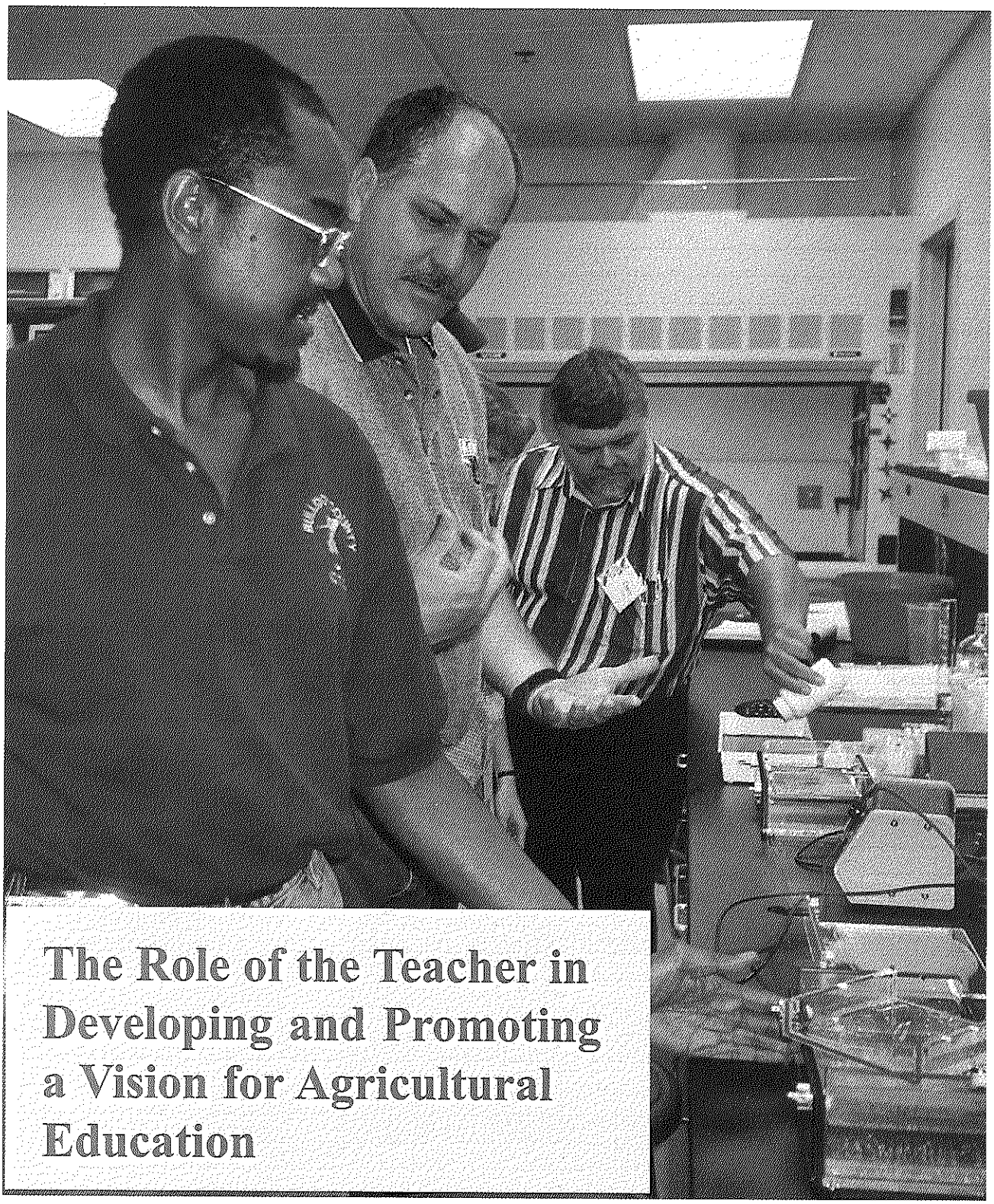
November-December 2003
volume 76
issue 3

The Agricultural EDUCATION MAGAZINE



The Role of the Teacher in Developing and Promoting a Vision for Agricultural Education

Teachers as Visionaries: Ten Steps to Success

By Robert A. Martin

Just as politicians say "all politics are local", it is clear that the future of school-based agricultural education rests with the local program. At the heart of the local program and its success is THE TEACHER. The teacher's pivotal role in charting a course for the future of agricultural education can not be denied, glossed over, or ignored. If the teacher is not prepared for this role, it's as if the teacher is not prepared to teach agriculture courses or help students learn and participate in career development events.

A school-based program of agricultural education can be no better than the teacher that leads it. If a successful program of agricultural education exists, it exists because of the teacher. Such teachers have the following roles in developing and promoting a vision for Agricultural Education:

★ Listening to people – To be fully engaged with people we must listen to what they are really saying. The clients we serve can provide guidance for our program if we are willing to listen.

★ Gathering data – The visionary gathers data and studies this information to provide direction.

★ Asking probing questions – To be good at listening and gathering data we must ask lots of questions. Meaningful questions often lead to information that can direct us toward the future.

★ Taking the long view – What will this program be like in 5 years, 10 years, 20 years? Be willing to project a preferred future.

★ Seeing curriculum as a *step* on a journey not a journey in itself - A program with a vision uses the curriculum as a vehicle for change.

★ Establishing short term objectives to meet long term goals – Specific steps can show measured success which provide direction and show progress.

★ Setting goals that define the program – Forward looking programs have goals that are well above where we think we are now.

★ Developing activities that fit objectives and goals – Activities must blend well with the goals and objectives to define the direction of the program.

★ Marketing the program – If people are not aware of your program, there will be a short future for it. The program is going nowhere.

★ Keeping the eye on the prize! – Knowing the reason why we exist, gives direction to our program.

The teacher is the key to "visioning" for the local program. The ten "roles for visioning" described here provide a framework for identifying and promoting the future for local programs of agricultural education.

These ideas and those of our authors for this issue provide valuable guidance for all educators in agriculture. Please read and enjoy these articles. The contributions of all authors in this issue are sincerely appreciated. Special thanks go to Dr. Michael Swan for his role as theme editor.

Special Note From the Editor: It has been my sincere pleasure to serve as the Editor for the past three years. The Magazine serves as a valuable source of ideas, information and guidance relevant to all agricultural educators. Thanks to all the authors, subscribers and readers for your participation in the professional exchange of ideas represented by The Magazine. I am confident that the new Editor, Dr. Jamie Cano, will continue the fine traditions of this journal over the next three years.

Thanks for your support.

Robert A. Martin is Professor & Chair of the Department of Agricultural Education & Studies at Iowa State University and has served as Editor of The Agricultural Education Magazine for the past 3 years (2001, 2002, 2003).

Theme: The Role of the Teacher in Developing and Promoting a Vision for Agricultural Education

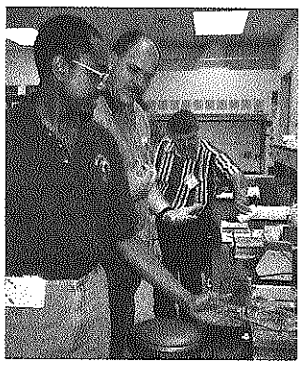
Editorial:

Theme Editor Comments:

Theme Articles:

General Article:

Authors writing for the November-December issue of The Agricultural Education Magazine discuss the role of the teacher in developing and promoting a vision for agricultural education.



Subscriptions
Subscription price for *The Agricultural Education Magazine* is $10.00 per year. Foreign subscriptions are $20.00 (U.S. currency) per year for surface mail, and $40 (U.S. currency) foreign airmail (except Canada). Single copies and back issues less than 10 years old are available at $2 each ($3.00 foreign mail). All back issues are available on microfilm from UMI University Microfilms, 300 North Zeeb Road, Ann Arbor, MI 48106. UMI University Microfilms telephone number is (313) 761-4700. In submitting a subscription, designate new or renewal and provide mailing address including ZIP code. Send all subscriptions and requests for hard copy back issues to the Editor: Robert A. Martin, Professor and Head Department of Agricultural Education and Studies, Iowa State University, 201 Curtiss Hall, Ames, IA 50011, Phone (515) 294-5904, FAX: (515) 294-0530.
E-mail: drmartin@iastate.edu.

Article Submission
Articles and photographs should be submitted to the editor or theme editors. Items to be considered for publication should be submitted at least 90 days prior to the date of the issue intended for the article or photograph. All submissions will be acknowledged by the Editor. No items are returned unless accompanied by a written request. Articles should be typed double-spaced, and include information about the author(s). One hard copy and one electronic copy of the article should be submitted. A recent, hardcopy photograph should accompany the article unless one is on file with the editor. Articles in the magazine may be reproduced without permission but should be acknowledged.

Editor
Dr. Robert A. Martin, Professor and Head Department of Agricultural Education and Studies, Iowa State University, 201 Curtiss Hall, Ames, IA 50011, Phone (515) 294-5904, FAX: (515) 294-0530.
E-mail: drmartin@iastate.edu
Design and Layout: Stacie M. Turnbull

Publication Information
The Agricultural Education Magazine (ISSN 07324677) is the bi-monthly professional journal of agricultural education. The journal is published by the Agricultural Education Magazine, Inc. and is printed at M&D Printing, 616 Second Street, Henry, IL 61537.

Periodicals postage paid at Ames, IA 50010 and additional offices.

POSTMASTERS: Send address changes for *The Agricultural Education Magazine* to the attention of Robert A. Martin, Editor, Iowa State University, 201 Curtiss Hall, Ames, IA 50011, Phone (515)-294-5904.

Developing and Promoting a Vision for Agricultural Education

By Michael K. Swan

Several years ago I remember my teaching partner and I talking about our agricultural program and where we wanted it to go in the future. At that time we did not use the term "vision" but the words "future" and "stability" to describe what we were doing. In a word or two we were shaping our program to serve the students, school, and community for the years to come. This is much like the visioning process we are undertaking today.

As pointed out in all of the articles this month, the visioning process is almost totally reliant on the local educator to initiate and to champion along the way. As you will read, this issue's authors have identified *what should be done*, *what can be done*, and *what has been done* to create a vision and future for Agricultural Education. Many see visioning as a three stage process that includes Learning, Visioning, and Cooperation.

Learning

The learning stage is about understanding existing conditions and includes:

- Question: Where are we now?
- Identifying Concerns and Interests
- Introducing Core Topics
- Examination of cross-cutting issues
- Reaction to informational needs

Visioning

The visioning stage is all about envisioning the future.

- Questions: Where are we going, if we don't change? What are our possible futures?
- Extrapolating existing trends
- Identifying alternative situations
- Assessing the situation using indicators

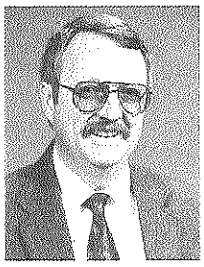
Cooperation

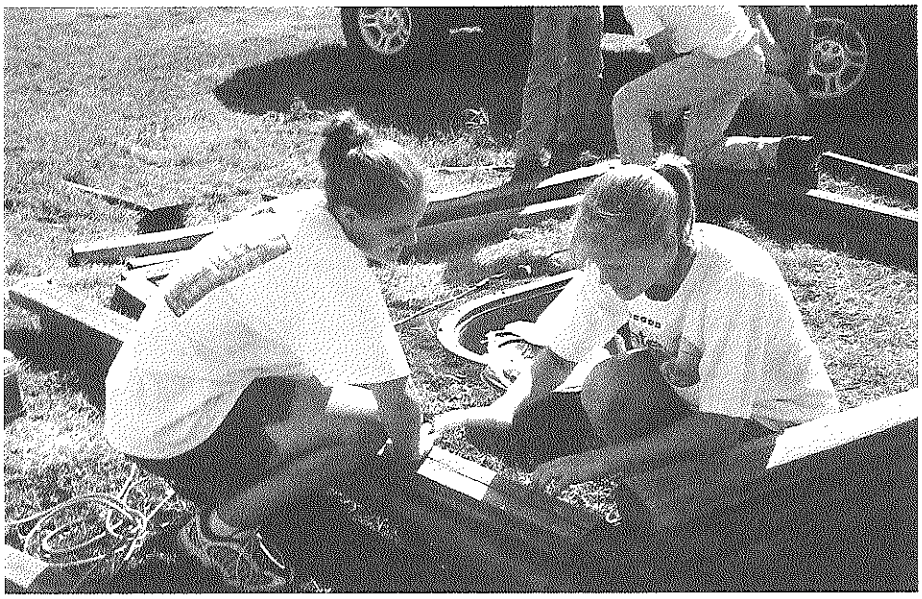
The cooperation stage is about deciding on directions for the future.

