
Taking the Pulse: A Case Study of Undergraduate Agriculture Students' Opinions

David Whaley, James C. Heird, and James Pritchett

Abstract

This case study, conducted spring semester 1993, examined the attitudes held by undergraduate students on agricultural coursework, faculty as teachers and advisors, and college facilities. Results indicated that agriculture courses are challenging and current. The relevancy of coursework and career information provided were criticized. Faculty were current and effective in their subject matter. Yet, students were critical of faculty's understanding of curricular requirements and scholarships. Women students were more disparaging of their advisors' knowledge and communication abilities. Interestingly, most students believed that internships are essential for success in the agricultural industry, yet few had participated. Effective communication between academic personnel and enhanced alliances between industry and academia were considerations for improvement.

Introduction

Higher education is challenged. The changes caused in serving the needs of a greater heterogeneous student population, coupled with declining resources, increased academic workloads, and heightened demands for accountability have affected institutions of higher education (Bowen & Shuster, 1986).

This condition appears to be exacerbated in Colleges of Agriculture. Agriculture as an industry and profession has undergone an erosion of confidence among the American public. The competition from other academic disciplines for resources and students has contributed to increased pressures faced by agricultural faculty and students. Further, the rapidly advancing technology of the agricultural industry, combined with the industry's urgent need for a competent and forward-looking workforce have provided Colleges of Agriculture with a mandate to examine and retool existing practices used to deliver academic programs. The maintenance of the status quo by Colleges of Agriculture may not often be appropriate or best serve the needs of today's administrators, faculty, staff, and students.

David Whaley is program chair of Agricultural Education, Heird is interim dean of the College of Business, and Pritchett is a graduate student in Agricultural and Resource Economics, Colorado State University, Fort Collins, CO 80523.

The College of Agricultural Sciences at Colorado State University has recently engaged in a comprehensive strategic planning process. This process, involving input from academic and private sectors, is intended to suggest future directions for the College and its personnel. Essential to this strategic planning process is the identification of current strengths and weaknesses of programs and personnel in the College. Pals (1988) asserted that an assessment of attitudes held by those most closely affected by programs is necessary to facilitate changes. Therefore, the purpose of this study was to examine conditions in the College of Agricultural Sciences through data collected from undergraduate agriculture students. Perceptions held by these students could help to clarify new directions for changes.

The findings of this study are only generalizable to this local student body. However, both process and product of this investigation may guide others in addressing and resolving issues.

Objectives of the Study

Specific objectives of the study were:

1. To identify undergraduate student attitudes on:
 - a) academic coursework offered through the College,
 - b) faculty as teachers and advisors, and
 - c) the College's facilities.
2. To ascertain the extent of undergraduate student participation in and perceptions of:
 - a) extracurricular activities and
 - b) agricultural internships.
3. To recommend techniques/opportunities for enhancing student vitality and success.

Procedures

The accessible population of this study consisted of all full-time and part-time undergraduate students enrolled in the College of Agricultural Sciences during Spring Semester, 1993 ($N=946$). The data were collected by a hand-delivered questionnaire adapted from an earlier study conducted in the College. Additional elements were adapted from *College: The Undergraduate Experience in America* (Boyer, 1988). A panel ($n=22$) of agricultural graduate and undergraduate students, and faculty were used in refining items and establishing con-

tent validity. A post hoc reliability indicated that the questionnaire had internal consistency. Cronbach's alpha coefficients ranged from .83 to .91 for each scale.

The College of Agricultural Sciences' present course registration policy requires each student to meet with an advisor before registering for the subsequent academic term. An advising "hold" is placed on the student's registration until this advising session occurs. During the advising session, the faculty advisor will issue a *Schedule Manager for Advising and Registration by Telephone* (SMART) form to the student, thereby enabling the student to access the telephone registration computer. As students met with their advisors in April and May 1993, to register for Fall Semester, 1993, they were requested to complete the student questionnaire. Students were assured of complete confidentiality with their responses.

