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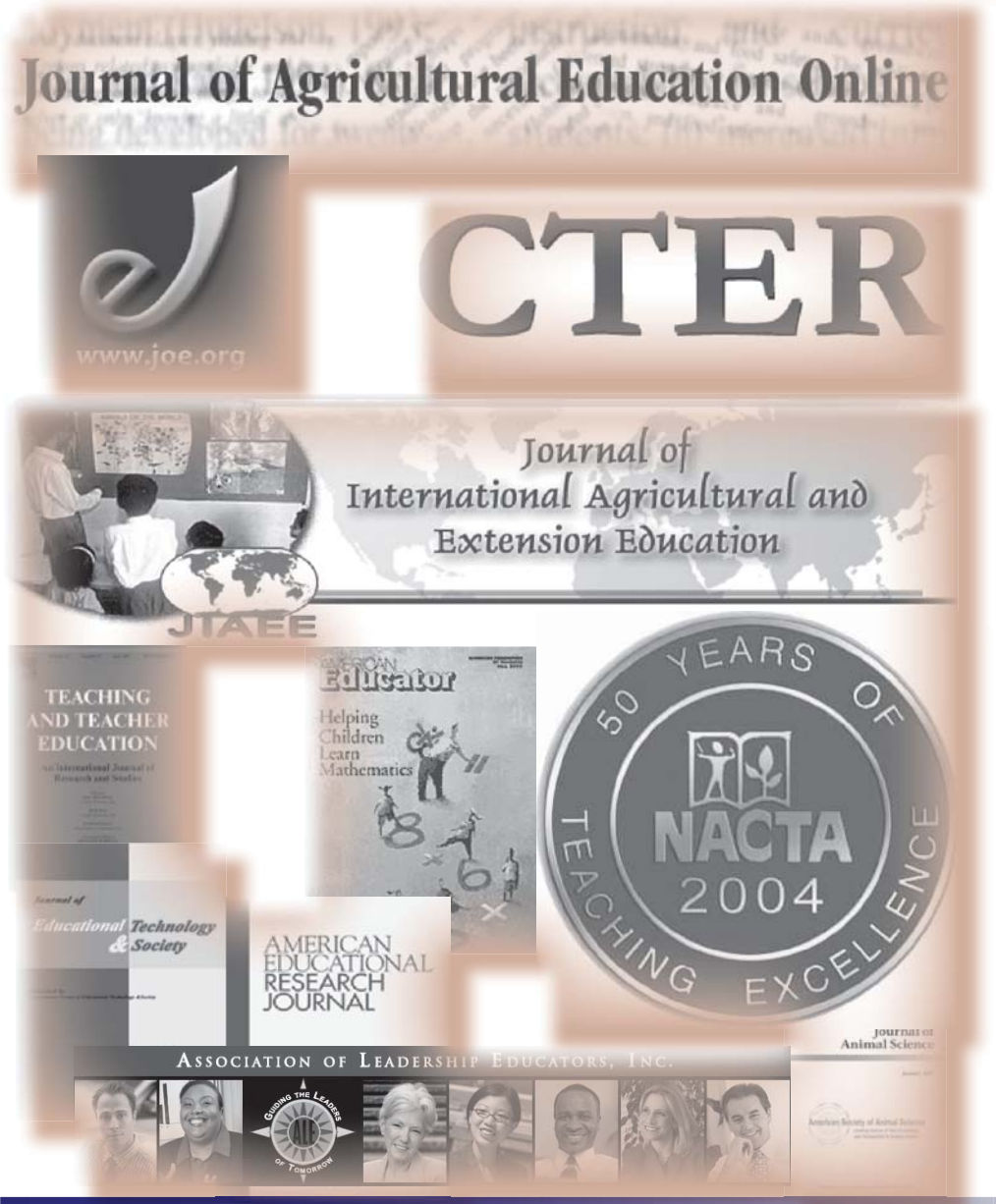

Research is to Practitioners, as Logic is to_____.

Research--What is the point?

By Billye Foster

I have never been a hard core fan of research. I mean, I know we have to do it, and that wonderful revelations and discoveries, for our own discipline, have come from research--it just was ***not*** "me." I am a teacher and a communicator--let *somebody else* do the research. Then I became a faculty member at a land grant university. Research was no longer an option, but still it gained no real status in my eyes--now "they" were making me do research. Sadly, this has been the mindset I have struggled with for the last 14 years.

As we age, thankfully we mature. as we mature our vision changes--both literally and figuratively. Gradually, so slowly it is almost imperceptible, my "view" of research has changed. It has been an education by immersion, and one I did not enter into freely. I have watched colleagues present on research about teaching and learning, and taken ideas and techniques from this research directly into my classroom. I have read articles from other disciplines that directly applied to situations with with I was dealing. I took that information and utilized it in finding solutions to agricultural education situations. In my professional world, research continually tapped at my psyche, never letting me just do my job of teaching.

Ironically, I have felt like research was stalking me--even in my personal life! If I was looking for a new vehicle, what did I do? You guessed it--research. I would look for the type of vehicle, the color, the best mileage, the most room--whatever characteristics I thought I needed I researched. When holidays rolled around and it was time to do some serious shopping, what did I do--research! Who had the best sales, who had the most selections, who wrapped and mailed--the answers to all of these questions required basic research!

Recently I have become enchanted with the idea of podcasting, for use in distance learning classes. Where have I gotten most of my information for this--once again--RESEARCH! Technology is expensive and funding is limited. Without research, much time and many resources can be flushed down the drain because of a poor choice.

Reading the articles in this issue, I have felt validated in many of the strategies and techniques I use on a regular basis. I have also been inspired to try new and innovative things. Somewhere along the way I realized *maybe* research was my thing after all!

Life--it's all about perspective. Enjoy the issue.

Billye Foster is an Associate Professor at The University of Arizona and is Editor of ***The Agricultural Education Magazine.***

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Editor
Dr. Billye Foster, Associate Professor, Department of Agricultural Education, The University of Arizona, PO Box 210036--Forbes 228, 1140 East South Campus Drive, Tucson, Arizona, Phone (520) 621-1523, FAX: (520) 621-9889.

E-mail: billye@ag.arizona.edu

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Theme: Research is to Practitioners as Logic is to _____.

Journal of Agricultural Education Online

Research is to Practioners as Logic is to Detectives

by Gary Moore

It seems that television is overrun with detective shows. There are three versions of CSI alone. Because of shows like CSI, there has been a dramatic increase in students wanting to pursue careers in forensic science. Even in agricultural and extension education, we have played on this theme in developing 4-H camping and FFA activities. It is sort of fun to play detective.

On television, the forensic scientist and detectives have an array of high tech scientific tools at their disposal. They have special lights that can see blood stains. They have specialized software for retrieving information from PDAs, cell phones and computers. You can even buy a 14 item CSI tool kit off the Internet. However, one of the most useful tools to a detective is logic. According to the Free Dictionary, logic is a "system of reasoning."

Detectives have to use logic in their job. Could the suspect have left the party, driven 15 miles, committed the murder, and then returned to the party in 30 minutes? Was the victim murdered where the body was found, or was the body dumped there? What was the motive for this crime? The skillful application of reasoning (logic) is a useful and powerful tool for the detective. Do teachers of agriculture have a similar tool?

Research can be a useful and powerful tool for the teacher of agriculture, just like logic is to the detective. Teachers often have questions that need answers. What are the advantages and disadvantages of block scheduling? What can I do to help students read better? What can be done to get my students to keep notes? How do successful teachers train their CDE teams? Is cooperative learning really as good as people say? Do other teachers experience the same type of discipline problems I am having? Research can provide the answers to these questions.

There are two approaches that a practitioner can take in seeking the answer to questions like those posed in the previous paragraph. One approach is to go to the research journals and read what other researchers have found in regards to these types of question. In this issue, Jay Jayratne and Nancy Gruden-Schuck give suggestions on how the practitioner can be an effective consumer of research.

The second approach that a practitioner can employ is to actually conduct research. When I was teaching high school agriculture, I considered research to be something like voodoo or the rituals of some secret society. I wanted nothing to do with research. Then as I went to graduate school, I discovered that my views regarding research were based upon ignorance, not fact. Research is simply searching for answers to questions. That is it!! Research doesn't necessarily have to be some type of voodoo mumbo jumbo!

However, many teachers consider research to be some type of voodoo mumbo jumbo. That is because a vocabulary of educational research has evolved to enable clear communication among researchers and statistical tests have been developed to verify that the research findings are "true" findings and didn't just happen by accident. The development of a research vocabulary and use of statistics have tended to make some practitioners leery of research. This doesn't have to be the case. We teach our students to identify plants using their scientific names. If our students can learn scientific names of plants, then we can certainly learn some of the basic terminology used in research.

