

AN INDUSTRY PERSPECTIVE ON CHANGES NEEDED IN AGRICULTURAL EDUCATION CURRICULA

Dennis C. Scanlon, Associate Professor
Thomas H. Bruening, Assistant Professor
Ana Cordero, Graduate Assistant
The Pennsylvania State University

Abstract

If agricultural education programs are to survive, they must be dynamic and able to adjust to new situations and environments that help to improve the on-the-job effectiveness of future graduates. The purpose of the study was to identify appropriate modifications for the agricultural education curricula being offered by the Department of Agricultural and Extension Education at The Pennsylvania State University. Data for the study were collected via a focus group technique. Four focus groups consisting of 42 people participated in the study. The findings indicated that employers in the agribusiness industry recognized the need for changes in the agricultural education curricula to include the incorporation of an agricultural industry option. The most mentioned business skills included human relations, organizational, managerial, and analytical thinking. The respondents also recognized the need for employees to work together in teams and the critical need for leadership skills. The results of this study suggest that there is potential for an agricultural industry option to be incorporated into the major. Participants felt that students pursuing a major in agricultural education should have the opportunity to select between preparation for formal educational settings or non-formal educational jobs in agricultural industry.

In the last three decades, improvements in science, technology and communication have caused remarkable changes to occur in agricultural industries and related job fields. To keep pace with technology and to meet the new demands of the workplace, colleges and universities have found it necessary to continually evaluate and revise their offerings and curricula.

If they are to survive, agricultural education programs must be dynamic and able to adjust to new situations and environments that help to improve on-the-job effectiveness of future graduates (Coorts, 1987; Slocombe & Baugher, 1988). In a 1979 study on the supply and demand for agriculture teachers, Parmley, Bowen and Warmbrod found that although the overall number of teaching positions had increased, the percentage of graduates who became teachers ranged from a low of 50% to a high of 62%. A follow-up study by Oliver and Camp (1993) on the supply and demand

for agriculture teachers found that the percentage of agricultural education graduates who enter teaching had declined to 41.2% nationwide. Additionally, the same study suggested that many of the agricultural education graduates who do not go into teaching find employment as non-formal educators with agribusiness and industry and commodity groups. Although these graduates are not involved in education in a formal sense, their jobs still require them to organize and communicate complicated technical information to the general public (Baxter & Scanlon, 1993). Examination of additional data on the changing needs of the workforce would lead the reader to agree with Oliver's and Camp's (1993) final conclusion that "graduation from an agricultural education program can no longer mean just certification to teach."

The changing roles that agricultural education graduates will fill and their perceptions of these roles were outlined by Smith (1989). Smith

surveyed students in the College of Agriculture at the University of Maryland and found they strongly identified leadership, social skills, an understanding of policy development, and a perspective of world issues and cultures to be essential for success in the job market. In a similar study, Riesenber (1988) found graduates from the College of Agriculture at Idaho felt that decision making capabilities, accounting, business and economics, agricultural marketing, communications and public speaking needed to be emphasized more in the curricula.

In addition to student input, curricula change is often influenced by input from current and future employers. When considered collectively, this input from employers, peers, faculty and students produces a pattern that can be used as a model to modify and upgrade the curricula. Coorts (1987, pp. 20-21) summarized major considerations that a curriculum must satisfy to meet the expanded agricultural skills and knowledge needs of today's graduates:

- continuous computer literacy for students and faculty,
- improvement of students' oral and written communication skills,
- curricula adjustment for non-agricultural experienced students,
- interdisciplinary interaction between students within colleges for the enrichment of their student's educational experience,
- diversity of international agriculture and other cultures,
- less technically specialized curricula in order to produce graduates broadly trained to meet the job market, and
- new approaches to teaching.

Although the literature is ripe with general suggestions for curricula modifications, Krueger (1988) suggested any revision should start with a thorough overview of the needs of the targeted clientele group. In addition, Krueger identified the shortcoming of traditional survey research and

suggested that valid data can only be obtained via open ended research techniques. He argued that these data gathering methods offer the respondent ample opportunity to comment and to share and explain experiences. Focus groups endeavor to secure information by seeking intersubject agreement among the participants and result in better planning and participation in educational programs (Bruening, 1992).