It is recognized that not all students seek departmental or faculty advising each semester, and that some students do register without this faculty service. Therefore, data collected in this investigation were only generalizable to those students who intended to register for Fall Semester, 1993, and who followed the College of Agricultural Sciences' approved procedures for registration. There was no formal attempt made to follow-up on non-respondents.

Usable data collection instruments were returned from 556 respondents (58.8%). The data from the questionnaires were described using frequencies, percentages, means, and standard deviations. Chi-square analyses identified relationships between respondent groups.

Results

Perceptions in Academic Coursework

Attitudes held by College of Agricultural Science students regarding their agricultural coursework are reflected in Table 1.

Overall, students expressed positive attitudes about their agriculture courses. Courses are challenging, current, and necessary for future occupations. Courses also teach students to be problem solvers and creative thinkers, to work independently, and to work cooperatively. It was interesting to note that 9.0% of the respondents believed that courses don't prepare students for future occupations and that 15.6% felt that courses don't provide relevant information on agricultural careers. Surprisingly, 15% of the respondents indicated that their coursework is not applicable to the "real" world of work.

Additional analysis revealed that there were significant differences by age as to the perceptions of coursework in the College of Agricultural Sciences. Older students were more critical of coursework than were younger students. Older students were more inclined to believe that course content is not current, $\chi^2(15, N=541)=38.96, p<.05$; and that class content is not applicable for occupations in the

agricultural industry, $\chi^2(15, N=534)=34.29, p<.05$. Interestingly, older students were less critical of agricultural classes being too large, $\chi^2(15, N=533)=28.14, p<.05$.

Data analysis further revealed that there were significant differences by academic standing (grade level) as to the perceptions held on the agricultural coursework. Juniors and seniors were more critical than first and second-year students. Students with higher academic standing were more inclined to believe that courses are less applicable to the real world of work, $\chi^2(15, N=533)=40.44, p<.05$; that courses do not provide hands-on training, $\chi^2(15, N=530)=43.68, p<.05$; and that courses do not provide opportunities to learn more about careers in agriculture.

Perceptions on Faculty as Teachers and Advisors

Table 2 summarizes perceptions held by students on their faculty as teachers and advisors. Most students felt that faculty are current in their subject areas, that they present material so that it is easily learned, that they are accessible, and that they are fair graders. Interestingly though, almost 21% of the respondents felt that faculty don't effectively integrate technological advancements into the classroom.

Although expressing positive attitudes for their faculty advisors, 11% of the respondents reflected that their advisors don't understand and communicate curricular requirements of the major; 17% felt that advisors don't understand the re-

Table 1 Student Perceptions on Their Agricultural Coursework

| Factors | % Agree* | Mean** | S.D. |
|--|----------|--------|------|
| 1. Ag courses are intellectually challenging. | 98.2 | 1.8 | .47 |
| 2. Content of ag courses is current. | 96.1 | 1.7 | .56 |
| 3. Courses prepare students to think and work independently. | 92.2 | 1.9 | .52 |
| 4. Courses are necessary for success in future occupations. | 91.0 | 1.7 | .64 |
| 5. Courses include relevant information on future occupations. | 90.7 | 1.8 | .62 |
| 6. Courses encourage students to think and work cooperatively. | 88.9 | 1.9 | .55 |
| 7. Courses prepare students to be problem solvers. | 86.2 | 2.0 | .56 |
| 8. Classes are applicable to the real world. | 85.0 | 2.0 | .63 |
| 9. Courses provide information about careers in agriculture. | 84.4 | 1.9 | .64 |
| 10. Courses prepare students to think creatively. | 82.5 | 2.0 | .59 |
| 11. Courses provide hands-on training. | 65.9 | 2.2 | .78 |
| 12. Classes are too-large in the College. | 28.5 | 2.8 | .66 |

*Indicates percentage of respondents who "agreed" or "strongly agreed" with the factor.

