

A Model for Agricultural Education in Public Schools

Matthew Hughes, Graduate Research Associate
R. Kirby Barrick, Professor
The Ohio State University

Agricultural education in public schools has a rich heritage of developing student personal skills as well as providing abilities needed in agricultural employment through classroom and laboratory instruction, supervised experience, and FFA activities. Over the years, agriculture programs have evolved to better serve the needs of students. Recent changes in the agricultural industry, student population, society, education system, and the work place necessitate expanding the scope of public school agricultural education to meet the needs of today's students.

For many years, the agricultural education program has been illustrated by a diagram of three overlapping circles representing classroom instruction, FFA, and supervised experience. That diagram inferred that, while some activities overlapped and were highly related, there were activities of SOE and FFA that were not related to classroom and laboratory instruction. Further, the context of school and community for the total agricultural education program was not apparent. To more accurately reflect agricultural education, a new model was developed representing the total agriculture program within the context of the current educational environment. This article focuses on the philosophy of that model and its rationale.

The Agricultural Education Program Model

The model presented in Figure 1 was developed by a seven-member writing team appointed by the National Task Force on Supervised Agricultural Experience and included agriculture teachers, teacher educators in agriculture, and a graduate student in agricultural education. This team met in January, 1991 at The Ohio State University for the purpose of writing a handbook on the supervised agricultural experience (SAE) concept. Developing the model was a necessary step in describing and illustrating the role of SAE in agricultural education.

Overview of Model

Agricultural education takes place within the context of the school and the community and is comprised of four components: a) classroom and laboratory instruction, b) application, c) employment and/or additional education, and d) career.

Classroom and laboratory instruction focuses on technical agriculture, leadership, and personal development. Supervised experience and FFA provide experiential learning opportunities, reinforce instruction, motivate students, and provide means of identifying problems on which to base instruction. Incentives such as contests, degrees, and awards

*The concepts presented in this article are based upon information contained in *Experiencing Agriculture: A Handbook on SAE* (Barrick, Arrington, Herrernan, Hughes, Moody, Oglie, & Whaley, 1992) and derived from discussions of the handbook writing team. The authors acknowledge the input from the handbook co-authors; however, this article may not reflect the viewpoint of each writing team member.*

