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AGRIBUSINESS STANDARDS: A COMPARISON OF THE CHOICES OF UTAH AGRISCIENCE AND.TECHNOLOGY TEACHERS AND AGRIBUSINESS REPRESENTATIVES

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Abstract

The purpose of this study was to identify the core agribusiness standards to be used to guide instruction in Utah secondary agriscience and technology programs. The Utah agriscience and technology teachers and agribusiness representatives of the study moderately or somewhat agreed that 11 of the same agribusiness standards should be taught in the secondary agriscience and technology programs of Utah. The teachers and agribusiness representatives indicated demonstrating written and verbal communication skills and use of computer technologies in agricultural management and quality control as the initial two standards to be taught. Both groups agreed the least important standards to be taught were monitoring the affects of non-government organizations andgovernment on the operations of the agribusinesses and the use of approved estate planning practices and principles. The authors concluded the teachers and agribusiness representatives agreed upon a common set of core standards that should be used to guide instruction in Utah.

Introduction

Before and since passage of the Vocational Education Act of 1963, many secondary and post secondary agricultural education programs have emphasized contemporary agribusiness management education. The 1963 legislation helped pave the way for a more intense focus on agribusiness education as it related to high school curriculum. Current data indicate there is good reason to continue the efforts (The National Council for Agricultural Education, 1996). According to data provided in the 1994 Statistical Abstract of the United States (U.S. Dept. Of Commerce, 1994), the agribusiness community contributes $950 billion dollars to the United States economy. Employment opportunities will continue to be available as agribusinesses continue to grow and expand (Cramer & Jensen, 1985). Nearly 21% of the domestic workforce is employed in the agribusiness sector of the economy (Ubadigbo and Gamon, 1988). However, to maintain a vibrant and properly prepared agricultural work force, agricultural educators and agribusiness and industry representatives need to collaboratively examine and prioritize current occupational competencies that are needed for entry into agribusinesses and industries.

Demands for updating agribusiness education programming have existed for years. Because of changes in the agricultural industry through the use of programmatic research, advisory committees, and partnering arrangements the development of curriculum and the identification of agribusiness educational standards have taken on a new importance. Hunsicker (1977) stated, "The demand for vocational education in agri-business, including agriculture, off-farm agri-business and renewable natural resources will increase rapidly as employment

opportunities in this field are recognized" (p.103).

The authors of *Understanding Agriculture: New Directions for Agriculture* (NRC, 1988) stated that agriculture is too important a topic to only be taught to those pursuing careers in agriculture. The authors recommended that, "New curriculum components must be developed and made available to teachers addressing the science basic to agriculture, food, and, natural resources; agribusiness; marketing; management; international economics; financial accounting; and tools to improve the efficiency of agricultural productivity". (p.35). Authors of *Building the Future Serving Today: A Strategic Plan for Agricultural Education* (1989) endorsed the need for change and observed further that, ". . . agricultural education must keep pace or become an obsolete remnant of the past. It is essential that bold, innovative thinking be encouraged and revitalized to prevent stagnation and rejection" (p. 1).

The employment of students in vocational programs has long been one goal of educators. The National Agricultural Occupations Study (1978) was initiated to, ". . . "identify essential agricultural competencies needed for entry employment and advancement in the major agriculture and agribusiness occupations and to validate the importance of the competencies identified for each occupation by workers employed in the occupation" (p.iii).

Numerous studies using panels of industry and education experts to validate agribusiness skills and competencies have found that educators and agribusiness representatives often have differing opinions regarding which standards and competencies students should master at the secondary level (Thomsen, 1977; Wood, 1978; Bigo, 1979; Summers, 1979; Israelsen, 1980). Spotanski and Foster (1989) found that the perceptions of agricultural teachers and agribusiness managers were significantly different for 36 of 41 agribusiness skills. Contrary to the findings of a majority of earlier studies, Andreasen (1996) found that agricultural business and industry representatives and agricultural educators did agree on the preferred order for teaching selected agribusiness instructional objectives to secondary agriscience students.

