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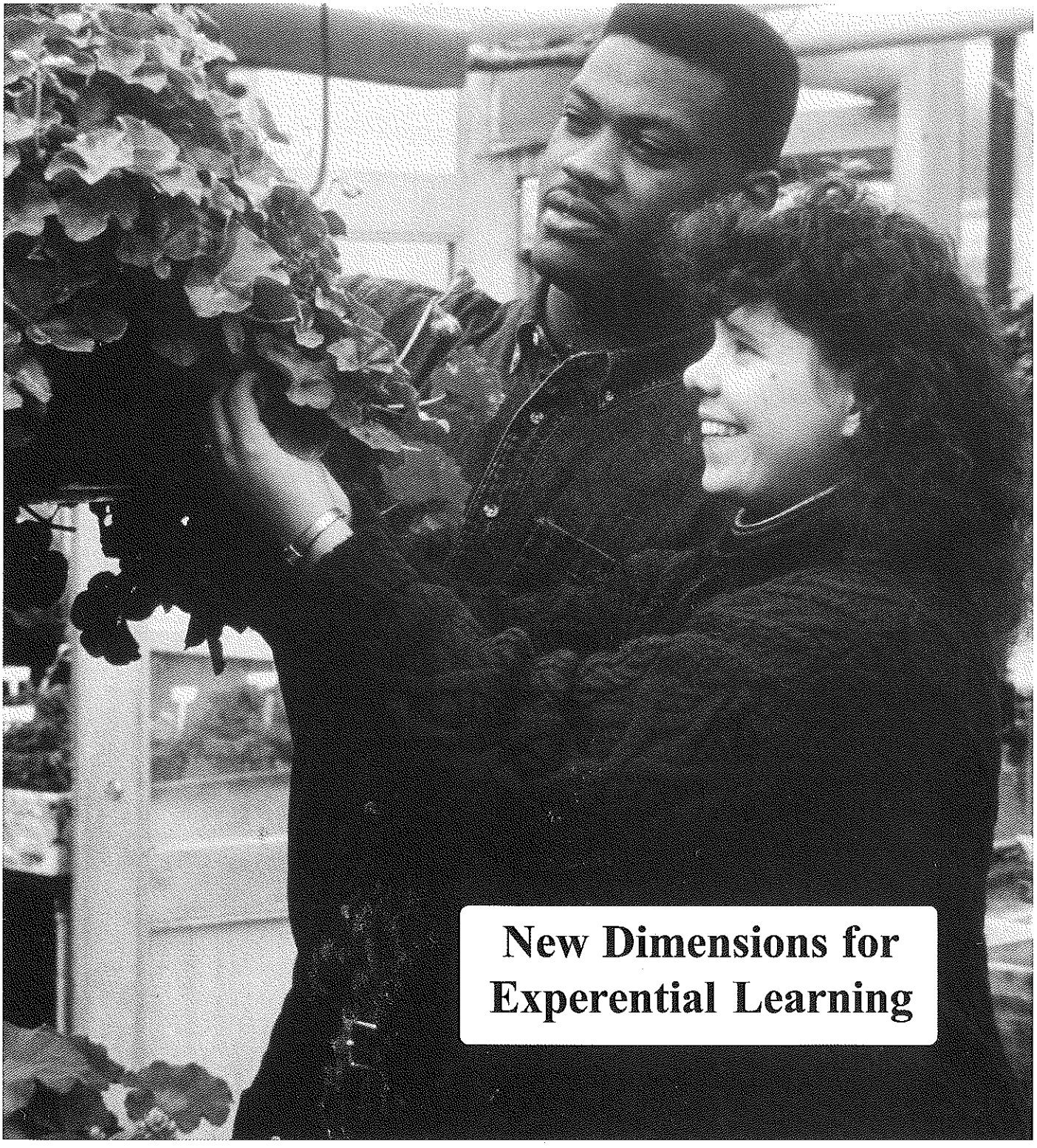

New Dimensions for Experential Learning

Experiential Learning: New Dimensions or Going Nowhere?

By Robert Martin, Editor

The Agricultural Education curriculum has changed dramatically in recent years and these changes have had a significant impact on enrollment, especially at the high school level. FFA membership is up and FFA activities are progressing well in most areas because of specific changes. However, there are those in the profession that are convinced that Supervised Agricultural Experience (SAE) is a weak component of the trifecta. It has fallen and it appears it can't get up. A casual review of the situation in many schools would indicate there is a major problem with experiential learning in general and SAE in particular.

One wonders if all teachers take seriously their responsibility to incorporate experiential learning principles and activities into their educational programs. Some agriculture teachers appear to have given up completely on the ultimate experiential learning tool (SAE) in their programs. Obviously, they need to read this issue of The Magazine. Our authors have not given up on experiential learning. This issue of The Magazine provides the very foundation and argument for experiential learning to be at the heart of all teaching and learning in Agricultural Education. This issue should be "must" reading for all current and future teachers of Agricultural Education.

However, keep in mind that there are major questions regarding our ultimate experiential learning activity.

- Why don't all agriculture students have SAE programs/projects?
- Why are some teachers not promoting SAE?
- Do traditional SAE categories, projects, programs meet the needs and circumstances of all students?
- Do we place too much emphasis on profit oriented record keeping instead of balancing profit, experiences, time spent, and other quality factors?
- How can we integrate SAE into the new curriculum?
- What changes in FFA awards programs need to be made to fit these new dimensions?
- What is an "acceptable" SAE?

Our efforts related to experiential learning are far from being perfect – especially our SAE programs. New dimensions of experiential learning await our creativity as we redesign SAE. Let's get to it.

Thanks to Lou Riesenberg for providing leadership as the Theme Editor for this issue. Lou did an excellent job of encouraging and collecting articles for this issue.

Robert A. Martin is Editor of The Agricultural Education Magazine. He serves as Professor and Department Head of Agricultural Education and Studies at Iowa State University.

Why Not a Teacher Education SAE?

By Kelli Hamilton

Proficiency Awards are currently available in 46 categories for FFA members who excel in their Supervised Agricultural Experience (SAE) programs. One SAE area not available is a teacher education SAE.

A student in a teaching SAE could work with the agriculture teacher to experience some of the behind the scenes work of an educator. The student should also get the opportunity to practice teaching actual students as they grow and develop. All of the experiences gained would be documented in a portfolio, similar to a job placement record book. Although no monetary earnings would be involved in an agricultural education SAE, the student would be investing in a future career. Students with a teacher education SAE could help develop lessons and activities. They should do much more than the average teacher's helper. The responsibilities and activities should grow to stretch and challenge the student as they gain more experience.

If the purpose of the SAE is to prepare the student with hands-on experience for a future career, why not a teacher education SAE? Currently, there is a shortage of agricultural teachers. Isn't it time for a teacher education SAE?

Kelli Hamilton is a junior in Agricultural Education in the Department of Human and Community Resource Development at The Ohio State University.

Theme: New Dimensions for Experiential Learning

There are three basic components that make up a Supervised Agricultural Experience. A student might apply skills learned through the classroom into a supervised experience in a commercial greenhouse. FFA then provides the opportunity to apply for proficiency awards or compete in an agricultural Career Development Event. (Photo courtesy of Iowa State University College of Agriculture.)

Dr. Lou Riesenberg served as the Theme Editor for the May-June Issue of The Agricultural Education Magazine. Lou is a Professor and Department Head of Ag and Extension Education at the University of Idaho.

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An Approach to Experiential Learning: A Model that Merits Consideration for the 21st Century

By Roland Peterson, Robert Marzolf & Steve Hinrichs

Experiential learning has been an integral part of agricultural education since agriculture became a part of the school system. We often equate the idea of supervised practice only with 1917 and the Smith-Hughes movement. In Minnesota, agricultural education was an integral part of the school system at the turn of the century. Minnesota founded an agricultural high school in 1888.

The idea rapidly expanded, as a system of special agriculture departments in public schools spread across the state. In the early 1900s, the Minnesota state legislature began to provide funds at the rate of $2,500. One of the stipulations in the legislation was to provide land for trials and plots so that students could apply their learning to real situations. Consequently, the concept of application to real life was present at the start of agricultural education programs.

Knobloch (1999) addressed the issue as to whether or not Supervised Agricultural Experiences were merely becoming fond memories. He pointed out that this experience has a proven record of helping students apply knowledge, clarify career choices, develop responsibility and solve problems. He indicated that, in recent conversations across various states, the idea of implementing new SAE options was a popular topic. He also stated the need to shift the focus of SAEs from production to projects that reflect the community and career needs of students.

In many agricultural education programs today, the reality is that SAE is an option for students. Teachers no longer support the idea of SAE being an integral and required component of the program.

The idea of redesigning SAE programs is being debated across the country. It is evident that most are not willing to abandon the idea of an experiential education phase in agricultural education. However, current practice seems to reveal that a substantial portion of the teacher practitioners has abandoned this phase of the program.

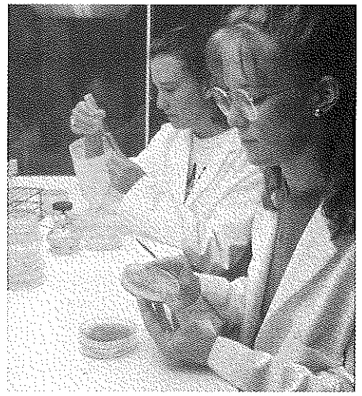
Today, at Forest Lake Senior High School in Forest Lake, Minnesota, which is a metropolitan-area, four-teacher agricultural education program, the SAE component is a requirement of all students and serves to distinguish this program. With more than 360 students enrolled per term (over 1,200 per year), it would be easy for the teachers to drop this component. The teachers could easily say this is too much work and that the time demand is too great. This is not the philosophy at Forest Lake! All students who enroll in agricultural education courses are required to have a SAE.

Students receive a copy of the SAE Project Outline and a SAE Project Plan. The Project Plan provides a series of questions that are designed to guide the students through steps in planning. In class sessions, the term "SAE" is described by the teacher. The teachers emphasize the word "project" which seems to resonate with most students.

Students are expected to seek an area of interest in agriculture. The teachers do not use the traditional adjectives formerly applied to projects, such as calling them Entrepreneurship, Exploratory, Placement, Research or Home/Community Projects. They also do not provide a list of possible projects. They want students to think about their interests and develop a project that may complement their classroom experience or build from their interest.

Although the traditional SAE terms are not used, the projects selected do fit into the traditional categories. However, it is important to note that they start with an open agenda. At the beginning of the term, students are introduced to the idea of a project after the first couple of days into a course. They are given instruction on "What does a SAE/Project mean?" and "What does the SAE/Project provide to you as a student?"

