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Agricultural Education

Early Congressional Efforts, An Early Philosophy of Agricultural Education

Agricultural education encompasses the study of applied sciences (e.g., biology, chemistry, physics), and business management principles. One of the major purposes of agricultural education is to apply the knowledge and skills learned in several different disciplines to agricultural education.

Agricultural education goes beyond knowledge and skills development in that students are able to develop an understanding of: 1) the significance of agriculture in a global society, and the U.S. society in particular, through the application of scientific and business principles and problem solving strategies; and 2) the interdependency and relationships between the agricultural industry and other significant business interwoven with the entire economic and social structure of the community, state, nation, and world. This program places an emphasis on food systems, environmental issues, and development of life skills.

The study of agricultural education focuses on the needs of individuals and groups and in developing individually satisfying and socially responsible knowledge, skills, and occupational values. Such a focus recognizes the value of, and relies heavily on, experiences as the context in which knowledge and skills are learned.

Agricultural education focuses on, but is not limited to, study in horticulture, forestry, conservation, natural resources, agricultural products and processing, production of food and fiber, aquaculture and other agricultural products, mechanics, sales and service, economics, marketing, and leadership development. Of relevance to a general audience (K–adult), agricultural education programs assist with providing lifelong learning opportunities in and about agriculture. Agricultural education provides opportunities to learn basic agricultural skills and knowledge, occupation training and retraining, and professional growth and development.

Formal programs in agricultural education are conducted at secondary schools, community colleges, and universities. As a vocational education program, agricultural education focuses on three major components: formal classroom instruction, career experience programs, and leadership development. These components are delivered through a competency-based curriculum in the context of agriculture.

Agricultural education is an old and well-established area of study in the United States. The Philadelphia Society for Promoting Agriculture, one of the first organizations in the United States designed to deal with agricultural education, was founded in 1780. R. F. Johnstone, writing in 1854, attributed many early American ideas about agricultural practices and agricultural education to the British:

One of the first efforts made to arouse the minds of farmers of this country ... was that of the ... men who organized the New York State Agricultural Society in 1835. Those men had observed the good effects of the Royal Agricultural Society of England and resolved to awaken in their own State and country a spirit of inquiry similar to that which had been aroused by their English prototype.

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Early Congressional Efforts

In 1862 citizens and politicians throughout the United States joined forces to further advance the lives of farmers and rural people through the creation of the land-grant college system, enacted as part of the Morrill Act. According to Kandel, "the major thrust of Morrill's arguments in 1857 and 1862 was to deplore the decline of

American agriculture due to a lack of scientific knowledge. [Morrill] said, 'that this bill would lift up the intellectual and moral standard of the young and industrial classes of our country'"(Moreland and Goldenstein, p. 117).

Morrill also claimed that it was wrong to call the proposed colleges *agricultural colleges*, since he was interested in a broad education. Clearly, philosophical debates were already taking place over just what the role of education should be. According to Moreland and Goldenstein, there was "great debate whether their chief purpose was to provide vocational education only or a liberal education combined with some vocational applications" (p. 120).

The original plan of the land-grant colleges was to have young people who grew up on farms attend the colleges. This did not work as well as expected, however, so other programs were developed. The first of these was the establishment of agricultural experiment stations by the Hatch Act of 1887. The second was the creation of the state extension services by the Smith-Lever Act of 1914. The third was the creation of vocational agriculture programs for high schools, which were eventually funded through the Smith-Hughes Act of 1917.

The National Society for the Promotion of Industrial Education, formed in 1906, was instrumental in stimulating the states to pass vocational training acts. The philosophy of this and similar societies was to create "incentive aid," which encouraged local school boards to establish vocational education programs while maintaining local control. In 1907 President Theodore Roosevelt observed, "We of the United States must develop a system under which each citizen shall be trained so as to be effective individually as an economic unit and fit to be organized with his fellows so that he and they can work in efficient fashion together" (Soretire, p. 18). Clearly, Roosevelt saw vocational education as both an economic necessity and as a socializing process.