The article, "A Research Primer for Agricultural Educators" attempts to give practitioners the Readers Digest version of the world of research. You will be exposed to some of the tools and vocabulary of research. Teachers can and should be conducting research in their classroom and community. It is not that hard and can sort of be fun. And one doesn't really have to use all the research jargon and statistics that "professional" researchers use. The fact is, just about anybody can do research. Most of us do research every day, but we just do it informally. Sanborn and Ewing's article provides an example of teacher initiated research. The article by Rayfield, based on research, identifies the practices employed by FFA advisors in preparing nationally ranked livestock judging teams.

To an agricultural educator, research should be a useful tool just like logic is a useful tool of the crime scene investigator. And in reality, logic and research are basically the same.

Critical Thinking and Cognition: Questions that Enhance Cognitive Development

Gary Moore,
Professor,
Academic Team Leader and
Director of Graduate Programs
Department of Agricultural and
Extension Education
North Carolina State University

M. Susie Whittington
Associate Professor
Department of Human and
Community Development
The Ohio State University

by M. Susie Whittington

"Pop" Quiz

The teacher says, "Given this unopened, unharmed, 12 ounce can of diet soda, and the equivalent brand name unopened, unharmed, 12 ounce can of regular soda, and this beaker of water, write your hypothesis for the outcome when I gently place both 12 ounce cans into the beaker of water."

The most common hypothesis among Ohio State University students preparing to be high school agriculture teachers is that both cans will sink. This hypothesis, of course, is wrong, but it represents misconceptions about weight, volume, and density. Most importantly, however, the "pop" quiz scenario is one of many examples of a typical failure on the part of students to think critically. The students, when presented the challenge to write a hypothesis, are unaware that stored in their brains is a preconceived thought (12 ounces, is 12 ounces, is 12 ounces), and that before accepting their preconceived thought as true, they must capitalize on opportunities to formulate options, compare the options, and choose the best solution (components of thinking critically).

Teaching Thinking

The power to think critically in order to solve problems is the outcome desired by educators (Bowman &Whittington, 1994). Yet, as early as the 1960s researchers were exploring a potential lack of teaching thinking skills in schools (Raths, et al., 1967). In the 1980s the movement to teach thinking skills exploded into the development of numerous programs, seminars, and courses with teaching thinking as the focus (Swartz, 2000). However, "It really boils down to whether teachers are creating an environment that stimulates critical inquiry" (cited in Carr, 1990, p. 2).

Planning for a Thinking Class Session

To create an environment that stimulates critical inquiry, first, start with this premise, "if teachers can help their students to paint, sing, dance or play chess, they can also help students develop or improve their ability to think critically," (Mohanan, 1997, p. 1). Now, add one additional premise, "…critical thinking is hard" (van Gelder, 2004, p. 2). Then, upon these foundations, start planning a thinking class session.

In a class session where students develop or improve their ability to think critically, the teacher must first plan the class session around daily objectives that expect student outcomes at the higher levels of cognition (Whittington, 2005). By writing higher cognitive level objectives, the teacher is expecting students to achieve at higher cognitive levels. However, the teacher will also be challenged because higher level thinking requires higher level teaching.

Next, the teacher must plan for using a variety of learning activities (Rosenshine, 1983) that are designed to cognitively engage students in the content; thinking is a way of learning content (Raths, et al., 1986). At this point, planning for opportunities to teach for transfer of learning (Newcomb et al., 2004) is important for teaching thinking. "The skills for critical thinking should travel well" (Potts, 1994) and will "travel well", if teachers plan for showing students how a newly acquired skill can be used in various settings.

Finally, the teacher will explore asking the right questions as a strategy for enhancing the thinking skills of students. "The kinds of questions that teachers ask, influence the level of thinking operations in which students engage" (Blosser, 1991, p. 3).

Using Questions for Cognitive Development

In the "pop" quiz example, the teacher presented the scenario and then said, "write your hypothesis…". The teacher, more appropriately, could have presented the scenario and then asked, "what factors should be taken into consideration as you develop your hypothesis"? The second option represents an example of that which Blosser (1991) identified as asking an "open question." Open questions "draw on students' past experiences, but they also cause students to give and justify their opinions, to infer or identify implications; to formulate hypotheses, and to make judgments based on their own values and standards" (Blosser, 1991, p. 4). The cognitive activity required for students to respond to an open question (i.e. justify, infer, formulate, and make judgments) is the cognitive activity referred to by Bloom as thinking at the higher levels of cognition (Bloom, et al., 1956).

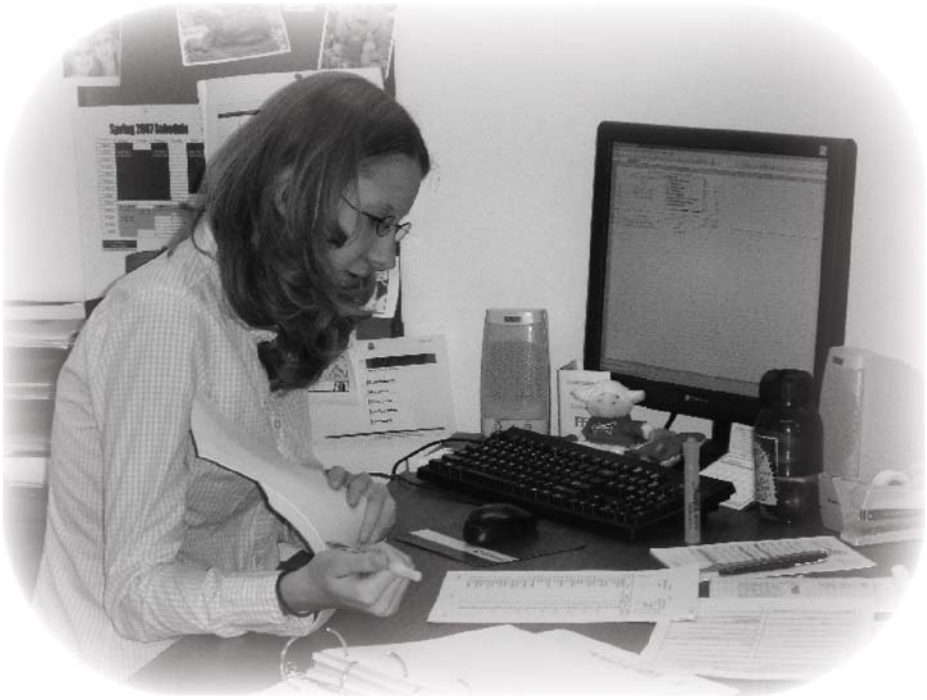
Theoretically, the higher the cognitive level at which teachers deliver course content, the higher the frequency with which students' thoughts during class sessions are engaged at higher cognitive levels, and consequently, the higher the students' potential to process, retain, and transfer the learning. The desire, then, would be for teachers to study their questioning strategies in an attempt to decrease the number of closed, or lower cognitive level questions, while increasing the number of open, or higher cognitive level questions. "This means hard work for teachers" (Carr, 1990, p. 2).

Recognizing Cognitive Questions

Teachers can analyze the types of questions they tend to ask by thinking-through the anticipated responses that the questions will elicit from students. Are the anticipated responses lower level "right answers", or are they higher level exploratory responses? Are the anticipated responses based upon regurgitated information from previous class sessions, or are the anticipated responses taking the course content to a new level? Teachers can also listen to their questions for the use of verbs such as list, describe, and remember to indicate lower level, closed questions. Using verbs such as evaluate, judge, and interpret often indicates the use of higher level, open questions.

Since the desire is to develop students' critical thinking skills during class sessions, students must be asked questions that will evoke thinking at the higher cognitive levels. Therefore, during class sessions teachers can circulate the room and ask students to analyze their ideas (Blosser, 1991) by using similar questions to the following list of example questions adapted from Raths et al. (1986):

- *Would you give me an example of that, please?*
- *Could you summarize*



Good questions--the kind that change a student's critical thinking capacity, don't just happen--they require thoughtful planning.
Photo courtesy of University of Arizona

Research, when focused on improvement of teaching and learning behaviors, benefits us all.

what has been said?
- *What have you heard today that is inconsistent with what you initially thought?*
- *Are there alternatives that we could explore?*
- *How can we begin to categorize that which we have discovered so far?*
- *In the data that we have collected, what are the trends?*
- *From your collection of information, where can you identify support for your idea?*
- *What are your assumptions about what will happen?*

A Goal in Teaching Thinking

Bloom, Madaus, and Hastings (1981) stated that education is a process of change, and that students must be changed in some way through the instruction they receive. A student's change in critical thinking capacity, during class sessions, is directly associated with a teacher's delivery of subject matter content. Thus, a goal in teaching thinking is for teachers to use questions to cognitively engage students such that their capacity to think critically is sophisticated, and will transfer readily to situations that improve their quality of life.

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THEME ARTICLE

Research Cafe~The Salad Bar

A guide for the research-aversive teacher

by Nancy Gruden-Schuck

I teach research and evaluation methods to successful agriculture teachers or extension educators who enter graduate school or take professional development workshops. Some are curious about educational research, but many dread it. To help the research-aversive teacher who wants to become familiar with educational research, I propose thinking about "the literature" as a salad bar.