Once students are introduced to the SAE/Project concept, they are given a couple of weeks to submit the SAE Project Plan. Once the Plan is submitted and approved, students begin work on their projects. All students are encouraged to select an agriculturally related project. Students are expected to discuss the project with their teacher. Students are given liberty to select a project that is of interest to them even if it does not directly relate to the content in a course.



SAE Projects, traditional or non-traditional, are an important part of the total student learning package in agricultural education. Here, students apply classroom skills into a laboratory setting. (Photo courtesy of Iowa State Univerity College of Agriculture.)

For example, a student in a floral design course may be conducting an experiment on fertilizer materials. Once a project is underway, students are expected to complete a project plan. The project plan is a record of activities that occur as the project is being completed. The plan contains reasons why they chose the topic, the records and goals they hope to accomplish, and the costs, the benefits and the resources needed to complete the project, as well as a plan for evaluating and reporting the project.

The plan is a part of the classroom activities for the course. As a result, teachers frequently use one class period each week to allow students to maintain the documentation and/or appropriate records. At the close of the term, each student is expected to give an oral report of his or her project. The report may range from two to five minutes. The presentation may be in a form the student chooses but must include a visual presentation such as a PowerPoint presentation or a display.

The project requires a minimum of 10 hours of work outside the classroom and will constitute 15 percent of the student's grade in the course. Knight and Elliot (1999) shared a historical perspective of experiential learning in which they pointed out that the Dewey connection between learning and doing, and Stemson's notion of supervised practice, were foundational in formulating the idea of the SAE.

It is clear that as enrollments have increased in agricultural education courses in many programs, teachers have simply discarded the notion that an experiential learning opportunity is an essential, foundational principle. It is not uncommon to find programs with 70 to 80 percent of the students not having any type of practical experience outside the classroom. The teachers at Forest Lake have made a commitment to have the SAE/Project component as an integral part of their program.

Despite the fact that each teacher will likely have 90 to 120 students per day, they have developed a philosophy that each student will complete a SAE project for each class. In the event a student takes more than one agricultural education class in a term, they are allowed to enhance and develop one project.

In summary, the SAE/Project can be an integral part of agricultural education if the teachers believe it is an essential component. The unique feature of the Forest Lake approach is that students are allowed a great deal of freedom to select and design a project. There is no classification or list requiring students to fit into a preconceived model. Clearly, one could identify the projects chosen as fitting into the traditional categories of entrepreneurship, exploratory, research, experimental, home or community project categories. Students must design the experience and take ownership in the effort.

Knobloch (1999) suggested agricultural educators need to think "outside the box" regarding the issue of SAE/Experiential Learning Projects. The concept of learning by doing is a key component of agricultural education. It will happen in programs if teachers believe and value the importance of getting students involved.

The Forest Lake approach appears to be an outside-the-box approach. This approach may not generate more proficiency award winners in the FFA, but will provide active learners engaged in an aspect of the broad field of agriculture, agribusiness and natural resources.

The experiential learning component is essential if agricultural education programs are to develop the whole student. Merely taking a course certainly adds a literacy component to a student's education; however, the addition of an experiential element makes a difference in bringing reality to the experience.

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Experiential Education and Career Development Events

By James J. Connors & John P. Mundt

Experiential education or "learning by doing" has been a part of vocational agricultural education since before the Smith-Hughes Act of 1917. Teachers in the early 1900s recognized the importance of experiences outside of the formal school classroom. Early agricultural education programs included gardening and farm projects for students.

Stimson (1919) was one of the first agricultural education professionals to espouse the value of experiential education. Early science educators realized the value of experiences in science outside the classroom. If we accept the principle of "learning by doing", we must use experiences and community resources outside the school setting.

Experiential education is a process through which a learner constructs knowledge, skill and value from direct experience. The Smith-Hughes Act of 1917 referred to home projects, stating "schools shall provide directed or supervised practice in agriculture, either on a farm provided by the school or other farm, for at least six months per year."

John Dewey (1935), stated "Basing education upon personal experience may mean more multiplied and more intimate contacts between the mature and the immature than ever existed in the traditional school." He went on to discuss the importance of continued experiential education when he stated "...the principle of continuity of experience means that every experience both takes up something from those which have gone before and modifies in some way the qualities of those which come after."

The Vocational Education Act of 1963 brought renewed emphasis to the importance of enhancing learning experiences by the placement of students in agribusiness-related occupations. This emphasis was known as cooperative education. It still is today, only today the new name is School-To-Work (STW) programs. Additionally, today "service learning" is a new thrust whereby students learn the value of connecting to their communities through experiential education. By working in real life experiences with adults in their communities, students have an opportunity for understanding and appreciating social and civic responsibility through participating in community service and other projects.

A report titled *High Schools of the Millennium: Implications for Career and Technical Education* by the American Youth Policy Forum (2000) stated "Students have opportunities to experience authentic learning situations with adults - at work, in the community, through volunteer activities, sports, clubs, or other youth groups." The report identified reasons why schools need to change, including that high schools are still dominated by lecture-style classes where the content is divorced from the real world and students have limited opportunity for learning in the community. Employers have also indicated that the shortage of technical skills and general employability skills is the number one barrier to career success in the real world.

Almost five years ago, the educational community witnessed an increased emphasis for "real world" experiences for all students through the School-to-Work (STW) program. This program called for all students, both those in career and technical education courses, college prep and general education courses to receive on-the-job training through school sponsored experiential education.

In agricultural education, students are supposed to receive their experiential education component through their supervised agricultural experience (SAE) program, as taught through the traditional three-circle model for agricultural education including classroom/laboratory instruction, SAE, and the FFA.

Students enrolled in secondary agricultural education courses are to have an identified program that is agriculture in nature, supervised by the agriculture teacher, and provides real-life experiences related to their area of interest. It is evident, however, that not all agricultural education students have developed quality SAE programs. It is estimated that less than half of all students enrolled in agricultural education have a SAE program.

One method of improving agriculture students' SAE programs is to follow the Action-Reflection Cycle outlined by Joplin (1981). This model includes Focus, Action, Support, Feedback, and Debrief segments. The Focus component consists of a planning stage where each student identifies an area of interest, develops a plan, and initiates a SAE program. Basically the students, with assistance from the teacher, focuses their attention on the experiential education activities they will be conducting. The Action step consists of putting the SAE into practice.

According to Joplin (1981), the Action phase is conducted concurrently with Support and Feedback. A quality SAE program must include the student receiving continuous support and feedback from their parents, employer, and agriculture teacher. Perhaps the most important point in experiential learning is that the actions of the learners are followed by a reflective process. Through the reflective process, insights are generated. The Joplin model of Focus, Action, Support, Feedback, and Debrief should be segments of a quality SAE experience for students enrolled in agricultural education programs.

The primary difference between the School-to-Work program for all students and the SAE program for agriculture students is the regular, scheduled, supervision provided by the instructor. Agricultural education is one of the few educational areas conducting on-site supervision of experiential education programs. Yet, as with the number of SAE programs in operation, the number of supervisory visits conducted by agriculture teachers is also questionable. Many teachers still receive extended-contracts to supervise SAE projects. As school budgets continue to be tightened, pressure will tighten to justify extended-contracts.

An updated version of the traditional model has recently been developed by the National FFA Organization (Staller, 2001). Figure 1 shows the relationship of knowledge and skill development (what we teach) to instruction, SAE and FFA (how we teach). Clearly the cognitive, psychomotor and affective domains of learning are all covered through the three components of agricultural education, classroom/laboratory instruction, SAE and FFA.

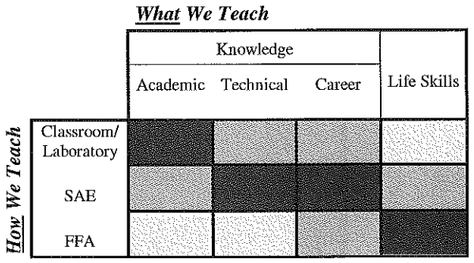

Figure 1. A Model of Agricultural Education (Staller, 2001). Note: The darker the shading, the more intense the strength of learning the "what" via the "how."

The FFA incorporates all the phases identified in the Joplin model of experiential education. Within the past decade, Career Development Events (CDEs) have grown to be a major component of agricultural education, as well as a major motivational factor for students.

Career Development Events are an excellent bridge between what the students learn in the classroom or laboratory, the skills they have learned as part of the SAE program, and the competition and recognition available through the FFA. This bridge builds the transition into career success.

The number of Career Development Events has grown dramatically over the past five years. These events are planned and organized by professionals in both agricultural education and each respective content area (e.g. floriculture, meats, equine, etc.). While the change from contests to career development events has been good, more improvement is needed. Efforts need to be made to connect the competition phase of the event with a learning phase which could include industry tours related to the skill area, workshops conducted by industry professionals, future internships, and employment opportunities with companies related to each CDE.

A new model for the relationship between agricultural education, SAE, the FFA, and CDEs has been developed (Figure 2). Using these models for agricultural education brings real meaning to the mission of the FFA as the Premier Leadership Development, Personal Growth, and Career Success organization for students.

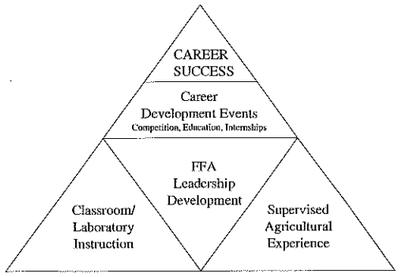

Figure 2. Agricultural Education Career Success Model

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Experiential Learning, Just Do It!

By Sharlene Woffinden and Joel Packham

"Learning by Doing" is one of the main reasons 4-H has been recognized and respected in the field of informal youth education. 4-H members and leaders have traditionally been encouraged to "engage" in their learning experiences.

Today they are also being asked to think more about what they are learning and to ultimately learn more about themselves and the world in which they live. This process of doing, reflecting, and applying is referred to as Experiential Learning.

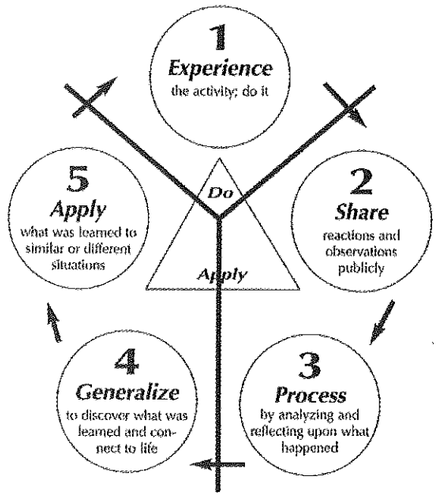
The noted philosopher, John Dewey, stated: "Experiential learning takes place when a person is involved in an activity, looks back and evaluates it, determines what was useful or important to remember and uses this information to perform another activity." (Dewey, 1938)

Being Extension Educators for the University of Idaho, we enjoy evaluating and meeting the needs of the people in our county and area. As youth needs and issues change, so must our educational efforts. For the last seven years, we have been members of the Bear River Basin Cluster, comprising of Extension Educators and staff from Bear Lake, Caribou, Franklin, & Oneida Counties.