Smith-Hughes Act of 1917. The culmination of the actions by these different organizations and state agencies was the passage of the Smith-Hughes Act of 1917. The purposes of this act were:

- To provide for the promotion of vocational education.
- To provide for cooperation with the states in the promotion of vocational education in agriculture and industry.
- To provide for cooperation with the states in the preparation of teachers of vocational subjects.
- To appropriate money and regulate its expenditure.

According to the Smith-Hughes Act, the main purpose of vocational education was to make young people fit for employment on the farm or in the farm home. The bill also stated that all secondary schools with agricultural education needed to provide directed or supervised practice in agriculture.

The Smith-Hughes Act allocated federal funds to the states for the purpose of agricultural education. These funds were to be matched by state and local funds, and were to be used for the training and salaries of teachers, supervisors, and directors of agriculture, and for programs in home economics, agricultural economics, and industrial subjects. The act also provided for a Federal Board for Vocational Education. To receive these monies, each state had to submit a plan detailing how they would spend it.

The act also required that all students were to participate in a work experience focusing on livestock and crop projects outside of the regular school day. This was certainly not a new idea. Rousseau and Pestalozzi had advocated supervised educational practice in Europe as early as the eighteenth century. More recently this practice has been discussed by Froebel, Dewey, Warmbrod, Lamar, and others.

Not all educators, however, agreed that vocational agriculture education was a good use of money, and there was both public and political debate regarding the value of vocational agricultural education. In fact, the balance between purely academic and vocational education remains a continuing debate.

The National Vocational Education Act, passed in 1963, broadened the scope of the original Smith-Hughes Act by adding flexibility, providing for career counseling and employment training, expanding the age groups

covered, and providing for the needs of people with special educational needs. The objectives of this new act were:

1. To develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture.
2. To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture.
3. To develop an understanding of, and appreciation for, career opportunities in agriculture and the preparation needed to enter and progress in agricultural occupations.
4. To develop the ability to secure satisfactory placement and advance in an agricultural occupation through a program of continuing education.
5. To develop those abilities in human relations that are essential in agricultural occupations.
6. To develop the abilities needed to exercise and follow effective leadership in carrying out occupational, social, and civic responsibilities.

It is difficult to get a precise sense of what philosophy was at the root of these various Congressional acts. The role that the federal government played seems to have been one of providing money for the training of farmers and farm wives in practical skills, and for training teachers in agricultural and home economics education. Little mention was made of socializing skills until the later congressional acts. To gain a deeper understanding of exactly what the philosophy of agricultural education was during those times, writings of a different sort must be examined, specifically, writings by people involved directly, as educators, with agricultural education.

An Early Philosophy of Agricultural Education

At its onset agricultural education was part of a broad-based approach to rural education. The idea of making rural improvement a national issue was brought before President Roosevelt in 1906. As a result, the Country Life Commission was appointed in August 1908. The commission listed several factors that negatively affected rural families. Chief among them was the need for education.

As early as 1906 the importance of relevant education was being discussed, as was the idea of rural-life development. For example, Liberty Hyde Bailey began his book *The Training of Farmers* (1909) with the lines: "The so-called rural problem is one of the great public questions of the day. It is the problem of how to develop a rural civilization that is permanently satisfying and worthy of the best desires" (p.3). In the preface to Aretas Nolan's *The Teaching of Agriculture* (1918), an author named Davenport wrote "That measure [success] is found in the performance of those who actually go to the land, live there, and succeed; for, after all, the fundamental purpose of our great system of agricultural education is to insure a better agriculture and make a country life as nearly perfect as possible" (p. vii).

Bailey was fairly articulate about the role of education. He believed that education should "assist the farmer to rely on himself and to be resourceful, and to encourage him to work with other farmers for the purpose of increasing the profitableness of farming and of developing a good social life in rural communities." Further, "all citizenship must rest ultimately on occupation, for all good citizens must be workers of one kind or another." A good citizen "must be actively interested in the public welfare, and be willing to put himself under the guidance of a good local leader" (Bailey, pp. 10–12).