Thinking about the educational literature as a salad bar is irreverent. It stimulates a sense of humor. It brings research down to earth where it belongs. Research, like salad bars, are created and managed by people who are trying to do a good job. Like most of us, researchers are a varied bunch and the results of their research also vary in quality, relevance, and accessibility. It is good to acknowledge the human quality—and imperfections—in educational research.

There are ten more reasons why educational research could be usefully approached as a salad bar. These ideas might help if you want to transform from a teacher who avoids research to a teacher who takes an active interest in the knowledge-making end of the educational field.

Salad Bar Tips

- ***Take foods you like***. When first engaging educational research, start with things you like. The connection can be a combination of personal and professional. Perhaps there is a new type of student entering your agriculture program in high numbers who speaks a different language and has experienced a different culture. Focus there. Some teachers, who have children of their own in the educational system, find themselves curious about issues and opportunities that their own children face that are also relevant to teaching and learning. This approach can be efficient as well as rewarding and relevant to the agriculture program. When my son was diagnosed with autism in 1998, I scoured the educational literature to learn about this learning disability. This exploration helped me to understand how to work with students with disabilities in the classroom more generally. It was not something I had learned during my agricultural educational program. Our family also explored the educational literature on second and third language learning because our daughter wanted to learn Japanese and German. That literature has helped me as a teacher to work more effectively with non English language speakers. Keeping research personal as well as professional increases motivation and enhances comprehension.

- ***Take as much as you'd like.*** I love educational research. But even I pick and choose. From my view as a teacher educator, if a colleague delves deep into a single type of research with gusto, she or he is learning at a profound level. There is no need to move on. Wait until you are sated. Don't feel that you have to sample everything. Or, if a little bit of enjoyable contact with a form of educational research occurs, congratulate yourself. There is no need to pile it on. The appetite is yours, so the choice is yours. One does not develop a healthy appetite by forcing a particular amount down one's throat.

- ***Take food that's good for you***. Salad bars present the customer with choices that are healthy as well as tasty. Maybe a planned expansion of a land lab or a renovated SAE would benefit from readily-quoted selections from the literature on experiential learning in agriculture. Experiential learning is something we do well in the classroom, but those who are unfamiliar with the benefits of our teaching approach might be persuaded to support our programs more generously if you can show them educational research on the topic. It is not uncommon for boards of education to allow Powerpoint or other presentations, sometimes televised. Key selections from the educational literature would put the presentation on par with presentations from other BOE guests, such as curriculum specialists and facilities contractors.

- ***Take foods you can't prepare at home***. In Iowa, there is interest in restoring prairies and using them as learning sites across the curriculum, including agriculture. But how does one know how to use a multipurpose land lab? The educational literature can provide models that could support a successful collaboration among you, teachers from other content areas, administrators and school grounds staff, and conservation educators to structure learning. This type of literature might not be in the "agriculture education" literature, but instead in the "environmental

or conservation education" field. Keep your eyes out for cross disciplinary educational research that dovetails with agriculture.

- ***Get someone else to try it first.*** Okay: So you ***really*** dislike research. Let someone else try it first. Let them take the first bite. For example, if a colleague is going to graduate school, ask what's new or different in the way of research findings. Charge them with summarizing an interesting article or their own thesis research in a brief presentation during an agriculture teacher association meeting or conference. Ten to fifteen minutes is enough time to summarize one or two key points from a research article.

- ***Talk and have fun.*** I go to buffets and salad bars with family or friends. The experience is half for the meal and half social time. So is dipping into educational research. Show the research to others and—if the article deserves it—have a good laugh at the titles and the jargon. This works even better at conferences and after professional development sessions. Social engagement also plays a strong role in clarifying concepts, raising important questions, and increasing retention.

- ***Get a new plate.*** Don't like the first paragraph? Can't relate to the findings? Stop reading and get a new plate. Not all research is worth reading. Boredom rarely leads to learning. My students always find some type research that is interesting to them—there is so much out there. Until you have built tolerance for educational research, leave the impenetrable on your plate and the server will whisk it away. Get a new plate and start over.

- ***Pay the bill***. There is always a bill. It takes time and resources to access educational research. The main payment is time and frustration. "Access" to educational research means learning the ropes of a particular web search engine, wading through websites, photocopying articles (bring your dimes), and finding quiet time to read (a rare commodity itself). Try to be efficient. Sometimes, the best educational research experience isn't an article but a book. The book may cost $15-$30 and may seem large, but it might summarize a hundred or more research articles and be entertaining. For example, there are several great new books, highly readable, on the new genomics and biotechnology.

> ***"Buffets and salad bars don't stay in business long--even in small towns--if they never change the menu. ... Educational research works the same way."***

- ***Come back another time***. Buffets and salad bars don't stay in business long—even in small towns—if they never change the menu. Most offer new or trendy items from time to time. Educational research works the same way. For a long time, "learning styles" was a frequent topic but "multiculturalism" has now gained strength. If you don't find something interesting right now, keep your eyes open—the menu is likely to change.

- ***Look for coupons.*** There are inexpensive ways to access educational research. Most university libraries have moved from hardcopy journals to electronic access. That's good news for those of us who don't live in a college town. Electronic access is available to the public or to teachers enrolled in or alumni from undergraduate and graduate programs for free or a small fee. Search functions improve annually. Workshops and conferences sometimes offer samples of journals at no cost at trade fair tables. Let faculty at colleges and universities know that you are interested in a topic and they can send relevant articles by e-mail (even dial-up) in PDF, which you can readily print at work or home with free software. It has never been easier to find inexpensive ways to get hold of educational research, but keep your eyes out for the coupons.

Bon appetite!

Nancy Grudens-Schuck
Associate Professor
Department of Agricultural Education and Studies
Iowa State University

How to Become an Effective Consumer of Research in Agricultural Education?

by K.S.U. Jayaratne

As the world is continuously changing agricultural educators must be prepared to change curricula and teaching to meet the needs of the changing world. As Lee mentioned (2006. p.16) *"Making adjustments and coping with environmental changes have allowed agricultural education to continue."* The research based practice is the best strategy to manage change with confidence. We can develop a research based practice by becoming effective consumers of educational research. By being effective consumers of research, we will be able to learn and apply tested theories, practices, and methods in our teaching. *"One factor that has impeded teachers from being active and effective consumers of educational science has been a lack of orientation and training in how to understand the scientific process and how that process results in the cumulative growth of knowledge that leads to validated educational practice"* (Stanovich, P. J. & Stanovich, K.E. 2003, p.4). The purpose of this article is to share some helpful tips for agricultural education teachers to develop consumer skills essential for utilizing research. You don't need to be a researcher in order to be an effective consumer of research.

Realize the Value of Educational Research

Conducting research is a time and resource consuming task. The experts in the profession engage in this endeavor. They disseminate research findings through various means such as professional journals and conference proceedings. There is an enormous amount of knowledge that can be used to enhance teaching and learning in agricultural education. This knowledge base includes areas such as tested theories, instructional methods, lesson planning, learning styles, curriculum planning, and students testing. Most of this research, especially agricultural education research is applied research. That means there is an application or implication of the findings in teaching and learning process. There is a misconception among some of the practitioners that research journals and conference proceedings are mainly for research experts in the profession. The truth is that research journals and conference proceedings are for experts as well as for practitioners. The applied research is of worth and meaningful only if recommendations are used by the practitioners. Learning to utilize educational research is the best approach to make informed decisions in teaching agriculture.

Be a Receptor to New Knowledge

How many of you read regularly read research journals in agricultural education or related fields? If you do not read research journals or conference proceedings regularly, develop a habit of reading research journals as a method of professional development. Consider the benefits you can derive by developing this habit. The most significant benefit is learning about the tested new ideas from agricultural education experts across the country and around the globe. By learning about newly tested ideas you will be able to keep up with the cutting edge of knowledge and apply it to enhance teaching and learning in agricultural education.

Understand the Qualitative-Quantitative Research Culture

Comprehending a research article needs some what of an understanding about the research culture. Some researchers use the quantitative method as their investigating method while others use qualitative methods. Some researches use both methods. The quantitative methods are based on numeric values and use statistical procedures in data analysis. The qualitative methods are based on narrative information. The quantitative articles may demand some knowledge about statistics to interpret results. However, as a reader you don't need to worry about interpreting results. The researchers interpret the results. You can understand conclusions, recommendations, and implications without statistical knowledge. Normally, research articles describe these parts in narrative form. Therefore, you don't need to be a statistician to be an effective consumer of research. If you are not comfortable with statistics use of qualitative research articles may be the best option to start the habit of reading research.

Learn Research Consuming Skills

Learning simple statistics will enable you to interpret most of the research

articles without any problem. Generally, agricultural education research articles use descriptive statistics, t-tests, ANOVA, regression, and correlations. What you need to know is the meaning of these statistics. The descriptive statistics are the percentages, means, and standard deviations of the studying variables. The t-test is the statistical procedure used to decide whether two means are significantly different from each other. ANOVA stands for the analysis of variance. ANOVA is used to test whether three or more means are significantly different. The regression analysis is used to explain the pattern of changing one variable based on one or more variables. The correlation is used to explain the relationship or association of two variables. If you start to read research articles, gradually you will be familiar with the meaning of these statistics. The use of an easy to understand self-explanatory statistic book will help you change your attitudes toward statistics and develop necessary statistical knowledge.