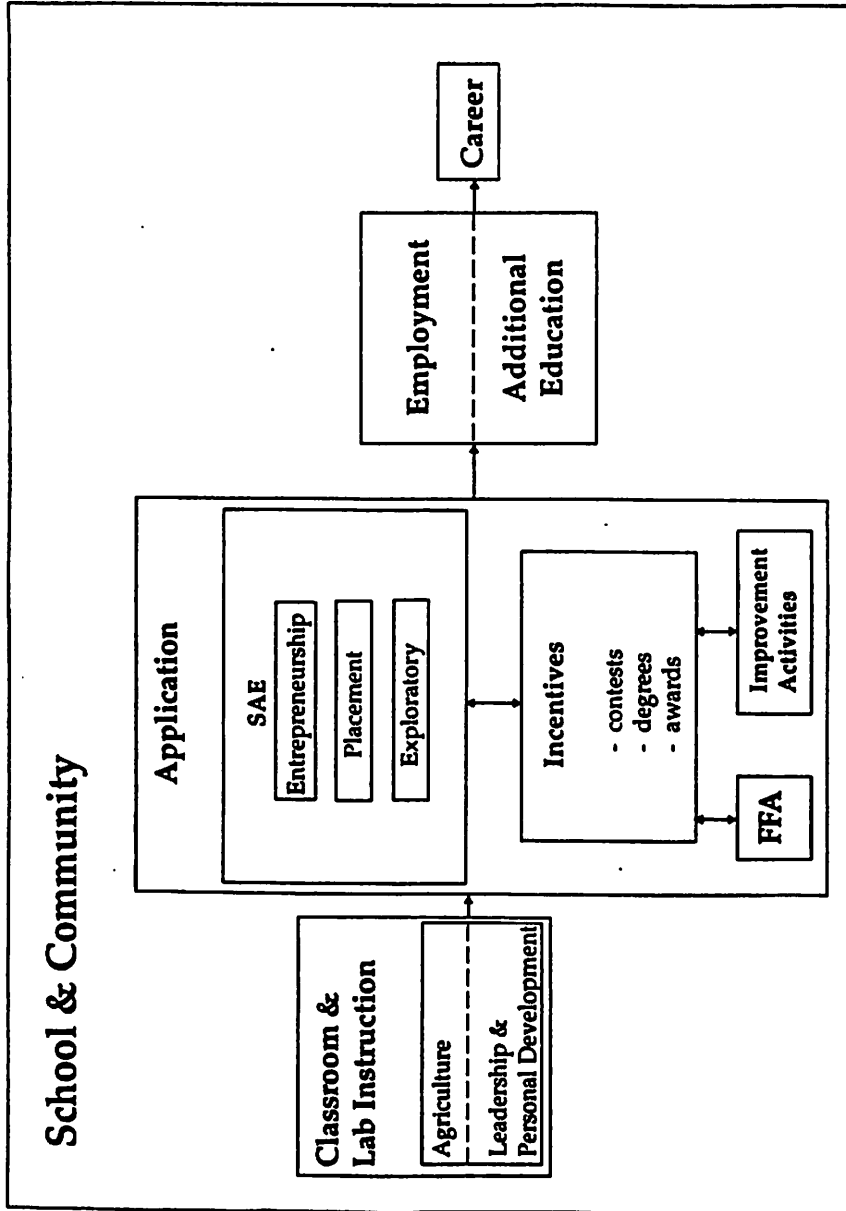


Figure 1. Agricultural Education Program

are not the driving force on which FFA and supervised experience activities are based, but serve as reinforcement and motivational tools by providing recognition to students for exemplary performance.

The model shows that agricultural education does not end with the completion of secondary education; employment and/or additional education, and eventually a career, are the intended outcomes of an agriculture program. Although it is intended that employment, education, and a career would be in agriculture, the agriculture program is viewed as valuable in preparing people for productive lives in many career areas, thereby indicating the value of education "about" as well as "in" agriculture.

The model also indicates that the agricultural education program is part of the school and community. While not all activities, especially in the employment/additional education and career components, may occur in a local setting, programs of agricultural education should be designed to meet the needs of the community and be an integral part of the school program.

Bases of the Model

The evolution of agriculture programs must continue if the programs are to meet the needs of students in the 21st century (Krueger & Mundt, 1991). According to the National Research Council Committee on Agricultural Education in Secondary Schools (1988), major revisions are needed so that agricultural education becomes more than job preparation. The committee stated that "vocational agriculture programs must be upgraded to prepare students more effectively for the study of agriculture in post-secondary schools and colleges and for current and future career opportunities in agricultural sciences, agribusinesses, marketing, management, and food production and processing" (p. 1).

The agricultural education program model reflects the needed evolution and revisions advocated by Krueger and Mundt and the National Research Council Committee on Agricultural Education in Secondary Schools. The model shows an expansion of agricultural education concepts and outcomes designed to more effectively serve a wide range of students. The bases for the expanded concepts and outcomes come from changes in the agricultural industry, student population, society, education system, and work place.

Changes in the Agricultural Industry

Technological developments require that agriculture programs are continuously updated to meet the needs of the modern agricultural industry. The National Research Council Committee on Agricultural Education in Secondary Schools (1988) stated that "change within agriculture is an ongoing process that will affect agricultural businesses and institutions. They must adapt to continue serving agriculture. The institution of vocational agriculture is no exception" (p. 3).