Therefore, based on the review of literature dealing with programmatic revisions and appropriate data gathering techniques, the researchers applied the focus group technique to a curriculum's revision model. This was an investigation regarding curricula's revisions within the Department of Agricultural and Extension Education at The Pennsylvania State University.

Purpose of the Study

The purpose of the study was to identify appropriate modifications for the agricultural education curricula being offered by the Department of Agricultural and Extension Education at The Pennsylvania State University. The specific objectives of the study were to:

1. Determine if there is a need for an industry option within the agricultural education curricula, and
2. Identify potential topics that could be included in an industry option within the agricultural education major.

Methodology

Four focus group interviews were conducted according to guidelines established by Krueger (1988). The participants were purposively selected according to their perceived ability to discuss agricultural business interests or because they served on college advisory committees. Nominations were sought based on the criteria that

these individuals would discuss agricultural education programming at the university. Two of the focus groups consisted of agribusiness individuals recruited by the agricultural teachers and extension agents from eastern and western Pennsylvania. The other two focus groups included representatives to advisory committees for the College of Agricultural Sciences at Penn State. The first focus group consisted of agribusiness people from southeast Pennsylvania, and the second focus group included agribusiness people from the western region of the commonwealth. The third focus group included representatives from the Advisory Council for the Department of Agricultural and Extension Education. This group consisted of eight agricultural teachers and two agribusiness representatives. The fourth group included representatives from the Advisory Committee to the Dean of the College of Agriculture. This group consists of individuals from a wide background of positions but nearly all had ties to agribusiness.

As suggested by Krueger (1988), one moderator led the focus group discussions using identical questions. Focus group number of participants ranged from eight to 15 individuals. Forty-two individuals participated in the four focus group discussions, each of which was limited to 90 minutes. The discussion in each focus group was recorded on a cassette tape and then later transcribed.

Seven questions were designed to elicit responses from the groups regarding the possibility of making changes in agricultural education offering at Penn State. The content validity of the questions was established by four faculty members in the Department of Agricultural and Extension Education at Penn State. A pilot test was performed by asking graduate students the same set of questions. It was determined that this activity provided face validity.

Synchronic reliability was established in this study. This type of reliability involves examining observations within the same time period for similarities and consistency (Kirk & Miller, 1986). Synchronic reliability was judged by the investigators via comparison of data elicited from the four different focus group discussions.

Findings of the Study

A post observation analysis was performed by the research team consisting of a moderator and an assistant moderator. The analysis discerned patterns and trends developed among group's participants as well as across focus groups. The team identified congruent statements and highlighted contrasting comments that were organized into categories by question using the "bins" approach suggested by Miles and Huberman (1984).

The participants' responses were grouped into two main categories: modification of existing curricula in agricultural education to include communication skills and educational process and students' need for business skills and knowledge. The participant's points of view regarding the integration of an agricultural industry option into the agricultural education major were gathered through three related questions: 1) general opinion on the idea; 2) business course offerings suggested; and 3) specific concepts to be addressed in the curricula. The participants' responses regarding skills necessary for employment related to two main categories: communication and interpersonal.

Participants perceived an industry option in the agricultural education curricula as needed, beneficial, and useful. Participants in each of the four focus groups recognized the need to teach business skills in agricultural education programs in order to prepare a more complete potential employee. The responses included observations that there is an interrelationship between agricultural

industry and education through experience and employability. Some representative comments included:

"business background plus agricultural background will be beneficial"

"agricultural education curriculum is an excellent curriculum for developing entry level agricultural sales people"

"could be filling a big niche in the job market and give a better employee"

"someone with an agricultural degree in combination with a business education also is probably an ideal situation"

"benefit in the recruiting process, no need for training in the technical area or business skills"

"[is a] need for agricultural and business background in the food industry for success"

Human relations as well as organizational structure and management behavior were business related courses repeatedly suggested by the participants as critical to the agricultural industry. Economics, critical/analytical thinking, problem solving, and decision making were also identified as the content that courses need to include in any business-related curricula. These comments were categorized into a category titled The Psychology of Business. When these comments were further analyzed, respondents indicated they wanted employees that have a good understanding of business processes and business behavior. Representative comments included:

"...decision making."

"I think that is real critical to our business is getting people to know how to solve problems."

"I think a term of some of things we are saying now would be "Organizational Management Behavior"

type courses where you look at the different power structures in a company..."