There is a considerable amount of research regarding cooperative learning. Do you know where to find it?

Develop a Habit of Reading Research Articles

Learning to apply research based information will help to build an evidence based practice in teaching agriculture. The application of research based information can be improved by developing a habit of reading and using research information. The motivational incentive for reading research is the professional development. Reading research will develop your professional capacity by gaining new knowledge in areas such as tested theories, teaching methods, and curriculum planning. You need to realize the advantages of becoming a regular reader of agricultural education research. You need to find a little time to allocate for reading research in your busy weekly schedule. Consider this allocated time as your passage for learning to change and improve. If you assign a regular time it will materialize and gradually you will become an active information seeker. Agricultural educators' commitment to read and apply research is essential to build an evidence based practice.

Be Familiar with the Sources of Information

When you want to search an article for reading, the real challenge is selecting it from the vast list of potential sources. The Internet links your access to information around the globe. You should learn to select the information sources that are credible and relevant to professional development in agricultural education. If you know the exact sources to find the research information, you can save time in searching information. Some of the valuable sources of information includes the ***Journal of Agricultural Education***, Conference proceedings of the National Research Conference of the American Association for Agricultural Education, North American Colleges and Teachers of Agriculture, and the ***Journal of International Agricultural and Extension Education.*** You need to look for related journals and other research conference proceedings to broaden the sources of information. Most of these sources of information are available on-line. An on-line search may save you time in locating the research articles you are interested in.

Learn to Get the Main Idea

Once you have retrieved the article that you would like to read, learn to get the gist of the article. You don't need to read the whole article to get the main idea. If you read the abstract you will be able to understand the main idea of the research article. If you find that the article is really an interesting one for your teaching needs, you can read the whole article. However, if you are not sure about the usefulness of the article, then read the purpose and objectives of the article. If you find that the purpose and objectives are compatible with your interests, then you can read the whole article. If you don't have time to read the whole article, then you may read the results, conclusion, and recommendation sections to grasp the essence of the article. This way you will be able to maximize your reading outcomes for your limited available time.

Collecting Research Based Information

If you find the article is really interesting and important, then the most important thing is keeping the record

of the source of information. It is very important to keep this information in detail to easily relocate the article at later time. When you read research articles, focus on the major findings, conclusions and recommendations of the research and look for the possible applications in teaching and learning. If you find applications, you may need to collect that information. It is a good idea to collect useful information as an electronic file with cited sources of information. If you loose the source of information it will take you time to relocate the source at a later time. Sometimes, it is very frustrating to relocate a source of information.

Synthesis and Application of Research

You have collected and summarized research based information. The next step is carefully reading your own summaries to understand the overall recommendations and applications of the research that you reviewed for your need. When you review research summaries you may find contradicting views as well as supporting views to the main idea in which you are interested. Reviewing different perspectives is important to get a balanced view about the application of the new idea or practice in your agricultural education program. After carefully reviewing research based information collected from a range of articles you will be able to draw your own conclusion to apply or not the idea in which you are interested. If you decided to apply the new idea, it is always good to explore more information on the topic to closely monitor the application of your idea for improving the agricultural education program. If you find encouraging results you may integrate the new idea into the program. If you find some issues or concerns you may need to research for further information. By engaging in this process of research based practice not only will you become an effective consumer of research but also become an action researcher. *"Action research is research into one's own practice that has, as its main aim, the improvement of that practice"* (Stanovich, P. J. & Stanovich, K.E. 2003, p.20).

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K. S. U. Jayaratne
Department of Agricultural and Extension Education
North Carolina State University

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Theme: "Eenie, Meanie, Minie, Moe...Pick the Curriculum that best fits Joe!"

With the plethora of curricula available today, how does a teacher know what to use? How do you match curriculum to a program? Should teachers only use curriculum produced in their home states? How does the curriculum you choose affect the teacher you become?

Theme Editors:

Sarah Osborne-Welty
Agriscience Teacher
Walkersville High School
81 Frederick Street
Walkersville, Maryland 21793

sowelty@yahoo.com

and

Jim Knight
Professor
Agricultural Education
The University of Arizona
PO Box 210036
Tucson, Arizona 85721

jknight@ag.arizona.edu

Articles due to Theme Editors: *July 15, 2007*

Using Research to Build Competitive Career Development Teams

By John Rayfield

Training students to compete in career development events (CDEs) is a time consuming and challenging task for all agricultural education teachers. Yet, this form of experiential learning can be one of the most beneficial lessons for students. Participants in CDEs are able to showcase the knowledge and skills they have acquired in a classroom setting through a competitive venue. This article will provide insight into using research to train CDE teams so this task will be less daunting for new professionals in our field.

Career development events are a classic example of experiential learning. Conrad and Hedin (1981) defined experiential education as "educational programs taking place outside of the traditional classroom where students are in new roles featuring significant tasks with real consequences, and where the emphasis is on learning by doing with associated reflection" (p.11). The benefits of experiential education were realized in the late nineteenth century. The movement gained support from such prominent educators as Johan Pestalozzi and Frederick Froebel who argued that the most effective learning could only be achieved through doing (Weatherford and Weatherford, 1987).

Weatherford and Weatherford (1987) noted several reasons why experiential programs such as FFA can help adolescents develop life skills. Experiential education incorporates key elements of life skills such as problem solving, critical thinking, inter- and intra- personal skills, and connecting youth with adults and the community. An effective feature of experiential education is that it incorporates the cognitive, affective, and psychomotor spheres of learning (learning by doing). The model of learning provided by experiential education is consistent with the stages of human growth, because it allows for learning to occur appropriately for the learning style and developmental level of the individual.

> ***"The model of learning provided by experiential education is consistent with the stage of human growth, because it allows for learning to occur appropriately for the learning style and development of the individual."***

A research study of the 2005 National FFA Livestock Career Development Event reveals many interesting concepts that teachers could use in training students for this or many other CDEs. A panel of experts which consisted of the coaches of the top five teams at the National FFA Livestock CDE from 1999 – 2004 assembled the practices that they considered most useful in training teams. The following practices reached a high percentage of consensus among the panel of expert teachers and were identified as the most useful practices in training livestock CDE teams:

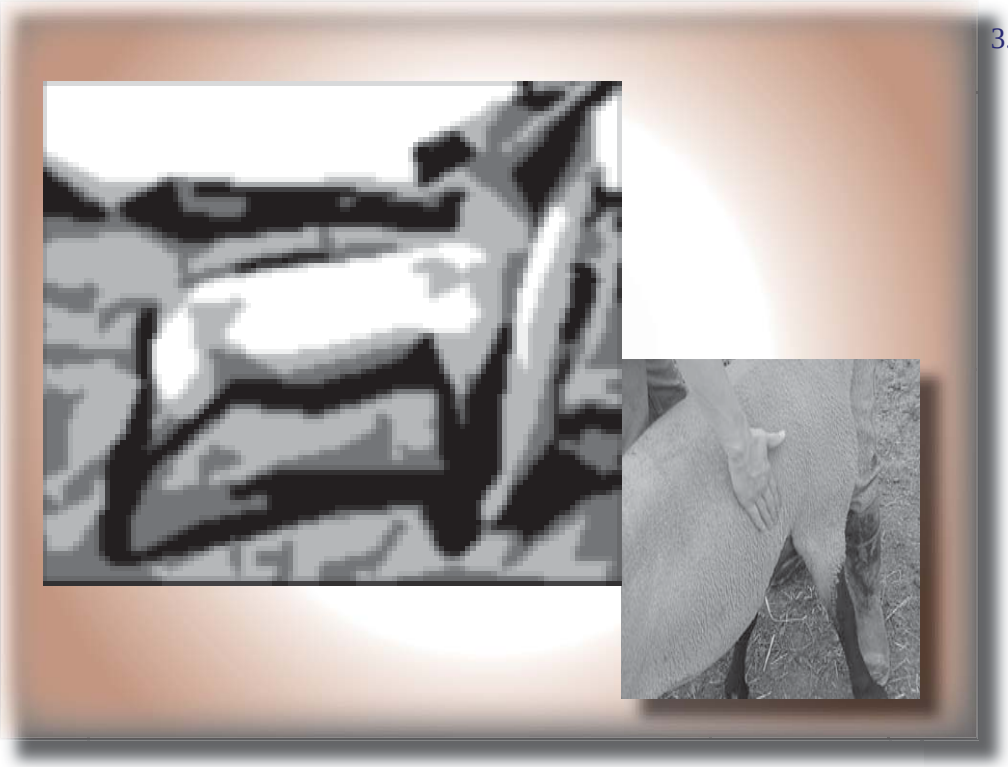
1. Live animal practice,
2. Participate in practice contests,
3. Take notes for oral reasons,
4. Learn basic livestock anatomy,
5. Livestock judging terminology review, and
6. Learning the breeds of livestock.