- Question: Where Do We Want to Go?
- Clarifying and identifying strategies for the future

By following these stages we can possibly answer our questions and arrive at a creative vision for not only our programs but our lives as well.

Visioning is not a Luxury — It's Essential!





A vision for agricultural education is essential for creating strong, successful programs, on all levels. Members of Nebraska's North Bend and Scribner-Snyder FFA Chapters work to carry out their chapter's visions in agricultural literacy.

Michael K. Swan is a Professor in Biological Systems Engineering Department, Agricultural Technology and Education program at Washington State University. Swan served as theme Editor for the November-December issue of The Agricultural Education Magazine.

Keeping Pace with 21st Century Agriculture

By Michael Martin

To maintain a quality Agriculture Education program, we must keep pace with changes in agriculture and subsequent changes in our students. As agricultural jobs have changed from production to those centering on service, we in agricultural education must develop a curriculum that keeps pace with those changes. We must not allow ourselves to fall into the trap of "that's what I needed when I graduated".

No longer are the majority of our students going back to the farm or seeking careers in other production driven jobs. Today's vast majority of 21st century agriculture students are looking for exciting careers in the service sector of America's largest industry (agriculture). We in agriculture education must develop a curriculum that both reflects industry's needs and attracts students to fill those needs.

Changes in curriculum do not come about easily or without considerable consternation. As difficult as they are they are, changes are crucial to our survival and even more crucial to meeting the needs of our students. At our Walla Walla High School, we met the challenge of declining enrollment by modernizing our curriculum. With the assistance of a quality advisory board, we have changed our curriculum to meet the needs of our community and students. Rather than to teach basic crop and animal science classes, we now offer turf management and veterinary science classes. When restoring our FFA barn we designed it to simulate a veterinary clinic, rather than a just a production facility. We still have lambing pens in the barn, but the main focus of the remodeling was to give the students the impression they were walking into a veterinary clinic complete with a small animal examination table, small animal wash area, surplus sterile cabinets from our local hospital, sanitary floors, clean white walls, bright examination style lights, and student lockers.

By offering an agri-business class directed toward careers in sales and marketing we are able to meet industry needs in the sales sector. Our most popular class is a floral design class that trains students for careers in a non-production area.

Our career development event emphasis also reflects the new face of agriculture. Our focus is now placed on team events and CDEs teaching students skills that are in demand by industry (floral, sales and service). Businesses in our community are looking for workers who can professionally answer the telephone, work the computerized cash register, handle customer complaints and make sales at the store or make sales calls on the farm. Today's store owners are searching for students who have the previously mentioned skills and who can make a boutonnière or create a flower arrangement.

These changes in our curriculum do not mean that we completely turn our backs on the traditional or production orientated agricultural skills. However, we must ask ourselves the question "how many more times have we been asked by the agriculture business community for 15 or 17 year old students with sales/business skills as compared to the number of times we have been asked to provide a high school student to purchase animals at a commercial feedlot?"

Michael Martin is an Agriscience Instructor at Walla Walla High School in Walla Walla, Washington.

March – April 2004 Issue

Theme: Teaching

Teaching and learning are the very basic foundations of our profession. This issue will address the teaching aspect of agricultural education. What is the very essence of teaching? Is there really a psychological basis to teaching? Is there a philosophical basis to teaching? Is there a sociological basis to teaching?

Theme Editor: Bryan Garton
University of Missouri - Columbia
Dept of Agricultural Education
127 Gentry Hall
Columbia, MO 65211
Email: gartonb@missouri.edu
Phone: (573) 882-9599

Articles Due to Theme Editor: January 15, 2004
Due to Editor: February 1, 2004

Building Community and Administrative Support Through Professionalism

By Lonnie Dixon

Support is the key to an outstanding Agricultural Education program. You can be the best teacher in the world but if you do not have the community support along with the support of the administration your program will wither and die on the vine. As an agricultural educator it is very important that a professional attitude and rapport is maintained between administration and community. The purpose of this article is to help you identify the things you can do to help develop that support.

One of the key aspects of developing support from your administration is have them become involved with your chapter and program. Invite the administration to activities that the program and FFA are involved with. In Okanogan we have a bar-b-que that welcomes members back to school and offers potential new members a chance to see what the agricultural and FFA programs are all about. We have invited administrators to this activity for several years. This is a laid-back fun activity that promotes FFA and the agricultural program. Kids and parents alike are able to talk with everyone involved in the program and it makes for a good icebreaker for the new members. Having administrators at activities shows that your program is supported by the school district and it also gives people the opportunity to talk one-on-one with school officials. Also, inviting administrators to functions is a professional courtesy that should be extended.

Developing a work ethic, in my opinion, is the best possible way to develop community support in your local area. Do not be afraid to involve the community in your activities. I think you will find that things will go smoother and people will be more than willing to help out when it comes to your program. Most communities like to see individuals who are dedicated professionals and willing to put the extra time and effort to help their children and grandchildren to succeed. The community is what ultimately makes or breaks your program. If you have strong community ties the likelihood of the program being cut is much less. No matter what your perception of your community is, they do see what you are doing in the community with the their children and grandchildren. It is my belief that anytime your members are involved in the community you should be there. This includes sporting events, graduations as well as the fair and livestock shows. Community members are watching your program and the things that are being accomplished.

When the Okanogan FFA has an event the effort is made to publicize the event no matter how important. The media is informed about all functions we participate in during the school year. Every article that we send in thanks the community for its continued support.

I believe that it is very important to follow through with community contacts and use them to the best of your ability. Make as many community contacts as possible—use these people for all types of activities and for advice. These people tend to be tremendous resources for your program. Cooperation is very important to program success and people in the community have expertise that can make your teaching easier and more informational. Also, when the community understands your program better the stronger your program will be. People are willing to help but they need to be asked before they will participate. Remember when calling on community members for help, you should make sure to put these people in a non-stressful role. Make sure that the people who are involved are treated in a professional manner along with having fun.

Each event is important and you as an agricultural educator need to set the example of proper work ethic, you need to arrive early and be the last to leave. Your willingness to participate in these events helps to build your program. You don't necessarily have to be in the forefront but you do need to be there and contribute to any activity that is going on.

It is also important to clean up the facility that you used to the same or better shape after an event. You as the advisor set the tone for this expectation.

The professional aspect of teaching is very important to the success of your program. Sometimes it is important to do things that are not required. You have skills that most teachers do not possess so you are called on from time to time to do projects that are beyond the skills of the people asking. It is very important to make the time to complete these projects in a reasonable amount of time. It is nice to let students do these types of things, but students sometimes do not see the need for quality and promptness. You as the teacher must then take control and see that the job gets done as soon as

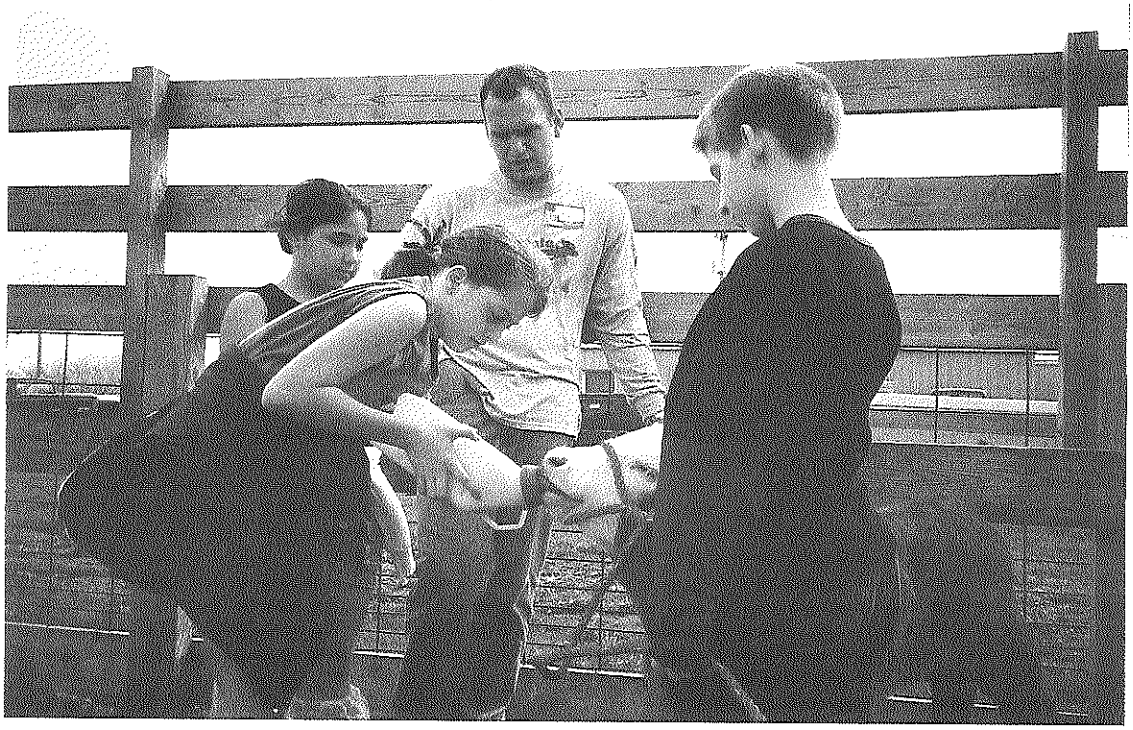
possible with an acceptable quality level. Administrators see your willingness to develop quality programs and are more apt to support you when needed. The community also sees these projects at the school in association with sporting events or meetings that take place in the school. The community makes a judgment about your skills and abilities based on what they see. Remember you are the one that controls the community opinion and you need to make decisions based on that fact. If you want a strong program you need to produce quality projects throughout your community. These projects are not just agricultural mechanics projects but projects that you do in association with all of your classes, such as stream restoration, grade school presentations and other such projects that all of your students participate in throughout the year. It is very important that you present yourself as a professional at all times. I feel that you need to be yourself but you also need to recognize that people base opinions upon what they see. You can be professional and not deviate from your personality. I think that you need to dress and communicate appropriately for the situation. In my opinion, it is important to be humble and willing to learn new things. By listening, I feel you will learn more than by trying to impress people. If you come across as a person who always wants his/her way and is unwilling to accept other options, you will hurt your credibility and ultimately hurt your program.

Allowing yourself to become overloaded with activities hinders your ability to be a professional. Along with hurting your program, you won't have the time or energy to complete quality projects and activities. Do not allow others to plan your time for you. Keep control of the time that is yours and use your time effectively. You have to be able to say NO. Most people understand that you have to say no sometimes. Most administrators will understand if you make it clear that you don't have the time to do the project requested.

Be willing to explain why you cannot take on this project and be honest about why you cannot do the project at this time. Remember to make time for yourself and your family. Your family is your greatest support and it is important to make time for family members.

The key to having a strong program is the person who works with it every day. If you follow these simple keys your workload will decrease and you will find your program growing and prospering. You have to be willing to reassess your goals and needs periodically to insure that you are heading in the right direction in your life and in your profession. I have been fortunate enough to realize these things before I became a casualty of this profession.

Lonnie Dixon is an Agriscience Instructor at Okanogan High School in Okanogan, Washington.



Dixon advises teachers to involve the community, as well as the school administration in activities that the program and FFA are involved with. Elementary students are shown participating in an agricultural literacy project at Iowa State University.

