

DISTANCE EDUCATION NEEDS OF AGRIBUSINESSES AND PROFESSIONAL AGRICULTURE ASSOCIATIONS

Blannie E. Bowen, Professor

Joan S. Thomson, Associate Professor
The Pennsylvania State University

Abstract

For this assessment, 66 agribusinesses and 61 associations provided usable data by the end of the data collection period (August 6, 1993). Major findings were that programming targeted to individual firms and associations as well as general programming that applies to multiple audiences are of high interest, i.e. (1) conferences, seminars, short courses, workshops, and meeting; (2) certificate or licensure programs; and, (3) contemporary issues programming. Graduate and undergraduate courses in agronomy, entomology, food science, personnel evaluation, management, and strategic planning were preferred most by the firms. Desired proprietary programming focuses upon employee training, new products being developed, and marketing strategies. However, firms indicated a strong desire to protect such programming from being downlinked by competitors. Most often, training directors, firm presidents, and association presidents make the decision to commit the resources to subscribe to distance education. As opposed to the universities, the firms and associations need less than six months to decide to subscribe to a program or course. Most indicated that they would pay \$1,000 or less, to subscribe to credit courses.

The Vocational Education Act of 1963 and the Vocational Education Amendment of 1968 provided the legal authority for agricultural educators to begin formally preparing students for agribusiness employment requiring less than a baccalaureate degree. Three decades after this legislation, secondary and post-secondary instructors deliver instruction that students need to acquire such employment. At the university level, preparation for agribusiness employment has received limited attention from agricultural education faculty. However, distance education technologies now provide such faculty with opportunities to initiate and in some instances expand their involvement with the agribusiness sector.

The potential of distance education technologies is such that a number of agricultural and extension education faculty are exploring opportunities to deliver instruction for audiences that they have traditionally not served through credit courses. However, inherent in the delivery of such

instruction are issues of when and where the instruction will be delivered, by whom, and through what means. Yet, even with these uncertainties, distant education is being explored extensively as an alternative for students having to come to university campuses to (1) enroll in credit courses; (2) pursue graduate and undergraduate degrees; and, (3) participate in noncredit certificate, licensure, and professional development programs.

Related Research

The research base is limited regarding the involvement of agricultural and extension education faculty in the preparation of students for the agribusiness sector. To date, most of the research with an agribusiness focus has been limited to the preservice preparation of students for entry level positions. Consequently, few studies have addressed the inservice needs of students once they secure agribusiness positions. Further, the knowledge base is even more limited as it relates to the inservice needs of the professional associations

that comprise the Council for Agricultural Science and Technology (CAST), a confederation of professionals not employed by agribusinesses. This review summarizes the limited research that focuses on the inservice and professional development needs of agribusiness employees and individuals holding professional positions in the agricultural sciences.

Hansen, Holmes, and Jimmerson (1989) found that agribusiness and government employees in the Columbia River Basin of Oregon were most interested in process oriented courses. The top four educational needs focused on oral communication, general mathematics, written communication, and organizational skills. In the same study, they reported that agribusiness employees in the areas of production, service, processing, horticulture, and natural resources had similar needs.

A study that focused on urban agribusiness employees produced similar findings. Harbstreet, Stewart, and Birkenholz (1989) found that human relations, employee leadership, employee motivation, and decision-making were the major educational needs of these employees. Of secondary importance were technical subject matter topics such as integrated pest management and crop production.

From the perspective of instruction for prospective employees, agribusiness managers and high school agriculture instructors had similar perceptions about six skill categories (Spotanski & Foster, 1989). Both groups ranked customer relations skills first, but they differed on the importance of the second and third categories, i.e. communication and employment skills. However, they ranked the final three categories in the same order: office equipment skills (#4); business skills (#5); and, sales skills (#6). Even though the managers and instructors tended to agree on the rankings, they placed vastly different levels of importance on the categories. On a 9-point scale, the instructors perceived four categories (customer relations, communication skills, employment skills,

and office equipment skills) to be more important than the managers' highest rated category (customer relations skills).

In terms of what motivates students to enroll in agribusiness instruction, Miller (1992) found that only two of six factors (professional advancement and cognitive interests) had small to moderate influences on participants' decisions to enroll in off-campus agriculture degree programs. Social contact, social stimulation, community service, and external expectations had negligible influence on participants' decisions to enroll in the Iowa State University agriculture programs. Further, students who had occupational interests in business, government service, and production agriculture, were motivated to enroll in off-campus degree programs by the same types of factors. However, when compared with more than 12,000 adult students enrolled in university-wide continuing education programs, professional advancement was the only factor that agriculture students rated higher than did continuing education participants (Miller, 1992).

