter, 1992), and perceived competition with other curriculum improvement efforts, termed in this manuscript as the "comparison dilemma." Consequently, additional questions arise regarding whether faculty understand the need for change and curricular reform, are willing to be part of the change process, and have the necessary resources to engage in a comprehensive and long term endeavor.

Theoretical Framework

Many scholars believe that attitudes are harbingers of future actions. Moreover, Ajzen (1991) posited that, "a relation between a person's *salient* beliefs about the behavior and his or her attitude toward that behavior" (p. 192) exists. He called this relationship an individual's "belief salience" regarding an "intention" or intended future action. Ajzen hypothesized that the individual's belief salience influenced his or her perceptions and, in part, portended "planned behaviors." He termed this the "theory of planned behavior" or "perceived behavioral control" (p. 181). The researcher asserted that the theory "is most compatible with Bandura's . . . concept of perceived self-efficacy" (p. 184), i.e., one's confidence in his or her ability to perform a given task or execute a skill. For the purpose of this study, respondents' viewpoints about internationalizing the curricula of undergraduate students enrolled in two COA and related aspects of that phenomenon were conceptualized as indicators or "proxies" of their concomitant "planned behaviors" (Ajzen).

Purpose and Research Questions

The purpose of this study was to examine what the faculty of the College of Agricultural and Environmental Sciences of the University of Georgia, and the College of Agriculture and Life Sciences of Texas A&M University perceived to be priorities for the undergraduate agricultural curriculum and what they perceived was the degree of relevance associated with internationalizing that curriculum. The research questions that guided the study were as follows:

1. What do faculty of two colleges of agriculture perceive to be (a) priorities for the undergraduate agricultural curriculum and (b) the level of priority given to emphasizing in the curriculum student international awareness and/or experiences?
2. What do faculty of two colleges of agriculture perceive to be the degree of relevance associated with internationalizing the undergraduate agricultural curriculum?
3. To what extent are selected faculty characteristics, perceptions of curriculum priorities, and views regarding degree of relevance of curriculum internationalization related?

Methods and Data Sources

This investigation was a nonexperimental, applied study that used descriptive and causal-comparative research methods. The populations studied were all faculty members with undergraduate teaching responsibilities the College of Agricultural and Environmental Sciences of the University of Georgia, and the College of Agriculture and Life Sciences of Texas A&M University. This research was in part meant to produce a report with specific recommendations for administrators of the colleges involved and to be used in their efforts to improve and internationalize the existing undergraduate agricultural curriculum.

The study used a researcher-developed instrument that included both "fixed response" (Scale: "1" = "comparatively least relevant" or "1" = "very low/negative" to "5" = "comparatively most relevant" or "5 = "very high/positive") and open-ended questions. The open-ended questions provided respondents with the opportunity to personalize or clarify their answers to the "fixed response" questions. Content and construct validity of the questionnaire were established by panels of experts at each of the two universities studied, and with a field test. Questionnaire reliability was estimated by calculating Cronbach's alpha. The reliability estimates of the complete study's constructs ranged from 0.6582 to 0.8833 (not all constructs of the complete study are reported in this manuscript). The data obtained from the instrument were analyzed using the Statistical Package for the Social Sciences (SPSS v. 11.5.1), with the probability level of statistical significance

set at 0.05.

To further add qualitative detail and enhance the study, the researcher included eight 1-hour interviews with information-rich stakeholders (i.e., purposeful sampling). These interviews were designed to complement the data derived from the questionnaires with additional examples and insights that could not easily transpire through the questionnaires (Creswell, 2003). The interviews and open-ended questions were analyzed following procedures outlined by Lincoln and Guba (1985), including unitizing, categorizing, filling in patterns, member checks, and peer-debriefings. Also, the researcher kept a reflexive journal throughout the study.

