

PERCEPTIONS OF IOWA VOCATIONAL AGRICULTURE TEACHERS REGARDING METHODS USED IN AGRICULTURAL EDUCATION

Robert A. Martin, Associate Professor
Iowa State University
Adekunbi O. Odubiya
Ogun-State, Nigeria

The primary role of the vocational agriculture teacher has always been to help students learn knowledge and skills in agriculture. In order for the program to justify the time and money utilized on it, it is important that students be taught by competent teachers using a variety of teaching methods and using them appropriately (The Unfinished Agenda, 1986). A competent teacher is the essential component for a successful vocational agriculture program. This concept implies that the teacher must have sufficient technical expertise in the field of agriculture as well as skills in imparting knowledge and facilitating learning. One of the key factors for effective instruction in the classroom centers around the teaching method used (Cooper, 1977; Moore, 1984).

Crunkilton (1988) reported that of all the research conducted in the past five years, very little emphasis has been placed on the teaching-learning process. Do we know all there is to know about teaching and learning as it relates to agricultural education? Are we satisfied with the way our teachers are teaching (Crunkilton, 1988, p. 3)? The apparent answer to these questions may be no, but the quantity of research in this area indicates either a lack of emphasis or a satisfaction with what other education research says in general.

Agriculture is becoming more technological, more specialized, and more efficient. If the teachers' roles as producers, seekers, and disseminators of knowledge are valid, then students have to be educated using different approaches to teaching. However, education must be more than presenting material. It must stimulate student motivation into directions which will provide positive guidance for action. It is an activity which is essentially alive and inspiring, not simply a transfer of information. The only real value of knowledge is when students can use it in a meaningful way.

What methods are predominately used by teachers of agriculture? What methods are perceived to be most effective? What perceptions do teachers of agriculture hold regarding the basic tenets of teaching methodology?

Purpose of the Study

The purpose of the study was to seek perceptions of practicing Iowa vocational agriculture teachers regarding the various teaching methods used in their day to day instructional activities. Specifically, the study sought to determine the extent to which various teaching methods, tools and techniques were used and were considered effective and compare these findings with selected teacher characteristics.

Methods and Procedures

A self-administered mail questionnaire was used in collecting the data for this study because it was the most practical in terms of time involvement and expense (Tuckman, 1978). The instrument used was a modification of an existing instrument (Martin and Omer, 1986) on instructional methods in extension. The instrument has an overall reliability (Cronbach alpha) coefficient of .97. The questionnaire consisted of four sections: concepts on teaching-learning; use and effectiveness of selected method/tools; general comments; and biographical information. A five point Likert-type rating scale was used for each response in Sections I and II. The instrument was field-tested using responses from 25 randomly selected teachers not included in the sample.

The population of the study included all 268 Iowa vocational agriculture teachers. Twenty-five teachers were randomly selected from each of the six districts to allow for comparisons. The questionnaire was mailed to 150 teachers. One hundred thirteen teachers responded (75% return) and 109 questionnaires were complete and useable. Follow-up procedures indicated no differences between respondents and non-respondents.

The data were analyzed using frequencies and percentages, means and standard deviations and one-way analysis of variance. The .05 level of significance was set as the critical value for analysis of the appropriate data.

Findings and Results

There were a total of 109 respondents, of which 103 (94.5%) were males and 4 (4.6%) were females. The respondents did not indicate their gender. No comparisons were made on the basis of gender, because the number of females in the study was small.

Eighty-one respondents (75%) were between ages 23 and 39 years, and 23 respondents (21%) were between 40 and 59 years. Four respondents (4%) indicated an age of 60 or above. Thirty-one respondents (28%) had less than one year to five years of teaching experience. Thirty respondents (27%) had between five to fifteen years of teaching experience. Twenty-one respondents (19%) indicated teaching experience of 16 to 20 years. Twenty-three respondents (21%) had between 16 to 30 years of experience, while three respondents (2%) indicated over 30 years of teaching experience. Eighty-five percent of the teachers had a Bachelor's degree level of formal education with 15% holding a Master's degree.

The most significant findings in this study regarding the basic teaching-learning concepts focused on the following four statements. Effective instruction centers around:

1. the use of a variety of instructional methods ($x = 4.74$; $SD = 0.48$).
2. recognizing that individual differences exist among students ($x = 4.66$, $SD = 0.48$).
3. using decision making situations in teaching ($x = 4.62$, $SD = 0.49$).
4. the teacher possessing the relevant and required teaching ability and skills ($x = 4.45$, $SD = 0.54$). (Table 1.)