The Bear River Basin Cluster Team felt that to improve the educational experiences of youth enrolled in our 4-H program, the educational activities needed to incorporate experiential learning. This goal has greatly influenced the way 4-H activities are currently accomplished and has increased the involvement of youth and adults in their own learning.

The team is developing and offering activities, project camps, and workshops using the project curriculum from the 4-H Cooperative Curriculum System (4-HCCS) as a guide. The University of Idaho Extension System is a member of the 4-HCCS, which currently has 42 states as members. This organization's curriculum utilizes the experiential learning model and focuses on teaching "life skills" along with traditional project skills. Each set of materials produced by this organization must pass the National 4-H criteria to be accepted as 4-HCCS curricula and listed in the National 4-H Collection.

The basis of the 4-HCCS Experiential Learning Model is doing, reflecting and applying. To do an activity that involves experiential learning, you need to include three basic principles. This base is more completely outlined in the following five steps: 1) Experience, 2) Share, 3) Process, 4) Generalize, and 5) Apply. Most individuals are very good at demonstrating to youth what and how things work. To adapt activities for experiential learning you have to change the "doing" part of the activity to involve the learner. One way to involve the learners is to lead them through an activity - having them do everything you do. Following the learning experience, youth have to "share" what and how they learned, then "process" their new knowledge and "apply" it to other facets of their lives. This process has increased the interaction of adults and youth in our 4-H program and led to a more participatory type of programming, where youth and adults all play an active role in the learning process.



4-H Cooperative Curriculum System Experiential Learning Model

The experiential learning model challenges individuals to change and adjust their way of teaching. The team started by sharing and teaching the model to other adults/volunteers. These individuals needed to experience the educational moment as if they were being taught as a youth. This "moment" showed volunteers the joy of this teaching model and encouraged them to find activities they could share with the youth of the 4-H program. Engaging the volunteers in a discussion of the activity helped them to apply the other parts of the model, preparing them for their next teaching opportunity.

Planning activities have taken on new emphasis as educators on our team work to find programs for a youth audience that can be done using the experiential learning model. The trick is to keep the activities "active" and not create undo chaos for an adequate learning environment.

At the 2000 Cluster Livestock Day Camps, offered in Southeastern Idaho and neighboring states, one of the team members lead a class on giving injections to animals. The "doing" involved useing syringes and vials of colored water to give a banana a subcutaneous and an intramuscular injection. Then, the banana was evaluated.

4-H Livestock Day Camp participants preparing to give bananas injections of color water. (Photos courtesy of Sharlene Woffinden and Joel Packham.)

During this evaluation time, the team member asked the participants what they learned about giving injections (sharing), what they could have done to improve this skill (process), and how they might be able to use this knowledge about injections and locations, etc. in the future (apply). Without knowing, the youth and adults participating in this activity had a positive and fun experiential learning experience.

Conducting a project like Aerospace using the 4-HCCS Curriculum is another great way to use the experiential learning model. To do an activity, such as "Rockets Away," in Lift-Off Project Activity Guide (4-HCCS Publication BU-6843, 1999, page 6-7), an individual needs to review the activity and gather the required materials so each student can make a straw rocket.

Youth preparing to launch a model rocket made in the 4-H Aerospace project. (Photos courtesy of Sharlene Woffinden and Joel Packham.)

After the students have created their straw rockets and launched them several times, you move onto the next step. Have the participants share how they made the rocket including good ideas along with ideas that were not successful. "How is your straw rocket similar to a model rocket? How is it different?", are two questions used to help the students process the activity. To generalize the learning ask them, "How can making models help you learn about the real things?"

A concluding question on how to apply this skill could go something like this: "If you were going to teach a friend about rockets and rocket parts, how would you do it?" The next "do" is for the students to experience making a model rocket and launching it, which starts the experiential learning process all over again.

The Bear River Basin Cluster team also incorporates experiential learning in the record keeping required of participants. Asking youth to answer sharing, reflecting and applying questions about their projects can guide them through the learning model. For the last three years, youth in Bear Lake County have been required to complete a pilot record sheet developed by the team for each project in which they enrolled.

The record sheet's first question asks the youth to "share" by listing what they had learned or accomplished during their project. The next set of questions continues by asking them to "process" by listing things they enjoyed most about the project and explaining the most difficult thing they accomplished. For the youth to "generalize" about their projects, they are asked how they would make this project better? And finally, to have the youth "apply" their knowledge; they are asked to tell how they could use the life skills gained in this project in a future activity?

The University of Idaho's Cooperative Extension System is an organization with a mission to educate and meet the needs of Idaho's people. By using the experiential learning model and 4-HCCS project materials, our team is able to reach beyond the traditional activities and set more challenging goals that are benefiting 4-H youth and adults in our county, cluster and state 4-H program.

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E-Record Books for Supervised Agricultural Experience Programs: Tools for the 21st Century

By E. Craig Edwards, Larry Ermis & John Dillingham

Experiential learning has long been an instructional method used to facilitate student learning in agricultural education. Often, these experiences have resulted from the student's Supervised Agricultural Experience (SAE) program (Camp, Fallon, & Clarke, 1999). Traditionally, students have been encouraged to "record" significant events related to their SAEs. In addition, this information is used to complete applications for FFA degrees and awards.

The factor "complete records are maintained by the students" (p. 167) was identified by Camp et al. (1999) as one of the most important guides for conducting an "effective" SAE. Historically, the need to maintain "complete records" manifested itself in some form of a record-keeping journal, usually, in the form of a paper "record book." Yet, is this sufficient in the electronic age?

In 1998, agriscience teachers and state education agency personnel formalized the need to improve and update the existing record book used to document students' supervised agricultural experiences in Texas. It was decided that the revised record book should reflect *Generally Accepted Accounting Principles (GAAP)* and *Farm Financial Standards (FFS)* procedures, and include the essential data necessary for students to complete applications for the National FFA *American FFA Degree* and *Proficiency Award* programs. Accordingly, personnel at the Instructional Materials Service (IMS), Agricultural Education Department, Texas A&M University, developed a "new" record book. National FFA and Texas Education Agency (TEA) staff also provided assistance during the development process.

During the 1999-2000 school year, more than 4500 newly revised record books were distributed to 33 Texas and three out-of-state departments participating in a pilot-test. Participants' feedback from this test was used to further revise and improve the hard-copy book. Concurrently, Texas Engineering Extension (TEEX) Service personnel were asked to develop a "prototype" web-delivered e-record book using the newly revised hard-copy record book as the "template." Finally, after receiving input from stakeholders about alternate delivery methods to the traditional "paper" record book and following preliminary beta-testing of the TEEX-developed prototype, it was decided to develop a web-delivered electronic record book.

Future workers need a higher quality of education that integrates general knowledge in both the arts and sciences with emerging technology.

To this end, the Instructional Materials Service in cooperation with the Texas Education Agency and the Texas Engineering Extension Service developed an online record book. This electronic, or e-record book, (*http://teexcit.tamu.edu/myagrecord*) is available to students and teachers any time, anywhere, and any place, provided they have access to the Internet and a web browser.

The e-record book is a web-delivered record keeping system, designed and customized to meet the needs of students' SAE programs; it allows students and teachers to acquire and use computer-based telecommunications skills (Murphy & Terry, 1998).

Users must have Internet access and a web browser. The web-delivery system accommodates either PC or Macintosh platforms, which may further increase its potential for use. Yet, other than a web browser, there is no requirement for locally installed software or the concomitant need for updating. Also, because of the nature of web-delivered technologies, any future system changes should cause minimal disruption in service when compared to other electronic alternatives such as replacement diskettes or CD-ROM upgrades. At this time, the online e-record book is being pilot-tested by 30 Texas high school agriscience departments that have been issued nearly 1300 e-record book subscriptions.

Depending on anticipated annual need, "user" (student) subscriptions are provided on a departmental basis; subscription includes data storage and archival options. System access requires both a "user id" and a password. Teachers serve as on-site "administrators." After requesting their department's annual subscription(s), instructors are provided user identifications and passwords to assign to their students.

Instructors may obtain additional subscriptions throughout the year, and teachers can access and evaluate their students' e-record books, view school account information, and add/delete students. A subscription is $2.50 per book per year.

E-record book users will have Internet access and will use a web browser; it is recommended that users have Internet Explorer 4.0 or higher, or Netscape 4.0 or higher. To provide subscribers with online support, a linked "Contact IMS" e-mail address is available to all users of the e-record book, and a LISTSERV discussion group is maintained to answer teachers' questions or to serve as an open forum for SAEP and record keeping. To become members of the discussion group, teachers send an e-mail to listserv@listserv.tamu.edu. Ignoring the "subject" box, they enter 'SUBSCRIBE e-records-lteacher's firstnameteacher'slastname' in the "message" box and then send.

The TEEX Service and the Computer Information Services (CIS) at Texas A&M University provide the technological expertise and server space necessary to support database management and the archiving of students' records. For this purpose, the TEEX Web Development Group uses a Windows NT Server (v. 4.0 or higher) running Microsoft IIS web server (latest version), Allaire's ColdFusion Server (v. 4.0 or higher), and Microsoft's SQL Server (v. 7.0 or higher). The servers are housed on the Texas A&M University campus in the CIS server room.

General availability for the e-record book is expected to begin in the 2001-2002 school year. In addition, complimentary trial subscriptions are available nationwide to university agricultural education departments, for use by preservice teachers and teacher educators. Moreover, the next anticipated system upgrade will provide users with the capability of generating completed FFA Degree applications from the data stored in their e-record book(s).

In addition, *Myagrecords* is the focal point for three USDA Secondary Agriculture Education Challenge Grants submitted by school personnel in Texas Agricultural Science and Technology departments. At one suburban campus, instructional personnel propose to integrate agribusiness aspects of *Myagrecords* into the instructional program for the 1,400-plus students in their high school, with hopes of increasing the diversity of students pursuing careers in agribusiness and agriscience.

In another proposal, agriscience faculty and administrators at a rural school intend to use *Myagrecords* to promote improved teaching competencies and electronic delivery systems for agribusiness education. Still another department proposes to use *Myagrecords* to align secondary agriculture and postsecondary educational curricula while involving community and agribusiness leaders in providing entry-level career opportunities for students. The Challenge Grants are competitive, but these schools intend to implement their respective activities whether or not the funding requests are successful. Expect the use of *Myagrecords* to usher in a plethora of agricultural education innovations via the Internet.