Advisory committees, which usually include representatives from agricultural business and industry, are often used to develop, update and validate competency lists that aresubsequently used for instruction (Phipps and Osborne, 1988). This common practice was highlighted by Iverson (1992). He stated, "From its inception, agricultural education has been a community-oriented program. Early leaders extolled the values of living in the community and participating actively in the locality. In addition, teachers were admonished to work closely with parents, local leaders, and businessmen, and to listen to their counsel" (p. 17).

Secondary agriculture students need to be trained to enter a job market which requires newer and more technical skills. While it has been known for some time that there are fewer jobs in production agriculture (Ubadigbo and Gamon, 1988), it is also true that more jobs exist now in agriculturally-related fields than ever before, many of these new jobs being in the agribusiness sector (Cramer and Jensen, 1985). Partnering between industry and education has been strongly encouraged by political and educationleaders. For example, Bush called for partnering in his Education 2000 initiative. Leaders of agricultural education (The Council, 1992; 1996) and the FFA (Iverson, 1992) also formalized a call for collaboration between agricultural education and agricultural business and industry.

In response to demands to integrate more agribusiness management education into secondary agricultural education programs, curriculum development specialists and researchers identified

and investigated the use of appropriate agribusiness competencies. Considering the continual need for qualified applicants for jobs in the agribusinesses and agri-industries of Utah and other states of the West, the leaders of the secondary agriscience and technology education programming for Utah also responded to this challenge.

Purpose and Objectives

Drawing upon the expertise of the agriscience and technology teachers and agribusiness representatives used in the Andreasen (1996) study, this investigation sought to identify core agribusiness education standards for use in the Utah agriscience and technology programs. The objectives that guided this study were to:

1. Determine which agribusiness education standards agriscience and technology teachers believed should be used to guide secondary agribusiness education instructional efforts in Utah;

2. Determine which agribusiness education standards agribusiness representatives believed should be used to guide secondary agribusiness education instructional efforts in Utah;

3. Compare the agribusiness education standards choices of the Utah agribusiness representatives and agriscience and technology teachers.

Methodology

This was a descriptive study that used a non-equivalent comparison group. Comparison groups attempt to identify analogous perceptions or analyses of studies. Non-equivalent groups may present ideas or perceptions from different points of views concerning the same study (Ary, Jacobs and Razavieh, 1996). Agriscience and technology teachers and northern Utah agribusiness and industry representatives professionals from a wide range of agricultural areas were used as the two non-equivalent comparison groups.

A purposive sample of fifteen Utah secondary agricultural science teachers and thirteen agribusiness industry leaders was chosen to validate standards and objectives of agribusiness competencies. Utah agriscience and technology teachers who regularly taught agribusiness units of instruction were selectively chosen for participation in this study from a list of teachers submitted by the Utah State Office of Education Agricultural Education Specialist. Representatives from a variety of Utah agribusiness and agri-industries settings were also nominated and selected to participate in the study. They represented farm implement dealers, feed stores, agricultural cooperatives, food processing plants, adult education programs, and agricultural service industries. Thirteen teachers and twelve agribusiness representatives returned usable questionnaires for a return rate of 86.7% and 92.3%, respectively. Because of the purposive selection of the sample, the non-respondents were not sampled.

The one page, duplexed instrument included a list of the 16 agribusiness standards identified from a comprehensive curriculum search. Participants responded to their belief about the importance ofteaching each agribusiness standard in secondary agriscience programs in Utah by circling the number of a corresponding response from a seven point Likert-type scale. The scores on the Likert-type scale were 1 for Strongly Agree, 2 for Moderately Agree, 3 for Somewhat Agree, 4 Undecided, 5 Somewhat Disagree, 6 Moderately Disagree, and 7 for Strongly Disagree.

Data collection was completed via the mail through careful adherence to the Dillman Total Design Method (1978). Participants received a postcard in advance of receiving the instrument

and accompanying cover letter. Participants received two follow-up letters and instruments two weeks and four weeks after the initial mailing.

Descriptive statistics were calculated for the agribusiness and industry representatives and agriscience educators responses using the Excel™ spreadsheet. The Mann-Whitney analysis using Minitab™ analysis software was used to compare the rankings generated from the mean scores of the agriscience and technology teachers and agribusiness and industry representatives. The alpha level was established at .05 a priori.