Developing and Promoting a Vision for Agricultural Education: Whose Job is It?

By Benjamin G. Swan and Jamie Cano

A poster in a high school weight room states: "If you are not getting better, you are getting worse, there is no in-between". This speaks volumes regarding agricultural education programs in regards to facilities, equipment, support, recruitment, and overall program success. It takes continued effort and desire to ensure students are provided the best opportunities to learn and develop for the future. This belief, to provide the best opportunities to learn, is foundational if anyone wants to be a successful teacher or have a successful Agricultural Education program.

Teachers of Agricultural Education have an incredible opportunity to either create a vision and direction for their Agricultural Education program, or they can stand on the side-lines and support changes being brought about by other outside forces or agencies. These changes may include curriculum, CDEs, SAE practices, or facilities. If a teacher expects change in a program, the teacher will not only communicate the expected change, but would also become an active proponent of change. Change will take a strong purposeful effort, but will be worth the investment of time and energy. In return, when those with a vested interest observe their teachers making efforts to improve the Agricultural Education program, the students, parents, and school administration will respond favorably.

Somehow, when one studies the history of Agricultural Education, one also has to look at the history of Career – Technical Education (Vocational Education). Since 1917, Agricultural Education has been intertwined with Vocational Education. Even today, funding for Agricultural Education programs is dependent upon the funding for Career – Technical Education. When studying the history of Career – Technical Education, it is clear to note that outside forces have generally been the "root" for most of the legislative and funding changes.

Basically, Agricultural Education has been guilty of the same, however not to the extent of Career – Technical Education! Agricultural Education has created other venues by which to create and affect

Swan and Cano state that if change is to come to Agricultural Education, the local agricultural education teacher must be the catalyst for the change. Programs must continue to adapt and change to meet the needs of students.

change. For example, there have been two national strategic plans created to offer program direction and sustainability for Agricultural Education. These authors maintain however, that a local agricultural education teacher does not need to wait or be dependent upon others to have a vision for change in their Agricultural Education program.

Let us offer an example. In one state, in 1995, there was a proposal by the State Department of Education staff to move Agricultural Education programs towards "AgriScience." The State Department of Education indicated that they were going to change the production-based programs in the state to more science-based programs.

The teacher education team at the state's university was consulted, and it was agreed upon that the teacher education staff would "create" an undergraduate program under-girded in the sciences, while the state department team focused on bringing about the change at the local level. Implementation of the "science-based" curriculum occurred. Three years later, the first set of student teachers reported to their cooperating centers, only to find that they were prepared to teach for a "science-based" curriculum, not the production-based curriculum encountered.

Years later, the "science-based" curriculum proposed by the State Department of Education is yet to exist! Teachers are still being prepared for the "science-based" curriculum. Clearly there is conflict, with cooperating teachers and school administrators chronically reporting that the student teacher and the first and second-year teachers are not adequately prepared to teach the existing high school curriculum. The teacher education team readily agrees with the concerns.

What is the solution? One option is to throw out the "science-based" teacher preparation program. Another option is for the State Department of Education team to "push" the local programs more into a "science-based" program. The third option is this: there are many teachers who graduated in the "science-based" curriculum offered by the state's university. Some of these teachers, instead of focusing on all the production-based content they did not know, did not dwell on that matter. Instead, the "science-based" teachers have taken the bold step and have focused on a program change to teach the content that they do know...science-based agriculture! Currently, those teachers with a vision to change have agricultural education programs which are quickly becoming the envy by those who have chosen not to change.

"...if change is to come to Agricultural Education, the local agricultural education teacher must be the catalyst for the change."

When you see agriculture programs expanding, retrofitting, upgrading and developing learning laboratories, placing many students in higher education programs, and turning out high quality graduates, do you ever wonder why or how that is accomplished? You may teach in one of these programs, you might be a neighbor to one of these programs, or you just might be a passer-by and notice things are on the upswing. Progress within a high school agriculture program is most often the product of the teacher's belief and effort.

As for implementing positive change for now and the future in your agricultural education program, you need to do a "gut check" often. How does it "feel" to be here? What are the students saying? How is the community responding? Also, you may need to find a different set of "friends" who will encourage change, rather than defeat change before it starts. There was one agriculture teacher who said that once per week he and his neighboring agricultural teacher friends would gather and build each other up, bounce ideas off each other, and support one another. Do you have relationships like this? Perhaps it is time to arrange an encouragement crusade. Can you imagine how each program could benefit from the great ideas coming out of these times together? Does the outing need to be a round of golf or an evening at the VFW? You're professionals; it's your decision to make. Bond and build each other up!

The bottom line is this: if change is to come to Agricultural Education, the local agricultural education teacher must be the catalyst for the change. Agricultural education teachers clearly out number teacher educators, and most definitely out number State Department of Education staff, thus, it is in your hands if Agricultural Education is going to live to see 2020.

Benjamin G. Swan is a Graduate Associate in the Department of Human and Community Resource Development at The Ohio State University.

Jamie Cano is an Associate Professor in the Department of Human and Community Resource Development at The Ohio State University.

Where Are We Going as a Profession?

By Jim Davis and Tim Warren

"Where are we going as a Profession?" Few teachers have time to ponder this question as we engage ourselves and our students in our daily activities, and neither did we until we were asked. We discussed how agricultural education has advanced and changed from its inception until now and will continue to change in the future. Tim described agricultural education as being much like a chain, only as strong as its weakest link. These links are the current teachers in professional leadership, administrators, students, and alumni/community supporters who are dedicated to agriculture.

Current Teachers

As teachers we have an impact on all the links in the chain. Our influence, work, attitude, and determination will have an effect on all the other links of the chain. Therefore, it all leads back to the agricultural teacher who must run a quality total program consisting of FFA, SAE, and a strong classroom/lab experience. Many teachers in our field lose their focus and devote much of their attention to activities outside their program, and their program suffers.

As teachers, we are also much like entertainers in our modern teaching environments. Activities that once motivated students may not have the same effect, but we must still keep things fun and keep our students interested. At Hobbton High School, we offer a fall festival in which we give out prizes for the best ear of corn and largest jumbo sweet potato. During FFA week we participate in Ag Olympics in which the students compete in the areas of the fastest drill, longest tire toss, and so on. During the fall, horticulture students grow a crop of lettuce, harvest the lettuce, and have a salad party. Our shop classes build pig cooker grills, trailers, picnic tables, and many other metal projects.

In the last five years, we have helped to train four student teachers, and have been shadowed by six students during the summer and eight sophomores during the fall. As agriculture teachers we have modeled the characteristics we have stressed. We have, hopefully, influenced the next generation of educators to run a total program. As professionals, our skills are constantly improved and refined. By attending in-service meetings, workshops, and training related to our curriculum, we have been able to increase our effectiveness as teachers.

Professional Leadership

As educators, we are privileged to have several organizations that advocate our crusade as teachers, but only one organization for agricultural educators. Many teachers complain about the obstacles they encounter but never actually try to make a difference. We believe that by joining and participating in one's professional organization that both Mr. Warren and I can address concerns and make our voices known.

In their article, Davis and Warren encourage agricultural educators to consider the question, "Where are we going as a profession?". They state that agriculture teachers are among the leaders in the teaching profession.

We have both been members of the North Carolina Agricultural Teachers Association since entering the field and have been active in committees and other activities important to the organization. This allows us to be more a part of the decision-making process that directs our future. It also provides a network of contacts throughout the profession. Mr. Davis coordinates a cooperative, of sorts, in which teachers in the area buy plants and materials in bulk, allowing smaller schools to buy materials or supplies that they may not have been able to purchase individually due to minimum orders many wholesalers have.

Administrators

Many educators have the misconception that the administration at their respective schools are "out to get them," but this is far from the point. Administrators do however need to know that we are here for our students and that our goal is to produce the best agricultural program we possibly can. The activities that we offer and time that we devote to our students are intended to create a positive difference in the lives of our students.

Inform your principal, superintendent, county director, and others of what you are doing in your program. We invite these particular individuals to our chapter activities, alumni meetings, and, most importantly, the annual chapter banquet at the close of the school year. This gives them a first hand look at the impact that we have on our students, and it also showcases our students' accomplishments.

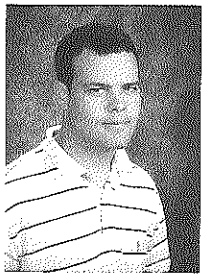
Alumni and Community Partners

It is imperative that the community in which we live know about our program; our hard work, and our accomplishments. In a sense, we do this by marketing our program to parents and incoming students. We begin at the elementary level by mentoring students through the PALS program. When the students enter middle school, we once again showcase our classes and activities to these students before they register for classes. In the community, we participate in community service activities, local fairs, and have worked closely with the local newspaper to showcase our students' accomplishments.

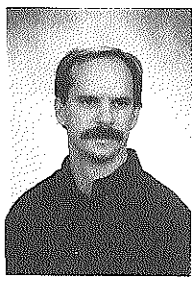
Last year, we were discussing starting an alumni program for our school. We, instead, decided that we should pool our resources and form a county-wide alumni organization that included members from the communities of all five FFA Chapters. The Sampson County Friends of the FFA was then chartered to include former students, parents, and other supporters to aid the local chapters. We feel that this has given us a vehicle to support our programs in Sampson County.

Mr. Gerald Barlowe, an Agriculture Teacher at Union High School in Sampson County, started a live project for his animal science class by raising and showing goats. We began doing the same at Hobbton to give our students some hands–on-learning experiences with livestock. The goats are loaned to us by Dr. Betty Herring who is also a veterinarian. Mr. Charles Lee and Mr. Frankie Honrine have allowed us to keep the goats on their farms which are close to the school. Mr. Tommy Herring and Hog Slat donated the fencing for the goats. This activity has allowed many of our students to actually touch, groom, and work with live animals. Students show the goats at local exhibitions, and the state fairs. Without the support of our parents, alumni, and other people in our community, this project would not have been possible.

Mr. Warren's former agriculture teacher, Mr. Mack Edwards, once said, "Lead, follow, or get out of the way." I feel that our leadership for the future must share in this vision in order for us to grow. Traditionally, agriculture teachers are among the leaders in the teaching profession, and we feel that our love and dedication to what we do will enable us to lead the profession in a positive and rewarding direction.



Jason Davis is an Agricultural Education Instructor at Hobbton High School in Newton Grove, NC.



Tim Warren is an Agricultural Education Instructor at Hobbton High School in Newton Grove, NC.

"Lead, follow, or get out of the way."

A Network of Success

By Erin Murphy and John Walker

It's 7:40 am on a Monday morning, the bell has just rung and our first period horticultural science class is about to start. As the freshman students settle down to their work on this crisp September morning, it becomes glaringly apparent that the school year is fully under way. Today's topic is an introduction to FFA, led off by the reading of the FFA Creed. As the hands of today's volunteers go up, paragraphs are assigned, we begin to absorb this timeless piece.

As the first student recites the opening paragraph so eloquently written by E.M. Tiffany, our year's perspective comes into full view. "I believe in the future of agriculture, with a faith born not of words, but of deeds. Achievements won by present and past generations of agriculturists, in the promise of better days through better ways, even as the better things we now enjoy have been brought to us through the struggles of former years." Contained in that one paragraph is the bridge of technology and science from one era to next, but also contained is the past and future of agricultural education.

As class continues in our suburban classroom setting, we are reminded of how different agricultural education is today than it has ever been in the past. We have long since passed the days of the traditional agriculture 1,2,3,4 curriculum and have moved into a world of aquaculture, natural resources, veterinary science, horticultural science, and biotechnology.

A curriculum area once only offered in rural agricultural communities is now a mainstay in not only rural school districts, but suburban, and urban as well. And yet the question of our freshman students remains, how does this relate to me? Fortunately, we have curriculum that inherently offers an answer.