In a study that examined student perceptions of one type of distance education, Miller and Honeyman (1993) found that adult students who enrolled in agriculture courses delivered by Iowa State University on a video-taped basis had positive to very positive attitudes toward instruction delivered in this mode. Most of these students were farming or were employees of agribusiness firms or governmental agencies.

From an instructional delivery perspective, technologies commonly included under the rubric of distance education were examined in a study of extension agents who delivered instruction for pesticide applicators. Cresswell and Martin (1993) found that agents who delivered this type of instruction, perceived that instructional technologies which have distance education attributes were highly effective, i.e., videotapes, computer aided instruction, satellites, and motion pictures. However, none of the agents used these

technologies on a sustained basis to deliver instruction to the pesticide applicators.

In summary, based upon the findings of their study of agribusiness employees in the Columbia River Basin, Hansen, Holmes, and Jimmerson (1989), recommended that educational institutions offer more credit courses at times and in locations where workers can participate with minimal disruptions to their professional and personal lives. Further, Harbstreit, Stewart, and Birkenholz (1989) concluded that a need existed to develop education and training programs for urban agribusiness employees. They recommended that agricultural educators initiate a dialogue with agribusiness management personnel to meet these needs.

Objective of the Study

In 1989, several land grant universities created a consortium (Agricultural Satellite Corporation or AG*SAT) in response to opportunities that distance education presents colleges of agricultural sciences. The main goal of this consortium is to plan, coordinate, and deliver distance education in the agricultural sciences and natural resources. To enable AG*SAT to better achieve this goal, this assessment was conducted to determine the need for, and potential of, delivering credit instruction for agribusinesses and professional associations using the AG*SAT network and related technologies.

The objectives of the assessment were to:

1. discover and recommend the means for providing more flexibility in delivery systems for the agricultural education system.
2. evaluate the needs of business and industry in the agricultural sector and recommend programming to meet those needs.
3. differentiate between those special and unique offerings which may be needed once and those which are ongoing to augment existing

curriculum or programs.

4. list future areas where programming needs will exist and have not yet been developed.

Methods and Procedures

The Borich (1980) Needs Assessment Model provided a systematic means to collect, analyze, and interpret data relative to the four objectives. This model enables researchers to determine discrepancies between *what is* and *what should be*. The subjects were provided information on *what is* (the state of the art) relative to programming delivered via AG*SAT and related technologies. These individuals then evaluated the state of the art to determine (1) *what should occur* and (2) *what will occur*. Discrepancies between *what is occurring* vs. (1) *what is possible* and (2) *what is realistic* were used to provide a systematic means to plan future programming to be delivered via AG*SAT.

For this study, data were collected from a population consisting of: (1) agribusiness training directors of major regional, national, and international agribusiness firms; and, (2) executive directors or presidents of professional agricultural associations. The executive committee of the AG*SAT academic program deans initially identified individuals who should comprise the agribusiness group. However, few names surfaced with this approach. Thus, the researchers identified most members of the population from the agribusiness membership list of the American Society for Training and Development (ASTD) and the membership list of the Council for Agricultural Sciences and Technology (CAST). Other directories were used to verify the population frame and detect individuals not identified with the above procedures.

A mail questionnaire was developed to collect data for the assessment. The executive committee of AG*SAT's Academic Programs Council and AG*SAT's program manager reviewed the

questionnaire for content and face validity. During the first week of June 1993, the questionnaire, cover letters from the researchers and the chair of the AG*SAT Board of Directors, and copies of the AG*SAT newsletter *Downlink* that included details on the study, were mailed to the 139 training directors and 85 presidents or executive directors. After seven weeks, 60 had responded with usable data. The researchers did follow-up telephone calls over a two-week period to the agribusinesses and associations that were willing to participate. By the end of the data collection period (August 6, 1993), these approaches resulted in 127 responses (66 agribusinesses and 61 associations). No additional follow-ups were warranted. Descriptive statistics were used to summarize the data because a population was being studied. Internal consistency reliability coefficients were deemed inappropriate.