Table 1
Means and Standard Deviations Concerning the Perceptions Held by Vocational Agriculture Teachers on Basic Concepts of Teaching-Learning (N = 109)

Item	X	SD
1. Use a variety of instructional methods	4.74	.48
2. Recognize that individual differences exist among students	4.66	.48
3. Use decision making situations in teaching	4.62	.49
4. Possess the relevant and required teaching ability and skills	4.45	.54
5. Use on-farm agribusiness instruction to deal with individual problems of participants	4.41	.58
6. Use individualized instruction to help learners solve problems	4.32	.54
7. Use variety of methods in teaching manual skills	4.31	.59
8. Set achievable objectives for lessons, units and courses	4.30	.63
9. Use various evaluation procedures	4.29	.60
10. Clarify the course objectives	4.25	.61
11. Identify and use educational principles and procedures in teaching	4.20	.53
12. Develop and use a definite and specific interest approach to enhance the learner's motivation	4.19	.61
13. Prepare instructional plan to provide desirable experience	4.14	.62
14. Be knowledgeable in each subject matter area taught	4.13	.75
15. Use teacher centered and/or student centered approaches when appropriate	4.12	.58
16. Utilize group instructional techniques	4.12	.49
17. Design a plan to evaluate the teaching-learning process	4.16	.59
18. Design a plan to evaluate the product of teaching-learning situation	3.93	.54
19. Involve students in preparing instructional learning materials, ie., bulletin boards, displays, etc.	3.74	.75

Scale: 1 = Strongly Disagree; 5 = Strongly Agree

Table 2
Means and Standard Deviations Regarding the Extent of Use and Effectiveness of Methods/Teaching Tools as Perceived by Teachers of Vocational Agriculture

Methods/Teaching Tools	Use		Effectiveness	
	X	SD	X	SD
1. Lecture	3.32	0.82	3.27	0.76
2. Lecture-discussion	4.12	0.59	4.06	0.56
3. Group discussion	3.31	0.79	3.58	0.74
4. Panel discussion	2.00	0.72	2.98	0.88
5. Buss groups	2.22	0.96	2.71	0.92
6. Comparing	2.94	0.95	3.31	0.87
7. Contests	2.29	0.91	3.77	0.82
8. Interviewing	2.49	0.98	3.25	0.90
9. Role playing	2.43	0.97	3.19	0.93
10. Brainstorming	2.93	0.96	3.39	0.82
11. Summarizing	3.52	0.88	3.64	0.86
12. Debate	2.16	0.88	3.01	0.90
13. Dramatic skit	1.35	0.57	2.22	1.04
14. Simulation and gaming	2.63	0.95	3.25	0.96
15. Observing	3.03	0.89	3.34	0.84
16. Case study	2.44	0.96	3.12	0.99
17. Group projects	3.37	0.78	3.72	0.76
18. Situational analysis	2.98	0.94	3.43	0.91
19. Classifying	2.38	0.88	2.76	0.86
20. Oral presentations	3.12	0.78	3.52	0.81
21. Demonstrations	3.79	0.82	4.22	0.73
22. Seminar	1.76	0.80	2.55	1.05
23. Questioning	3.80	0.83	3.79	0.77
24. Problem-solving (decision making)	3.98	0.77	4.27	0.65
25. Individualized instruction	3.54	0.87	4.17	0.74
26. Written assignments	3.71	0.79	3.61	0.76
27. Chalkboard	3.93	0.79	3.76	0.74
28. Magnetic board	1.14	0.45	2.11	1.05
29. Bulletin board	2.68	1.00	3.00	0.89
30. Flannel board	1.08	0.30	2.09	1.07
31. Instructional posters	2.48	0.96	2.99	0.86
32. Flip chart	1.48	0.74	2.34	1.00
33. Maps	2.07	1.00	2.84	1.07
34. Sound motion pictures	3.07	0.82	3.46	0.76
35. Tape recorder	2.83	0.90	3.21	0.82
36. Video tape programs	3.22	0.76	3.89	0.75
37. Education television	2.06	1.04	3.09	1.09
38. Computer	3.37	0.82	3.87	0.65
39. Computer-assisted instruction	3.12	1.00	3.71	0.65
40. Overhead projector	3.57	1.00	3.74	0.77
41. Opaque projector	1.41	0.79	2.30	1.13
42. Slides	3.30	0.73	3.73	0.64
43. Film strips	3.66	0.63	3.88	0.52
44. Radio program	1.59	0.77	2.47	1.01
45. Instructional models	2.32	0.92	3.19	0.99
46. Real objects	3.45	0.83	4.03	0.94
47. Specimens	2.93	1.01	3.73	1.02
48. Learning centers	1.87	0.90	2.79	1.04
49. News stories	2.86	0.82	3.54	0.78
50. Tours	2.89	0.80	3.94	0.93
51. Field trips	3.09	0.76	4.06	0.77
52. Workshops	1.98	0.88	3.01	0.98
53. Exhibits	2.29	0.99	3.12	1.00

Use Scale: 1 = Not used, 5 = Used Heavily
 Effectiveness Scale: 1 = Not Effective, 5 = Very Effective

The lowest rated concept area related to involving students in preparing instructional learning materials ($x = 3.73$, $SD = 0.75$). All other items focused on use of objectives, student centered approaches and planning. These concepts appeared to be supported but not to the extent of the first four items.