Items that failed to reach consensus among the group of teachers were:

1. Teach a livestock judging class,
2. Read appropriate textbooks,
3. Practice livestock evaluation year round,
4. Judge internet classes of livestock, and
5. Attend local livestock sales.

The training practices identified by the panel of expert teachers were used to develop a survey instrument that was administered to the participants of the 2005 National FFA Livestock CDE. The participants were asked to rate how beneficial certain training practices were in their preparation for the CDE. According to the participants, the following training practices were the most beneficial:

1. Live animal practice,
2. Giving oral reasons, and
3. Attending practice contests.



Research has identified the training practices utilized by advisors of the top ranked FFA livestock judging teams in the country.

The training practices that were least beneficial to participants include:

1. Video livestock judging practice,
2. Attending livestock judging summer camps, and
3. Judging pictures of livestock.

Out of curiosity, the researchers decided to correlate training practices with team emblems earned at the 2005 National FFA Livestock CDE. The training practices that were most highly correlated with team emblem based on total team score were:

1. Working out with college livestock judging teams,
2. Attending livestock judging summer camps, and
3. Attending practice contests.

The training practices receiving the lowest correlations with team emblem were:

1. Livestock terminology review,
2. Video livestock judging practice, and
3. Judging pictures of livestock.

The final phase of the project was to identify training practices that could predict team emblem. This was accomplished by using a regression model to analyze the training practices that could predict team emblem based on total team score. Two training practices yielded significant results as predictor variables for success in the 2005 National FFA Livestock CDE. Working out with college livestock judging teams was the best predictor of team success. Although video judging practice was a significant predictor, it had negative impact on .

In training judging teams, there seems to be a couple or overriding themes. First, practice makes perfect! The teachers in this study were in strong agreement that:

1. Live animal practice,
2. Practice contests, and
3. Giving oral reasons were very important in the training process.

This goes hand-in-hand with the "Learning to Do, Doing to Learn" philosophy we frequently refer to in the FFA Motto. Nothing beats the real thing. When comparing the higher consensus items identified by the expert teachers such as: Live animal practice and participating in practice contests with the lower consensus items such as: Reading appropriate textbooks, this fully supports Dale's Cone of Learning (1969). After a two week period, we tend to remember 10% of what we read and 90% of what we say and do. Simulating the real experience and actively participating in the real activity seems to provide a much broader understanding of the entire concept. These techniques are what make the discipline of agricultural education so unique.

Second, knowledge is power. Knowing the breeds of livestock, livestock terminology, and livestock anatomy were items that reached high consensus.

According to the teachers, it is important for students to possess this knowledge in order to participate at the highest level of competition. Therefore, teachers must do a good job teaching this information if they are to train successful CDE teams. This has implications for both the design of curriculum and methods of teaching. Based upon these items it does appear the livestock CDE does reinforce what is taught in the classroom and gives students an opportunity to apply the knowledge they have gained.

...continued on page 23

Summertime....

As I began working on this piece of the magazine, it struck me once again, how something this simple seems to be so challenging. When I decided to start the Inclusion Corner, I thought it would be a snap. Like most of us, I tend to think I could fix all the problems of our profession, if I just had a platform. So now I have a platform. AND I have realized that fixing things, I mean REALLY fixing things takes time and committment.

You are agricultural educators because you made a choice. I think most of you made that choice because you believe in kids. It is not uncommon to hear an agricultural educators say things like, "Wow, this kid is great, I can't believe the potential..." or " I am so lucky, I have the best students in the world." These comments are made about all students, all genders, all races and ethnicities--the short ones, the tall ones, the slow ones and the fast ones--teachers believe in all their students. This column offers yet one more way for you to connect and lift your students to a higher level of being. A level that allows them to appreciate each other and embrace all that is brought to the table.

Recently I was browsing Teaching Tolerance (http://www.teachingolerance.org) again. I want to share one of their activities and urge you to visit the site yourselves.

Writing for Change

"Language is a paradoxical tool – we use it consciously to shape our thoughts and experiences, yet patterns and structures in the language itself can shape us in return."

This web site offers a variety of lessons and activities. The material is free and there are some wonderful documentaries and ideas. *Writing for Change* addresses the issue of bullying. The site offers 10 minute activities, 50 minute activities, and more. It allows you to expose the bias in language, that we often use without thinking.

What follows is an example of one of the 10 minute activities....

1.1 Questioning "Order"

Objectives:

- Encourage students to develop an awareness of hierarchical ranking in language.
- Help them examine assumptions about the "natural order" in gender relationships.

Materials Needed:

- Copies of the handout

Time Needed:

- Five to ten minutes

Instructor Notes:

- Have students write individual explanations for each phrase.

OR

- Have students diagram or sketch the relationship among the words in each phrase.

Although the handout and other materials are available online at http://teachingtolerance.org, what follows is a copy for your perusal.

HANDOUT

Directions: Read the following phrases and note the mental images they invoke. Jot down a descriptive word or phrase to describe each.

- his and hers
- male and female
- Romeo and Juliet
- M/F
- sons and daughters
- George and Gracie

- man and wife
- King and Queen
- boys and girls
- Jack and Jill
- brother and sister
- men, women and children

Now reverse the order of the words in each phrase. Examine the mental image of the new order and answer the following questions:

- How do your impressions and images change with the change in order of the words?
- What assumptions are inherent in the placement of male-gendered nouns and pronouns in the first position in the list?

VARIATION

- Diagram or sketch the relationship among the words in each phrase.

This is just a taste of the many easy to use activities for your classes. Ten minutes once a week or even once every two weeks is not much time to invest in a bright, more accepting generation of people to run our planet and produce our food and fiber.

Invest in our futures!

Billye

THEME ARTICLE

Determine Your Program's Direction: *Conduct a Needs Assessment*

By Melanie A. Sanborn & John C. Ewing

What does your agricultural education program do well? What are some areas that your program could improve upon? As an agricultural education instructor you could probably rattle off a list for both of those questions. However, have you taken the time to ask others whom are impacted by the program what their answers are to those two questions? Have you determined their wants and needs of the program? In a time when students, teachers, and schools are being held accountable for their actions, it seems there is no better time than now for agricultural education instructors to examine stakeholders' wants and needs through a *needs assessment*. The needs assessment does not require complicated statistics to provide important and reliable information about your program.

Why conduct a needs assessment? Beyond using the information as a source to open discussion with stakeholders of the program and meeting standards set forth by funding or educational agencies, the needs assessment is a useful tool in identifying the strengths and weaknesses of a program and to help clarify the vision of the program. This investigation into the program does not need to be complicated, but the right questions must be asked of the right people if the results of the assessment are to be of any value. Areas to consider when conducting a needs assessment for an agricultural education program include student demographics, curriculum and instruction, FFA, SAE, and the school organization. Various groups must be considered when collecting input. Teachers, administrators, counselors, parents, local industry, advisory council members, and students should provide input. Some of these individuals will be asked to provide their wants and needs of the program, while others may be asked to provide information related to the students, school, or district.

Agricultural education instructors are busy people and adding a formal needs assessment to their agenda may not be very appealing. Therefore, teachers should enlist the help of community members, other teachers, and administrators to build a committee that will be responsible to gather the necessary information. The program's advisory council could also serve in this capacity. The committee oversees the process and decides how to gather pertinent information from the stakeholders, and may also be responsible for data analysis and reporting following the study.

The Process

Beadle de Palomo and Luna (1999) wrote out a six step process in designing a needs assessment. Their process for conducting a needs assessment is outlined below.

Steps in designing the needs assessment:

1. determine the purpose and objectives of the needs assessment
2. identify available resources to help conduct the assessment
3. understand and agree upon roles and responsibilities of the committee
4. determine the research questions to be answered
5. develop the methodology for collecting and analyzing the data
6. establish a realistic timeline and workplan (Beadle de Palomo & Luna, 1999).

It is important to have a plan and a list of goals that you are trying to fulfill by doing a needs assessment. By laying out a plan and creating steps to complete your needs assessment you can be sure that the process will be organized, kept on schedule, and the answers address the questions you set out to answer.

Techniques Used in Information Collection

Now the question becomes, how is the information gathered for a needs assessment? There are many approaches to gathering information through a needs assessment. Some are easier than others but all have advantages and disadvantages. When conducting a needs assessment one must remember that not all approaches may be appropriate for each stakeholder group. Individual programs will need to decide what approach best suits their needs. Some groups may decide to use different approaches at different stages of the needs assessment to help get the full spectrum of information. Four needs assessment techniques, their implementation strategies, advantages, and disadvantages are outlined in Table 1.