Findings

The mean scores and subsequent rankings for each agribusiness management education standard are presented for the Utah agriscience and technology teachers in Table 1. The standards were: (a) demonstrate written and verbal skills; (b) use computer technologies in agricultural business and management; (c) apply general agricultural business and management principles; (d) maintain agribusiness records using approved procedures and practices; and (e) apply basic economic principles in agricultural business an management. They indicated the least important standard to be taught in Utah was to use approved estate planning practices and principles for the agribusiness.

The data in Table 2 represent a summary of the responses of the agribusiness and industry representatives. The mean scores for the sixteen standards ranged from 1.75 (SD=0.95) to 3.67 (SD=1.31). They moderately or somewhat agreed that 12 standards should be taught in the Utah's secondary agriscience and technology programs. In order, the top five standards to be taught were to: (a) use computer technologies in agricultural business and management; (b) demonstrate written and verbal skills; (c) apply basic economic principles in agricultural business and management; (d) apply general agricultural business and management principles; and (e) maintain agribusiness records using approved procedures and practices. The least important standard to be taught in Utah was to monitor the affects of non-government organizations and government on the operation of the agribusiness.

The data in column 2 of Table 1 indicate the mean scores of the teachers of the sixteen standards ranged from 1.62 (SD=0.92) to 4.23 (SD=1.58). The agriscience and technology teachers moderately (2.5l-3.50) or somewhat agreed (1.5l-2.50) that 12 standards should be taught in the Utah agriscience curriculum. In order, the top five standards to be taught were to: (a) use computer technologies in agricultural business and management; (b) demonstrate written and verbal skills; (c) apply basic economic principles in agricultural business and management; (d) apply general agricultural business and management principles; and (e) maintain agribusiness records using approved procedures and practices. The least important standard to be taught in Utah was to monitor the affects of non-government organizations and government on the operation of the agribusiness.

Further review of the data in Tables 1 and 2 reveals the agriscience and technology teachers and agribusiness representatives moderately or somewhat agreed 11 of the same agribusiness standards should be taught in Utah agriscience and technology departments. Both groups agreed the least important standards to be taught were to: (a) monitor the affects of non-government organizations and government on the operations of the agribusiness, and (b) use approved estate planning practices and principles for the agribusiness.

A Mann-Whitney analysis was completed to determine if the rankings of the agribusiness standards in Tables 1 and 2 were, indeed, equal (Hinkle, Wiersma and Jurs, 1994). Since a probability value of .95 resulted from testing

Table 1. Utah agriscience and technology teacher rankings of agribusiness education standards (n=13)

Standard	M	SD	Rank
Demonstrate written and verbal skills	1.62	0.92	1
Use computer technologies in agricultural business and management	1.92	0.92	2
Apply general agricultural business and management principles	2.15	1.10	3
Maintain agribusiness records using approved procedures and practices	2.31	1.59	4
Apply basic economic principles in agricultural business an management	2.38	1.27	5
Maintain approved safety and health practices in the agribusiness	2.46	1.31	6
Implement approved agribusiness finance and credit practices	2.69	1.26	7
Exercise agribusiness marketing skills	2.92	0.83	8
Apply approved tax management strategies.	3.08	1.14	9
Implement appropriate personnel management practices in the agribusiness firm.	3.08	1.44	10
Apply agribusiness sales and merchandising skills	3.23	1.05	11
Utilize approved insurance and risk management strategies	3.38	1.33	12
Practice agribusiness management and quality control	3.54	1.39	13
Maintain an awareness of the influence of agricultural laws on the operation of the agribusiness	3.85	1.41	14
Monitor the effects of non-government organizations and the government on the operation of the agribusiness	3.92	1.27	15
Use approved estate planning practices and principles for the agribusiness firm	4.23	1.58	16

Note. l=strongly agree, 2=moderately agree, 3=somewhat agree, 4=undecided, 5=somewhat disagree, 6=moderately disagree, 7=strongly disagree.