"Just understanding organizational structure and how to function in an agribusiness."

"Probably need to throw in a management course, personnel management or managing people."

"I think it is important to have a general understanding of organizational behavior, human relations, and some experience in finance and marketing, production economics."

According to most of the focus groups' participants, students should be instructed in quality control, accountability, business cycle and planning, and time management concepts in order to be better qualified for the job market. The category was titled Business Management. Within this category respondents indicated that quality control and business procedures are important concepts that should be taught. Some representative comments included:

"I think maybe the business cycle is probably one of the more important things for students to understand."

"Quality control. Not necessarily that you are working in a manufacturing plant somewhere and you are responsible for so many widgets but it is the whole idea that your contribution is important and the quality of your work, be it in manufacturing or in publications or marketing, really accounts for something and you should be accountable for your work in that respect also."

"I think the theory of business and why...The planning process, it is part of selling, I think understanding the role of business cycle."

"I would say time management. How to know how to go about doing the job and carrying it through"

and getting it done in a reasonable amount of time and also what to do first and how to plan that."

"I think the other one is the whole area of accountability. When you're working for someone else the importance of accountability and chain of command and why you need reports and what type of reports need to be made so that people know things are happening the way they're supposed to be happening. And how you have good accountability."

Strong communication skills were mentioned most frequently by the focus group's participants as the main skill looked at by employers when hiring new employees. The abilities to write and speak in public were considered critical skills needed in a new employee. The ability to choose the right style and adapt to communicate both: oral and written, were extensively discussed in the focus interviews. Listening and the ability to "read people" (understand nonverbal signals and cues) were frequently mentioned as critical skills employees need in today's work world. Typical response included:

"I would look for those people [who] have strong communication skills verbally and written."

"...if they can't communicate and work in teams they are not going to make it in the business world..."

"I think writing has to be up there at the top of the list. If you can't write and communicate and do it in a brief format you're not going to get anywhere. I think writing would be the top thing, at least the top thing I'd look at."

"I think flexibility in both oral and written communications is very important because depending on who you're trying to communicate with you could make, you may need to bring yourself down to their level or you may need to be more technical..."

"Certainly the ability to communicate these days is probably the premier thing you are looking for."

"...being able to choose the right style is almost critical to a good communication process."

"I think no matter what field you are in, if you are going to be dealing with other people, you need to be a good listener."

"In plain words, is he/she intelligent enough to know how to come into a new business relationship and talk with his ear rather than his mouth first."

"I think that you have to be able to read people. [Know] exactly what they mean in what they say."

"I want a person who is willing to listen "

Team work, leadership and problem solving skills were identified as interpersonal skills sought in a potential employee. Some individuals interviewed perceived empathy skills, ability to understand and work with people as valuable skills in a potential employee to be considered in the hiring process. Comments related to these skills included:

"... but the one consistent thing I am looking for in both ends, not only the back office in terms of that position but any position within the company is that of team work. The ability to work well with others and the ability to feel part of the team ... that is [are] consistent thing[s] I am looking for."

"...if they can't communicate and work in teams they are not going to make it in the business world or customer service industry and it doesn't matter how intelligent you are..."

*"Communication skills are very important as well as knowing how to work as a team or with teams."
"... so I think [is] basic understanding who is that you are communicating with and what their perspective is."*

"I would tend to see it in terms of leadership that is something certainly we want in people that we hire in the association."

"I think that is real critical to our business setting people to know how to solve problems."

Summary of Findings

The findings indicated that selected employers in the agribusiness industry recognized the need for changes in the agricultural education curricula to include the incorporation of an agricultural industry option. The most mentioned business skills necessary to be taught for employment in the agricultural industry included human relations, organizational, managerial, and analytical thinking. Communication skills were considered by the four focus group participants as the most critical interpersonal skill needed in an employee. The abilities to listen intuitively, to think before speaking and to catch on to the more subtle nature of reading people were the most challenging comments made. Participants in this study reported their eagerness for hiring individuals who have the ability to communicate both orally and in written form, and adapt their communication style according to the clientele. The respondents also recognized the need for employees to work together in teams and the critical need for leadership skills.