The second part (Table 2) of the questionnaire focused on the methods used and their effectiveness. Fifty-three methods/tools were listed. The most used methods/tools indicated by these teachers were: lecture-discussion, $x = 4.12$, $SD = 0.59$; decision making, $x = 3.98$; $SD = 0.77$; chalkboard $x = 3.93$, $SD = 0.82$. The following methods/tools were reported to be the most effective: decision-making, $x = 4.27$; $SD = 0.65$; demonstration, $x = 4.22$, $SD = 0.73$; individualized instruction, $x = 4.17$, $SD = 0.74$; lecture discussion, $x = 4.06$, $SD = 0.56$; field trips, $x = 4.06$, $SD = 0.77$. Respondents in this study, according to Table 2, rated a number of the active, student-oriented teaching methods and tools to be effective but the teachers are not using these methods/tools to a great extent (i.e. role playing, debating, skits, simulations and games, case studies).

In Section III of the questionnaire, the teacher's responses were compared using various characteristics. Years of teaching experience seemed to have the greatest impact when comparing the respondents by various characteristics. There were no differences found when respondents were grouped by districts or any other characteristic other than years of teaching experience. New (beginners) and the most experienced (25-30 years or more) teachers used questioning techniques significantly (.05 level) more often than other teachers. Teachers with fewer than 15 years of teaching experience indicated simulations and gaming to be more effective than teachers with 15 or more years of experience. Teachers with 10 or fewer years of experience indicated that the overhead projector was more effective than teachers with more than 10 years of experience thought it was (Table 3).

Table 3
Analysis of Variance on the Level of Effectiveness of Using Simulations and Gaming, and Overhead Projectors by Vocational Agricultural Teachers when Grouped by Years of Teaching Experience

Methods/ Teaching Tools	Years of Teaching Experience												F ratio	F prob
	Group 1		Group 2		Group 3		Group 4		Group 5		Group 6			
	n	Mean SD	n	Mean SD	n	Mean SD	n	Mean SD	n	Mean SD	n	Mean SD		
1. Simulation and Gaming	29	3.44 1.02	27	3.61 0.88	20	3.35 0.37	7	2.57 0.53	5	2.20 0.84	9	2.33 0.84	5.72*	.00
2. Overhead Projector	31	3.97 0.60	27	3.85 0.82	20	3.65 0.75	7	2.86 1.07	6	3.33 0.82	10	3.80 0.63	3.07*	.01

*Group mean difference significant at the .05 level.

The fourth section of the questionnaire collected comments regarding teaching methods/tools used in vocational agriculture. There were a large number of comments most of which focused on two major themes—student involvement and preparation time necessary for using a variety of techniques. Student involvement is necessary for quality teaching/learning and it takes a lot of time to prepare for good teaching. The preparation problem is especially troublesome with so many different classes to teach.

Conclusions and Recommendations

Although teachers in this study agreed that ideally a variety of instructional strategies/tools should be used, the respondents, as a whole, appeared to cling to a few methods and tools when asked to indicate the methods/tools most used. The most used methods were not necessarily rated the most effective, at least not in the same rank order. Additionally, many methods/tools were perceived to be effective, but were not used extensively. Teachers appeared to have less confidence in involving students in preparing instructional learning materials. Wesley (1984) noted that students can help in preparing instructional learning materials such as displays. This strategy may not be done by vocational agriculture teachers to the extent suggested by Wesley.

While the results of this study and the review of the literature indicated a need to place emphasis on the use of a variety of teaching methods in vocational agriculture, there may be a more subtle message to this investigation. Perhaps educators should focus on using what are termed traditional methods (lecture, discussions, etc.) in more effective ways. The quality use of these methods may contribute as much to improving learning as an equal emphasis on the use of a variety of teaching methods. There is a need to develop teacher education programs that focus on developing a "mindset" that teaching is the process of facilitating learning not the mere delivery of information. The findings from this study reinforce the fact that much more research is needed in the area of teaching methodology in agricultural education. It is recommended that more experimental research studies be conducted in order to compare the use of a variety of teaching strategies in different agricultural learning situations.

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