Until we stop holding "all other things constant," we will never get to the kind of possibility sets that will actually produce the much sought after revolution in educational productivity.
Dennis Bartels

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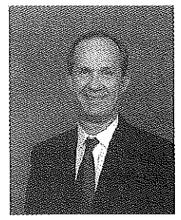

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The "Why" of Experiential Learning

By Larry E. Miller

Experiential learning is a real link, as I will try to show, between the classroom and the real world.

The concepts of experiential learning emerged from such great minds as John Dewey, Kurt Lewin, and Jean Piaget. L. S. Vygotsky, the noted Russian cognitive theorist, was also important with his declaration that learning from experience is the process whereby human development occurs, and this development perspective forms the basis for applications of experiential learning to education, work and adult development. Kolb (1984) noted that human beings are unique among all living organisms in that their primary adaptive specialization lies not in some particular physical form or skill or fit in an ecological niche, but rather in identification with the process of adaptation itself — the process of learning.

The "shrinking world," the rapid rate of change, and the exponential growth in knowledge necessitate that all of us must learn to survive. Tough (1977) noted that almost 90% of Americans will carry out at least one learning project each year and will spend at least 500 hours learning new things. The average American would change jobs at least 7 times and careers three times during their lifetime (Arbeiter et al., 1978).

Drucker (1989) argued that schools are not preparing students for the reality of work and that the inclusion of internships would change the face of education.

Stone & Wonser (1991) specified that learning takes place when (a) learners regard what they need to know as relevant to their lives, (b) they feel that their teachers are committed to their success, and (c) institutional environments allow for differences in learning methods and styles, and are in harmony with the diverse needs of the learner.

Kolb described the learning cycle wherein "experience is translated into concepts which in turn are used as guides in the choice of new experiences" (1976, p.2). The traditional academic setting encourages a student to develop perceptual and symbolic abilities, by emphasizing reflective observation and concept formation.

One's affective and behavioral abilities, however, can best be fostered through active experimenting and concrete experience. Kolb's model thus provides a rationale for encouraging experiential learning as an essential part of the learning process. Teaching is done to bring about learning. Learning is changing behavior. "Teaching is more than telling," if it is to bring about learning. His model would also caution us against assuming that any experience will lead to learning in the absence of the other steps.

Only experience that is reflected upon, seriously, will yield its full measure of learning and the reflection must aim at testing the newly refined understandings by further experience. Our duty as educators is to provide experiential opportunities and to make sure they produce learning. That is, we must provide the framework for regularly analyzing the experience and forming new concepts and theories, and submitting these concepts to the test of experience.

We are not just to provide disjointed experience through supervised agricultural experience programs. We must structure the program to enhance the opportunity for learning to occur!

While Kolb provided the "why" rationale, Argyris and Schön (1974) examined the "how" in their study of graduate-level professional education. In describing successful field experiences, they drew conclusions surprisingly similar to Kolb's description of the learning cycle - that the objective of field experience is to become reflective under real-time conditions.

Their "theory of action" is not simply a theory about the technical subject or field under study, but the learner's whole framework for engaging in the experience. It includes the formal ideas, assumptions and expectations brought from past experience, as well as the methods they use to function in the new situation. All learners bring an existing cognitive structure to the learning situation, and they must make sense out of the new learning relative to the old -- make it fit.

These models should not be viewed as a "universal solvent" for learning. A curriculum has several parts and all may be essential to producing a learned individual. What emerges is that each student must "learn how to learn." Every student will need to learn again and again throughout his/her lifetime. Teaching is "lighting a light, not filling a bucket." The learning situation should place the learners in a position of directing and leading their own learning and problem solving, enhance their capacity to be independent learners, to look to their own resources for interpretation and for finding out rather than developing a dependency on an external expert (Thomas & Anderson, 1991).

Oakes (1986) described the traditional model of educational design as industrial, wherein the business of learning is additive and largely controlled by people and events outside the learner, the objectives define what the end product of learning will be, and the learner is the recipient: moving through an assembly line of learning experiences in which the teacher's role is to give information in chunks that are keyed to the objectives. As the new model shows, successful learning is internal to the individual, Anderson et al. (1985) suggests a shift from low level basic skills and isolated facts to higher-order abilities, such as analysis, reflection, and reasoning (Perkins & Salomon, 1989).

True understanding and learning how to learn are essential constructs to the preparation of an educated person. People make sense of things by constructing meanings. Over time, people develop repertoires of such constructed meanings known as knowledge structures. Since people's knowledge structures influence what is noticed and attended to by them, and interpretations of experiences, prior knowledge influences new learnings. Unless they are given assistance in constructing new structures, old structures are likely to continue to guide thinking and actions and new learnings are likely to remain inert (Thomas & Englund, 1990).

Our job as teachers entails not only imparting new information but helping the learner to create these structures. Experiential learning can provide solid structures within the mind of the individual. People, thus, learn to compile knowledge in ways which make it applicable to differing situations (Anderson, 1985).

Experiential learning programs typically include in-classroom components and the work components, which are jointly and cooperatively supervised by school and work site personnel (Pataniczek & Johansen, 1983). Reflection can also occur on-site through activities where the students are monitored and receive feedback on their performance and thinking; permitting reconstruction of problems and designing new approaches (Moore, 1983).

Many other advantages also are inherent with providing experiential learning. State-of-the-art training is often more readily available at work sites than in educational institutions. The benefit to employers is that experience-based educational programs are cost-effective ways for companies to recruit and train future employees (Macala, 1986).

Of course, the mechanics of establishing a structure for learning to occur exists through training agreements and training plans. Indeed, the ability to supervise and evaluate the learning of students is very important.

"Why have experiential programs?" The answer is simple: to promote real learning by students. It is not just work experience for the sake of experience, but a way to provide a "connectedness" between theory and practice.

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Grounding New Dimensions in Experiential Learning

By Neil A. Knobloch

Two students are standing in the lunch line after a class registration announcement. "Hey, Steve! Why don't you take Ag.?" exclaimed Ross. "What do you do in there anyway?" Steve asked. "Oh, you would like it…it's…well, it's hands-on," Ross replied.

This brief dialogue is the keynote address of many recruitment initiatives and agricultural educators tend to recruit students into their program on the premise that it is hands-on and experience-based learning. Many students want to learn by doing tasks that are more kinesthetic than reading out of a textbook, completing worksheets, or writing papers. However, how many agricultural educators know the origins of the term "experiential learning" in agricultural education? Additionally, what were its original components? The purpose of this article is to identify the origins of experiential learning in agricultural education and to uncover its key components.

The study of experiential learning dates back about one century ago when the early leaders of agricultural education expressed their theories of educating students about agriculture based on the educational beliefs of early philosophers. Agricultural educators have tested and practiced these educational theories related to the premise that learning is experienced in many different contexts.

The Supervised Agricultural Experience (SAE) project, commonly associated with experiential learning, was one of the three intertwined components of the agricultural education program. Although the S.A.E. project was an integral part of the educational experience of students, effective agricultural education

The study of experiential learning dates back about one century ago when the early leaders of agricultural education expressed their theories of educating students about agriculture based on the educational beliefs of early philosophers.

programs were entirely built on the philosophical foundation of experiential learning. Philosophies and theories that survive the test of practice in the field and effectively help students learn often become known as principles of teaching and learning (Figure 1). I believe that "experiential learning" is one of the principles in agricultural education. However, are agricultural educators practicing experiential learning theory in their whole agricultural education program or has this principle of teaching and learning been left fallow because it does not fit in the schools, organizations, and lives of the students in the new century?

The framers of experiential learning in agricultural education illuminated four main components (Figure 2) of experiential learning:

(1) Learning by doing (Lever, 1952, in reference to Knapp)
(2) contextual learning (Dewey, 1938)
(3) problem-solving (Lancelot, 1944) and
(4) the project method (Stimson, 1919).

In addition, the common threads that resonated out of these four components of experiential learning as expressed in the voices of these educational leaders were that: (1) students engage in solving problems that are relevant to their lives; (2) students communicate their thoughts connecting knowledge in action; (3) students discover science through investigations; and, (4) educators teach for long-term effects so that their students can apply the knowledge many years later in various contexts. Initially, one might think that experiential learning is outdated, especially the problem-solving approach and the S.A.E. project, because the contexts of agriculture have changed drastically since the days of Knapp, Dewey, Lancelot, and Stimson. However, experiential learning is still very relevant when educators and students apply them in dynamic contexts that reflect the changes of the current, highly fluid

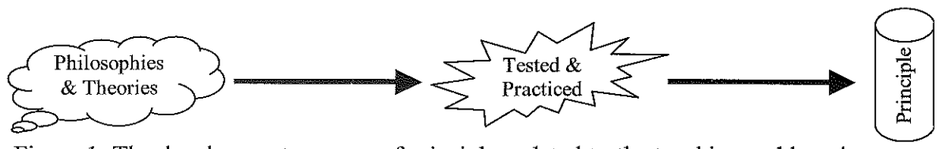
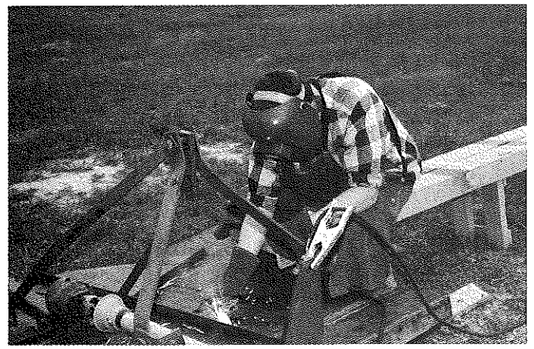


Figure 1. The development process of principles related to the teaching and learning.



Knobloch stresses the importance of experiential learning, as "hands-on" and experience-based. Here an Agricultural Education student completes a welding project. (Photo courtesy of David Agnew.)

economical, societal, and political environment.

In revisiting the dialogue of the two students in the lunch line, many teachers and students of agriculture are familiar with "hands-on" learning, but does this popular approach to teaching and learning always constitute the principles of "experiential learning?" One of the greatest challenges for today's teachers and students of agriculture is to move beyond the "doing" and ensure that all learning is connected to thinking and that knowledge will be easily remembered, transferred, and applied later in life. In the milieu of educational reforms and new dimensions for experiential learning, I believe that each new learning initiative should begin with the question, "How will this help students be a successful adult?" Further, agricultural educators can link experience-based programs to the new developments in education in many creative ways.