Instrument Administration, Response Rate, and Analysis of Nonresponse Error

A total of three electronic mail messages requesting recipients to answer the questionnaire were sent to all faculty in the sampling frame (census, $N = 439$; Institution 1 = 169, and Institution 2 = 270). Because of a somewhat low response rate (44% final), to be able to increase response rate and to appropriately assess and handle nonresponse error, the researcher also contacted personally (via telephone and face-to-face) 21 prospective respondents who had not responded to any of the three electronic mail requests (random sampling for the telephone calls and convenient sampling for the face-to-face visits). For the purpose of analysis, these individuals were labeled "reluctant respondents." Subsequently, 20 "reluctant respondents" (95%) participated in the "error-analysis" component of the study (Navarro, 2004, 2005). A high percentage of the no responses, mostly in Institution 2, have been attributed *ex-post facto* to the electronic mail requests and communiqués going to the "junk mail" of the intended respondents.

The researchers used several methods to assess and handle nonresponse error, including the comparison of results between early and late respondents (*t*-tests), and between "waves" of respondents (ANOVA) for the variables under study (Dillman, 2000; Lindner, Murphy, & Briers, 2001). In addition, the researchers employed a more detailed and stringent analysis using data from the "reluctant respondents" (Navarro, 2005). Respondents' answers to electronic mail requests were compared with "reluctant respondents'" (*t*-tests), as well as comparing early, late, and waves of respondents, including data from "reluctant respondents." No significant differences were found for any of the comparisons described for the variables of interest. It is important to note, however, that although the data used in this manuscript did not reveal any nonresponse error, the low response may limit the study's external validity. So, one should be cautious before generalizing to populations other than the two faculty groups who provided data for this inquiry. (Notably, some constructs not reported in this manuscript did indeed reveal nonresponse error when data from the "reluctant respondents" were analyzed. See Navarro, 2004.)

Findings/Results

Selected Characteristics of Faculty Participants

For the purpose of this manuscript, four characteristics were selected to describe faculty who participated in the study: gender, rank, department type, and institution. Corresponding percentages for the different categories of these characteristics were: gender: 83% were male, and 17% female; rank: 5% were temporary faculty, 17% assistant professors, 27% associate professors, and 51% full professors; department type: the vast majority (77%) were in life sciences departments, and 22% held positions in social sciences departments; institution: 59% were from "Institution 1," and 41% were from "Institution 2."

Faculty Priorities for the Undergraduate Agricultural Curriculum

To analyze what faculty perceived to be priorities for the undergraduate agricultural curriculum, the researcher explored respondents' perspectives about their interest in emphasizing a set of skills, competencies, and experiences (hereafter identified as "skills") in the undergraduate agricultural curriculum. The skills that faculty were asked to prioritize mirror those identified by earlier studies (Boland &

Akridge, 2004; Harvey et al., 1997; Hayes, 1995b, Townsend & Kunkel, 1996) outlining the characteristics most desired by employers in new recruits. Moreover, a new item, international awareness and/or experience, was added to the skills list in order to put into context the priority of internationalization, and to determine how it leveled and compared with skills discussed in the existing literature. The reader should note that, at this point, these were questionnaire items and not complex constructs. This cognitive divergence or "simplification" appeared justifiable because the researchers were interested in having faculty "*comparatively rank"* the skills, instead of merely score them. Table 1 presents the description, means, confidence intervals, and separation of means of faculty ratings of the level of priority in the undergraduate agricultural curriculum attached to the different skills in the list (Scale: "1" = "comparatively least relevant" …"5" = "comparatively most relevant").

Table 1
Faculty Ratings of the Levels of Priority Associated with Emphasizing a Set of "Skills" in the Undergraduate Curriculum of Two Colleges of Agriculture

			95 % Conf. Interval		
Skill	*M*	*SE*	Lower	Upper	Separation of means[a]
$S_{2Analytical}$: Problem solving and analytical skills	4.58	0.052	4.47	4.68	e
$S_{3Communication}$: Communication skills	4.39	0.056	4.28	4.50	d
$S_{4Technical}$: Technical competency (in the major)	4.23	0.048	4.14	4.32	cd
$S_{1Interpersonal}$: Interpersonal skills	4.05	0.062	3.93	4.18	c
$S_{6Computer}$: Computer skills	3.67	0.055	3.56	3.77	b
$S_{7Experience}$: Prior work or internship experience	3.63	0.061	3.51	3.75	b
$S_{5International}$: International awareness/experience	3.31	0.068	3.18	3.45	a

Note. Listwise $N = 188$. [a]Means that do not share same letter differ significantly at $p < .05$, using Bonferroni's adjustment for multiple comparisons.