Table 1: *Four Needs Assessment Techniques and Their Advantages and Disadvantages*

	Implementation	Advantages	Disadvantages
Key Informant	• Compile a list of "key informants" • Construct instrument and collect data • Organize and interpret data	• Easy and inexpensive • Build rapport with community	• Data may only come from specific organizations (Bias)
Public Forum	• Develop list of discussion questions • Select meeting place • Publicize meeting • Appoint discussion leader	• Diverse participants • Identify real problems	• Requires good leadership • Representation of all community groups may be difficult
Nominal Group Process	• Members write ideas on paper • Members share ideas • Ideas are discussed and evaluated by group • Silent ballot to prioritize ideas • Group priorities tallied and discussed	• Group makes decisions • Many ideas in a short amount of time	• Difficult with large group • Representation of all community groups may be difficult
Survey	• Implemented in various ways (interviews, mailed questionnaires, telephone interviews, self-administered questionnaires	• Information comes from many individuals • Can include the entire population	• Costly • Limited scope of data • Data can be misinterpreted

Adapted from Carter and Beaulieu (1992).

Using the Results

When determining how to use the results of the needs assessment one should examine the original purpose of the needs assessment. If the purpose was to determine the strengths and weaknesses of the program, then the results should be used to begin working on solutions for weak areas of the program. For example, if students, community businesses, and university partners believed that the curriculum was relevant; little work may be needed in this area. However, if the students felt that the instructor was not delivering the information in a way that was easy to understand then the instructor may want to focus on improving delivery of the content.

The results can also be used to show prospective supporters, or current funding agencies and government officials, what the program is doing to meet the needs of the students and how they plan to improve their program based on the results of the assessment. A plan should be developed by the committee and the instructor that outlines how the results will be used to improve the program to better meet the needs of the students in the program.

Conclusion

One effective way of determining the needs of an agricultural education program is by conducting a needs assessment. Using resources available on the Local Program Success CD and the National FFA website can lessen the amount of time involved in creating documents for use in the assessment. Stakeholders in the program want to know that students are receiving a quality experience. By conducting a needs assessment, the program demonstrates its willingness to find out what individuals and groups want in their program. Once the information is collected, agricultural education

instructors can make changes that will help meet the needs of their students; thus, making the program the best it can possibly be.

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John C. Ewing
Assistant Profess
The Pennsylvani
State University

and

Melanie A. Sanborn
Graduate Research Assistant
The Pennsylvania State University
photo unavailable

What should be taught in Agricultural Mechanics? Should your school even be teaching Agricultural Mechanics? A community needs assessment could provide the answers to these questions.

A mind that is stretched by a new experience can never return to its original dimensions.

~Oliver Wendell Holmes, Jr.

THEME ARTICLE

A Research Primer for Agricultural Educators

by Gary Moore

When Dr. Ralph Bender offered me a graduate assistantship at Ohio State some years ago, I said yes but there were three conditions that had to be met:

1. The assistantship had to start on July 1.
2. The assistantship had to pay a certain amount.
3. The assistantship had to involve teaching, not research.

The third condition was the key condition. I did not want to do research. As a high school agriculture teacher I was suspicious of research. To me research was like some type of voodoo mumbo jumbo. There was no rational reason for my views other than the fact that I didn't know much about research. We tend to fear those things that we don't know about. Fortunately, Dr. Bender agreed to these conditions, so I started my graduate career at Ohio State.

I was soon enrolled in an introductory research course, and discovered that research was not all that scary. As a matter of fact, it was sort of interesting and could even be enjoyable. The first research course was followed by several others. I ended up getting a minor in research and statistics as part of my doctoral program.

I believe the reason many agricultural educators have views toward research similar to those I had as a teacher is because they don't understand some of the terminology used in conducting research and are confused by the statistics that are often associated with research studies. The purpose of this article is to try and simplify the world of research. As professional educators, we should possess some knowledge of research and research methodology. It is the mark of a professional educator.

What is Research?

Research is simply searching for answers to questions. That is it!! In order to do quality research there are some established procedures to be followed, but basically research is seeking answers to questions or problems that we may encounter. If students do poorly on an exam, we try to figure out why. Did the students study for the exam? Did I do a poor job of teaching the material? What should be done differently next time? The goal of research is to find answers to questions.

The Research Question

One of the first steps in conducting research is to clearly state a research question. Exactly what is the problem that needs to be studied or what is the question that needs to be answered? It is hard to conduct research if one does not clearly know what he or she is researching. Examples of research questions might be:

1. Does assigning homework result in students scoring higher on unit exams?
2. How do other agriculture teachers who are on block schedules utilize class time?
3. What are the reasons students give for not wanting to have a SAE program?

In identifying the research question, it is important to consider several factors.

- Is the topic significant? In other words is this problem really worthy of study. Often students in graduate school who have to conduct research as part of a class assignment seem to pull topics out of the air that are not really that important. The question should be worthy of study.
- Is the research feasible? Does the researcher have the time and money to conduct the study? One doesn't want to start a research study and then abandon it because of time issues or cost.
- Is the research question written so that it is researchable? Some research questions may be worded so broadly that it is impossible to answer the question. Does cooperative learning work? This question is way too broad and is not a good research question because work can be interpreted in a variety of ways. This question needs to be refined.

Some researchers take the research question and convert it to one or more research objectives. An example would be: "The purpose of this research is to determine if assigning homework in agricultural education results in higher test scores on unit exams." The decision on whether to have a research question (or questions) or research objectives is a matter of personal preference.

Review of the Literature

After the research question is written or as part of the process of writing the research question, the researcher should

"review the literature." What this means is the researcher should see what others have discovered or written about the problem. This is accomplished by searching through journal articles and electronic databases. It is possible that someone else has already researched the problem or a similar problem. A thorough review of the literature can save the researcher time in the long run and may provide ideas for additional research questions.

There are several sources of information that agricultural educators need to know about. The *Journal of Agricultural Education* can be found online at http://pubs.aged.tamu.edu/jae/. This is the primary research journal in the field. Additionally, agricultural educators should be familiar with ERIC and AGRICOLA. ERIC (http://www.eric.ed.gov/) is a government sponsored database that contains over 1 million articles and documents related to education, including agricultural education. AGRICOLA (http://agricola.nal.usda.gov/) is a USDA sponsored database that contains articles and documents from the fields of agriculture and education. Searching these sources for information should be an early step in the research process.

What are the Different Types of Research?

Just as there are different methods that can be used in teaching, there are different approaches to research that can used. The research question that is asked often determines which type of research should be conducted.

Descriptive Research is a type of research used to describe the characteristics, attitudes, beliefs or other attributes of a group. Since survey instruments are often involved in collecting descriptive data, this type of research is often called survey research (but one could also collect data through observations). Descriptive research focuses on "who, what, when, where and how". Some questions that agricultural educators could answer through the use of descriptive research are:

- *How many of my students live on farms?*
- *Why do some students choose not to join the FFA?*
- *What are the career aspirations of my students?*
- *What type of teaching facilities do other agriculture programs have?*
- *What is the attitude of my students toward organic farming?*
- *What do students think of my teaching?*

Descriptive research can easily be conducted by agricultural educators. Since some type of survey instrument is often involved in collecting the data, it is important that care be used in constructing the instrument. It is prudent to have several other people look over the instrument before it is used to make sure the questions are clear and understandable. It is surprising how often people may misinterpret a question or answer it different than expected. If possible, the instrument should be field tested with a small group of people to insure that the instrument performs as expected. This process will help make the instrument valid (it measures what it is supposed to measure) and reliable (it yields the same type of results each time it used)

A thorough review of literature can save the researcher time in the long run.

Experimental Research is a type of research in which the researcher desires to see if some type of "treatment" is better than another type of "treatment." The "treatment" could be a teaching method, incentive, curriculum, computer program, etc. In experimental research, three conditions must be met. They are:

1. There is a control or comparison group
2. Students are randomly assigned to groups
3. The "treatment" is randomly assigned to groups.

Assume a teacher wanted to determine if different incentives

would motivate FFA members to sell more fruit in a fruit sale. The teacher randomly assigned the 120 FFA members to one of three groups and then randomly determined the type of incentive each group would receive. Group 1 members received a commission on every box of fruit sold. Group 2 members received prizes. When they sold a certain number of boxes, they received a predetermined prize. Group 3 members received no incentives and served as the control group. At then end of the sales period, the total number of boxes sold was tallied to see which group sold the most. Thus, the teacher was able to determine which incentive was the most effective in motivating students to sell fruit. Basically in experimental research, the teacher is attempting to see if some type of treatment has an effect on the outcome.

Quasi-Experimental Research is a type of research that is very similar to experimental research except for the fact that students cannot be randomly assigned to groups. The researcher has to work with existing intact groups. This is common in schools. A teacher might have two existing Horticulture I classes. The students have already been assigned to the classes by the administration. The teacher might want to see if a new video series on plant ID is better than the traditional PowerPoint lecture that has been used. So the teacher randomly decides that the 3rd period Hort I class will be taught using the videos and the 4th period Hort I class will be taught using the traditional approach. At the end of the instructional unit, scores on a plant ID test will be compared to see if there are differences in the two approaches to teaching. All of the conditions of experimental research are met except that students are not randomly assigned to the groups.