Findings

Major findings for the four objectives are summarized below. The *should*, *could*, and *will* approach (Borich, 1980) elicited responses that became less positive as more certainty was requested. For example, when respondents were asked how they *should* or *could* use AG*SAT, they cited numerous areas. However, when asked how they *will* use AG*SAT programming between 1993 and 1997, the number of responses becomes lower. This trend is apparent throughout the findings for all four objectives.

Almost 38% (48 of 127 training directors and association executive directors or presidents) indicated that their firm or association planned to use distance education to meet their programming needs between 1993 and 1997. The following findings apply to those 48 firms and associations that planned to use distance education. In interpreting the findings, caution is urged. Most of the firms and associations have large numbers of

employees or members, thus, the size of the potential audience will be underestimated without an in-depth analysis of the number of individuals involved. In the aggregate, the findings suggest that the associations and firms are good targets to receive programming that AG*SAT delivers.

Objective 1 (Needed Flexibility)

Programming targeted to the needs of individual firms and associations as well as programming of a general nature that applies to several firms and associations were of high interest to both groups. Training directors, firm presidents, and association presidents or vice presidents were the individuals who will most often decide to subscribe to distance education and commit the necessary funds. Thirty-six firms and associations indicated that they will use AG*SAT programming and 18 firms and associations desired a formal affiliation with AG*SAT (Table 1). The firms and associations indicated that they need less than six months to decide to subscribe to a program or course. Most indicated that they would pay \$1,000 or less to subscribe to credit courses.

Objective 2 (Programming Needs)

Programming needs focused upon the following areas: (1) conferences, seminars, short courses, workshops, and meetings tailored to (a) a particular firm or association or (b) the interests of several firms and associations; (2) certificate or licensure programs; and, (3) contemporary issues oriented programming (Table 1). Graduate degree programs were preferred most by the firms. Courses in agronomy, entomology, food science, personnel evaluation, management, communications, and strategic planning were desired most by the firms.

Table 1. Distance Education Programming Needs of Agribusinesses and Professional Associations

Agribusinesses*	Associations *
(f=66)	(f=61)

Plans to use distance education between 1993 and 1997.	25	23
Now downlinks activities, programs, or courses.	9	6
Will subscribe to professional development programs, courses, seminars, certificate programs, etc.?	17	19
Types of desired programming:		
Conferences, seminars, and meetings tailored to my group.	15	17
Conferences, seminars, and meetings for various groups.	18	10
Programs, short courses, and workshops for my group.	18	18
Programs, short courses, and workshops for various groups.	18	13
A certification or licensure program.	11	10
A certificate program.	13	9
Contemporary issues oriented special programs.	17	14
Will pay a <i>per use</i> fee to access AG*SAT programming.	20	15
Will subscribe to credit courses or degree programs.	12	10
Will pay a <i>per use</i> fee to access technical agriculture courses.	10	3
Will pay a <i>per use</i> fee for process/people oriented courses.	14	6
Desires a distance education graduate degree program.	10	2
Wants to purchase self-study programs from vendors.	13	0
Who decides if group will subscribe to AG*SAT programming:		
Training directors	13	--
Others in firms	12	--
Association president or vice president	--	11
Officer boards	--	7
Others in association	--	6
Will become a user of AG*SAT programs and services.	14	16
Wants a formal affiliation with AG*SAT.	9	9

* - Number responding **Yes**.

Objective 3 (Special vs. Unique Offerings Needed)

Programming tailored to the unique needs of agribusinesses and associations was desired most often. This proprietary programming focused on employee training, new product development, and marketing strategies. As expected, several firms indicated a strong desire to protect such programming from being downlinked by competitors. This concern was not a major issue with the associations.

Objective 4 (Future Programming Needs)

Firms tended to indicate that if resources become more limited, they will **not** drop their training programs. In difficult budgetary situations, the firms indicated that they will subscribe to more training programs (short courses, workshops, and programs) delivered via AG*SAT. Thirteen firms were also interested in purchasing self-study programs from vendors. The associations were most interested in receiving programming that meets the unique needs of their members.

Discussion

The findings of this study suggest that colleges of agricultural sciences have the opportunity to use distance education to reach audiences that heretofore have been served on a limited basis. Embedded in the findings, however, are issues related to effectively managing instruction beyond the confines of a university's main campus and state. Currently, the land grant institution with the predominant research mission in a state serves as the broker for **all** AG*SAT delivered instruction downlinked in that state. Consequently, such an approach requires extensive cooperation, especially in states where two or more institutions offer degrees in agriculture, natural resources, and related areas. Further, when the vast international markets are considered, other administrative, philosophical, and academic issues emerge. The findings of this assessment suggest that the prevailing pattern of offering credit courses primarily on university

campuses must be revisited before the potential of distance education can be realized by colleges of agricultural sciences that wish to serve the needs of agribusinesses and professional agricultural associations.