Results in Table 1 show what was important to emphasize in the undergraduate agricultural curriculum from the perspective of faculty. It is important to note that respondents were not asked to only score the importance of the skills, but rather to score the *comparative level of priority* in emphasizing that skill in the curriculum. This meant that even if a faculty member considered communication skills more important than technical skills, the respondent could indicate a higher interest in emphasizing technical skills if he or she assumed that students would acquire communication skills somewhere other than the agricultural curriculum (e.g., through life experience and/or the core curriculum). In spite of this response protocol, technical competence was ranked only third on the overall list after communication and analytical skills. This finding was consistent with much of the literature and many employers' reports that emphasized a preference for graduates with good communication, analytical, and interpersonal skills, rather than very competent technical experts (Boland & Akridge, 2004; Harvey et al., 1997; Hayes, 1995b, Townsend & Kunkel, 1996).

As noted in Table 1, when asked to prioritize skills, faculty ranked $S_{5International}$ as the least important. In response to the open-ended questions, faculty offered a wide

array of explanations to justify their rankings; for example, "Curriculum internationalization 'competes' for time with the curriculum's necessary technical content," "Internationalization takes away from . . . majors," "The curriculum is already too full," and "It would have to replace other . . . things."

Associations Between Demographic Characteristics and Faculty Priorities for the Undergraduate Agricultural Curriculum

To test whether significant associations existed between selected faculty characteristics and faculty priorities regarding what was to be emphasized in the undergraduate agricultural curriculum, the researchers grouped all "skill" or S variables in Vector "S Curriculum priorities" and then performed a series of multivariate analyses of variance (MANOVA) to test the statistical significance of the difference between group centroids with Wilks' lambda (Table 2). For tests yielding a significant Wilks' lambda, the researcher performed additional analyses to determine which of the skills or "priorities" had a pattern that differed significantly from the others. This procedure was used to reduce the risk of obtaining "false" significant differences, i.e., a Type I error (Gall, Borg, & Gall, 1996).

Table 2
Multivariate Analysis of Variance for Vector S[a], Curriculum Priorities, by Selected Faculty Characteristics

	Wilks' lambda					
Vector	Value	F	Hyp. *df*	Error *df*	Sig.	*N*
			Gender			
S Curriculum priorities	.983	0.531	6	179	.784	186
			Rank			
S Curriculum priorities	.862	1.503	18	501.117	.084	186
			Department type			
S Curriculum priorities	.900	3.217**	6	174	.005	181
			Institution			
S Curriculum priorities	.938	1.992	6	181	.069	188

[a]The variables in Vector S Curriculum priorities are $S_{1Interpersonal}$, $S_{2Analytical}$, $S_{3Communication}$, $S_{4Technical}$, $S_{5International}$, $S_{6Computer}$, and $S_{7Experience}$.
**$p < .01$.

According to the Wilks' lambda values derived from the MANOVA (Table 2), the researchers expected to find significant differences between the ratings of faculty members in different types of departments for at least one of the variables representing faculty priorities for the curriculum. In exploration of the significance of the main difference with multiple pairwise comparisons, using Bonferroni's adjustment for multiple comparisons, the two variables that had significantly different values between types of department were $S_{4Technical}$, valued and ranked higher by faculty in life sciences departments (M_{life} = 4.34, M_{social} = 3.95) (*df* = 182, dif. = 0.38, *SE* dif. = 0.11, sig. = 0.001), and $S_{5International}$, valued and ranked higher by faculty in social sciences departments (M_{life} = 3.25, M_{social} = 3.58) (*df* = 180, dif. = -0.33, *SE* dif. = 0.159, sig. = .037). The Wilks' lambda per the MANOVA (Table 2) was not significant for analyses corresponding to the other faculty characteristics. Accordingly, no other

associations were expected between selected faculty characteristics and their priorities for the curriculum.