According to Bailey, proper education is needed for this to happen; education, which must start at the elementary level. He felt that education began "with the child's world and not with the teacher's world, and we must use the common objects, phenomena and activities as means of education." Thus, "agriculture becomes a means of education" (p. 150).

Nolan, writing nine years after Bailey, added that the aims of vocational agricultural education should be to give the student "preparation for wholesome and successful farming and country life"(p. 2), as well as the skills needed to be a successful farmer. He also explained that agricultural education should be part of a larger

educational picture that would produce "an educated country gentleman who works with his hands and gathers about him all the best things which civilization afford."

Good education depends on good teaching, which depends, in turn, on good teachers. The well-educated vocational agricultural teacher, according to Nolan, must be a thorough scientist and a technically trained agriculturalist. He should also have studied rural sociology, agricultural economics, public speaking and "other work to liberalize his general training" (p. 163), as well as having a thorough understanding of educational principles, psychology, and management. This is because the teacher's "influence and activities extend outside of the school to the rural life of the community" (p.163).

Nolan devoted an entire chapter of his book to nature study, because it was his belief that studying nature in the field teaches observation and helps students understand the conservation of natural resources. Nolan believed the teaching of agriculture must result in the wise use and conservation of these natural resources.

However Theodore Eaton's *Vocational Education in Farming Occupations: The Part of the Public High School* (1923) showed that the philosophy of agricultural education was beginning to change. Eaton agreed on the importance of "a philosophy of social purpose in organization, and an organization contributing to the achievement of that purpose" (p.7), but his approach was a little more sophisticated than that of his predecessors. For example, his book includes a discussion of socialism versus democracy. He also connects Bailey's idea of environment and conservation to John Dewey's environment ideal, writing that the "environment is, perhaps, as Dewey tells us, best defined as consisting in those situations which affect the conduct, thoughts, emotions and attitudes of men" (p. 31–32).

Eaton goes on to outline four general purposes for education: (1) the adjustment of the individual to his environment, (2) social efficiency, (3) self-realization, and (4) individual growth. He believed that there were three fundamental principles that governed education. These were: (1) education is modification—all education consists in changes in the mode of action, thought, and feelings of human beings; (2) the business of the educator is the making of stimulus-response bonds in the "educand" (student)—the main problem for the educator is deciding which bonds the student should make; and (3) education is about being able to transfer newly acquired skills.

Philosophically, Eaton saw education in a dualistic and hierarchical manner. This view reflected the philosophy of Watson, Thorndike, and the other behaviorists. He thus defined education as "the formal process of interaction between the conscious and purposeful manipulator of environment, the 'educator,' at one pole, and the conscious, but so far as the aim of education is concerned, not purposeful 'educand' at the other pole" (p. 45).

By the time of Eaton's writing in 1923, the philosophy of agricultural education was becoming complex, drawing elements from several different sources. The importance of socialization was carried over from earlier times, and a humanistic focus on the development of the individual was also stressed. Elements from Dewey's pragmatic education theory were included, such as the ideas of education as change and transfer. Finally, aspects of behavioral theory were being added, which stressed the dualistic and hierarchic nature of education.

Eaton also discussed the importance of both supervised work on farms and supervised employment in agricultural education. In his discussion Eaton claimed that supervised work needed to be complimented with classroom work that was balanced between academic and vocational classes.

From the above writings, one can begin to get a sense of the philosophy of the founders of agricultural education. Farm settlers were an individualistic lot, separated by significant distances and bad roads. But the nation was growing, and agricultural production needed to catch up with the rest of the country. For this to happen, the infrastructure of rural life needed to be improved, along with agricultural production methods. A change in philosophy was beginning at this time, as the writings of Thorndike and the early behaviorists began to influence the psychology of education.