As we continually align our curriculum with state standards, national skill standards, and maintain cross-accreditation within our school districts, the one worry we never have to entertain is the worthwhile nature of our curriculum. A plentiful food source and interest in preservation of the environment have become increasing areas of interest to all citizens, not just those involved in the field of agriculture. This interest continues into all secondary science classrooms, and the diversification continues of traditional science programs to more closely emulate the practical, hands-on characteristics of the agriculture classroom. While the traditional classes race to catch up, we continue to forge ahead into the new frontier of teaching and the fast changing field of agriculture.

Whether we are working on raising native plant species in the greenhouse to help restore a native salmon run in a stream restoration project the class has undertaken, or studying the skeletal structure of a canine specimen at the local veterinary clinic, the intrigue of science is alive in our classrooms. As students come to us with an elementary knowledge of genetics and DNA, gleaned from their favorite crime fighting television show, we introduce the spooling of wheat germ DNA and the process of DNA electrophoresis into the classroom. Students are finding it easier to make the connection of chemistry and math from a theoretical approach to applying and using it first hand. As science and technology continue to advance, our curriculum stays in step by offering students current laboratory applications and insight into the changing face of the agriculture industry.

As the final student volunteer recites the closing paragraph of the FFA Creed, it rings loud and clear that each student can exert influence in their home and community. It will be our mission this year to open new doors for this student in the FFA and in the classroom that allow them to reach this full potential with the skills and abilities necessary to be a skilled and knowledgeable leader for the next generation.

So how do we get there from here? A viable question for many teachers whose workdays are already long, and their commitment as a FFA advisor schedules away many of their evenings and weekends. The answer fortunately is in the question.

One of the premier characteristics that set agricultural educators apart from other areas of education is our willingness to share curriculum or expertise in a given area with our peers. As educators in a common field, we are all focused on the common goal of educating our students, and the public through our programs and the many community based projects and activities we support and generate. Ultimately, we are all driving towards the same end result, and are willing to work together as professionals, this is what sets us apart from the others, and will continue to keep our profession successful in the education of others.

In an era where time is everything, we are now forced to use it more wisely than ever before. When additional meetings become the last

thing on our agenda of items to do, using our existing commitments to meet this on-going information gap move to the forefront of importance. During monthly district meetings, in-services taught by teachers within the district can become a priority. At summer conferences, breakout sessions in which peers instruct educators should become the norm.

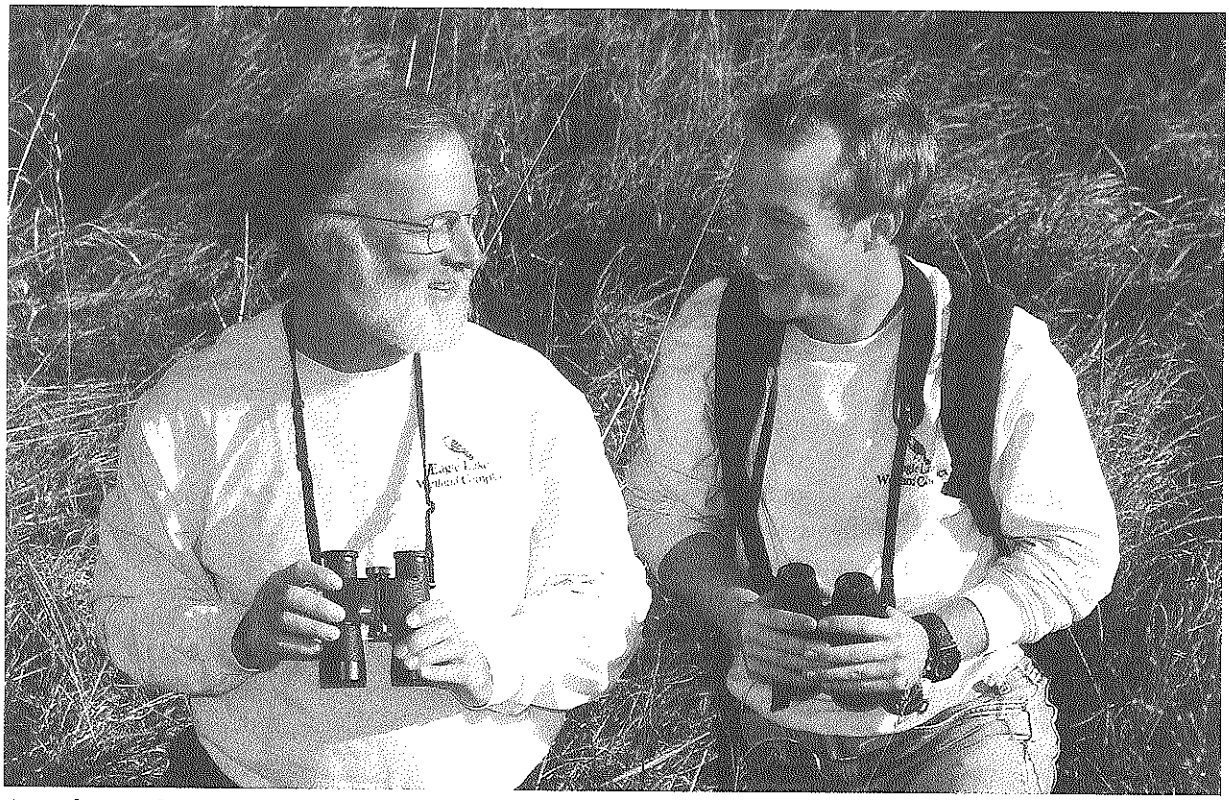
We need to make everyone aware of the curriculum exchange sites available for exchanging lessons and information. If everyone uses any these resources in even a small manner, we will be helping our profession and those teachers involved to grow and expand in knowledge, and furthermore, pass it on to our students through our teaching. Those individuals whose expertise is in a given area, is broad in scope yet up-to-date. They can educate others on what changes are taking place in a specific field of agriculture, what skills are related to this new technology, and can provide lesson plans to infuse this new technology and science into the classroom.

As the National Council is not actually involved in the creation of new curriculum and the training of teachers to disperse this information, we as professionals in this field must take up the slack. We as agricultural educators are our profession's greatest natural resource, and by sharing the wealth of information contained within our body, we can take our curriculum and our profession into the next generation.

As agricultural educators we are adept at sparking the interest of our students as to the opportunities for premier leadership available through our local, state, and national FFA organization. Daily we help students make life long connections as to the importance of their environment, the basis for our food and natural resource systems, and wonder with them as to where the future of biotechnology will take our society. We must now spark the interest in each other, an interest to avidly research new technology and scientific advances in our field and disseminate this information to our peers. Our vision and dedication to fast changing field of agriculture is what will provide our individual educators and professionals with the key to the future of agricultural education.

Erin Murphy is a Horticultural Science Instructor at Poulsbo Junior High in Poulsbo, Washington.

John Waller is a Horticulture Science, Natural Resources, Aquaculture & Landscaping Instructor at North Kitsap High School in Poulsbo, Washington.



According to the authors, one of the premier characteristics that set agricultural educators apart from other areas of education is our willingness to share curriculum or expertise in a given area with our peers. (Photo courtesy of Iowa State Univeristy, College of Agriculture)

The Role of the Teacher in Developing and Promoting a Vision for Agricultural Education

By Jessica Beebe and Dexter Wakefield

"Education helps people become more knowledgeable about the world, more sensitive and understanding of their relationship to it, and more eager to contribute to the civilizing process. It helps people develop the ability to discern opportunities and options that they may confront in their day-to-day activities. The formation of educational and occupational aspirations is integral to education, enabling students to better understand who they are and how they can function effectively for their own well being and for the betterment of society" (Bajema, Miller and Williams, 2002).

As a profession, Agricultural Education instructors are heading down a road that requires them to become more educationally diversified. Joe Harper, wrote in his study for the Agricultural Education Research Summary Report (June 2000) that public perception of future competency areas should be researched in order for Illinois Agricultural Education programs to provide for instruction in the food, fiber, environmental and natural resource system. These areas are all part of the changing face of agriculture, and therefore should be taught by agricultural teachers.

In the 1980's, agricultural education programs changed from being vocational education to what they are now. Since then, many instructors have retired, and newer instructors have replaced them. These "new instructors" have increased and diversified their personal educational experiences through technological advancement training at universities nationwide. These instructors relate their technological experiences to their classroom setting, which leads to a different mode of learning for the student.

This "new instructor" must now be able to pass these diversified educational experiences onto the students they now teach. The "new instructor" must be up to speed with agricultural and international advancements around the world. Instructors must now be able to teach lessons in areas such as GPS and e-commerce, which means being competent in the technologies of computer usage and the world-wide-web. Instructors must also be able to keep up with the changing times through lectures, seminars and trade journals that keep the instructor informed about changes in technology.

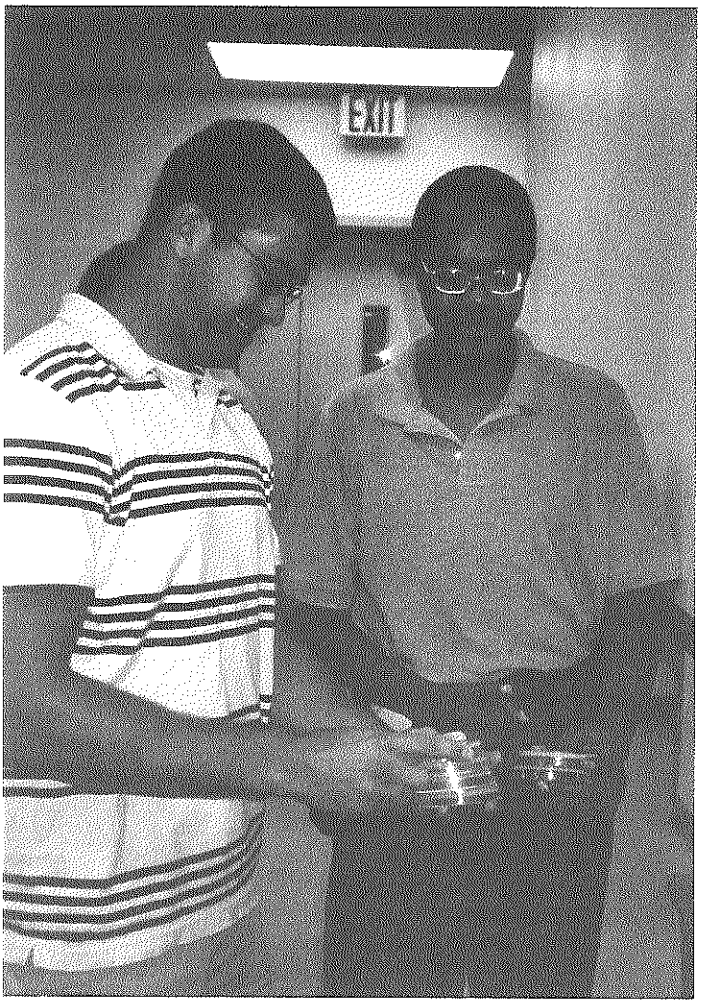
Another role of the agricultural teacher is his/her duty in shaping the future of the agriculture and its profession. Local agriculture teachers act as counselors in helping students continue their education in agriculture by promoting a strong supervised agricultural experience program. Dyer and Breja (2003) cited that guidance counselor's support of the agriculture profession was a top problem with the recruitment of students. They stated that it is up to the agricultural teacher to encourage students to continue agricultural education classes through high school, and as their desired profession into their college years.

The role of the teacher in agricultural education is not just changing when it comes to recruitment, but is being enhanced. The "new instructors" must adapt to the skills needed to recruit students. Since agriculture must compete with other programs and graduation requirements, agricultural teachers must be able to encourage students that the classes in agriculture education will benefit them far longer than playing on a high school football or basketball team. The "new instructor" must be able to show students how to incorporate agricultural classes into their students' school schedule without compromising graduation.