Faculty Perceptions of Relevance of Internationalization of the Undergraduate Agricultural Curriculum and Associations with Selected Characteristics

To analyze faculty perspectives regarding the degree of relevance of internationalization from a broader perspective, a more "comprehensive" construct, $T_{1Relevance}$, was calculated from five questionnaire items that were rated using a summated rating scale: "1" = "very low/negative" to "5" = "very high/positive" (*Min* = 1.4, *Max* = 5, *M* = 3.70, and *SD* = 0.75; *N* = 191). The items addressed the following issues (the text of questionnaire items is modified here for contextual clarity): (1) perceived value of emphasizing international awareness and/or experience in the undergraduate agricultural curriculum, (2) perceived value of including an international requirement in the university and/or college undergraduate curriculum, (3) perceived need to further internationalize the agricultural curriculum, (4) respondent's personal interest in internationalization, and (5) perceived relevance (or lack thereof) to respondent's job of participation in the internationalization process. The mean of 3.70 represented a value between "average/neutral" and "high/somewhat positive." The Cronbach's alpha reliability estimate for the construct, $T_{1Relevance,}$ was 0.8046.

When testing for associations between selected characteristics and $T_{1Relevance}$, *t*-tests revealed that significant differences existed between faculty groups regarding degree of relevance of internationalization depending on type of department (*t* = -2.07, *df* = 182, sig. = .04, mean dif. = -0.2674, *SE* dif. = 0.12919). $T_{1Relevance}$ was lower for faculty in life sciences departments (M_{life} = 3.65 , *SD* = 0.76 , *N* = 142) than for faculty in social science departments (M_{social} = 3.92, *SD* = 0.63, *N* = 42).

Consequently, construct $T_{1Relevance}$ may represent a more holistic point of view that was not provided by $S_{5Internationalization}$. As discussed, when asked to respond to the item corresponding to $S_{5Internationalization}$, faculty members were given a set of skills, and a comparison, or even a virtual ranking among them, was expected. This meant that even a faculty member who was usually very vocal about the important and pressing need for internationalization could have ranked $S_{5Internationalization}$ on the low side by trying to emphasize the essentiality of, and intersection with, other skills. Conversely, the items that were used to form construct $T_{1Relevance}$ were presented differently. Some of the items employed to create that construct were introduced individually, were not presented under any comparison list, and focused solely on the interests and perspectives of the respondent toward the idea of internationalization.

Accordingly, the main difference between $S_{5Internationalization}$ and $T_{1Relevance}$ was that $S_{5Internationalization}$ "compared" internationalization with other "skills," whereas $T_{1Relevance}$ measured the "independent" value of internationalization. It is precisely the tendency to compare and contrast issues that often diminishes the perception of degree of relevance regarding internationalization, especially if it is viewed as a mutually exclusive alternative to other efforts, i.e., the "comparison dilemma," as labeled in this study. To that end, many respondents may have perceived that internationalization was a "replacement of something else." In fact, that viewpoint pervaded in the interviews and in many of the open-ended answers found in the questionnaire, as can be demonstrated with the following quotes: "The curriculum is already overloaded," "[internationalization] compete[s] with other activities . . . at the expense of gaining technical expertise," and "no one wants to discuss what will be left out . . . when 'internationalism' [*sic*] is added." In addition, the analysis of the interviews revealed a lack of uniformity and agreement regarding the meaning of internationalization.

Conclusions

1. Faculty preferences and priorities for the undergraduate agricultural curriculum were similar to the

viewpoints expressed by most employers of graduates from COA, i.e., priority was given to analytical and communication skills (Boland & Akridge, 2004; Harvey et al., 1997; Hayes, 1995b, Townsend & Kunkel, 1996);
2. Faculty in life sciences departments ranked (and scored) technical skills as a significantly higher priority for the undergraduate agricultural curriculum than faculty in social sciences departments;
3. When compared with other skills, competencies, and experiences, emphasizing international awareness or experience in the undergraduate agricultural curriculum ranked last (significantly different Bonferroni groups) on faculty priority lists;
4. When asked to indicate the degree of relevance of internationalization *per se*, and through noncomparative measures, faculty assigned significantly higher values to internationalization than when they had to assign values on a comparative basis. The lack of an agreed-upon definition of internationalization (Carter, 1992), and the tendency to compare and contrast issues often masks the perception of degree of relevance of internationalization, especially if it is viewed as a mutually exclusive alternative to other efforts, i.e., the "comparison dilemma" arises;
5. Faculty in social sciences departments had a significantly higher perception of degree of relevance of internationalization of the undergraduate agricultural curriculum than faculty in life sciences departments;
6. No significant differences were found for any of the comparisons performed to test for nonresponse error for any of the variables reported in this manuscript. However, given the low response rate, and that some constructs showed nonresponse error patterns (not presented in this report), one may conclude that the external validity of the study is limited.