Agricultural Education from the to the (1930s) (1970s)

Agricultural education during the first third of the twentieth century was, for the most part, seated in the humanistic and pragmatic philosophy of John Dewey. It was therefore focused on training men and women in the practical skills needed to run a successful farm, on the development of a more proficient agriculture system, and on the development of rural communities. During the second third of the century, more emphasis was placed on the *science* of education, as educators came more under the influence of the positivistic philosophy that arose during that time and held sway as the predominant philosophy in mainstream education until the 1960s.

Glen Cook, for example, writing in 1936, continued the emphasis on both classroom work and supervised farm experience. He claimed that the ultimate purpose of agricultural education was to "train the individual to think in order that he may solve the problems, both social and economic, which he may meet, and to prepare him for complete living" (p. 13). He then added to that list the "worthy use of leisure time" and ethical character.

R. M. Stewart, in his 1938 essay "Teacher Education," explained that more emphasis was being placed on developing better teachers. He felt that "the newer trends of teacher education today tend rather to relate themselves to the more specific practices of teachers and to the improvement of their programs" (p. 56). He maintained, however, that the local farms "constitute the natural educational settings in which problems of farming are discerned and attacked" (p. 57). As such, he supported on-farm experience.

What became important within the institutions of teacher training was the improvement of the teacher education programs themselves. An important aspect of this improvement was the development of job placement for the graduates, for those graduating from production agricultural programs knew they would have jobs. In order to attract good people, teacher training programs needed to be able to do the same.

Another area of importance was the development of effective and up-to-date teaching materials. According to Stewart, "A forward-looking program of agricultural education always involves recognition of changing social and economic needs, and of the contributions of scientific and technical knowledge to the new problems arising" (p. 57). Farmer training originally involved teaching "scientific agriculture," or the practice of applying scientific principles to agricultural problems. Then came technical science teaching, then social and economic training. From these came the "professional" aspects of agriculture. As a profession, Stewart explained, specific materials had to be developed, sorted, and evaluated in order to train teachers. What was needed were "more and better materials and methods and more focusing of attention upon what is to be done in the education of the people on the land" (p. 58).

Stewart also emphasized the importance of supervised training: "Supervised participation is rapidly becoming the core of agricultural education.... If the best way to learn is by doing, then the principle holds as true of the student teacher as of the student farmer. This places directed observation and directed teaching—under supervision—as the *central emphasis* on the professional side of a teacher's preparation. The prospective teacher must have *representative experiences*, which include such things as administration, getting to know the people of the community, supervising pupil's farming programs, and making commercial contracts" (p. 58).

In his 1940 essay Omer Aderhold echoes the philosophy of John Dewey, writing that "the schools, like the nation, are in need of a central purpose which will verify and guide all intellectual plans" (p.2). To Aderhold, a nation's education system must contribute to the "ends of the society in which it lives." This means that education should be grounded in democratic action, which requires an understanding, by the population at large, of the problems faced by the citizens.

Aderhold claimed that the major objectives of education should be to promote reflective thinking for the individual and to promote group living on an intelligent basis of cooperation for the group. This could be accomplished at both the individual and group levels, by encouraging the use of the scientific method of thought, that is, by drawing inferences and formulating hypotheses about problems, by testing those inferences, and then drawing sound conclusions. In this way vocational education could help farmers attain a higher standard of living.

During the 1940s and 1950s agricultural education maintained its status quo. The nation's economy was doing well, the country was growing in status and power, and agriculture was becoming more efficient and effective as

a result of agricultural chemical and mechanical advances. Farmers were entering the middle class and moving into the economic mainstream. Agricultural educators acted to support the scientific revolution, while at the same time keeping their own profession basically unchanged.

In a 1966 essay Robert Warmbrod and Lloyd Phipps summarized changes in the focus of agricultural education from its inception until the 1960s. They explained that, prior to 1917, agriculture was taught as an informational or general education subject. Following Smith-Hughes, there was an increase in the number of classes focusing on vocational agricultural and a reduction of classes oriented towards general education. This trend reflected the objectives of federal financial assistance.