In visualizing the role of the "new instructor" in agricultural education we must understand that these instructors must encourage students to pursue careers in the field of agriculture. To do this, they must be willing to show students all the various careers of agriculture firsthand. They should include workshops in cooperation with area universities and colleges, take field trips to companies such as Purina Mills, Seed Companies, Archer Daniel Midland, Eli Lilly, local forest services, local greenhouses, veterinary offices, and many more. The student will get a first hand experience in the changing of the tides in industry and this could serve as experiential learning. Since research shows that rural students only aspire to the level of role models they see in their communities, agricultural teachers must also show students additional role models in agriculture (Bajema, et al. 2002). Parents look to the agricultural teacher as a means of help in persuading their children to pursue further education. Parents see the agricultural teacher as a role model in teaching their children, and encouraging their

children to seek additional education through programs such as SAE.

The visioning process of the agricultural teacher or "new instructor" needs to be enhanced based on the changing world of agriculture. A well thought out design needs to be constructed based on recruiting, school support, the image of agriculture, agricultural program quality, facilities, curriculum, retention, and so forth. The vision should include the notion that schools need to be more informed about the changes in agriculture from the vocational terminology to more of a science based program. Schools should be able to see evidence of the changes in classroom curriculum and through practical experiences by the agricultural instructor.



Agricultural teachers have many roles, with one being to shape the future of agriculture and its professions.

Agriculture today is very broad. The National FFA Program has done very well in helping to encourage and educate students in the many fields of agriculture. The New Horizon (Sept/ Oct. 2003) featured careers in outdoor recreation including game farm supervisor, conservation officer, wrangler, fishing guide, golf course supervisor, interpretive naturalist, winery supervisor and several others. None of these careers are the typical "farming" careers, yet they are all fields in agriculture.

In order for the vision of Agricultural Education to be received by all, the "new instructor" must play an important role in disseminating information to schools, community, administrators and beyond. Emphasis should be placed on guidance counselors' cognition of agriculture, recruitment and retention of students and educational training through the union of school to careers and the supervised agricultural experiences offered in high schools.

The vision of agricultural education has changed since the 1980's as schools prepare to emphasis science based education. This can be seen from rural inner city schools such as, the Chicago High School for Agricultural Science (IL). The "new instructor" must focus on the inclusion of agriculture and the natural sciences to develop and promote a well-rounded program. Therefore, the vision for Agricultural Education includes recruitment, retention, and science based learning to capitalize on the ever changing society.

References

Dyer, J.E., Breja, L.M., & Ball, A.L. (2003). A delphi study of agriculture teacher perceptions of problems in student retention. ***Journal of Agricultural Education,* 44, 86-95.**

Dyer. J.E. & Breja, L.M. (2003). Problems in recruiting students into agricultural education programs: A delphi study of agricultural teachers perceptions. *Journal of Agricultural Education.* 44, 75-85.

Bajema, D.H., Miller, W.W., & Williams, D.L. (2002). Aspirations of rural youth. *Journal of Agricultural Education.* 43, 61-71.

Ball, A.L., Garton, B.L., & Dyer, J.E. (2001). The influence of learning communities and 4-H/FFA participation on college of agriculture students' academic performance and retention. *Journal of Agricultural Education.* 42, 54-61.

Harper, J. (2000). Expert opinion of the future of agricultural education in Illinois. *Agricultural Education Research Summary Report.*

Harper, J. (2000). Public perception of the future of agricultural education in Illinois. *Agricultural Education Research Summary Report.*

The great outdoors: 8 great careers in the outdoor recreation field. (2003, September/October). *FFA New Horizons,* 6-8.

Jessica Beebe is a Graduate Student in Agricultural Education and Instruction at Southern Illinois University.

Dr. Dexter Wakefield is an Assistant Professor in Agricultural Education and Instruction at Southern Illinois University.

Future Agricultural Careers: Are Students Prepared?

By Kiley P. Barnes and Jacquelyn P. Deeds

Agriculture educators continuously compare the past and present and speculate on the future. A webpage created by Gary Hachfeld of the University of Minnesota Extension Service boldly titles the question "Why Can't Agriculture Be Like It Was In The 1950's?". His presentation outlines specifics related to cost of living by today's standards. So we might want to ask what is the difference between the agricultural students of today and those of the 1950's?

Agriculture educators in the 1950's had students that upon completion of formal education returned to the farm; we know this is not the case for today's agriculture student. This alone is the most significant differentiation between the groups. As recent position announcements found on the World Wide Web indicate, today's agricultural employees need to have a production agriculture background enhanced by information technology.

Agriculture, as one of the basic societal necessities, must adapt at the rate of the ever-changing technology. It is easy to recognize the evolutionary process of agricultural education simply based on the adaptations, revisions, and creation of instructional textbooks. The question that remains to be answered is; has it changed enough? To add purpose to the instruction, educators must possess knowledge of their students' potential career path. From the agriculture educator's perspective, how do we adapt and to what degree do we adjust our curricula to meet the needs of the future? How do we prepare students for their future role in the agricultural society if we ourselves are unaware of what future opportunities exist?

What is Our Vision?

Do agriculture educators have an outdated vision of agribusiness and agriculture production? Although vision is only one part of the planning process, lack of vision can be detrimental to an educator's approach to teaching. Do agriculture educators know where students are headed and how to prepare them for those careers? Surely we need not throw away old instruction to obtain all the latest technological gadgetry. The best option for the retention of basic agriculture principles would be a fusion of the old with the new. Regardless of what technology exists, production agriculture is still and will continue to be the key.

This justifies the need for much of the more traditional curricula. However, does the traditional curricula prepare those individuals seeking future employment in such areas as agriculture electronic media development and statistical agricultural commodity programming? The job listings, found in Figure 1 and Figure 2, were taken from the Farms.com website and outline examples of opportunities that exist for agricultural professionals.

Preparing for Tomorrow's Careers

We need to prepare the future agriculture workforce not for yesterday or today's careers but for tomorrow's. But how do we prepare them to take on the role an information technology job requires? One suggestion is through the implementation of quality supervised field experience including summer jobs or internships. Community involvement is critical in this process. Teachers need to visit local farm and businesses using information technology to induce owner participation. This strategy would create jobs and raise community awareness of students technology needs. Educators must encourage students to develop SAE programs that utilize technology such as web development for farms and small agribusiness. Another example would be to place students with producers that are using GPS/GIS technology extensively to increase their knowledge beyond the classroom. Local agencies such as the Natural Resource Conservation Service can involve students in volunteer activities to increase their knowledge of the latest technology.

Another promising method of increasing information technological skills is to require students to use technology in their assignments. Require students to access online

Position Title: Ag Systems Development Manager

Specific Duties: Assist in developing product and tool requirements; interface with leading tool developers; determine and maintain web products descriptions, and manage implementation of requirements by vendor software developers.

Qualifications: Proficient with Geographical Information Systems (GIS); familiar with common agriculture decision support tools; excellent written and oral communications skills.

From Farms.com, AG career retrieved August 14, 2003, from http://www.farms.com/agcareers/job.cfm?task=view&id=21822

Figure 1. Systems position announcement.

articles, journals, and books instead of using just the school library for research purposes. Use computer programs to complete FFA Proficiency Awards and prepare for Career Development Events. Teachers also need to model the use of technology in their teaching.

Suppose a job calls for someone with good people and leadership skills who can create and maintain a team of website designers for a large feed mill operation. A qualified applicant for this position may be a former FFA member who created a website for his/her chapter and later served as a chapter officer. As an officer, the student communicated with chapter members via telephone and Internet on a weekly basis. The production agriculture experience gained through a high school agriculture program provides him/her with an understanding of the mill's operation and processing. The web design leadership position might not be possible right out of high school but through an involved, adaptive high school agriculture program, the student will be well prepared to pursue the training needed to qualify. If the student had not had an influential agriculture program at the secondary education level, he/she may never have had the opportunity or knowledge required to pursue such a position. One can never discount the personal development aspects of FFA activities in future career success.

Creating Student Interest

Research at Mississippi State University has found that when asked about the future, secondary education students want to pursue careers with which they are familiar. These include doctors, lawyers, nurses, bank tellers, police officers, agriculture or other teachers, etc. All are the jobs students commonly observe. With this in mind, an increased exposure to agricultural IT positions provides students with a broader knowledge of career possibilities. Field trips and the allure of guest speakers employed in the agricultural information technology sector might arouse students' interests. Job shadowing may offer students the exposure to agricultural positions that do not receive much of the spotlight. Job shadowing can provide the student with a database of career possibilities. Building job shadowing and field trips into regular class instruction can further build career awareness.

It is the role of the educator to provide the future workforce with the information, skills needed, personal qualities, and leadership to become a successful member of tomorrow's working population. This requires a firm knowledge of what opportunities exist and the foresight to prepare students for them. With informative, flexible agriculture education programs, students have the maximum opportunity to pursue a career they desire the most.

Many websites offer educators the opportunity to arm themselves with career information. A teacher can print examples of agricultural information technology positions to read to students or post on a bulletin board for student access. Several websites that are available for this purpose are:

- http://www.ajb.dni.us/
- http://www.usajobs.com/
- http://www.jobcenter.com/
- http://www.nationjob.com/
- http://www.usjobs.com/
- http://www.agricareers.com/

Everything Old Is New Again

The things that haven't changed since the 1950's in preparing students for agriculture careers are the components of a complete agricultural education program, a) classroom/ laboratory instruction to learn about careers and how to prepare for them, b) Supervised Agricultural Experience Programs that practice the skills and prepare for the future and c) FFA activities and leadership opportunities that tie it all together. Agricultural Education has the tools available to prepare young people for their future careers through our schools, communities and FFA programs. The challenge to agricultural educators is to make good use of the tools.

Kiley P. Barnes is a Graduate Assistant in Agricultural Information Science and Education at Mississippi State University.

Jacquelyn P. Deeds is a Professor in Agricultural Information Science and Education at Mississippi State University.

Position Title: Agriculture Technology Specialist

Specific Duties: Assist dealers with integration of products into their normal business operations; create product applications maps and files in format compatible with commercial VRA applicator controllers; utilize GIS and image processing software to create customized views of field crop conditions; assist sales in researching and qualifying new customers and prospects by discovering and identifying their needs.

Qualifications: B. S. or Associate Degree in agriculture, agribusiness, agronomy, geography, or equivalent experience. Applicant must be familiar and experienced with GPS, GIS, and image data processing software. He/ she must have experience with basics of Internet architecture and data transmission. Farming/ranching and agronomy background a plus.

From Farms.com, AG career retrieved August 28, 2003, from http://www.farms.com/agcareers/job.cfm?task=view&id=22450

Figure 2. Specialist position announcement.

NCLB, Standards, and the Future of Agricultural Education

By Anissa D. Wilhelm

Depending on what document or website you are looking at, you may find a few different descriptions of a vision or mission of Agricultural Education and/or educators. The Council through the National Strategic Plan described the following vision for Agricultural Education, "...envision a world where all people value and understand the role of agriculture, food, fiber and natural resource systems..." (http://www.teamaged.org/aged.htm). The mission identified from that same source is "...prepares students for successful careers and a life time of informed choices in global agriculture, food, fiber and natural resource systems."

The mission of the National Association of Agricultural Educators is "Professionals providing agricultural education for the global community through visionary leadership, advocacy and service" (http://www.naae.org/leadershipindex.htm). Yet another is the mission of the American Association for Agricultural Education. That organization "is dedicated to studying, applying, and promoting the teaching and learning processes in agriculture" (http://aaaeonline.org/).

As I think about the aims of and future of Agricultural Education, I often think it is not only about missions and visions we have for the profession as a whole but certainly about issues that will be facing Agricultural Education in the future and how we deal with those issues in light of the missions and visions. The future of Agricultural Education is one that we as a profession have continually addressed.

Where do we fit in the education spectrum? We have played a vital role in student lives as seen by the many success stories from former students who were in Agricultural Education and involved in FFA. But what will our lasting legacy be if we are deemed unimportant to student learning based on a lack of contribution to scores on a standardized test? The No Child Left Behind (NCLB) Act has placed us in the situation of having to address that very question.

Highly qualified teachers, adequate yearly progress with all students achieving at grade level, achieving challenging standards in reading, math and science...it all sounds fantastic. Student achievement as we have never seen before. In theory, many positive things can come from such a piece of legislation. But what about the practice? And how does this impact the future or vision of Agricultural Education? Let's see how well I can make the connection.