Ex Post Facto Research could be called "after the fact" research. This is a type of research when data is collected after the "treatment" has occurred. Because of ethical or logistical reasons, the "treatment" can not be assigned to students in advance. For example we can not make half of the incoming students be in the FFA and forbid the other half from joining the FFA.

Examples of questions we might want to answer from ex post facto research are: Is there a difference in student achievement in agricultural classes according to the gender of the student? Is there a difference in scope of SAE programs according to the socio economic class of the student? Is there a difference in FFA participation according to student ethnicity?

In the three examples above, the variable of interest –gender, socioeconomic status and ethnicity cannot be manipulated. We have to study the possible effects of the variable in an "after the fact" manner. Thus we conduct "ex post facto" research. This type of research is also known as casual-comparative research.

Correlational Research attempts to determine if there is a relationship between two variables. Some examples of research questions that illustrate correlational research are: Is their a relationship between FFA involvement and the distance the student lives from the school? Is there a relationship between a student's overall high school GPA and their achievement in agricultural class? Is the number of hours students work at part-time jobs related to their grades?

In the above questions, the researcher would collect data and would then calculate a correlation between the two variables under study to answer the question. This can be done in Excel. The primary caution to follow in conducting and interpreting correlational research is to avoid making claims that one factor causes the other. It is permissible to say that a relationship exists but we can't say with confidence that one factor caused the other. There could be other explanations for what is being observed.

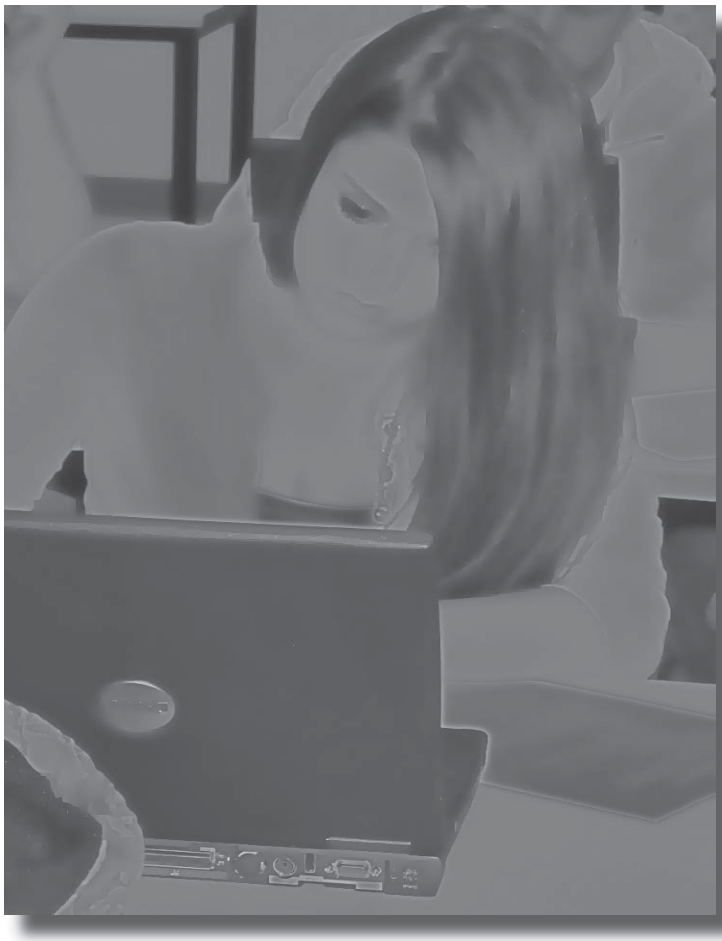
Other "Types" of Research

There are a variety of ways in which one can classify research. Some of the classification schemes overlap each other and some types of research are actually subsets of a specific category of research. So it is possible to conduct a research study that could be identified by several different names. The most common types of research that could fit into some other category follow:

Action Research is a term used to describe research conducted by practitioners in actual educational settings. A teacher could conduct an experimental research study and call it action research because it is done in the school setting. There are a variety of online journals that publish action research.

Historical Research is a type of descriptive research that describes events, people and things from the past. The approach and concerns in conducting historical research are different from those in typical descriptive research.

Ethnographic Research is a type of research in which the researcher goes out into the "field" and makes observations. This type of research is often conducted by sociologists and anthologists who are concerned with how organizations and societies operate. This type of research is also practiced in education. A trained observer sitting in the back of a classroom, can answer a multitude of research questions such as: What behaviors do effective teachers exhibit?



Does the use of laptop computers in the classroom enhance learning? This is a research question that could easilty be addressed by the agricultural teacher/researcher.

Do males and females participate equally in science based classes? What are the typical disruptive behaviors found in agricultural classes?

Qualitative versus Quantitative Research

Still another way to classify research is to classify it as qualitative or quantitative research. Quantitative research involves "hard" data in the form of numbers and statistics. The researcher uses tables and graphs to present the research findings. Often this type of research involves large number of subjects and utilizes predetermined research procedures that cannot be changed. To some educational research purists, this is the only "true" research.

Qualitative research is characterized by using narratives to report the research findings. The data is often collected through observation, personal interviews or utilizing focus groups. The researcher attempts to communicate the findings by summarizing what was said or done. The researcher goes into great detail describing how he or she interprets what was observed or stated. Qualitative research reports frequently do not contain tables or statistical tests. Qualitative researchers often believe their research results in a greater understanding of the problem being investigated.

In reality, both types of research can be valuable provided the researcher follows the accepted standards for conducting that particular type of research. There is room for both qualitative and quantitative research in agricultural education.

Collecting Data

After the researcher settles on the research question, reviews the literature, and determines the type of research to conduct, the next step is to collect data. For experimental studies, the researcher will need to determine how to conduct the study and identify the types of data to be collected. For descriptive studies, the data collection process may be as simple as having students fill out a survey instrument or pulling grades out of the grade book.

If the research is descriptive and involves collecting data from a large group of people the researcher might want to consider using some type of sampling process. It is not necessary to collect data from everyone in the entire population being studied. The researcher can consult a chart or table where statisticians have calculated how large a sample should be in order to be representative of a larger population. One such sampling tool can be found at http://www.surveysystem.com/sscalc.htm.

After determining the sample size, the researcher then randomly selects individuals from the population being studied. Those selected are then contacted by e-mail, phone, personally or by mail and asked to provide the requested information. At this stage of the process, a major concern is to obtain a high response rate. Some of the techniques that help in increasing response rates for surveys include timing the survey to arrive early in the week, including a self-addressed stamped envelope, printing the survey in booklet format, and having a cover letter signed by a person of significance to the responder.

Findings, Conclusions and Implications

After the data are collected, the next step is to analyze the data. For descriptive studies and simple experiments, the teacher might count the number of responses for each category and/or calculate averages.

Or the teacher could just look over the results to see if there are any discernible trends. One doesn't have to use sophisticated statistical analysis. Using a little common sense and "listening" to what the data says, is all that is needed for much of our research. If the goal of our research is to find an answer to a question, we will have accomplished that purpose.

If the goal of our research is to publish the results in a journal, then we may need to add the academic parsley of statistics to make the research more palatable to the sophisticated researchers in the profession. Selecting and applying statistics is not hard, but is outside the scope of this article.

The final step in conducting research should be to say "So What?" What conclusions can we reach? As a result of what we learned from the research, what should we do differently? What are the implications of the research? What type of changes do we need to make? Hopefully, we can improve the process and product of agricultural education through research.

Conclusion

We can all be involved in conducting research in agricultural education. There is no magic potent or secret incantation involved in doing research. In an article in the *American Vocational Journal* in 1996, one of the giants of the agricultural education profession, H. M. Hamlin (p. 14), stated that "…*research is an unusually stubborn and persisting effort to think straight which involves the gathering and the intelligent use of relevant data*." Agricultural educators have a reputation for thinking straight, and many of us are stubborn and persistent, so we have the qualities needed to be good researchers.

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Gary Moore,
Professor,
Department of Agricultural and Extension Education
North Carolina State University

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When examining the training practices most highly correlated with team emblem, working out with college teams was the only moderate correlation. This training practice was also a significant predictor variable of team emblem. It is not possible for some FFA teams to workout with college teams, however, the teams that did have this luxury in 2005 seemed to have an advantage over the other teams in the field. Teams that relied heavily on video judging practice were at a disadvantage in the 2005 CDE. These are merely predictors and are not ultimately the key to success or the reason for performing poorly in the contest.

It is important to note that this study is not merely a recipe for winning the National FFA Livestock CDE. There are many useful recommendations for professionals to put into practice. Our teaching is of utmost importance to convey the basic concepts students need to perform at a high level in CDEs. We must teach these concepts to all students and not selectively teach the contest to CDE team members exclusively. As educators, we must realize that some of the training practices that work well for some teachers may not be a viable training method for other teachers. There are geographic, socio-economic, and social factors that could limit or eliminate possible training practices for some teachers. With continued research into the impact of CDEs on student learning and achievement, we will hopefully continue to see research become a more useful tool in training students to compete in all levels of career development events.