Agricultural educators can capture the essence of the philosophical spirit of experiential learning in agricultural education for the 21st century in several ways. Educators must ground their instruction and learning activities on the key components and critical themes of experiential learning. It would be wise to ground new dimensions in agricultural education on the solid theoretical base of experiential learning. Experiential learning, as defined by Knapp, Dewey, Lancelot, and Stimson, connects high quality achievement and learning focused around intellectual accomplishments that are worthwhile, significant, and meaningful for today's schools, agricultural education programs, and students. It is my belief that agricultural educators who engage students to learn through experiences based on problem-solving, elaborated communications, investigative discovery, and long-term transfer of knowledge will likely see the fruits of higher intellectual achievements, not only while they are enrolled in school, but more importantly, in their adult roles as contributing citizens of society.

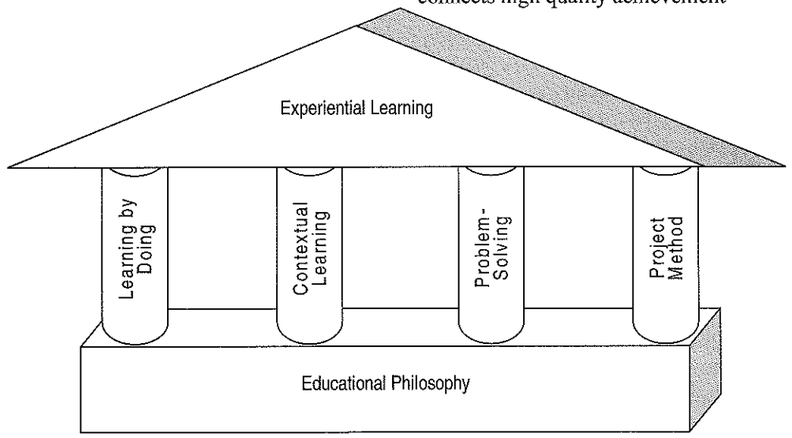


Figure 2. The components of experiential learning.

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The Shepard as Instructor: Engaging Students in the Experiential Education Process

By Mikel Woods

Enthusiastic supporters of experiential education might say that learners are so naturally driven by a captivating experience that it just cannot help but create concrete learning. Yet, is creating a dramatic unknown enough to engage tentative participants? I suggest that the educator must do more than create an activity and hope that learners will embrace it with enthusiasm. A major role of the instructor in the experiential education process is to provide a safe space for learning to occur and encourage learners to recognize the opportunities for growth available.

The educator as shepard is a useful metaphor in describing how to engage learners through experiential learning. This idea is based on the notion that the class collectively holds all the information, experience or knowledge necessary for learning to occur. The role of the shepard instructor is similar to the traditional shepard, whose job is to guide and to guard their flock. She/he assists in the development of new ideas by: 1) drawing from the resources of the group of learners (guiding), and 2) securing the safety of the learning environment (guarding).

When acting as a shepard, the instructor creates a safe learning atmosphere, both physically and psychologically, where learners are not afraid to take risks. A student in an educationally safe space more fully bonds with the group, maintains self-esteem and embraces all learning potentials. As Rogers (1969) points out, learning that is perceived as threatening is more easily assimilated when the environment is safe.

The traditional shepard guides his/her flock along various journeys, stepping aside when the animal's ability to achieve its needs naturally occurs. The shepard instructor steps aside when the learner is engaged in the learning process, yet continues to guard the learning environment to allow a blossoming of the learner's curiosity and quest for knowledge. In a sense, the instructor alters between guiding the learner to solve the barriers to learning they often encounter and guarding the intensity and safety of their engagement. As John Amos Comenius (1649) states, "the proper education of the young does not consist in stuffing their heads with a mass of words, sentences, and ideas dragged together out of various authors, but in opening up their understanding to the outer world, so that a living stream may flow from their own minds, just as leaves, flowers, and fruit spring from the bud on a tree."

All genuine education comes about through experience; this does not mean that all experiences are genuinely or equally educative.
(Dewey, 1938, pg. 25)

The traditional shepard is someone who guides and tends to a herd. Accordingly, the shepard instructor is with the learner in their learning cycle - guiding and nurturing the experience from any role necessary at the time.

According to Warren (1995) the following eight responsibilities are essential for agricultural instructors hoping to utilize methods of a herdsman instructor in experiential education settings.

1. *Organize Logistics* - It is the job of the shepard instructor to handle logistics, to allow learners full attention to the lessons possible in the situation. Shoddy logistical management often gives rise to focus on minutiae rather than substantive experiential learning.

2. *Guard the Initial Learning Environment* - The creation of safe space in teaching geared to using experiences cannot be underestimated. Both physical and emotional safety is imperative; they also don't just happen and are often overlooked, due to what I call the oppression of experience. Often in their belief in the value of the activity and the subsequent follow-up; instructors bypass the initial psychological safety building, in an effort to get to the heart of the experience. Such instructors have learners out swinging in the treetops before they are even comfortable in a group of their own peers.

3. *Serve as Nurturer* - Learners come to classes with years of intense schooling which was far from experiential. They are bursting with hopes of an educational magic potion, yet are caught by reutilized constructs of learning. They are ineffective and clumsy in their attempts to question stilted educational methods because they have been trained so well in what to expect from a class. They have been indoctrinated in what to give and receive, while being mystified about how much they can claim of their own learning and how much they must wait to be fed. Therefore, the first challenge is to deprogram the learner's dependency on spoon-fed learning and to inspire curiosity.

4. *Establish Relationship* - As a showman knows, establishing a relationship with animals is the foundation of success. The shepard instructor strives in the same vein to convey a sense of connection with the learner so that trust and relationship sustain the budding learning collaboration. Because relevance of knowledge occurs when we can understand something in relationship to the world, or ourselves, the model that a shepard instructor creates in building a relationship is integral to constructing knowledge. Being vulnerable and accessible are primary avenues for the instructor to build relationship.

5. *Acknowledge Commonalities and Recognize Differences* - When beginning a group experience, learners need to feel that there are others like them ready to embark on the journey. Feeling alone is not conducive to engagement in a learning experience. Consequently, the shepard instructor's attention to discerning commonalities takes priority in the initial stages of the group. This is consistent with many group theorists' (Jensen, 1979; Weber, 1982) ideas about the cycle of group process.

6. *Remain a Learner/Participant* - Experimental education should not be something we do to our learners. Passion must not be passé in teaching. Learners benefit when they know what raises the instructor's energy level. Beidler (1986) suggests the best way to learn a new subject is to teach it. The shepard instructor sees learners as primary teachers and listens to the learners in order to retrieve the information essential to strengthen the teacher/learner synergy in the learning process.

7. *Create Student-Centered Learning Experiences* - Student-centered learning is essential to keeping learners passionately involved in the experiential education process. Learners plunged into an experiential learning situation do not necessarily embrace a student-centered existance; it is through the conscious intention and skilled educational innovation of the shepard instructor that a student-centered environment is established. Similar to the traditional shepard who believes that the animal innately understands its actions, the shepard instructor respects the learner's ability to discern a responsible learning path. Therefore, acting as a resource and facilitator of the learner's chosen path is the role of the herdsman instructor.

8. *Assist with Closure* - The shepard instructor's role in a group activity that is ending is to provide guidance that will ease the transition. Instructor-assisted endings are critical, there is a psychological satisfaction in tying things up, in reaching conclusions, in making connections between things learned. Sloppy closure robs importance from what might have been a poignant experience. The instructor assists with termination primarily by providing a safe space for feelings to exist. It behooves the instructor to provide more structure than might be apparent at this stage of group development, as the group is so engaged in feelings of mourning and transformation that group members don't have the same ability to attend to group needs that they had earlier in their process. Learner detachment is the challenge confronted by the shepard instructor who attempts to deliver them safely to the next life experience by effectively facilitating the closure of the present experience.

An agricultural educator has many opportunities to entice a learner into learning activities. The attention given to promoting engagement enriches the ultimate learning of the student. Ignoring the elements of emotional safety may cause incomplete immersion in an experience and an eventual loss of learning potential.

Most of the methods of shepard instruction detailed in this article can be construed as simply good teaching. Yet, since the power of experience intensifies with the degree of involvement, methods to create profound immersion levels can particularly benefit agricultural educators dedicated to learning by doing.

Exploring the metaphor of the instructor as a shepard who guides and guards the learning environment may assist agricultural educators in developing means to amplify learning. It is based on a foundation of respect for what the learner brings to any experience.

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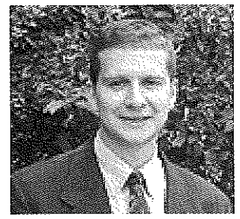

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Is SAE Meeting the Needs of Today's Students?

By Kevin A. Keith

Is SAE meeting the needs of today's students? The answer to this often asked question, from my observation is, yes! And no. I know that you are already thinking that this article will not answer the question that I have heard asked since I entered agricultural education as a major in 1974.

Allow me to further explain... Over the past five years, while serving the National FFA Organization as Teacher Services Specialist for SAE-Based Activities, I have had the opportunity to travel to more than 30 states to meet with agricultural education teachers and students. I have been lucky to have spent time in many agricultural education departments while in these states and I have tried to listen carefully to discussions, questions, and challenges about Supervised Agricultural Experience programs. I hear teachers tell me that there is little or no opportunity for their students to become involved in SAE and that they feel that SAE has long outlived its usefulness. I also hear teachers tell me that the SAE program is the most vital experience provided in their program and that it is what keeps them fresh and enthusiastic about their future in agricultural education. Additionally, I hear that SAE is what separates us from other disciplines - and this is used conversely as an argument both for and against offering SAE.

What is the difference, as far as SAE commitment and philosophy, between the following two actual examples I encountered over the past couple of years? Teacher A is a small rural school agricultural education instructor who expressed to me that the reason he could not conduct SAE programs for more than a very few of his students was that there are precious few opportunities for SAE's for his students like those that would be available in a large urban or suburban area. Teacher B is an agricultural education instructor teaching in a city of about 120,000, who said that the reason he had abandoned SAE is that it is set up only for the students in small rural communities and did not consider the lack of opportunity found in the urban situation. I believe that the answer to the question is simple — there is little or no difference between the sentiment toward SAE for Teacher A and Teacher B. They both believe that the value of the SAE has expired, that it is not for everyone and is in fact, not an intra-curricular part of the Agricultural Education program.

Now what about the two other teachers, again with very real situations, I encountered over the same time frame? Teacher C is an agricultural education instructor in one of our nations largest urban centers. He tells of the fact that the program he and his colleagues conduct relies heavily on the experiences offered to each and every one of their several hundred students. Even given the number of students, he feels badly that at times he cannot match up all the SAE experiential opportunities with the students, because there are simply far too many opportunities available for the number of students. Teacher D teaches in a rural community of about 800 residents in an area where production agriculture still is the primary use of the bulk of the land, although most of the farms and ranches are much larger. Not many of his students come off the farm. This instructor not only has all of his students involved in SAE, he has seen several of them recognized in the highest venues as national finalists in proficiency awards and even in the Stars Over America program. He indicates that placement of additional students would be easy based upon the opportunity in his community.