As I see it, we have typically done a nice job of highlighting how agriculture education incorporates a variety of academic skills. Most recently, Edwards, Leising, and Parr (2002) illustrated the role of Agricultural Education on student achievement in science. The impetus for this work was the National Agricultural Education Research Workgroup that formed for the very purpose to identify the role of Agriculture Education in core academic areas of reading, math and science.

The authors identified an impressive list of research studies substantiating the practices used in teaching Agricultural Education are in line with best practices related to student achievement in science. We must show the impact from this on student achievement in the academic core areas. No Child Left Behind has increased the stakes for schools to show that adequate yearly progress is occurring.

Several studies, which were done by Agricultural Educators, cited by Edwards et al. (2002) address ways in which agriculture education is a beneficial vehicle to teach science. If it can be done in science, why can it not be done in other core academic areas?

It is interesting that although a plethora of research has shown active, student-centered teaching with multiple assessments, the act indicates the measure of student learning should be based on single standardized tests. It seems that the logic of the act may be out of step with research on student learning.

One thing is certain. Agricultural Education is not seen as a necessity with this legislation. Core academic areas identified by NCLB are science, math and reading/literacy. As most states address the need for highly qualified teachers, they are focusing only on the core academic areas of "English, language arts, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography" (http://www.learningfirst.org/lfa-web/rp?pa=doc&docId=25).

From this, one might say that

agricultural education is not important to student learning. I beg to differ. We have done well to show how we incorporate a variety of academic skills into our curriculum. We use teaching methods that are experiential in nature. As Agricultural Educators, we must take the contributions of Agricultural Education to the next level. We must show the impact we are making toward student achievement in science, math and literacy. Will this be work? You bet.

The author notes that in addressing the need for highly qualified teachers, most states focus on the core academic areas of English, language arts, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography. The author encourages the profession to show the impact agricultural education is making toward student achievement in science, math and literacy. (Photo courtesy of Iowa State University, College of Agriculture)

The reality of our present and future is accountability. Regardless of the missions, visions, or goals we set, we ultimately must show progress and impact toward those ends. We must show that we are contributing to student learning and student success on a variety of levels. And if we are not contributing to those things, we should question what we are doing and why because others may very well do that very thing.

References

American Association for Agricultural Educators. http://aaaeonline.org/

Edwards, M.C., Leising, J.G., & Parr, B.A. (2002). *Improving student achievement in science: An important role for secondary agricultural education in the 21st century*. Retrieved September 22, 2003, from http://www.teamaged.org/actionagenda.htm

Learning First Alliance. *No Child Left Behind Act: Key Provisions and Timelines*. http://www.learningfirst.org/lfa-web/rp?pa=doc&docId=25

National Association for Agricultural Education. http://www.naae.org/leadershipindex.htm

The National Council for Agricultural Education. http://www.teamaged.org/aged.htm

Anissa D. Wilhelm is an Assistant Professor in the College of Human Development and Education at North Dakota State University.

Discussing the Future with Advisory Committees

By David L. Doerfert

Advances in production, communication and transportation technologies as well as expectations of consumers, taxpayers, business people and rural residents continue to cause changes in agriculture and rural areas (Saxowsky & Duncan, 1998). How have these changes been realized in your community? How are these changes reflected in your curriculum?

John Naisbitt, author of *Megatrends* and other futuring books states on his web site that "*The most reliable way to anticipate the future is by understanding the present.*" How well do you and your advisory committee understand the present status of agriculture? Do you understand the trends occurring within agriculture as well as those that are impacting the future of the agriculture industry? Is your advisory committee providing the kind of assistance that you need to shape the future directions of your program?

It may seem that anyone could hold strategic planning conversations about the future without any preparation simply by scheduling time for them. These conversations will be much more fruitful, however, if they are built around the scenario method, which systematically raises people's understanding of their environment and each other. The scenario method is designed to produce the kind of mutual understanding that allows people to act towards common ends. Peter Schwartz in his book *The Art of the Long View* described the steps in thinking about the future through the use of scenarios. Let's examine these steps and discuss how you might utilize them with your advisory committee.

1. Create a Hospitable Climate

Start by doing what you can to make your advisory committee meeting culture one that welcomes diverse points of view and lively discussion. You should state up front, that the group is open to new information—even that which may not be occurring in your state or community at this moment in time. No one should be penalized for raising questions or ideas. In meetings, allow fierce give and take, but make sure that there is time to consider every point people make, no matter how strong the knee-jerk response may be to "shoot down anything that isn't mine" or is different from "what we have always done."

2. Include Outside Information and Outside People

A purely internal or local conversation will rarely be able to achieve breakthrough thinking. As such, you also need to expand the range of information you take in. Many advisory committees limit the range of information that they pull in from the outside. This is a survival strategy: It simplifies a confusing, ambiguous, and uncertain world. But this only leads to a narrowly conceived perception of the world, based on homogenous local information.

One strategy would be to involve outside experts (state Extension leaders, company representatives, state agriculture officials) in your advisory committee meetings by their attendance at the next meeting or by conference call. This also presents an opportunity to involve your students as "an information-hunting and–gathering company." Create some targets (e.g. science and technology advances, perception shaping events, fringes — see Table 1 for examples) for teams of students to gather the information related to their target, synthesize what they find and present it to the advisory committee at a future meeting.

3. Look Ahead Far in Advance of Decisions

An important characteristic of strategic conversations is their timing. It takes time for an advisory committee to absorb fundamental new ways of looking at the world. Introducing new perspectives at the moment of decision, when an advisory committee is confronted with the need to act, will inevitably be inadequate. The need to act overwhelms any willingness people have to learn. Thus, well designed strategic conversations occur long before the moment of decision. They are not oriented to crises, but to the ongoing affairs of the agriculture department.

4. Begin by Looking at the Present and the Past

Before you can look ahead through scenarios, you need to understand your department and school district as it has acted in the past, and the environment as it exists in the present. Start by asking, "Where are we now?" For example, start with reviewing how your agriculture program has changed in the past as agriculture in your community has changed. Talk at some length about how this change was handled—was it in anticipation of future changes in the agriculture industry or was it a reaction to declining enrollments or budget cuts? What changes were dealt with effectively, and which took the program by surprise?

Then take a look at the trends going on around you. Using the information from Step 2, talk infor-

mally about these matters, ask each other questions, casually elicit opinions about what is important. You will find yourself saying, "We really ought to learn more about such-and-such." As a result, you might form a working group to look at biotechnology, another to look at the future of water and a third to look at changing consumer demands.

5. Conduct Preliminary Scenario Work in Smaller Groups

A large meeting involving all the key players is the best way of starting—and continuing—a strategic conversation. But subgroups of that meeting are the most effective way to study individual issues in depth. Each subgroup, in effect, will have its own strategic conversation, focused and framed by a small scenario effort that might last a few meetings. Have them examine and discuss (a) the driving forces (society, technology, economics, politics, environment) that will determine how trends identified in Step 2 unfold in your local community; (b) what are the predetermined elements such as slow-changing phenomena (e.g. school buildings) or items already in the pipeline (e.g. number of K-8 students representing potential agriculture enrollment) that will not depend on a chain of events to occur, and (c) critical uncertainties that could raise our hopes or our fears about the future (e.g. a long drought in the U.S could raise water shortage fear whereas a long drought in Europe could raise our hope for better commodity prices).

These smaller conversations are particularly effective because the scenario process feeds both diversity and consensus. At some stages, people diverge, offering widely different points of view and information. And then, people converge, fitting those different views into common story lines. Each subgroup might emerge with two to three specific scenarios to present to the full advisory committee. Because each member of the advisory committee has been part of a subgroup, each will be eager to see the other subgroups' reports.

6. Playing Out the Conversation

By now, some time has passed. You know your present and your past, and you have scenarios for your future. So what?

Now you can ask, "What are we going to do as an agriculture program?" You are no longer trapped in the paradigms of conventional wisdom. You can more easily distinguish trends from deeper structural changes, because your conversations have forced you to question each other about the distinction.

7. Living in a Permanent Strategic Conversation

You may have gotten the idea, by now, that the strategic conversation never ends. It just moves into different venues. It becomes the model for conversation in the advisory committee. Along the way, other habits change. People start reading the newspapers and agricultural magazines differently. They start passing around articles. The scenarios influence the informal conversations that take place outside of the advisory committee meetings. Individual observations are now data for group consideration.

Now your advisory committee is ready to make serious decisions. They feel relatively confident about them, because they are continuing to digest a wide range of data and collaboratively make sense of it. They know that outlying views will be accepted. In a sense, in their conversation, they've already tested their decisions against experience, as if the scenarios had already taken place.

In the words of Alfred Lord Tennyson, " . . . *Come, my friends. 'Tis not too late to seek a newer world.*"

References

Naisbitt, J. (2003, September 8). Quote posted on web site home page at http://www.naisbitt.com/

Saxowsky, D. M., & Duncan, M. R. (1998). *Understanding agriculture's transition into the 21st century: Challenges, opportunities, consequences and alternatives.* Retrieved September 8, 2003 from http://www.aeco.ttu.edu/Courses/Misra/AAEC5312/article3.pdf.

Schwartz, P. (1996). *The art of the long view: Paths to strategic insight for yourself and your company.* New York: Doubleday

David L. Doerfert is an Associate Professor in Agricultural Education and Communication at Texas Tech University.

Table 1: Examples of Agriculture Target Areas

Science & Technology

Biotechnology Advances in Waves Requiring Changes in Production Practices

- ❑ 1st wave – Agronomic Traits (insect, pesticide resistance)
- ❑ 2nd wave – Quality Traits (increased protein content, deletion of allergy-related gene)
- ❑ 3rd wave – Plants & Animals as Factories (producing pharmaceuticals)

Information Technologies Changes Farm Management

- ❑ USDA reports that number of computers and Internet access increases on farms
- ❑ Global positioning systems available on newer farm equipment

Toward a New Vision for Agricultural Education

By Wisconsin Association of Agricultural Educators

Preparation of "Reinventing Agricultural Education for the Year 2020 (RAE 2020)," a project of the National Council for Agricultural Education and completed a few years ago, had a major impact on agricultural education in this era. It led to numerous important changes in the way we do business and in helping strengthen the public trust in agricultural education across the nation.

Self-Discovery

If nothing more, RAE 2020 revealed a sense of the power...a sense of self-determination...that truly existed before but not fully realized within the profession. It is the power that educators can exercise to individually to bring about, or let come about, the leadership and support of others toward a common agricultural education vision. Wasn't it Yoda, of *Star Wars fame*, who uttered that, "The Power Is Within You." When educators can help others arrive at a common vision and strategies for achieving a common vision, that is real power.

Baby Boomlett Ends and Rural Outmigration Continues

In some public schools 'block' scheduling seems to have had a positive impact on the continuing availability of agricultural education programming. But, even with these kinds of innovative strategies to preserve or create a variety of learning opportunities for students, shrinking absolute school enrollment numbers in many rural school districts in the state of Wisconsin, in particular, will have significant consequences and without intervention, we think we know that the future of agricultural education is in jeopardy.

WAAE Paves The Way

Two years ago, leaders in the Wisconsin Association of Agricultural Educators (WAAE), launched a campaign aimed at helping local teachers remain competitive in the student 'marketplace'. The Public Relations Committee of the association began to evolve a plan to reach out to selected stakeholders within and beyond school district boundaries. As teachers and association leaders quickly learned, together they could expand their influence. They began to realize that their own outreach work really could have far-reaching and positive consequences.

Individual Leadership

With the drive and enthusiasm he brings to everything he does, Paul Larson[2], former state association president, who currently serves as NAAE (National Association of Agricultural Educators) Region III Vice President, an agriscience instructor in the Freedom School System in Northeastern Wisconsin, invited a key group of stakeholders to help bring life to a vision for agricultural education shared by many and for which he was increasingly called upon to articulate in and outside of the profession.