Implications

The results of this study indicated that there is a potential for an agricultural industry option to be incorporated in the agricultural education curricula. Participants felt that students pursuing a major in agricultural education should have the opportunity to select between preparation for formal educational settings or non-formal educational jobs in the agricultural industry. Potential employers considered the integration of an industry option in agricultural education as an ideal opportunity to develop courses on human labor relations, business organizational structures, managerial theory,

problem solving and critical thinking with an agribusiness emphasis. In addition, the focus group technique confirmed that communication skills are critical for success in the agricultural industry, and that courses developing skills in commercial writing, public speaking and audio visual technology are essential. In addition, participants suggested that students need to learn the more subtle communication skills, such as listening, interpretation, and the ability to understand non-verbal signals. Communication courses and intern programs should incorporate and evaluate the student's ability to develop these most useful communication skills.

As we review all the data and recount all the interviews, the implication is that if agricultural education is to evolve, curricula change must occur. Furthermore, if that change is based on preconceived notions or old data of what is needed, the probability of success is low. The focus group process dispels preconceived bias about what ought to be and gives insight into what the "customer" wants in the graduate. Although we have had the statistical mandate in our hands since 1979 (Parmley, Bowen & Warmbrod), it is only very recently that agricultural education programs across the country have begun to move away from the single mission idea of teacher preparation. The new identify of agricultural education can use the multiple mission concept to train both formal and nonformal educators.

The implications in the college and university are immediate. For an option to be developed, strong relationships will need to be developed with departments that offer agricultural business, psychology, communication and management. Furthermore, if this options is to be developed, courses in the department will need to be reconfigured to offer topics that will meet the needs of these students. This will put further demands on staff and faculty that will need to be explored. However, it is in our interest to further explore opportunities to develop new curricula strands that

utilize our expertise in communications and interpersonal skill development to serve a broader clientele base.

References

Baxter, C. A. (1992). An examination of on-the-job writing among recent baccalaureate degree graduates from the Pennsylvania state university's college of agricultural sciences. M.S. Thesis, University Park: The Pennsylvania State University.

Baxter, C. A. & Scanlon, D. C. (1993). An examination of on-the-job writing among recent baccalaureate degree graduates from the Pennsylvania State University's College of Agricultural Sciences. Paper presentation included in the Proceedings of the 47th Annual Eastern Region Agricultural Education Research Conference, 47, 22-29, Woodstock, VT.

Bruening, T. H. (1992). Useful water quality information sources: The farmer's point of view. Journal of Applied Communications, 76(2); 43-49.

Coorts, G. D. (1987). Updating today's college curriculum for tomorrow's agriculture. NACTA Journal, 31(2); 20-21.

Kirk, J., & Miller, M. L. (1986). Reliability and validity in qualitative research. Beverly Hills, CA: Sage Publication.

Krueger, R. A. (1984). Focus group interviewing as an evaluation tool. Paper presented at the Evaluation Research Society and Evaluation Network Annual Meeting, San Francisco, CA.

Krueger, R. A. (1988). Focus groups: A practical guide for applied research. Beverly Hills, CA: Sage Publication.

Merritt, R. H. (1984). Curriculum development project: Challenges for undergraduate education in agricultural sciences. NACTA Journal, 28(3); 9-14.

Miles, M. B., & Huberman, A. M. (1984). Qualitative data analysis: A sourcebook of new methods. Beverly Hills, CA: Sage Publication.

Miller, L. E. (1985, December). Ferried on a tributary. The Agricultural Education Magazine, pp. 3-4.

Oliver, J. D., & Camp, W. G. (1993). A national study of the supply and demand for teachers of agricultural education in 1991. Blacksburg, VA: Division of Vocational and Technical Education, Virginia Polytechnic Institute and State University.

Parmley, J. D., Bowen, B. E., & Warmbrod, J. R. (1979, August). The supply and demand of teachers of agriculture: Can the situation be explained? Paper presented at the Central Region Conference in Agricultural Education Annual Meeting, Manhattan, KS.

Riesenberg, L. E. (1988). Graduates' recommendations: Future curriculum emphasis for colleges. NACTA Journal, 32(2); 34-37.

Slocombe, J. W. & Baugher, E. E. (1988). Revitalizing agricultural curricula. NACTA Journal, 32(3); 8-10.

Smith, M. F. (1989). Curricular changes for colleges of agriculture: Student perceptions and future trends. NACTA Journal, 33(2); 17-20.