** Scale: 1=strongly agree; 2=agree; 3=disagree; 4=strongly disagree.

Table 2 Student Perceptions on Their Faculty as Teachers and Advisors

| Factors | % Agree* | Mean** | S.D. |
|---|----------|--------|------|
| <i>Teaching</i> | | | |
| 1. Faculty evaluate/grade fairly. | 96.5 | 1.7 | .53 |
| 2. Faculty are current in their subject areas. | 95.7 | 1.6 | .58 |
| 3. Faculty are accessible and approachable for classroom help. | 92.3 | 1.7 | .64 |
| 4. Faculty present material so that it is easily learned. | 91.4 | 1.8 | .57 |
| 5. Faculty adapt class materials to real-life situations. | 87.3 | 1.8 | .62 |
| 6. Faculty effectively integrate technological advancements into their courses. | 79.1 | 2.0 | .68 |
| <i>Advising</i> | | | |
| 7. Advisors understand and communicate curricular requirements of the major. | 89.1 | 1.8 | .68 |
| 8. Advisors understand and communicate the University core curriculum. | 89.0 | 1.8 | .63 |
| 9. Advisors are accessible and approachable. | 86.9 | 1.8 | .71 |
| 10. Advisors are knowledgeable about support services and University policies. | 84.8 | 1.9 | .66 |
| 11. Advisors understand and communicate what is necessary for success in future occupations. | 83.1 | 1.9 | .70 |
| 12. Advisors understand and communicate what is necessary for scholarships, internships, and job placement. | 76.5 | 2.0 | .76 |

* Indicates percentage of respondents who "agreed" or "strongly agreed" with the factor.

** Scale: 1=strongly agree; 2=agree; 3=disagree; 4=strongly disagree.

quirements of agricultural occupations; 13% felt that advisors don't effectively communicate information on scholarships; 11% of the students felt that advisors don't understand the core curriculum requirements; and 15% felt that advisors lack knowledge about support services and University policies.

The data revealed gender differences pertaining to advising relationships. Women were less likely to agree that advisors understand and clearly communicate curricular requirements, $\chi^2(3, N=528)=10.40, p<.05$; that advisors understand and clearly communicate requirements for future occupational success, $\chi^2(3, N=527)=8.46, p<.05$; that advisors understand and clearly communicate what is necessary for scholarships, internships, and job placement, $\chi^2(3, N=523)=12.84, p<.05$; and that advisors are knowledgeable about support services and university policies, $\chi^2(3, N=516)=17.19, p<.05$. Women were also less likely to agree that internship activities and extracurricular opportunities are well publicized ($\chi^2(3, N=477)=19.32, p<.05$; and $\chi^2(3, N=525)=14.89, p<.05$; respectively).

Perceptions on Facilities

Although most of the respondents believed that the College of Agricultural Sciences has adequate facilities, students revealed that the condition and status of the facilities are of concern. A summary of these data are reported in Table 3.

Seventy-seven percent felt that the College's classroom facilities were adequate; that the College's laboratory facilities were adequate (77%); and that computer/technology facilities were adequate (79.4%). Overall, 82% of the students believed that classroom and laboratory equipment is modern and current with the needs of the agricultural industry.

Participation in and Perceptions of Extracurricular Activities

Sixty-two percent of the respondents reported that they had previously participated in an extracurricular activity. Yet, fully 94.3% agreed that participation in extracurricular activities is important because these activities teach lessons not learned in classrooms. Students also believed that their participation in extracurricular activities is important to their overall occupational success (79.3%). Data revealed that 53.0% of the students believed that extracurricular activities are poorly funded by the College and are also poorly publicized (36%). Seventeen percent of the respondents believed that participation in extracurricular activities is not encouraged or promoted by faculty administration. Finally, 86.7% of the respondents reported that extracurricular activities are offered in their area of agricultural interest.