Changes in Student Population

Changes in student demographics dictate that the approach of agricultural education programs must change in order to ensure that all students have the opportunity to fully participate in the programs and receive meaningful instruction. One such change in demographics is the decline in the number of students with farm backgrounds. In 1917, approximately one-third of the U.S. population lived on farms. Today, only about 2.2 percent live on farms (National Research Council Committee on Agricultural Education in Secondary Schools, 1988). With the shift in population away from farms, the Committee on Agricultural Education in Secondary Schools stated that "neither students nor Americans in general have a realistic view of agriculture's scope, career possibilities, or involvement with scientific progress and the use of sophisticated biological, chemical, mechanical, and electronic technologies" (p. 22).

Another change in student demographics is the increase in the number of limited opportunity and special needs students enrolled in agriculture programs. Lindsey (1978) reported that agriculture teachers were experiencing an increase in enrollment of students with limited opportunities for full program participation due to financial situation, lack of parental support, lack of facilities, or lack of academic ability. Lee (1984) identified one group of special needs students as those who are disadvantaged due to educational, socioeconomic, cultural, or other conditions which prevent them from succeeding in agriculture programs without special assistance. According to Lee, it is rare for an agriculture program not to have special needs students enrolled.

Changes in Society

Societal changes have an impact upon all of education. Just as education must adjust for changing student demographics, it must adjust to a society in which norms and values have changed. An example of those changes is that only about 40 percent of children born today in the U.S. can expect to spend their childhood living with both parents (Grant Foundation, 1988).

Poverty is a very real problem faced by many students each day. Since 1975, people 18 years old and younger have been poorer than any other age group in the U.S. (Reed & Sautter, 1990). According to Reed and Sautter, with approximately 20 percent of its children in poverty, the U.S. has the highest rate of child poverty among the industrialized nations--nearly three times that of most other economically advanced nations. Of those children in poverty, less than nine percent live in the innercity; 35 percent are in rural and suburban areas (Reed & Sautter, 1990). Indicating the possible impact of the poverty situation on education and society, Reed and Sautter stated that "over the past 15 years the incidence of poverty among children has increased and become complicated in ways that portend catastrophic consequences, not only for the children themselves, but also for our schools, our economy, and our social well-being" (p. K3).

Changes in the Education System

In a manner similar to the Sputnik launching, the 1983 report A Nation at Risk resulted in increased attention being focused on improving the U.S. education system

primarily through a more rigorous curriculum. The report detailed the poor performance of U.S. students on academic achievement indicators in comparison with students from other countries and advocated a "back to basic" approach to education.

The Secretary's Commission on Achieving Necessary Skills (SCANS) reported that the U.S. is "failing to develop the full academic abilities of most students and utterly failing the majority of poor, disadvantaged, and minority youngsters" (SCANS, 1991, p. vi). This reported decline in education is occurring at a time when most of the international competitors and trading partners of the U.S. are making efforts to improve education (U.S. Department of Education, 1991).

The back to basics approach advocated in A Nation at Risk and subsequent publications included stringent graduation requirements with an increase in the number of credits required in the "core academic" courses (language arts, mathematics, science, social studies, history). Despite the good intentions of increased rigor, the Grant Foundation (1988) pointed out that the purpose of education is to create whole persons, and that schools and colleges represent only one means of providing education for life. The foundation recommended that education should act on the understanding that much learning takes place beyond the school.

Changes in the Work Place

SCANS (1991) emphasized the need for schools to prepare students for productive future employment. From discussions and meetings with business owners, public employers, unions, and employees, SCANS concluded that future occupations will depend on a highly competent workforce with "a well-developed mind, a passion to learn, and the ability to put knowledge to work" (p. 1). According to SCANS, over one-half of all students leave school without the foundation required to find and hold a good job.

SCANS (1991) reported that effective employees of the future must understand and have the ability to use: a) resources, b) interpersonal skills, c) information, d) systems, and e) technology. Future employees must possess a solid foundation in basic skills (reading, mathematics, communications) thinking skills (problem-solving, decision-making, reasoning), and personal qualities (responsibility, self-esteem, social skills, self-management, integrity).