Here again, I believe that there is little to no difference between the sentiments toward SAE for Teacher C and Teacher D. These teachers see the value. They view it as an essential aspect of the agricultural education program, vital to the development of each and every student in their program.

SAE must function as an intra-curricular part of the Agricultural Education program. (Photo courtesy of Iowa State University College of Agriculture.)

Now, let's look at the differences between the two pairs of examples. It would seem that there are certainly some major differences in philosophy. Teachers A and B seem to have abandoned the agricultural education program philosophy of three interconnected circles of classroom/laboratory instruction, SAE and FFA (figure 1). Often I have heard groups of beginning instructors talk about going into their jobs and working only on the instructional program and then, at some later date improving the FFA program and "maybe someday even establishing the SAE program". It seems as though some new and even many current instructors, view the program as three parts that can be developed when convenient. In fact, while serving as a state supervisor, I received calls from teachers who wanted me to defend their extended summer contracts under the premise that these contracts were essential to SAE, after they had told me that they had abandoned the SAE as a part of the program in their schools. Do Teachers A and B feel that SAE is intra-curricular? Do they feel that SAE has kept pace with today's students? Do they see such experiences as vital to the development of students? Apparently not! What about Teachers C and D? Ask the same questions about them and I think that the answer is a resounding, YES! Does the answer to the basic questions posed in this issue of The Agricultural Education Magazine lie in things like personal commitment and personal views toward agricultural education philosophy or does it lie in an inability to view SAE in a broad and liberal or creative fashion? Does the plethora of available materials supporting SAE need revision? Yes, but I believe that there is a great deal of current information available today that is on the cutting edge.

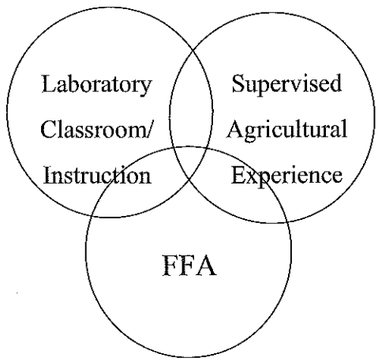

Figure 1. The Agricultural Education Philosophy, consisiting of three interconnected circles.

In conclusion, I believe that SAE is meeting the needs of today's students. How well it meets these needs depends totally and completely on the local instructor and the support mechanisms that have been cultivated and developed. The instructor's philosophy and personal commitment to this phase of the agricultural education program sets the basis for success in meeting the needs of the student and the community. Basically, it can be said that, those who want to have a vital supervised experience for each of their students, will have such experiences available and will implement them. Additionally, those who believe in and internalize the philosophy of SAE will find it an up-to-date and vital program and they will be enthusiastic about the future of this unique aspect of the agricultural education program.

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What SAE materials are available to teachers?

In 1992, the National Council for Agricultural Education developed a handbook entitled, "***SAE, Experiencing Agriculture***". It still contains valuable materials and information.

The ***Local Program Success (LPS) guide*** was printed and disseminated in 1997. It contains a chapter on SAE and included a number of documents used for coordinating outstanding SAE programs.

There are two commonly used ***SAE videos*** available. One was developed in 1994 and the second in 1999. Revisions to these are dependent on need and availability of funding, but both are in wide use and address many of today's challenges.

"***SAE Best Practices***" is a collection of unique, innovative and model SAE programs identified from applications received for the American FFA Degree and the proficiency awards. This guide is available on the Chapter Resource Guide CD-ROM.

The ***SAE toolbox*** is a website hosted by North Carolina State University. This site contains many resources for teachers, example SAE programs for students and even complete university courses on SAE. The URL for this site is: http://www.cals.ncsu.edu/agexed/sae/toolbox/index.html.

(Teaching materials list compiled by Kevin A. Keith)

Diversity Experiences: Leaving Comfort Zones

By Patreese D. Ingram

Today's college graduates will work in a more diverse society than those of previous generations. Growing percentages of our country's population are people of color (Henry, 1990). Many are immigrants whose first language is not English. Those with disabilities are exercising their rights to be contributing members of society in greater numbers. The fastest growing religion in this country is Islam (Arnett, 1998). Moreover, those with life styles different from "the norm" are less likely than in the past to hide or attempt to "blend in."

According to an Association of Teacher Educators survey of critical issues in teacher education, "preparing teachers for multiethnic, multicultural settings" was determined to be one of the three most critical issues to be addressed (Buttery, Haberman, & Houston, 1990).

Melnick & Zeichner (1988) state, "Teacher candidates, for the most part, come to teacher education with limited direct interracial and intercultural experience, with erroneous assumptions about diverse youngsters, and with limited expectations for the success of all learners." (p. 89).

Yet, how do teachers increase their level of comfort with people who are different from them? Colleges and universities can provide opportunities to increase students' comfort level with diversity, thereby better preparing them for the changing workplace of the future.

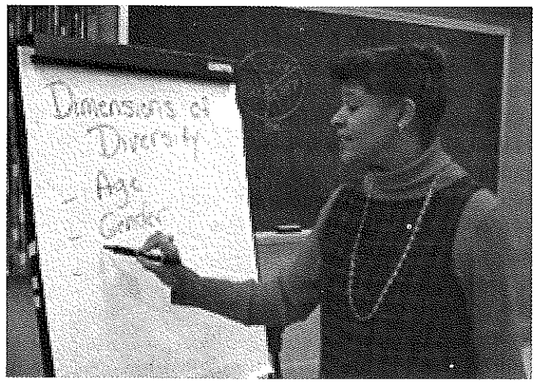
While many teachers cannot incorporate long-term diversity-related direct experiences into their programs, they can build in mini-diversity experiences. One such example is in a course offered by the Pennsylvania State University, College of Agricultural Sciences.

Course/Student Description

Teaching In An Increasingly Diverse Society is offered during a three-week summer block program. The majority of students in the course have been high school agriculture teachers who enroll in short-term summer classes to meet requirements for continuing certification and completion of master's degree programs. During the two sessions in which the course was offered, 28 students participated. Most (26) students were White; 11 were males and 16 were females.

One course assignment required students to participate in an experience which took them out of their "comfort zone" and which required their involvement in a diverse culture or group. Students were given a variety of examples for potential experiences including activities related to different religions, ethnic or cultural groups, gays, people with physical and mental disabilities, and people who speak different languages. A written report of the experience with a detailed description of the activity, feelings experienced during the activity, and verbal and non-verbal reactions from others was required.

Experiences selected by students ranged from spending a few hours with a "temporary" physical disability to spending several days with another culture. A few examples of students' experiences are shared below.



When students step out of their comfort zone, even for a short time, it results in a valuabe learning experience. (Photo courtesy of Patreese Ingram.)

Experiences and Learning

Several students chose to "put themselves in the shoes of a person with a disability." One student took the challenge of visiting her favorite stores in the mall while using a wheelchair.

Most stores were fine along the path to the cashier or one path straight to the back of the store. But if you actually wanted to shop and look at the racks, get ready to tunnel under them because there is not enough room between them.

As a normally able-bodied person, this student was not prepared for the many people who either looked away from her as she approached, or looked at her legs. What people noticed first was her "disability" rather than she as a "person."

This caused me to think back to my behavior and I realized that I too usually look and wonder what is wrong with the person that makes them have to use the chair.

Another realization came from the fact that people kept trying to do everything for her. *I am sure this would become annoying if you had to go through it with everyone you went somewhere with.* This student summed up her learning by stating that, *I realized that most people who have limitations are strong people and are more like everyone else than I had realized.*

Several students reported experiences with different cultures. A train ride from Washington, D.C. to Orlando, Florida proved to be an enlightening experience for one student. Being the only white passenger with a trainload of people of color *just blew my mind. I couldn't believe it. I was the minority.*

While the trip began with many stares *"which made me feel very uneasy,"* this student ended up joking and playing cards with other passengers the entire evening. *The trip increased my awareness of not so much the differences but the similarities...I found even though our skin is a different color and we are from different parts of the country, we all have common interests, likes, and dislikes.*

One student accepted an invitation to join a softball team after being "warned" that the majority of the team members were lesbians. Socializing and getting to know the group personally was a learning experience. *I am from a small, conservative community with very little movement from "norm." Their lives, I thought were only on television.*

Being accepted by and mixing well with a group of gays was a good feeling for this student until she suspected the group thought she was gay. *The thought made me actually sick to my stomach. Then I wanted to get away from this place and back to "normal".*

Unfortunately, this student perceived a case of stigma by association - where a heterosexual associates with gays and is therefore suspected of being gay themselves (Carr-Ruffino, 1998). The result is often to get angry and back away.

The Russian Orthodox Church was the setting for a lesson in diversity for a couple of students. One student, a Lutheran, attended the church service with the expectation that some things would be different. Her level of comfort dropped throughout the service and by the end, she left frustrated. Not only had she felt "out of place" with the unknown rituals, but she felt that her own religion was being discounted by the clergy. Fortunately, the student has since had the opportunity to talk with the Russian Orthodox Father.

We discussed our similar beliefs and those that are very different. This whole experience has been worthwhile and enlightening.

Shopping in a store where the language spoken was not English was humbling for one student. He decided to go to a store where Pennsylvania Dutch was the native language. The store was in a community with a very large population of old order Amish.

When I walked through the door everyone stared at me. I immediately felt even more uncomfortable than before. The young men inside all dressed in black pants and blue shirts started talking Dutch. I immediately thought they were talking about me. Now thinking back they were probably just talking about what they were going to do that night.

This experience is not unusual. Many monolingual English speakers quickly assume that people speaking in a different language are saying something about them. When in fact, they may be talking about the weather (Gardenswartz & Rowe, 1993).

Summary

Stepping out of their comfort zone, for even a short period of time, resulted in valuable learning experiences for students. Incorporating mini-diversity experiences into the curricula is one way to help prepare our current students for successful employment in a workplace that is becoming increasingly diverse. Two points are important to stress, however. One, no single activity is adequate to prepare teachers to teach "other people's children." Mini-diversity experiences can be useful as one part of a more extensive program. And two, providing students with opportunities for structured guided reflection about their experiences is crucial to the learning process.

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A Business and Industry Model with Application in Agricultural Mechanics

By Terry Waits & David M. Agnew

As educators, we want to help students make a smooth transition into the work world. However, what many teachers know of the corporate work world is out-dated and reflects the worst perception of the environment as well as the nature of the work.

The old idea of checking your brain at the door and doing the same job over and over prevails among educators. One participant in the "Educators in Industry Program" discovered, through interactions with high school students, that many of them looked down on going to work at a factory. One student commented, "You go to work at the factory if you are not smart enough to go to college or vocational school." These misconceptions of working conditions exist among both educators and students. Many educators have been delighted to learn that their old stereotype was off base, but they sometimes have difficulty finding methods to teach their students the skills needed in the working environment.