Participation in and Perceptions of Agricultural Internships

Almost all respondents (99%) reflected that agricultural internships provide important knowledge not learned in the classroom. Yet, only 16% of the respondents had participated in these experiences. It is interesting that 75.2% of the respondents intended to participate as interns in the future. Most students (87%) felt that internships are readily available to qualified students and that credits for internships are adequately available (88.1%). Forty-six percent of the respondents did feel though that the internship opportunities are not well-publicized at the College or departmental levels.

Conclusions

This study was intended to take "the pulse" of the College of Agricultural Sciences based on attitudes held by undergraduate students. The students questioned were those who were actively enrolled during Spring Semester, 1993, and were engaged in registering for Fall Semester, 1993. Although the research design did not allow generalizing the findings to all

Table 3 Student Perceptions on Facilities in the College of Agricultural Sciences

| Factors | % Agree* | Mean** | S.D. |
|--|----------|--------|------|
| 1. Equipment used is modern and reflects the modern agricultural industry. | 81.8 | 2.1 | .62 |
| 2. The College has adequate computer/technology facilities. | 79.4 | 2.0 | .71 |
| 3. The College has adequate laboratory facilities. | 77.3 | 2.2 | .66 |
| 4. The College has adequate classroom facilities. | 77.3 | 2.2 | .6 |

* Indicates percentage of respondents who "agreed" or "strongly agreed" with the factor.

** Scale: 1=strongly agree; 2=agree; 3=disagree; 4=strongly disagree.

College of Agricultural Sciences' undergraduate students ($N=946$), 556 (58.8%) students did respond. Therefore, most students did provide relevant commentary on the College.

Essentially, there is a favorable climate, as perceived by students, in the College of Agricultural Sciences. Students believed that agriculture courses are challenging, current, and are relevant to future occupations. Students also believed that their participation in agricultural courses prepare them to be problem-solvers and critical thinkers.

Data analysis did reveal that the relevancy of coursework and the degree of career information provided may need attention. Nine percent of student respondents did not believe that their coursework prepares them for future occupations; 9% believed that courses do not provide relevant information on future occupations; 15% believed that course content is not applicable to the real world of work; and 15% believed that courses do not provide opportunities to learn more about careers in agriculture.

Students also believed in their faculty as teachers and advisors. Faculty, as perceived by students, are current in their subject matter, effective in presenting materials, accessible, and fair graders. Yet, 21% of the students responded that faculty do not integrate technological advancements effectively into the classroom.

As advisors, faculty also received positive marks from the students. Yet, students were more critical of their faculty as advisors than as teachers. Eleven percent of the respondents believed that faculty do not understand and communicate curricular requirements for their major; 17% felt that advisors do not understand or communicate occupational requirements; 13% felt that advisors do not communicate effectively about scholarships, internships, or job opportunities; 11% doubt that advisors understand the University core curriculum requirements; and 16% believed that advisors are not knowledgeable about support services and policies at the University. These student perceptions of faculty as advisors speak to a need for improving the advisor's overall knowledge of the University's and industry's requirements. As well, these findings emphasize the need for advisors to be better and more effective communicators.

Gender differences in responses to faculty as advisors were evident. Women students were less likely than male students to agree that advisors effectively communicate the requirements for their academic majors and for future occupations. Women students were also less likely to agree that faculty understand and clearly communicate what is necessary for scholarship attainment, internships, and job placement.

Although overall favorable in their responses, many students were not satisfied with the physical environment in the College of Agricultural Sciences. Twenty-three percent of the students felt that the College has less than adequate classroom facilities; 23% believed that the College has inadequate laboratory facilities; 21% felt that the College has inadequate computer/technology facilities; and 18% felt that the equipment used in classrooms is not *modern or current* with the modern agricultural industry.

Students recognized the importance of their participation in extracurricular opportunities and agricultural internships provided by the College. Ninety-four percent of the respondents believed that internships provide essential knowledge needed by the agricultural industry. Yet surprisingly, only 16% of the student respondents had participated in internships. Most students (75.2%) did however indicate their intention to participate in future internships.