Herbert Hamlin believed that this "specialization" led to an "over-simplification of public school education," while Phipps claimed that the curricula needed to be expanded and that more emphasis needed to be placed on preparation for employment in agriculture-related industries. He also argued for occupational guidance and job counseling. A survey by the Research Committee of the Southern Region also found strong support for training to help people be good citizens, intelligent consumers, and efficient producers.

According to Warmbrod and Phipps the general public saw agricultural education as being of a vocational nature only. Experts in the field disagreed however, and believed that was too strict a definition. In addition, Warmbrod and Phipps stated that agricultural education should include training not only in vocational agriculture, but in those skills needed to be successful in any occupation, including preparation for advanced education.

In 1963 Congress passed the Vocational Training Act of 1963, which provided funding "for vocational education in any occupation involving knowledge and skills in agricultural subjects" (Warmbrod and Phipps, p. 7).

Philosophical Writings after (1970)

Since the 1970s agricultural educators have attempted to more directly define the philosophy of agricultural education. For example, Phipps claimed that agricultural educators are pragmatists; emphasize learning by doing; emphasize individual self-awareness, work-awareness, and career decision-making; believe in the importance of leadership and citizenship development; learn how to work with people who are disadvantaged and handicapped; advocate the use of problem solving as a way of encouraging thinking; and believe in community and community service.

A. Kahler and colleagues also set about defining the philosophy of agricultural education for *Project 2000*. They listed three functions of agricultural and agribusiness education: (1) educating individuals for employment in the fields of agriculture and agribusiness, (2) avocational agricultural course work, and (3) issues having to do with the "food crisis." The authors went on to explain that agricultural education is based on decision making through problem solving; is centered on experience; addresses both individual and community needs; is related to resource management; and perceives agriculture as an integrated part of a dynamic world system.

This provides some insight into how agricultural educators see their world, which is, in the spirit of Dewey, as a place that is both experiential and that requires consciousness for problem solving. It is, therefore, neither a realist-based philosophy, nor a strictly empirical one. It retains the humanist's view of the importance of the individual learner, but also points towards the importance of community at both the human and social level, as well as the environmental level. And finally, it is similar to a post-positivist philosophy in its recognition of diversity and process.

In a 1978 article G. M. Love compared agricultural education and general education. He described agricultural educators as being pragmatists and experientially oriented. Metaphysically, agricultural educators see the world analytically and prescriptively. Furthermore, they believe that the "real" world is that which can be experienced with the senses. Meaning is not predetermined, it is determined by the individual within the context of his or her experiences and that of his or her community. Therefore, learning to solve current, life-like problems is the best way to equip a person to effectively solve problems in the future.

Epistemologically, agricultural educators believe that both knowledge and truth stem from empirical investigation. They also believe that both of these are temporary. A high value is placed on self-activity, association, and effect. For this reason vocational agriculture makes use of both work experiences and activities in student organizations. In addition, the improvement of social behavior through participation in the democratic process is an important aspect in the philosophy of agricultural education.

Educationally, agricultural educators see themselves as research project directors and their students as discoverers. Love wrote that teachers in agricultural education regard students as experience organisms who deserve individual attention and who work in a "life-oriented environment." Thus, a flexible curricula is needed.

Love explained however, that while agricultural education is based on a realist philosophy, reality is based on the individual's relationship to a larger community, and is therefore relativistic (and changeable).

Philosophically, agricultural educators see education as a process of problem solving. As teachers, agricultural educators see students as *experience organisms* and believe education is hierarchical, in that they see themselves as directors and their students as discoverers. Axiologically, therefore, they value their own experiences over those of their students. It is their job to direct the student towards that particular vision, which often includes the concept of democracy. In other words, although education is about discovery, it is a prescribed discovery, with political overtones.