Recommendations and Implications

1. Efforts to further emphasize student development of analytical and communication skills in the undergraduate agricultural curriculum could be enhanced if faculty were given more support, development opportunities, and resources (Barrett, 1993; Cavusgil, 1993);
2. Curriculum internationalization efforts could be best designed and accepted by faculty, students, and employers if integrated with efforts to further emphasize student development of analytical and communication skills (Boland & Akridge, 2004; Harvey et al., 1997; Hayes, 1995b; Paige & Williams, 2001; Townsend & Kunkel, 1996);
3. If not given other perspectives, faculty often view internationalization as a mutually exclusive alternative to other efforts. Because of this, it is important to present internationalization as a multifaceted effort of curricular reform, a *process* embedded in all programs, and a necessary ingredient in everything faculty do from an instructional perspective, i.e., rather than an addition, "another discipline," or a mutually exclusive alternative;
4. Differences existed among faculty in their priorities for the curriculum and their perceptions regarding the degree of relevance associated with internationalizing it. Those who are charged with leading curriculum improvement efforts should take into account these differences and address the interests of faculty members and departments to the extent possible (Barrett, 1993; Cavusgil, 1993; Harari, 1992), especially if the respondents'

expressed perceptions are valid indicators of their future behaviors (Ajzen, 1991);

5. One of the problems of internationalization is the lack of clarity of its significance, rationale, benefits, relevance, and implications to students, faculty, and other stakeholders. To enhance internationalization (and other curriculum improvement efforts), it is vital to clearly define and agree upon the purpose, objectives, rationale, significance, benefits, relevance, and implications of the curriculum reform process (Carter, 1992; Cavusgil, 1993);
6. Given the limited external validity of the study, one should be cautious about making generalizations to populations other than the two faculty groups who were studied.

In summary, this research contributes to updating and increasing the knowledge base for the redesign of the undergraduate agricultural curriculum. It helps evaluate the preparedness and perspectives of faculty as the main agents of change (Barrett, 1993; Cavusgil, 1993). The analysis of the comparison dilemma emphasizes why it is so important for internationalization supporters and scholars to explain the meaning of internationalization and clarify that it "is not a strand which should be separated from the overall [curricular] reform" (Ellingboe, 1997b, p. 1). Rather, it is a *synergistic process* that strives to integrate a cluster of procedures and behaviors to be manifested by faculty and institutions if a multifaceted and universal package of educational improvement and reform is to gain traction and then move forward (Ellingboe, 1997a, 1997b; Groennings & Wiley, 1990; Harari, 1992; Mestenhauser, 1998).

Finally, in his seminal treatise about the status of American higher education, *The Closing of the American Mind*, Allan Bloom (1987) opined that,

> The university's evident lack of wholeness in an enterprise that clearly demands it cannot help troubling some of its members. The questions are all there. They only need to be addressed continuously and seriously for liberal learning to exist; for it does not consist so much in answers as in the permanent dialogue. It is in such perplexed professors that at least the *idea* [italics added] might persevere and help to guide some of the needy young persons at our doorstep. The matter is still present in the university; it is the form that has vanished. One cannot and should not hope for a general reform. The hope is that the embers do not die out. (p. 380)

Faculty and administrators who populate colleges of agriculture in the United States should heed Bloom's admonition and not allow the embers of progress and change for internationalizing their curricula be extinguished. What is more, select faculty must rise up and "champion" the cause; it is only then that the need to internationalize agricultural students' learning experiences in integrated and innovative ways may become a fixture of the "permanent dialogue" in their respective institutions.

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