According to SCANS, schools have not made the changes necessary to keep pace with what is required of the workforce. U.S. companies cannot hire enough skilled employees and are forced to spend large sums of money for remedial training. One reason that schools have not kept pace with workforce requirements is a miscommunication between school personnel and employers. As a result of this miscommunication, needs of employers are often not addressed in education programs; therefore, students do not see the connection between what they do in school and their future employment (SCANS, 1991).

Recommendations for Education

As a result of changes in the student population, society, the education system, and the work place, several goals and recommendations have been made to make education more responsive to future needs. Many of these recommendations are aimed at ensuring a competent workforce.

In its America 2000 plan, the U.S. Department of Education (1991) recommended increased business, community, and parental involvement in the education system and that the connection between education and work be evident in the curriculum. Among the goals identified in the America 2000 plan were:

All students will learn to use their minds and will be prepared for responsible citizenship, further education, and productive employment.

All adults will possess the skills needed to compete in a global economy.

The Grant Foundation (1988) also emphasized the need for preparing students to be productive citizens and workers. To integrate more fully all students into society, the foundation called for greater focus on the noncollege-bound student which it termed "the forgotten half". According to the foundation, all young people need: a) constructive contact with adults, b) opportunities to participate in community activities, and c) initial jobs. The foundation also recommended increased business/education collaboration.

Preparing students for productive employment and careers involves more than job training and begins prior to the high school grades. McEwin and Thomason (1989) recommended that middle-grade (grades six through eight) students participate in activities which help them begin the career selection and preparation process. Middle-grade students need to be made aware of various career opportunities and learn that work is a means of economic survival and an important part of their identity (Carnegie Council on Adolescent Development, 1989). The Carnegie Council on Adolescent Development recommended that career exploratory activities be a part of the middle-grade curriculum.

Components of the Agricultural Education Program Model

The agricultural education program model illustrates a holistic approach toward the development of individuals. The model reflects the response of agricultural education to recent recommendations for education and to the needs of today's agriculture student as dictated by changes in the agricultural industry, student population, society, work place, and education system. As indicated by the model, the aims of an agriculture program include: a) increasing agricultural knowledge; b) developing employability, leadership, and personal skills; c) promoting life-long learning; and d) effectively integrating all individuals into the community as productive citizens. In the following sections, components of the model are described in terms of how they meet these aims and address student needs and recommended changes in the education system.

The Classroom/Laboratory Instruction Component

Historically, agriculture teachers have used classroom and laboratory instruction to promote leadership skills, personal development, and technical competencies in order to prepare young people for agricultural employment. "Changes in perceptions of the basic premises of agricultural education have necessitated a shift in the philosophy of agricultural education and in the purpose of classroom and laboratory instruction. Indicating this philosophical shift, the National Research Council Committee on Agricultural Education in Secondary Schools (1988) identified the promotion of agricultural literacy as a major function of agriculture programs.

Within the classroom and laboratory instruction component, students not only learn technical competencies, but participate in learning activities which promote agricultural literacy, leadership abilities, and personal qualities. These learning activities prepare young people for responsible citizenship and productive employment as advocated in the America 2000 plan. Development of leadership and personal qualities was also promoted by SCANS (1991) as part of the foundation necessary for productive employment in the future.

The Application Component

The application component of the model fits well into an education system which emphasizes applied learning, personal development, and work-relevant instruction. Students apply a portion of what they learn in the classroom and laboratory through SAE and FFA in the application component.

The philosophy of agricultural education expressed in the application component has a sound pedagogical base. SCANS (1991) stated that "we believe, after examining the findings of cognitive science, that the most effective way of learning skills is 'in context', placing learning objectives within a real environment rather than insisting that students first learn in the abstract what they will be expected to apply" (p. XV). SCANS suggested that three principles of cognitive science guide "in context" learning:

It is not necessary that students learn basic skills prior to learning problem-solving skills. The two can be learned together since they are mutually reinforcing.