Summit Idea Articulated

Paul first proposed a statewide 'Agricultural Education Summit' a year ago. The first information meetings were in the fall, 2002. He admitted at the time that he didn't know what might come about as a result, but surely we had to try to lift up *agricultural education as a positive solution* to many of the difficult dilemmas in public education. His enthusiasm is contagious. He showed his commitment in many ways including his willingness to go way above and beyond his normal daily assignments as teacher, advisor, and mentor, even if it meant taking personal time off to travel to the state capitol which he did on several occasions, to help key influencers capture the vision, passion and concern he knew were shared all across the agricultural education professions from K-6, 7-9, 10-12, to two-year college and university system.

Partner Involvement

Planners for the Summit involved representatives from the state's Department of Agriculture, Trade and Consumer Protection, the Wisconsin Farm Bureau Federation, the Wisconsin Agribusiness Council, the Wisconsin Department of Public Instruction and the Wisconsin Technical College System. A broadened planning group of about thirty people was convened during a designated "Agriculture Day at the Capitol" the first week of spring included additional numbers of educators, representatives of the State Legislature, the Wisconsin Landscape Federation, and others.

Summit Theme: The Knowledge Crisis...The expanded planning group laid the groundwork for a very successful statewide agricultural education summit whose theme, "The Knowledge Crisis in Agriculture, Food and Natural Resources Systems," drew the imagination of over 100 invited key leaders from across the state who attended a one-day summit conducted in a rural Wisconsin community that boasted a vigorous multi—teacher agricultural education department at the newly constructed Mauston High School on July 23rd 2003.

Toward A Vision For Agricultural Education

The Summit was appropriately billed as an opportunity to help shape the future of agricultural education in Wisconsin. With two outstanding keynote speakers and a panel of distinguished leaders in education, industry and government, the gathered stakeholders settled upon four priority needs, or issues, that will require attention in order to secure the best possible future for agricultural education in the state.

An Invitation for Engagement

At this juncture, the conferees believe that there is a need to be engaged in:

A. Rethinking how agricultural education is defined, delivered, and supported.

B. Defining and reconfirming agricultural education's role in economic development.

C. Projecting an image that leads to positive perceptions of the agriculture industry, agricultural careers, and agricultural education.

D. Positioning agricultural education to be competitive for scarce public resources available or that can be made available for career and technical education.

Jury Is Out

Because the *Executive Summary* of the Summit was only recently released and the follow-up organizational work still in the planning stages, the jury is out on what will exactly materialize of the next steps suggested by the working groups during the Summit. Core membership in each of the four task groups has been self-identified and each group will have an assignment to work on during the next few months.

Raising The Bar Agriculture, the food, fiber and natural resources system, in Wisconsin is vital to the health and well-being of the state and its people. There is a commitment to place the report in the hands of the Governor and his staff. It is anticipated that this administration and legislature will be supportive and helpful.

Wisconsin's Team Ag Ed has made its own interagency and inter-organizational commitment to work with the four workgroups to achieve their assignments. This means that the three University of Wisconsin agricultural teacher education preparation programs and faculty (University of Wisconsin-Madison; University of Wisconsin-Platteville, and University of Wisconsin -River Falls), the two state agencies (Wisconsin Department of Public Instruction - DPI and Wisconsin Technical College System - WTCS), the student organizations (Wisconsin FFA and Wisconsin PAS), Wisconsin FFA alumni, Wisconsin FFA Foundation and WAAE are on record in support of the outcomes of this leadership effort and will devote their collective energies on follow-up.

Achieving A Vision For Agricultural Education

Paul Larson believes that, if we work together, with our students, our communities, our educational institutions, and also work with those at the highest levels of government, and with the best thinkers in industry and education, it is inevitable that a common vision for agricultural education will be achieved and that it can materialize as a reality. Thanks, Paul, for helping all of us find a new way to work together toward a better and more secure future for agricultural education and those who stand to benefit because of their education and career choices.

The Lesson

The principal message toward a vision for agricultural education is that *one* person can make a big difference! One thoughtful, committed, successful person, who is passionate about agricultural education, can mobilize many others. He/she can help create a common vision for agricultural education. In Wisconsin, right now, that person is Paul Larson. In your state, in your community, it could be you!

Executive Summary Available

As this project continues to evolve, we will try to make available the findings and specific action steps that are being attempted. If you wish to receive an electronic version of the Wisconsin Agricultural Education Summit Executive Summary, please send an email to any Wisconsin Team Ag Ed member or to Mr. Paul Larson, Freedom Schools: *plarson@freedomschools.k12.wi.us*. You may also access the report through the professional association website: *http://www.wavai.org*.

1. Prepared, edited and presented on behalf of Wisconsin Team Ag Ed by (Dr. James L. Gibson (Education Director, Agriculture and Natural Resources, Wisconsin Technical College System); Dr. Mark Zidon (Director, School of Agriculture and Professor, Agricultural Education, University of Wisconsin-Platteville), Dr. Gary Lake (Agriscience Teacher Educator, University of Wisconsin-Madison), Mr. Dean Gagnon (Agricultural and Natural Resources Education Consultant, Wisconsin Department of Public Instruction), Mr. Paul Larson (Agriscience Instructor, Freedom Middle School, Freedom, Wisconsin) and Sharon Wendt (Agricultural and Natural Resources Education Consultant, Wisconsin Department of Public Instruction).

2 Readers, please recognize that the admiration of Paul's pivotal role in energizing the profession and industry around the question of the future of agricultural education in Wisconsin is a reflection surfaced by the other contributors in the preparation of this article. These are not Paul's own words of self-congratulations.

Advocating Aguaculture Education for Scientific Literacy

By Charles J. Eick and Leonard Vining

The placement of aquaculture education in the science curriculum is a powerful approach to learning science while maintaining a career focus. Vocational aquaculture programs are highly successful in motivating students to learn science, math, and technology (Conroy & Walker, 2000; Wingenbach, Gartin, & Lawrence, 1999).

Historically, the separation of vocational agriculture from academic science programming has separated applied science from pure science. Many students in rural areas had difficulty in finding relevance in pure science courses, often opting out of these courses. These students found application and purpose for vocational course work.

However, vocational courses are often offered in preparatory programs that track students to work after high school, or have them continue with some technical training. Students choosing vocational programming are often at a disadvantage in pursuing further academic study in higher education, especially land-grant institutions. They may be denied access to a college degree and the economic opportunity associated with it.

In the 1980's this disconnect and segregation between the pure and applied sciences began to erode in the science classroom through the Science-Technology-Society (STS) Movement. STS approaches couched the learning of core scientific principles in the context of local issues of concern. Student learning in science became more meaningful through the study of scientific and technological applications of interest to students (Kumar & Chubin, 1999). The goal of the STS Movement was to increase scientific literacy among *all* students through improving the connection between the study of pure and applied science (American Association for the Advancement of Science (AAAS), 1993; Yager, 1995). This approach would in turn improve career and economic opportunity through improved interest and learning in science, as well as building civic and social responsibility to the community (Ramsey, 1993).

Aquaculture Education for Improving Scientific Literacy

We advocate the study of aquaculture as a STS approach for improving scientific literacy, career opportunity, and community responsibility among high school students. We consider aquaculture education an STS approach because students learn science and technology as they study aspects of aquaculture, a viable economic resource (Wingenbach et al., 1999).

However, we are not advocating embedded science credit within a vocational program, but using locally relevant "vocational" contexts for the teaching of science (Johnson, 1996). Aquaculture in the regular science education classroom can foster scientific literacy for all students where aquatic resources are plentiful and economically important (Conroy & Walker, 2000; Johnson, 1996). Students study a local natural and economic resource of interest for their educational and economic well-being (Coleman, 1994).

Relevance of Aquatic Resources in Alabama

We believe that teaching science through aquatic applications is locally relevant throughout much of our state due to its wealth of freshwater resources (Mengel, 1999; Vanderberry & Placke, 2000). Aquaculture education could also potentially improve scientific literacy and career opportunity for students in the poorest region of our state (Siegel, 1999). This poorest, western region of the state contains the highest population of African Americans (66%) and highest unemployment rate (9.7%) with the smallest percentage of students going to college.[1] However, this economically poor region of the state is rich in aquatic resources, containing 75% of the state's total water acreage, mostly in catfish ponds (Vanderberry & Placke, 2000). The potential for further growth in the catfish industry currently exists and could be a vehicle for economic development in the region. Aquaculture education can prepare these students for advanced study in applied science in college or employment in the aquaculture industry. Thus, this approach blends vocational curriculum with an intellectual curriculum for higher education preparation (Lee & Slaughter-Defoe, 1995). Aquaculture education in this region of the state can develop scientific literacy as it prepares students to take advantage of an economic resource and industry in their community.

The Aquascience Elective in High Schools

The state of Alabama has

recently developed an aquascience elective for science credit in high schools. This course provides science credit for learning principles from the major disciplines of pure science (biology, chemistry, and physics) as they apply to raising a crop of fish. Aquaculture tanks and associated greenhouses provide the means for growing and studying fish. These facilities are housed in either vocational agriculture or science departments, and can be jointly used by both programs. Vocational agriculture teachers can be dually certified to teach the science course. Aquascience classes grow a crop of fish (often talapia) as they learn about the principles of science that apply to this context. Schools can also use nearby ponds to raise a crop of fish (often catfish) while studying the science involved.

Preparing Preservice Science Teachers in Aquascience

College students preparing to be science teachers can take a series of fisheries courses at the Auburn University campus that prepare them to teach the aquascience elective. These courses include the principles of aquaculture and aquaculture production. As student teachers, these preteachers have the opportunity to intern with a science teacher who is teaching aquascience in the state. This opportunity provides hands-on training in using aquaculture in the high school science classroom. Graduates of this program seek employment in schools that are interested in starting or taking advantage of their own aquatic science resources to teach this elective.

Future Success

Currently, most of the aquascience programs in Alabama are located along the Gulf Coast of the state, though new programs are developing in the west Alabama region. Vocational aquaculture is scattered throughout the state. Further work is needed to cross-train current vocational and science teachers to utilize their existing facilities for teaching the aquascience elective. Our framework for teaming up vocational and academic programs is for the improvement of science learning and potential career opportunity for all students in our state where aquatic resources are plentiful.

References

American Association for the Advancement of Science (AAAS) (1993). *Benchmarks for Scientific Literacy*. New York: Oxford University Press.

Coleman, E. (1994). University research – reaching out to the community. *Coast & Sea, 3*, 17-20.

Conroy, C. A. & Walker, N. J. (2000). An examination of integration of academic and vocational subject matter in the aquaculture classroom. *Journal of Agricultural Education, 41*, 54-64.

Johnson, D. M. (1996). Science credit for agriculture: Perceived support, preferred implementation methods and teacher science course work. *Journal of Agricultural Education, 37*, 22-30.

Kumar, D. D. & Chubin, D. E. (Eds.) (1999). *Science, technology, and society: A sourcebook on research and practice*. New York: Kluwer Academic/Plenum Publishers.

Lee, C. D. & Slaughter-Defoe, D. T. (1995). Historical and sociocultural influences on African American education. In J. A. Banks & C. A. McGee Banks (Eds.), Handbook of research on multicultural education (pp. 348-371). New York: MacMillan Publishing.

Mengel, G. J. (1999). Aquaculture education: Providing innovative opportunities for students. *World Aquaculture, 30*, 27-30.

Ramsey, J. (1993). The science education reform movement: Implications for social responsibility. *Science Education, 77*, 235-258.

Siegel, D. S. (1999). *Skill-based technological change*. Kalamazoo, MI: Upjohn Institute for Employment Research.

U.S. Department of Commerce, Bureau of Census. *1990 census of population and housing*. Washington, DC: Superintendent of Documents.

Vanderberry, H. L. & Placke, W. T. (2000). [State] agricultural statistics (Bulletin 42). [City, State]: [State] Agricultural Statistics Service.

Wingenbach, G. J., Gartin, S. A. & Lawrence, L. D. (1999). Students' perceptions of aquaculture education in the northeast region. *Journal of Agricultural Education, 40*, 14-22.