Ninety-four percent of the students also recognized that extracurricular activities are important to their success in future occupations, yet only 62.4% responded that they had participated in these activities. Some sentiment was expressed that extracurricular activities are poorly funded (53.0%). Students also responded that extracurricular activities are not adequately publicized to students (36.0%) and that these activities are not encouraged by administration and faculty (17%).

Recommendations

The results of this study suggest the following recommendations for improvements:

1. Based on the findings of this study, more career oriented instruction may be needed for all students. It is recommended that the College of Agricultural Sciences offer a college-wide course on career opportunities and placement procedures. It is further recommended that every academic department be encouraged to address the topic within their unique content areas.
2. The findings of this study also speak to the need for an enhanced partnership between industry and academia. It is recommended that there be a collaborative effort, coordinated by the Dean's Advisory Committee, to encourage a more in-depth examination and, if necessary, revision of specific course content.
3. Students felt that the physical environment in the College may not meet their needs in preparing for the modern

agricultural workplace. It is recommended that this same industry/academic alliance be enlisted to review the College's physical environment and to suggest priorities for physical improvements.

4. Students were overall supportive of their faculty as teachers and advisors. Yet, data did reveal some concern with faculty advising. It is recommended that the College coordinate a series of training workshops for advisors on relevant topics. Better communication strategies and techniques between advisors and students also need to be promoted.
5. Gender differences were noted in some areas, especially pertaining to the communication of advising information. It is recommended that advisors be better trained in gender communication strategies and that administration and faculty in the College of Agricultural Sciences implement advocacy groups for women students.
6. Finally, participation in extracurricular and internship opportunities was recognized for its importance in contributing to the future success of students. Yet, many students chose not to participate. It is recommended that an additional study be launched to investigate reasons why students do not participate in extracurricular and internship possibilities.

Educational Importance of the Study

The findings of this study suggest possible directions for improving the College of Agricultural Sciences. These improvements may lead to an enhancement of the vitality and success of students enrolled. Changes in higher education, compounded with the urgent need of a rapidly advancing agricultural industry have significantly challenged the College of Agricultural Sciences to deliver the most appropriate programs. A well-constructed, well-directed program aimed at addressing the issues raised in this study may provide beneficial results and enhanced success for College administrators, faculty, staff, and students.

References

- Bowen, H.R. & Shuster, J. H. (1986). *American professors: A national resource imperiled*. New York: Oxford.
- Boyer, E. (Ed.) (1988). *College: The undergraduate experience in America*. The Carnegie Foundation for the Advancement of Teaching: New Jersey.
- Pals, D. A. (1988). Faculty attitudes toward teaching improvement, *NACTA Journal*, 32 (2),46-49.

Dean Craig Hill Dies

Craig Hill, Dean of Delaware Valley College and a long time member of NACTA, died Friday, December 17, 1993.

He began his academic career at the college in 1972 as an assistant professor of animal science. In 1986, he received the Delaware Valley College Student Government Faculty Award. In 1987 he was given the Distinguished Faculty Member Award by the faculty. In 1988 he was honored as the Eastern Regional Outstanding Teacher by the National Association of College Teachers of Agriculture.

Craig was appointed associate dean of academic services in 1987 and was named dean of academic affairs in 1989. He was named dean of the college in 1991.

Former NACTA Leader Seif Dies

University of Illinois Professor Emeritus Robert Dale Seif died February 10, 1994. Following graduation from Cornell University he joined the biometry in the UIUC Agronomy Department in 1956 and retired in 1993.

He joined NACTA in 1970 and served as chairman of the NACTA Teacher Evaluation and Recognition Committee during the formative years of the evaluation and recognition planning that provided the foundation for the current extensive NACTA Teacher Awards and Recognition Program at the annual NACTA conferences. Seif received the NACTA Teacher's Fellow Award in 1988 and also the Distinguished Educator's Award.