Learning should be oriented toward encouraging students to recognize and solve problems rather than toward mere mastery of information.

Students need practice in the use of skills in order to develop both the foundation and the competencies that characterize educated people. The foundation and competencies cannot be taught in isolation.

Experiential learning through SAE and FFA has been a hallmark of agricultural education. The Grant Foundation (1988) recommended that "experiential learning, i.e., learning by hands-on participation, by trying, making errors, and gradually narrowing the margin between failure and success, should be at the heart of our educational perspective" (p. 3). According to Dewey (1938, 'education in order to accomplish its ends both for the individual learner and for society must be based upon experience - which is always the actual life - experience of some individual" (p. 113).

Pedagogical support for supervised experience comes from several recognized principles of learning. Hammonds (1950) identified the principle of practice as: "What is learned is practiced; continued practice or use is usually necessary for retention of the learning" (p.13). Among the principles of learning identified by Newcomb, McCracken, and Warmbrod (1986) which relate to the application component are:

Learning is maximized when students "inquire into" rather than receive "instruction in" subject matter.

Students learn what they practice.

The application component preserves the rich experiences of entrepreneurship and placement while providing for activities that are not job-training in nature. With respect to changes in terminology, agricultural education continues to be occupationally oriented.

SAE and FFA activities are varied enough to provide students opportunities to explore personal interests as well as participate in occupational-related experiences as advocated by the Carnegie Council on Adolescent Development (1989) and McEwin and Thomason (1989). SAE programs allow students to focus on their vocational interests and can effectively provide job training. SAE and FFA offer means of enhancing the relationship between youth and adults and provide many opportunities for business/education partnerships as recommended by the Grant Foundation (1988) and SCANS (1991).

The individualized instruction and wide range of activities provided in the application component allow students of varying ability levels, aspirations, and backgrounds to successfully participate in agriculture programs. Both the college-bound and the "forgotten half" receive instruction and participate in activities based on their particular interests and needs. Through SAE and FFA, instruction can be tailored to meet the needs of limited opportunity students as well as those of virtually unlimited opportunity.

The Employment/Additional Education and Career Components

The final two components of the agricultural education program model, "Employment/Additional Education" and "Career", indicate the commitment of agriculture programs to providing the technical competencies, life-long learning, and personal qualities required of the future workforce. These two components illustrate that agricultural education provides benefits to students regardless of whether they enter the workforce directly or continue their education following high school.

Life-long learning is necessary to remain productive in a career (SCANS, 1991). A goal identified by the U.S. Department of Education (1991) in the America 2000 plan was: "Every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship" (p. 19). According to SCANS (1991), there must be an increase in learning opportunities beyond high school if this goal is to be achieved. SCANS further stated that if the U.S. is to be transformed from a "nation at risk" to a "nation of learners" as advocated in the America 2000 plan, life-long learning must become a reality.

The Employment/Additional Education and Career components indicate that the agricultural education profession recognizes, as did SCANS (1991) and the Grant Foundation (1988), that education is a life-long process occurring both in the classroom and on the job. The profession recognizes that a career is more than one's occupation and that all components of the agriculture program are aimed at providing individuals the knowledge and qualities needed for a successful career in any occupational area.

Summary

For many years, agricultural programs in public schools have effectively served the needs of students pursuing careers in agriculture. In a proactive fashion, the agricultural

education profession has expanded its philosophy to meet the needs of the agricultural industry and a much broader and diverse clientele than in the past. This philosophy is reflected in the agricultural education program model presented in Figure 1. As illustrated in the model, agriculture programs aim to develop the whole person by utilizing instructional activities which provide the technical and personal skills and qualities needed to obtain employment and establish a rewarding career.

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