Today industries are focused on teams, rotation of responsibilities, problem solving, self-management, worker input, quality control, productivity standards, and rewards for meeting performance expectations.

One place that you might not expect the new model for industry culture to be suitable is in agricultural mechanics. However, the students at Greene County Tech (GCT) High School in Paragould, Arkansas, have an opportunity to experience the new corporate culture through a welding course. The GCT agriculture program has been approached by industry seeking its help in training welders. There are an estimated 2000 welding positions in about 20 industries within a 50-mile drive of Paragould. One local industry alone employs about 400 welders.

For several years now the three-teacher department has been running its welding course along the lines of an industry model. The early part of the course is spent with the traditional classroom and laboratory instruction. Later in the course, to apply their skills in a work-like application related to agriculture, the students build hay feeders or rings as a class project.

The shop is divided into workstations, where the processes include measuring and cutting, fabrication or bending, assembling or welding, quality assessment, and logging production. Each semester, students rotate stations every two weeks.

Hay rings are sold with the funds placed in the department's account to support class activities and buy supplies as needed. The production quota is five rings in a two-hour class period or 25 hay rings per week. When the class meets the production goals for a six-week period, the students are rewarded with a meal at a restaurant of their choosing.

A quality control team checks every hay ring. Welds and overall appearance are visually inspected and several points are measured. Any defect that is found is fixed before the product leaves the building; and just in case some defect(s) slips by, every ring is numbered and the date is recorded in a logbook. If there is a problem or complaint with the quality of a ring, the teacher and students can trace the problem back to the individual or group that was responsible. The hay rings are sold unpainted for 40 to 50 dollars each.

Students learn the skills and knowledge associated with the content area, but also learn to transfer those skills and knowledge to a useful application resulting in a product. They also learn that production is not a series of isolated skills, they learn to work together as a team; and then they learn the responsibility of developing a quality product, or they learn that they have to redo any product that does not measure up to standards. They also learn a lesson we all know and respect in America: Productivity is rewarded. Industries need people who not only can weld, but also can adapt to the team climate that is found in industry. These concepts or work behaviors can be transferred to almost any setting, yet students have a specific skill for which there is a demand upon graduation. The principles are sound and may have applications in other areas of the agriculture curriculum.

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David M. Agnew is an Associate Professor in Agricultural Education at Arkansas State University.

Technology in Agricultural Education Classrooms: Past, Present and Future

By David Twente & Jamie Twente

Technology has been used in a variety of ways for many years prior to the invention of the Personal Computer. Early agriculture teachers were considered innovators when they taught their boys about hybrid seed corn, chemical herbicides or artificial insemination. These technological advancements helped bring farm boys out of the horse and buggy days into the agricultural industrial revolution of the mid-twentieth century.

Computer technology didn't make its debut into agriculture education until the mid to late 1970s. In '77, after seeing one demonstrated at a school nearby, I acquired my first Remote Data Terminal (RDT). Using an RDT was a slow, hard to learn process that required the user to have authority to login to a university main frame computer from a remote location. The accuracy depended on the data entry person. Technology advanced throughout the 1980s with many departments acquiring Apples, Radio Shack or similar personal computers.

Today, Internet access allows for an endless information source. Rather than just showing students a book or a slide, students are given items to research. They then prepare their own slides and present the program. Students often work in teams in a cooperative education experience.

Today students learn to use industry standard software such as Microsoft Office, Quickbooks, and Hyperstudio, as well as Ag-specific software. Digital cameras have helped improve the work students are doing. Students can use this to document data and create displays for agriscience research projects. A new activity this year has students developing and producing a digital CD portfolio. Students learn how to develop and organize physical information, and to turn it into a digital portfolio of themselves. Actual awards applications, improvement projects and laboratory projects are also documented on this portfolio CD.

Students are using an array of digital technology to produce this project. Tools used include the scanner, digital still camera, digital video camera, CD burner, as well as the desktop PC. Hyperstudio, the software package used to produce this, requires additional organizational and computer skills. At the end of the year, when all production is finished and the final portfolio is completed, each student will present his or her work to the class. Here, presentation skills are developed and refined. As an added enrichment activity, students who complete their projects quickly can develop their own web page.

Many teaching tools such as cooperative learning are also utilized well with technology education. Learning to work together as a team and developing an idea into a real-life application is just what businesses of the 21st century expect of their employees. At the university level, students are expected to develop their own spreadsheets to analyze data or make business decisions. Presentation management software such as Microsoft's Power Point is used. In laboratories, digital equipment is standard. Classes are even being taught on web page design. Other agriculture specific technology tools include, Global Positioning Systems and Precision Farming. Individual animal identification and tracking through using digital chips in ear tags will help the farmer of tomorrow track steers from birth to the dinner plate. Students must have the background in this technology before they will be able to fully utilize it.

As the world is changing at an increasingly rapid pace, it becomes more and more difficult for the teacher and the school district to maintain the tempo of change. Workshops based on biotechnology and GPS technology go a long way to inform teachers of new and emerging technology. It is up to the teacher, however, to expand that information, and accept the changes and implement them into their curriculum.

Learning has changed with the explosion of technology. Students today have much information available to them at their fingertips. They have the potential to be better informed than any other generation.

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Jamie Twente is a graduate student at the University of Missouri, working on her Masters Degree in Agriculture Education. Ms. Twente is also the daughter of David Twente.

Apprenticeships in Agriculture

By David M. Agnew & Kathalee Cole

Apprenticeships represent one of the oldest approaches for transferring knowledge and/or skills from those having the knowledge and skill to those that don't. Apprenticeships have been used to teach everything from traditional trades to law and medicine. The development of modern industrial processes in the 1800s brought about a decline in their importance. However, in the 1980s and 90s, there was a resurgence of interest among vocational educators. In Arkansas, many people saw potential in apprenticeships for meeting the educational needs of industry as well as youth and adults. In 1991, the Arkansas legislature passed a bill funding youth apprenticeship programs. Educators began experimenting with apprenticeships with hopes of meeting the needs of industry and youth in the state.

Jim Staler, the director of Great Rivers Technical Institute, has a strong interest in the needs of the agricultural industry of the region. Great Rivers Technical Institute (GRTI) in McGee is located in the southeast corner of the state, which is surrounded by the rich soil of the Mississippi Delta. Meeting the needs of area industries, as well as the needs of youth and adults in the area, often means being aware of change and being willing to adapt. In 1991, GRTI submitted a proposal to the State Department of Workforce Education to study the potential of an agriculture production and management youth apprenticeship program. A project was funded for $10,000 to study the feasibility of such a program.

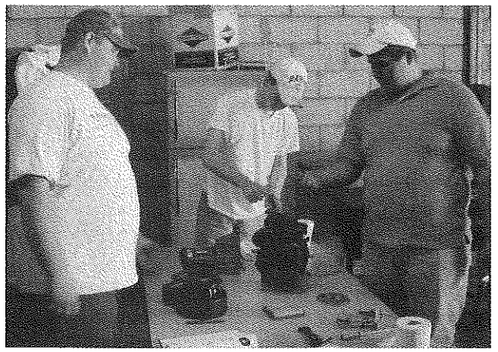
The director of GRTI, in conjunction with area agricultural and educational leaders, developed a proposal for an Agricultural Apprenticeship Program. An advisory board was formed and the first meeting held in November, 1993. With input from the board, a proposal for an Agriculture Production and Management Youth Apprenticeship Program was submitted to the state Department of Workforce Education. This program was established in August, 1994.

The goal of the 2+2 agricultural apprenticeship program is to train prospective farm managers and/or entrepreneurs in farming. The justification for the program was that agriculture is a complex business that is affected by international trade, political decisions, government regulations, technology, and environmental concerns. Because of its complexity, those in agriculture often need special training. High school students today are faced with many education and career decisions with limited information and often are not well prepared to enter a high-tech, complex, competitive work force.

The program starts at the tenth or eleventh grade in high school. Besides having an interest in agriculture, they must be willing to find a job-site and have transportation to and from the class and the job-site. The school must approve the employer. Students unable to find suitable employment will be directed to appropriate potential employers. Students are supervised by their employer or by the farm manager, which is often referred to as the mentor. The instructor makes on-site visits to monitor the students' progress at least three times in the course of the nine weeks that they are on the job. Even though this is called an apprenticeship it is viewed by the school and instructor as a placement type Supervised Agricultural Education Experience Program (SAEP) and students keep records just as any other student who was placed in an agricultural occupation. The students, mentors, as well as the parents all sign a contract with stipulations related to their responsibilities in the conduct of the apprenticeship. The student apprentice agrees to:

1. Meet the academic and attendance requirements estab lished by the school and the Agriculture Youth Apprenticeship Program.
2. Observe company rules and other requirements identified by the employer.
3. Participate in progress reviews scheduled with the mentor and the Apprenticeship Supervisor.

Students at both the high school and post-secondary levels receive classroom instruction and apprenticeship positions with designated mentors. Classroom instruction and apprenticeship training are coordinated to ensure that one reinforces the other. Students entering the 2+2 program are guaranteed an apprenticeship job during the summer, provided they successfully complete the competencies and qualify for the job. Students completing the 2+2 program work as an apprentice for three to five years with a successful farm manager to be competent as a farm manager. Students are paid for their work. Currently, 24 students are enrolled in the program at the high school level.



First year Agriculture Apprenticeship students working in a power and machinery class. (Photo courtesy of David Agnew.)

High School Curriculum			
First Year (11th Grade)			
Fall		**Spring**	
First 9 weeks	Second 9 weeks	Third 9 weeks	Fourth 9 weeks
Agriculture Electricity and Welding	Nine weeks of supervised apprenticeship	Agriculture Power and Machinery Technology	Nine weeks of supervised apprenticeship
First Summer Activities, Supervised Apprenticeship, Summer contract with the farm operator to perform supervised work experience in general agriculture.			
Second Year (12th grade)			
Fall		**Spring**	
First 9 weeks	Second 9 weeks	Third 9 weeks	Fourth 9 weeks
Plant and Soil Science	Nine weeks of supervised apprenticeship	Agribusiness Management and Marketing	Nine weeks of supervised apprenticeship
Second Summer Activities, Supervised Apprenticeship: Summer contract with farm operator to pursue the post-secondary portion of the established program.			

The work schedule for the post-secondary students is set in cooperation with the mentor. The students are supervised by an instructor and their mentor.

Although the program is designed as a four-year program with at least two years of vocational technical school training, a student can exit the program with specific employment competencies; (a) at graduation from high school; (b) after one year of post-secondary vocational technical education; (c) after two years of post-secondary vocational technical education; and (d) at completion of a baccalaureate degree program. Completers of the apprenticeship program receive a certificate.