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John Rayfield,
assistant professor
Department of Agricultural and Extension Education at North Carolina State University.

The Premier Educational Delivery System

THEME ARTICLE

by Jack Elliot and Jim Knight

Career and Technical Education (CTE): CTE is the premier educational delivery system in the world. It addresses all learning styles by employing pedagogical strategies that embrace all of the multiple intelligence areas and incorporates the latest in brain-based research. In fact, CTE educational strategies are utilized in the top 30 academic schools in America. The following chart emphasizes the relationships among CTE and other well known efforts.

If retention of material and reaching all students is the educational purpose of our schools, then utilizing the most effective learning strategies is essential. Those strategies are found in Career and Technical Education: The Premier Educational Delivery System.

Jack Elliot and Jim Knight are Professors in the Department of Agricultural Education at The University of Arizona

Delivery Efforts	Content	Application	Motivation
Career & Technical Education	Technical Instruction (Classroom)	Experiential Development (Laboratory & Work Based Learning including educational home visits)	Personal & Leadership Development [Intra-curricular] (CTE Student Organization)
Domains of Learning	Cognitive	Psychomotor	Affective
7-Habits of Highly Effective People, Stephen R. Covey	Knowledge	Skill	Desire
Center for Occupational Research & Development (CORD)	Academics	Skill Building Hands-on	Character Building
National Governor's Association Educational Plan	Rigor	Relevance	Relationship
Academic Classes	Content Delivered	Oftentimes Not Applicable	Oftentimes Not Applicable

THEME ARTICLE

I want to be one of "those" teachers.... How do I do it?

by David Jones

We've all seen them. We've all wanted to be one of them… one of "those" teachers. A teacher that does a great job in the classroom, has students who love being in their class and who are always doing something new and exciting. We all have the potential to become one of "those" teachers, but how do we do it?

In most educational systems throughout the nation, professional development is a required component of the work place. Students receive days off from instruction so teachers can participate in professional development activities. These professional development activities termed, "in-services" or "workshops" are typically geared toward issues administrators believe are important or "crucial" to the educational goals of the system. Often, professional development topics are not relevant to the teachers they are supposed to be serving, wasting educational resources like time and money.

Recent studies of teacher effectiveness in the classroom using the Tennessee Value-Added Assessment System and a similar database in Dallas, Texas, have found teacher effectiveness is a strong determinant in student learning, far outweighing the effects of differences in class size and heterogeneity (Hammonds, 2000). In this same study it was found that low-achieving students increased their achievement by as much as 53% when taught by a highly effective teacher. So how do we become one of "those" teachers?

A study by Wenglinsky (2000) found that students whose teachers had received professional development on critical thinking and other higher order thinking skills were 40% of a grade level ahead of their peers whose teachers had not received the professional development training.

"...it was found that low-achieving students increased their achievement by as much as 53% when taught by a highly effective teacher."

Some fundamental characteristics in professional improvement plans to ensure its effectiveness includes:

- A focus on teacher and student performance;
- Flexibility, experimentation, and risk taking, rather than prescribed lockstep behaviors or punishment for failures;
- Realistic time estimates for changes in practice.
- Teachers need sufficient time to be able to learn, plan for, and try out new skill approaches.
- They need to reflect on their success with helpful coaches; revise, retry, and learn more; and get ongoing support for their efforts;
- Support of official leaders who know what to expect and how to be of assistance.

Realizing that you want to become better professionally is the first step in becoming one of "those" teachers. Instituting a program that aims at increasing a teacher's effectiveness is not always easy. Traditionally, many professional development activities have been a "one-shot-forgot" activity. For the greatest impact on teacher effectiveness the teachers professional development program will need a change from this current "one-shot" thinking and incorporate other methods of spending ones professional time.

Professional improvement activities need to be developed for the teacher by the teacher. Teachers need to develop activities that will help them achieve their professional goals. For a teacher to improve, the teacher needs to reflect on his or her own needs and concerns. These needs will vary from teacher to teacher and can be as basic as classroom discipline issues to the more complex like how to promote critical thinking in the classroom.

The teacher needs to individually determine what he or she needs to know or learn more about in order to improve their teaching.

Differences in traditional professional development programs and self-directed professional improvement can best be described in the above table.

Professional Improvement	
Traditional Professional Improvement	**Teacher Directed Professional Improvement**
Administrators determine what professional development is needed	Teachers determine what professional improvement is needed
Administrators mandate participation	Teachers initiate their own participation
Told what to learn	Formulate their own questions to investigate
Told how to solve problems	Determine their own "best" methods for answering questions
Told how to determine success	Create their own measurements of effectiveness
Occurs only when administration decides	Occurs whenever teacher feels the need/ongoing
New ideas are presenter-based	New ideas are teacher based
Common workshop topic	Personalized topic, catered to teacher needs

Teachers need to determine the best route in order to obtain the skills and knowledge they wish to attain. The teacher would develop a plan of action for their own professional improvement. This plan would detail any research needed, experts in the field that could be contacted to assist in their quest, time, resources and other information or materials needed to obtain success.

Some important steps in the professional improvement process include:
Assessing current teaching practices and identifying areas where they would like to improve.
Analyzing information dealing with their individual situation to determine the best method of action.
Creating a plan in order to address the issue, question, or concern.
Collaborating with others and exploring strategies to determine objectives, goals and strategies for success. Implementing their plan.
Monitoring, evaluating and adjusting as needed.

As the teacher creates and implements their own professional improvement there are several activities or steps the teacher plans to achieve their goals. The following is a systematic program that details how an individual professional improvement plan might look.

STEP 1: What problems, questions, or concerns do I have?

During this section the teacher develops their objectives for their professional improvement. This is their opportunity to develop a list of items they believe would improve their teaching. This is a brainstorming time. Items will vary from individual to individual due to experience and subject matter. Teachers can develop this list by watching and observing students, taking notes of day to day activities, and talking to peers and colleagues. This is reflection time for the teacher. Teachers should write down anything that comes to mind regardless of how insignificant it may appear to them at the time. In order to facilitate their thinking, teachers should consider the following:

- What are some distractions in your classroom?
- What are some of your concerns in your classroom?
- What would you like to do better in your classroom?
- What do you do well in your classroom?
- What is your favorite topic to teach?
- What is your least favorite topic to teach?
- What would you like to accomplish this year?
- What would you like to see your students accomplish this year?

At this point teachers can create objectives of what they wish to accomplish--goals for their teaching.

STEP 2: The Process

Objectives and goals have been set by the teacher. The teacher now determines the best method

for achieving the desired outcome. The teacher asks themselves the following questions:

- What information do I need to help me?
- Where can I go to get help?
- Who can help me?
- Who may have similar concerns?
- What other sources of information might I use?

STEP 3: Documentation

Teachers need to document their success and reflect on the process. The teacher needs to ask themselves the following:

- Are my objectives clear and relevant?
- Are my activities relevant toward reaching the objectives?
- Are my objectives inclusive enough?
- What have I or can I produce to show that I am working toward achieving my goal?
- How can others use what I learn?
- How can I share what I learn with others?
- What can I do with the knowledge I gain?
- Is my time frame reasonable?

STEP 4: Evaluation

At this point the teacher needs to be able to see if they have accomplished their goals. Teachers need to set measurable goals and objectives and set criteria in which to measure these goals. There needs to be time for the teacher to reflect on the experience as well. A significant amount of learning takes place during reflection time; therefore it is imperative that reflection time is incorporated into a teacher's professional improvement plan.

STEP 5: Sharing

Knowledge is wasted if it isn't shared. As the teacher gains experience and a better understanding of teaching techniques and classroom management through their professional improvement activities it is important for them to share with others in the profession their newly gained knowledge, skills and wisdom. Other teachers and students will benefit from the sharing of what the teacher has learned.

The changing goals for our educational system, coupled with shifts in curriculum and a deeper understanding of teacher learning and student thinking, have led to new findings about how teachers can have optimal impacts on their students. When current national policy suggests that teachers are largely responsible for student achievement, then professional development/improvement programs must be designed so that they make a difference. Professional improvement needs to provide teachers with a systematic approach to identifying the needs of the individual teacher and optimizing resources to enhance teacher effectiveness which in turn will enhance student achievement.

Teachers realize they can always get better. Teachers that hope to become one of "those" teachers realize in order to achieve more for their students they must incorporate professional improvement strategies. Clearly, students will benefit from having more effective teachers in their classrooms, and their teachers will be more effective by improving their teaching based on their own needs and learning relevant to their individual situations.

Hopefully by analyzing their own teaching and setting forth a plan to make their teaching better the teacher will have more fun teaching and the students will not only achieve more, but have fun doing it, while at the same time becoming one of "those" teachers.

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David W. W. Jones
North Carolina State University
College of Agriculture and Life Sciences
Agricultural and Extension Education Department