In spite of the above philosophical and administrative issues, distance education technologies are such that an agribusiness or an association needs only a satellite dish and the proper satellite coordinates to receive instruction delivered via AG*SAT. Thus, the findings of this assessment suggest that the technologies used to deliver distance education in agriculture now exceed the current mode of offering credit instruction in the agricultural sciences. The findings also provide colleges of agricultural sciences with implications for practice that must be addressed before the ideals of distance education can be realized.

From an agricultural and extension education perspective, several implications for practice are also apparent (Bowen & Thomson, 1994). From an adoption standpoint, the findings point to a strong demand for process and "people" oriented instruction that agricultural and extension education faculty routinely teach on university campuses. For example, courses related to communications, evaluation, personnel development, and strategic planning were desired by the agribusinesses. However, to date agricultural and extension educators have offered only two credit courses via AG*SAT: (1) methods of teaching in colleges of agricultural sciences by L.H. Newcomb at The Ohio State University; and, (2) research methods and design by James Key at Oklahoma State University. Both courses target limited audiences, i.e., graduate students and faculty. Such limited offerings indicate that the profession has only begun to tap the technology's potential.

The potential to deliver process oriented courses for agribusinesses and professional associations presents agricultural and extension education faculty with opportunities to reach audiences that

they have not served extensively. Even though secondary and post-secondary instructors have been preparing students for entry level agribusiness employment since the 1960s, university faculty have not readily viewed the agribusiness sector as a major target audience. Further, agricultural educators have had limited substantive relationships with professional associations that are CAST members.

However, because the American Association for Agricultural Education became a CAST member in the early 1990s, the associations that are CAST members can become viable target audiences. The findings indicate that such associations are interested in receiving continuing education with a process orientation to better meet the needs of their members. Further, most departments of agricultural and extension education have faculty who teach courses that can easily be modified to include the planning, delivery, and evaluation of distance education courses and programs that focus upon the professional development and continuing education needs of individual CAST members. In this regard, Jackson and Bowen (1993) have developed a conceptual model that enables faculty to effectively deliver instruction via distance education.

In a related vein, opportunities exist for agricultural and extension educators relative to external degree programs. AG*SAT's program manager and a group of agricultural and extension education faculty are exploring the potential of offering a master's degree via distance education (Personal interview with Randy Bretz, July 27, 1994). However, this degree program will be targeted primarily to extension professionals. Under the current plan, this degree can be offered by one or several universities.

The proposed degree will expand the land grant concept to better serve the needs of contemporary society that is increasingly relying on satellites, computers, and various telecommunications technologies. As now conceived, the proposed external master's degree program will enable

departments of agricultural and extension education to better serve traditional audiences, i.e., extension agents and secondary teachers. Noticeably absent from this list of target audiences is the agribusiness sector which the findings of this study indicate wants to receive graduate degree programs. Consequently, to capitalize on the full range of opportunities, AG*SAT must be a mechanism to offer courses and programs that have not been offered off-campus for various reasons, including distance and budgetary constraints, for multiple audiences.

Conclusions

The following conclusions were made based upon the findings for the agribusiness firms and professional associations.

1. A number of agribusiness firms and associations are interested in receiving programming tailored to their unique needs as well as the programming needs of similar firms and associations.
2. Although graduate degree programs are of interest to both groups, agribusiness firms expressed more interest in receiving instruction that leads to graduate degrees.
3. Agribusiness firms and associations have considerable flexibility in terms of when they can receive programming and in the amount of funds that they are willing to commit for such programming.
4. A number of firms and associations want to receive both technical agriculture instruction as well as social and behavioral sciences courses related to business, management, and personnel.

Recommendations

The findings prompted the following three recommendations.

1. AG*SAT should explore with agribusiness firms the possibility of delivering credit courses, graduate degree programs, and noncredit programming that is both unique and of a general nature.
2. Credit courses currently offered via AG*SAT should be marketed more aggressively to agribusiness firms.
3. AG*SAT's leadership should contact the training director or president of agribusiness firms and the executive director or president of agricultural associations who responded positively to the future use of distance education to determine the details of their interest in becoming affiliated with AG*SAT or in receiving AG*SAT's programming.

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