Youth Apprenticeships in agriculture can help meet the unique needs of the agricultural industry and youth. They provide trained employees and give youth the unique opportunity to begin preparing for a career while in high school. Students, even if unable to continue their education after high school, will have the basic skills necessary for entry-level employment in agriculture.

After high school, students can advance to the post-secondary vocational technical school level for another one to two years to continue apprenticeship education and attain a Certificate of Competency Proficiency and/or an Associate of Arts Degree of Applied Science in Farm management Technology. After completion of the associate degree work, the student may transfer selected credits earned to a participating college/ university in pursuit of a Baccalaureate Degree. In 1995, a scholarship was organized for students wishing to continue to a post-secondary education.

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Post-Secondary Curriculum	
Third Year	
Fall Semester	**Spring Semester**
English Composition I Introduction to Psychology Farm Machinery Agricultural Welding and Wiring Computer Science	English Composition 2 Surveys of Civilization I Crop Pest Management Soil and Water Conservation Farm Power
Summer Activities	
First Summer Term	**Second Summer Term**
Supervised Apprenticeship Field Crop Scouting	Supervised Apprenticeship Evaluation and Operation of Irrigation System
Fourth Year	
Fall Semester	**Spring Semester**
College Algebra Principles Field Crops Farm Management Grain and Cotton Processing Soil Fertility and Fertilizers	Computerized Agriculture Records Agriculture Finance Agriculture Business Law Supervised Apprenticeship

Role of Information Technology in Agriculture

By Kirk A. Swortzel

Times have certainly changed! I can remember the first computer I ever used- an old Radio Shack computer with a black and white monitor. You had to run programs off of a 5 1/4" floppy disk. By the time I was a senior in high school, I finally progressed to an Apple IIc. You still had to run programs off of a floppy disk, but at least there was a color monitor. That computer lasted me through my first three years as a high school agricultural education teacher.

When I started on my doctoral program, I received my first e-mail account. Soon after I started utilizing the World Wide Web (WWW) for research purposes.

What would we do without the use of computers or other information technologies today? Many of us would be lost. These technologies are here today and we have to become familiar with them and use them in our daily lives. In all phases of the agricultural industry, information technologies are vital to the management and success of a business.

Information technology refers to how we use information, how we compute information, and how we communicate information to people. Information technology can also refer to electronic equipment that stores, sends, retrieves, or manages information. This may include computers, electronic databases, scanners, digital cameras, laserdiscs, video cameras, and fax machines. Information technology can also include software and computer accessories like computer-assisted instruction (CAI), web browsers, hypertext authoring tools, and multimedia software. With more schools having Internet connections, there are endless opportunities to experience new teaching and learning opportunities through the use of local-area networks (LAN), wide-area networks (WAN) and video conferencing capabilities. Information technology affects our education system, both formal settings like public schools and informal settings such as extension meetings or industry technical updates.

People must have computer and information technology savvy in order to be competent and productive in the workforce. To participate and make informed decisions in the agricultural industry, a global person must possess technological and information literacy skills that include the ability to gather, process, and manipulate data.

Information technology refers to:

*** How we use information,**

*** How we compute information,**

*** How we communicate information to people.**

People who use information technology creatively are pioneering careers in agriculture today. Jobs in today's agricultural workforce require greater use of technological skills than ever before. People must be good communicators and problem solvers, work independently and as members of a team, and to use information technology in an ethical manner.

One benefit is that technology can be applied to the application of basic skills. The SCANS 2000 report indicates that competent workers in society need to be competent and high performers in foundation skills which include basic skills (reading, writing, and arithmetic), thinking skills (including decision making and problem solving), and personal qualities (including individual responsibility, self-esteem, and self-management). The report also emphasized the need for effective workers to use computers to process information, to select equipment and tools, apply technology to specific tasks, and maintain and troubleshoot equipment.

In the past, the application of educational technologies focused on the use of basic drill and practice software. With the magnitude of information technology capabilities, students can use multimedia projects to learn interactively and work on class projects. Students can use the Internet to do research, engage in projects, and to communicate. These new technologies allow students to have more control over their own learning, to think analytically and critically, and to work collaboratively. In many instances today, students may have a greater understanding on how the technologies can be used more so than teachers, which means that as teachers, we must be willing to learn how about these technologies or else be left behind to those who are already using them.

A final benefit is that students feel more motivated to learn and have increased self-confidence and self-esteem when using information technologies in the instructional process. This is particularly true when the technology allows students to control their own learning. Students take a more active role in the learning process. Instruction moves away from a teacher-centered approach to a student-centered approach where the teacher becomes more of a facilitator of learning.

Information technologies have tremendous applications in secondary agricultural education programs, preservice teacher education, and professional development opportunities with agricultural education. The following are specific ways I see information technologies being applied through agricultural education:

Secondary Agricultural Education:

1. Basic Internet Applications - Incorporate the use of the Internet in your teaching. Develop scenarios where students have to solve problems in class and let the Internet be one of the resources students can use to find information.

2. PowerPoint Presentations - Portfolios or end-of-course projects are becoming utilized more in courses for students to show the integration of academic and vocational concepts. Encourage students to integrate information technologies in these projects and that way these projects can be shown throughout the community and be a wonderful public relations tool for your program.

3. Global Positioning Systems (GPS) - Students can have fun collecting data and then making maps for a variety of agricultural purposes, such as fertilizer applications on a field. Such assignments can become community service projects.

4. E-Commerce - Many programs and FFA chapters have fundraisers throughout the year. Students can develop web-pages to promote the products they are selling, whether it is citrus fruit or smoked turkeys from a fund raising company, or bedding plants and vegetable plants from their own greenhouse. Community members can place their orders on-line and students can run their e-business, checking and filling orders each day. What a great way to teach entrepreneurship and management skills!

Preservice Teacher Education:

1. Applications in Teaching Methods - Anyone who will be involved in teaching, whether in a formal setting like the public schools or in an informal setting like an extension workshop, needs to know how to incorporate information technology into their daily teaching or programs. College instructors need to model such technologies in their own teaching and encourage their students to incorporate information technologies into their research and presentations they do for their courses.

2. Student Teaching - In some instances, it can be difficult to visit student teachers. With fewer faculty available to supervise interns and added responsibilities, sometimes supervision needs to be done in an alternative way. With software such as WebCT, supervisors can have weekly chats with all of the interns in a chat room to discuss problems and concerns faced in student teaching. Furthermore, the use of quick-cams can allow you to "visit" a student teacher without ever leaving the office. Though an actual classroom visit is probably the best way to supervise student teachers, this will allow you to visit should a problem arise that needs immediate attention.

Professional Development:

1. Alternative Certification Programs - In many states, there is a shortage of teachers. States are now hiring teachers through alternative certification to fill classroom vacancies. These "beginning" teachers have no training in program planning or teaching methods, yet states are willing to place them in classroom situations. Using the technologies described above with student teachers, universities can do a much better job of monitoring these teachers and providing needed assistance to help them get off to a good start in the classroom.

2. Graduate Education - Many teachers want to earn higher degrees, but have difficulty in finding the time to complete degrees. With the wide array of information technologies available, teachers can complete courses from the convenience of their office or home and never have to set foot on campus again.

3. Technical Updates - Individuals who need to get updated about technical information in agriculture can easily look at information if it is placed on a web-site or participate in a videoconference as long as everyone has similar technologies to communicate with each other.

In the next century, an educated graduate will no longer be defined as one who has absorbed a certain body of knowledge, but one who knows how to find, evaluate, and apply needed information to practical and real world situations. Let's take advantage of the opportunities available to us and use information technologies to create a positive effect on the teaching-learning process and develop individuals who will be efficient workers in the agricultural industry.

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A New Breed of Agricultural Educators

By Jaime Marie Rivers

Once upon a time, there lived a breed of educators that taught of the land and from the land. This was the breed of early agricultural educators; men and women who used their surroundings and knowledge to develop a curriculum of farming, business, and moral standards for their usually poverty stricken students. The outdoors was their classroom, filled with life and majesty that could only be experienced firsthand. Their students were dreamers, hoping for a break in the world, yet bound to the land from which they had been born. Today, these teachers and students are a mere memory in our history books. The once rustic and struggling world of agricultural education has now been embraced by the ever-expanding arms of technological advancement, and with this advancement comes a new breed of agricultural educators and students. A mere 60 years ago, agricultural students debated agricultural issues in tiny wooden classrooms with notes from books older than most of their grandfathers. Today, agricultural students approach agricultural issues with impressive PowerPoint presentations in high tech auditoriums. The vast rise of computers and the Internet in schools has allowed both agricultural teachers and students to experience agriculture on a broader scale. Early agricultural educators could only expose students to agricultural practices and issues on a regional scale. Therefore, students were only taught about the agricultural fields and knowledge in their local area. Teachers of the twenty-first century are able to expose students to every spectrum of agriculture, from career opportunities to international agricultural practices. Old curricula centered on local farming practices, such as soil evaluation, harvesting techniques, and livestock breeding. Today's curricula focus on international agricultural issues and technologies, such as hydroponics, biotechnology and vertical integration. Sixty years ago, students were not able to pursue agricultural careers and post-secondary education due to a lack of finances and the labor demands of the family farm. As the century progressed, however, technological advances began to replace the family farmer. Families moved toward industry and steady occupations, resulting in an increase in educational levels and career advancements. Agricultural students today have a gold mind of resources available at their fingertips, from college financial aid to corporate internships. The once nostalgic and simplistic art of teaching agriculture has evolved into a rapid and revolutionary science of technology education.

Are today's agricultural students benefiting from this technology, or are these students simply basking in the wake of a revolution? Have our agricultural educators lost the essential focus and value of their occupation? What parts of the farm and the land still remain to be taught now that technology has almost disintegrated the family farm?

These are prevalent and highly debated questions among secondary and collegiate agricultural educators, agricultural industry leaders and agricultural supporters. However, technology and the twenty-first century have not crumbled the central foundations of agricultural education.

Agricultural educators are still teaching the knowledge and ethics of agriculture to students who desire to achieve success. The economic and occupational confines of the early twentieth century prohibited the success rate of this endeavor. Today, as we establish a new millennium in history, the foundation of agricultural education is a firm and unrelenting reality through the wonders of technological advancement.

Jaime Marie Rivers is a member of the Clemson Collegiate FFA Chapter. Ms. Rivers won first place in the 2000 National Alpha Tau Alpha Essay Contest.

September/October Theme

The Role of FFA in Learning How to Learn:

What role does FFA have in learning how to learn? Does FFA make a difference in helping students transfer learning to new situations? What do teachers do specifically with the FFA that help students learn skills that transfer into career development?

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