Another recent attempt to articulate a philosophy for agricultural education was the one done by the National Summit on Agricultural Education. In 1989 agricultural educators at the university, community college, and secondary school levels held a series of meetings to again look at where agricultural education is and where it needs to go. In their mission statement, this group explained that the mission of agricultural education was to provide a total dynamic educational system, to aspire to excellence, to serve people, and to inform the public about agriculture's needs, opportunities, and challenges. In attempting to accomplish this, the consortium listed the following objectives:

- To provide instruction in and about agriculture.
- To serve all populations.
- To develop the whole person.
- To respond to the needs of the market place.
- To advocate free enterprise.
- To function as a part of the total education system.
- To utilize a proven educational process, one which includes formal instruction, experiential learning, leadership, and personal development.

This list, while not really philosophical in nature, does suggest a view that is somewhat different than Love's. Specifically, its emphasis on the whole person suggests a move away from viewing the learner simply as a "sense organism," and away from a strict empirical view of reality. Also, by including all populations, the marketplace, and free enterprise, it takes a more overt political stand than did Love.

Agricultural education has had to change to meet the changing demands of its clientele. R. Kirby Barrick listed several points that he claimed were essential for a true discipline of agricultural education, including that it must be based on sound theory. Barrick understood that agricultural education has to look deeper into both theory and philosophy. Philosophically, this again suggests a movement away from a realist and empirically grounded philosophy.

To David Williams the discipline of agricultural education is only as strong as its means for verifying existing knowledge, for creating new knowledge, and for disseminating and applying that knowledge. This is done through research, which "must be the strongest component of a discipline, serving as a foundation for teaching and extension" (Williams, p. 5). Williams found several weakness in agricultural education research, including that it is often piecemeal (i.e., not cumulative); that it lacks a sound theoretical framework; and that it lacks depth.

Finally, according to R. A. Martin (1991), agricultural education is based on three critical components: technical agriculture, experiential learning, and human development. For Martin the purpose of teaching agricultural knowledge and skills is to prepare students to be able to use that knowledge and those skills in meaningful ways in their lives. He claimed that one of the best ways of ensuring student understanding is through the use of experiential learning, both in and out of school. More importantly, according to Martin, "the heart and soul of the program is the student" (p. 21–22). As such, agricultural education is committed to the growth of the individual student in all three learning domains. But more importantly, from a philosophical basis, he points to a move away from a strictly empirical philosophy, and toward one which was both humanistic and idealistic.

Current Status

Even though the philosophy of agricultural education has not continually been developing, principles that form the foundation for agricultural education have not changed. These principles are: providing up-to-date technical skills and knowledge in agriculture; conducting experiential learning activities in the real world or agricultural careers; and involving students in leadership and personal development activities at the local, state, and national levels.

In the early twenty-first century, there are more than 8,000 secondary school agricultural programs across the United States. More than 500,000 students are involved in these programs focused on career educational in agriculture.

Over the years the curriculum has changed dramatically. The original curricular focus was on production agriculture (farming). The expansion of careers in other areas of the agriculture industry (horticulture, food science, products and processing, biotechnology, entrepreneurship, forestry, and natural resources) has had a significant impact on the curriculum. The enrollment of students in these programs continues to grow.

Beyond the secondary school agriculture programs, community colleges and universities provide excellent opportunities for students to specialize and gain skills and knowledge in agriculture. University programs in agricultural education focus on teaching and learning processes that prepare students for professional positions in education, agri-industry, and public service agencies.

The future of agriculture education is bright. Although less than 2 percent of the U.S. population is involved in production agriculture, the food, fiber, and natural resource system requires the services of people well educated in the agricultural sciences. These people need experiential learning and personal leadership development training in the context of agriculture. Agricultural education programs can provide the education and training needed to serve the needs of the vast industry called agriculture.

See also: [SECONDARY EDUCATION](#); [VOCATIONAL AND TECHNICAL EDUCATION](#); [YOUTH ORGANIZATIONS, subentry on NATIONAL FUTURE FARMERS OF AMERICA](#).

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