ETA1 (agriscience educators) equals ETA2 (agribusiness and industry representatives) versus ETA1 does not equal ETA2, the rankings of the agribusiness standards by the two groups were determined to be equal.

Conclusions, Recommendations, and Implications

Findings from this study provided the foundation for three conclusions. First, the Utah agriscience and technology teachers somewhat or moderately agreed a core of selected agribusiness standards should, indeed, be taught in Utah agriscience and technology education programs. From the list of 16 agribusiness education standards, the teachers believed the most important standard to be taught was to ensure that students can appropriately demonstrate quality written and verbal communication skills. This prioritization reflects the continuous promotional efforts of agricultural business, industry, and education leaders that are designed to increase the awareness of teachers as to the need for graduates with quality communication skills.

Table 2. Utah agribusiness representative rankings of agribusiness education standards

Standard	M	SD	Rank
Use computer technologies in agricultural business and management	1.75[1]	0.60	1
Demonstrate written and verbal skills	2.08	1.11	2
Apply basic economic principles in agricultural business an management	2.17	1.07	3
Apply general agricultural business and management principles	2.25	1.16	4
Maintain agribusiness records using approved procedures and practices	2.42	1.11	5
Maintain approved safety and health practices in the agribusiness	2.50	1.76	6
Implement approved agribusiness finance and credit practices	2.58	0.95	7
Exercise agribusiness marketing skills	3.00	1.35	8
Maintain an awareness of the influence of agricultural laws on the operation of the agribusiness	3.08	0.95	9
Practice agribusiness management and quality control	3.25	1.01	10
Implement appropriate personnel management practices in the agribusiness firm	3.25	1.48	10
Apply approved tax management strategies	3.33	.18	12
Apply agribusiness sales and merchandising skills	3.50	1.50	13
Utilize approved insurance and risk management strategies	3.58	1.32	14
Use approved estate planning practices and principles for the agribusiness firm	3.58	1.55	14
Monitor the effects of non-government organizations and the government on the operation of the agribusiness	3.67	1.31	16

Note. l=strongly agree, 2=moderately agree, 3=somewhat agree, 4=undecided, 5=somewhat disagree, 6=moderately disagree, 7=strongly disagree.

Second, the Utah agribusiness and industry representatives also believed a core of selected agribusiness standards should be taught in Utah secondary agriscience and technology education programs. Of their list of 12 recommended standards, they indicated the two most important standards to be taught were the use of computer technologies in agricultural business and management, and the ability to demonstrate written and verbal communication skills.

And finally, the agriscience and technology teachers and agribusiness and industry representatives agreed upon a common core of agribusiness standards that should be taught in Utah's secondary agriscience and technology programs. The two groups agreed upon eleven of 12 standards that each group somewhat or moderately agreed should be taught. This finding differs with the level of agreement reported by other researchers who compared the perceptions of agribusiness and agri-industry representatives and educators (Foster and Spotanski, 1989; Thomsen, 1977; Wood, 1978; Bigo, 1979; Summers, 1979; and Israelsen, 1980). The high level of agreement found in this study may reflect the elevated levels of communications maintained among the agriscience and technology teachers, agribusiness and industry representatives, teacher educators, and the State Office of Education personnel of Utah.

Even though this study found substantial agreement between teachers and agribusiness and

agri-industry representatives concerning which agribusiness standards should be taught, differences of opinion exist. Agriscience and technology teachers and agribusiness representatives in Utah must continue to cooperate in determining appropriate agribusiness standards for Utah students enrolled in secondary agriscience and technology courses and programs. This may occur through innovative partnering activities that periodically bring agribusiness representatives into agriscience classrooms and agriscience and technology teachers into agribusiness environments. Since it remains unclear how and why agriscience and technology teachers and agribusiness and industry representatives often share differing views about appropriate secondary agribusiness standards and objectives, researchers need to concurrently conduct similar studies with different designs and populations of agriscience and technology teachers and agribusiness representatives. Answers to these questions are needed to assist state-level agricultural education supervisors and agricultural education teacher educators ensure that preservice and practicing teachers select and teach appropriate agribusiness standards and objectives.

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