Yager, R. E. (1995). Science-Technology-Society and learning. *Bulletin of Science, Technology and Society, 15*, 225-227.

[1] One county in this region has the highest poverty level at 41% with the lowest per capita income of $13,458 (Bureau of Census, 1990).

Charles J. Eick is an Assistant Professor in Science Education in the College of Education at Auburn University.

Leonard J. Vining is a Fisheries Program Assistant in the College of Agriculture at Auburn University.

Hypermedia Makes Horse Sense

By Kristi Edwards

Hypermedia has great potential in providing a rich, meaningful, active, and cooperative learning experience for middle and high school agricultural education students. It allows activities that are learner-centered, knowledge-centered, assessment-centered, and community-centered (Bransford, Brown, and Cocking, 2000). Gardner's theory of multiple intelligences (Gardner, 1995) underlies this type of activity which allows "students of different races and ability levels to interact in a context where efforts of even the least capable team members are important" to the team's success (Sigelman et al., 2003). In developing hypermedia projects, students learn subject content, hypermedia technology, application, synthesis, critical thinking, problem solving, decision making, leadership, and communication skills.

In this example scenario, the students' task is to create a hypermedia stack presentation about a horse safety topic. Assessment is based on quizzes, a final unit test and performance. Content (Benton Community High School, 2003) and technology (International Society for Technology in Education) standards are easily met.

Hypermedia and the Learning Environment

A student-centered learning environment is one that pays attention to the knowledge, skills, attitudes, beliefs, language, and cultural bias that students bring to class. A hypermedia activity can be used in such an environment. Students preexisting knowledge is enhanced and restructured. Their individual skills, attitudes, beliefs, language, and cultural bias are effectively utilized for the benefit of all in the class and learning community. When students research the topic and create a hypermedia presentation to share with others, they become empowered and active learners. They are required to make decisions about how they will acquire the information, what is important, what they want to learn, and how they can better assist their classmates' ability to learn. They are in charge of their own learning. Supervised and guided by the teacher, they will plan, analyze, translate, transform, evaluate, synthesize, and revise the information into a pleasing presentation. This allows students to think critically, solve problems, and make decisions. Individual creativity is expressed while enhancing intrinsic motivation (Woolfolk, 2003).

Hypermedia activities focus on knowledge to help students develop content understanding. Assignment format allows students to work with the teacher and knowledgeable community members in an active, meaningful, and apprenticeship type fashion to enhance their initial knowledge of horse safety and leadership, interpersonal and technology skills. Learning becomes meaningful and active as students work through the processes involved in creating a hypermedia presentation "by relating them to existing knowledge or by drawing inferences" (Grabe and Grabe, p 60). "What the students learn is not "passively received, but actively" (Grabe and Grabe, p 62) compiled by the student.

Hypermedia can also help students focus on metacognitive skills. When students are placed in an authentic and structured problem-solving situation, they are encouraged to explore, explain, extend, and evaluate their own progress. This process leads to the development and enhancement of metacognition. This example activity is an authentic task because the students develop a format to communicate about actual horse management. With numerous horse enthusiasts and clubs, such as 4-H and FFA, in the state, accurate and creatively developed information is needed.

An initial formative assessment is given to determine the student's knowledge level. Misconceptions must be identified and restructured (Bransford, et al, 2000) so that students will not include them in their presentation. Students must meet periodically with the teacher. They can also check with knowledgeable community members about accuracy of the information. This provides a chance for feedback, reflection, and revision; an important step in the assessment process. Presentations inside and outside the class provide additional opportunities for feedback, reflection, and revision. There will be "significantly better performance than traditional learning activities" (Grabe and Grabe, p 372).

Both summative and performance assessments are employed such as team rewards and/or a team grade based on content, acquisition, analysis, synthesis of the data, and quality of the completed project. Individual team members view other teams' presentations and are quizzed over the safety chapter. To establish individual accountability, intra-group and inter-group grades could be used.

Assessment that lessens competition and enhances collaborative work can easily be employed in a hypermedia activity. This type of assessment enhances the effect of

the classroom as a community. Community bonds are also strengthened by interaction with knowledgeable community members.

Lesson Description

Students will study and conduct research on the topic of horse safety, attend clinics and demonstrations, and visit with knowledgeable citizens in the community. Students divide into teams that are responsible for creating at least two cards of a hypermedia presentation on one of the following aspects of horse safety: 1) catching, 2) leading, 3) tying, 4) handling, 5) mounting and riding, 6) feeding, and 7) trailering. The cards include text, video, appropriate graphics, and appropriate navigation buttons. An example hypermedia project can be viewed at http://www.public.iastate.edu/~khe/kristi'sMM.

As the students participate in leadership training to create a supportive environment, they develop goals, propose ideas related to their safety topic, and establish responsibilities within the team based upon individual strengths and interests. Students utilize the Internet, magazines, University Extension Service, community members, other appropriate research materials and classroom discussions for topic research. Attendance at horse safety clinics and demonstrations are required. Team/teacher consultations decide what information is included in the presentation.

Each hypermedia stack is combined into one overall presentation on horse safety. Therefore, the class develops and uses permission/liability release forms, the title page, table of contents, the credits/thank you page, organization of content, graphic design, text presentation, and the user interface.

Each group views the other group's stacks, passes a quiz over this "chapter of horse management" and shares the hypermedia presentation with groups outside the class.

Conclusions

A hypermedia project that is student-centered, knowledge-centered, assessment-centered, and community-centered involves "active" learning. It reflects an understanding of subject content, problem-solving, decision-making, communication, and technological skills. "Cooperation" is necessary, as the students work in teams within and outside the class. It is "theme-based" because students apply knowledge they have acquired about horse safety, effective communication, proper grammar, spelling, video clips, graphics, source citation, and technological applications. Student presentations provide incentive to perform well and create a pleasing product. "Integration" is present because the students will learn about horse safety using technology and other appropriate research methods. Hypermedia demonstrates "versatility" because students gain proficiency using the Internet, digital video cameras, and video editing software. "Evaluation" takes place as students demonstrate content knowledge acquired in the development of their hypermedia presentation. Students learn and demonstrate skills through communication, problem solving, decision-making, cooperative learning, and leadership.

References

Benton Community High School (2003). *Agricultural Education Standards and Benchmarks.* Retrieved August 1, 2003 from http://www.benton.k12.as.us/.

Bransford, J. D., Brown, A. L., and Cocking, R. R. (Eds.). (2000). *How People Learn.* Washington, D.C.: National Academy Press.

International Society for Technology in Education (2003). *National Education Technology Standards for Students.* Retrieved August 1, 2003 from http://www.cnets.iste.org/sfors.htm and http://www.cnets.iste.org/912pro.htm. (Note as of August 3, 2003 the information could not be downloaded from the Internet.)

Gardner, H., (1995). Reflections on multiple intelligences: Myths and messages. *Phi Delta Kappan.* 77(3), 200-208.

Grabe, M. and Grabe, C. (2001). *Integrating Technology for Meaningful Learning.* Boston: Houghton Mifflin Company.

Lonning, R. A., (1993). Effect of cooperative learning strategies on student verbal interactions and achievement during conceptual change instruction in 10th grade general science. *Journal of Research in Science Teaching.* 30(9), 1087-1101.

Roth, K., (1986). *Conceptual change learning and student processing of science texts.* East Lansing, Michigan: Michigan State University.

Sharan, Y., and Sharan, S., (1992). *Expanding cooperative learning through group investigation.* (3rd ed.). New York: Teachers College Press.

Sigelman, C. K. and Rider, E. A. (2003). *Life-Span Human Development.* (4th ed.). Belmont, California: Wadsworth/Thomson Learning.

Slavin, R., (1991). *Student team learning.* Washington, D.C.: National Education Association.

Woolfolk, A., (2004). *Educational Psychology.* (9th ed.). Boston: Allyn and Bacon.

Kristi Edwards is a graduate student in Agricultural Education and Studies at Iowa State Univeristy.

Now, What are You Going to Do?

G. Victor Beekley (a pseudonym) taught agriculture at 1000-student Country High School, grades 9 to 12. His experiences, recounted in a series of vignettes, describe the challenges and opportunities teachers face as they teach and learn from students.

As a first-year teacher, G. Victor Beekley soon learned that students are very creative in devising "incidents" to test what activities teachers will allow, which are not allowed, and the likely consequences of crossing that line. He also learned that the best strategy for dealing with the "test instances" is to be creative, subtlety if possible, in responding to the students' probes. The senior class of nine students provided Beekley an opportunity to test his ingenuity in handling a rather minor but annoying behavior.

The senior agriculture class met fifth period, the first class period after lunch. The bell system at County High School was one bell ending a class period followed by another bell eight minutes later allowing students time to pass to their next class. Two minutes later a second bell sounded indicating the beginning of the class period. Beekley's policy, well understood by students, was that they were required to be in their seats ready to begin instruction when the second bell rang.

A pattern developed where six of the nine senior students promptly entered the classroom and took their seats well in advance of the second bell; three students elected to hang around just outside the door of the classroom waiting until the last possible minute to enter, usually not entering until the second bell had rung. After Beekley casually reminded the students that they were to be inside the classroom when the second bell rang, the three students fine-tuned their behavior such that they would be actually stepping into the classroom at the first sound of the second bell. By the time the second bell had stopped ringing, they were technically inside the classroom and, if their seats were near the door, they were still bouncing in their chairs when the sound of the bell ended.

After a couple of days of these shenanigans, Beekley wrote on the chalkboard: "Effective tomorrow, anyone not in their seat by the time the second bell begins ringing should be prepared to face the consequences." Without comment, he began class.

The next day, eight of the nine students were seated before the second bell rang. Beekley noted with satisfaction that the three students whose behavior prompted the "be in your seat or face the consequences" edict were seated well in advance of the second bell. Bill, the absent student, had never been late for class. He is probably the most serious and by far the least mischievous student in the class. He is well behaved, studious, and highly motivated to achieve.

Bill's tardiness was noted with mild glee, particularly by the three students who had previously tested Beekley's promptness policy. The students did not miss the opportunity to make sure Beekley was aware his plan to snare the culprits had gone awry. Immediately, Jimmy questioned, "Where is Bill?" Peck quickly retorted, "He was in English class before lunch." Willie said, "Oh, he's in love; he probably is still holding hands with that blonde sophomore out in the hall." Just as Beekley realized that what he thought was going to be a clever trap had actually caught the most unlikely student in the class, Bill enters sheepishly and takes his seat. The stares of eight students, accompanied by smug smiles, were clearly focused on Beekley. No one said a word, but the nonverbal communication was unmistakably clear, "Now what are you going to do?" "Bill," Beekley said, "See me after class." The class began without further comment about the incident by Beekley or the students.

After class Bill explained to Beekley that he had walked his girl friend to biology class on the second floor and simply lingered too long to get to his class on time. Beekley was aware that Bill was experiencing what was probably his first really serious adolescent infatuation. One manifestation of their mutual admiration was that Bill and an attractive blonde sophomore met between each class with Bill escorting her to her classes. Beekley arranged for Bill to complete extra work as his "consequence". For the remainder of the school year, all students were prompt in arriving for class and in their seats when the second bell rang. Apparently they were satisfied by observing Beekley being caught, in effect, in what he thought was a clever trap. Perhaps their greater degree of satisfaction was their awareness that Beekley was cognizant that his assumed clever "face the consequences" scheme had backfired and had caught not only the most unlikely student in the class, but had caught Beekley also.

Postscript: Bill was awarded a scholarship to study agriculture at the state land-grant university. Following graduation he entered the U. S. Air Force where he became a pilot. During a 20-year career as an Air Force officer he accumulated over 13,000 hours as a multi-engine pilot, including a tour as the personal pilot for the U. S. Ambassador to Greece. During his career, he earned a masters degree in Public Administration and a masters degree in Psychological Counseling. He is a graduate of the Air War College, U. S. Air Force. Following a highly successful Air Force career, he continues as a commercial pilot.