

HOW FIRM THE FOUNDATION?  
A LOOK AT THE KNOWLEDGE BASE IN AGRICULTURAL EDUCATION RESEARCH<sup>1</sup>

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INTRODUCTION

One of the first concepts taught in agricultural structures courses is the importance of a solid foundation. Buildings are only as good as their foundation. The same is true of research in agricultural education. Quality research is built on a solid knowledge base or theoretical foundation.

The importance of building vocational education research on a sound theoretical foundation has been receiving more emphasis in the past few years. Schultz (1988) asserted that only during the past five years have vocational educators addressed the issue of using theoretical/conceptual frameworks in vocational education research. Schultz's assertion is based on the recent spate of articles and activities emphasizing the need for a theoretical base for vocational education research. Lotto (1983) and McCullers (1984) have addressed the issue in journal articles. A symposium on "The Theoretical/Conceptual Framework in Vocational Education Research" was conducted at the 1986 American Vocational Education Research Association annual meeting. The Journal of Vocational Education Research recently changed the page limit for manuscripts from 20 pages to 30 pages so the theoretical/conceptual framework for the research reported could be described and discussed in more detail. The American Association of Teacher Educators in Agriculture revised the manuscript evaluation form for their journal in 1987 to include criteria for evaluating the conceptual/theoretical basis for articles.

The importance of using a theoretical/conceptual framework in vocational education research has been discussed by a number of researchers. Burnett (1986) advanced the idea that the significance of the problem and the design of the research can be strengthened by use of a well developed theoretical/conceptual framework. Warmbrod (1986, p. 6) stated that:

"If we are more diligent to insure that research in vocational education is grounded more firmly on an appropriate and coherent theoretical/conceptual framework, the degree of scholarship demonstrated in our research and in the reporting of that research, both orally and in writing, will increase substantially. That proposition is drawn from the contributions made by a sound theoretical/conceptual framework to all aspects of the research process from problem identification and definition to interpretation

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and the reporting of conclusions and recommendations. Conducting research that is undergirded by an appropriate theoretical/conceptual framework encourages, some might even say forces, us to deal with issues that have significance beyond isolated, immediate, and general short-term concerns. Such a strategy stimulates rigor in the design and conduct of research, contributes to valid and logical interpretations that stress explanation of the phenomena being investigated, and adds to the prospects of an accumulation of knowledge and the further refinement, revision, and expansion of theories and concepts that have relevance to vocational education."

#### NEED FOR THE STUDY

There is no doubt that a solid theoretical/conceptual framework is important in vocational education research. The question that springs forth is "Is agricultural education research based on a strong theoretical/conceptual framework?" There are those who believe the answer is NO!

In a presentation to the American Vocational Education Research Association Kapes and Bartley (1986) indicated that agricultural education research, as characterized by articles in the Journal of the American Association of Teacher Educators in Agriculture, were lacking in a theoretical/conceptual framework. When compared with research articles in other vocational education journals, Kapes and Bartley found agricultural education research at the bottom of the list in regards to use of a theoretical/conceptual foundation. However, they did acknowledge that the agricultural education research (p. 10) ". . . appeared to utilize statistical methodology with more precision and detail . . ." than did the other vocational fields.

After reviewing several issues of the AATEA Journal, Thompson (1989, p.7) summarized what he had found in his keynote address to the Central Region Research Conference in Agricultural Education in Chicago, "I learned that data based pieces get published. Almost every article reflected careful attention to the drafting of hypotheses and the testing of the same. Almost no attention was directed to the source of the hypotheses and to the meaning of the results." When compared with other journals, Thompson (1989, p. 7) found that "They did a much better job of showing the location of the current research is related to previous work and to the theoretical notions of the field. They also put significant effort in discovering meaning out of the current research." Thompson asserted that agricultural education researchers use statistics as an "end" instead of a "means". The profession views statistics as the final authority and does not seek to understand what they are telling us. Thompson (1989, p. 7) concluded that "The researcher in agricultural education who engages in theory building to some reasonable degree is rare."

If Kapes, Bartley and Thompson are correct, the implications for agricultural education are serious. However, it is possible that Kapes,

Bartley and Thompson are incorrect. Kapes and Bartley merely counted the number of citations in the various vocational journals and made their conclusions primarily on the number of citations, not who or what was cited. Thompson examined only five issues of the AATEA Journal in arriving at his conclusions.

A more detailed study of the research in agricultural education is needed to determine if the research is indeed lacking a solid theoretical/conceptual framework. If the foundation is deemed to be weak, as has been asserted, then the profession will need to take action.

#### OBJECTIVES OF THE STUDY

The purpose of the research was to determine if research in agricultural education has been built on a solid theoretical/conceptual framework. In order to do this it was necessary to identify who and what was being cited in agricultural education research. In order to operationalize the objectives of the study, two specific research questions were developed:

1. What documents are being cited in the Journal of the American Association of Teacher Educators in Agriculture?
2. Who is being cited in the Journal of the American Association of Teacher Educators in Agriculture?

#### METHODS AND PROCEDURES

Since the Journal of the American Association of Teacher Educators in Agriculture is the primary journal for publishing agricultural education research this research effort concentrated on that journal. All issues of the journal were collected that were published between January 1, 1977 and December 31, 1987 (Volumes 18 through 28). The name of each person and each document that was cited in the articles was placed in a computerized data base (Dbase III Plus). An alphabetical listing of persons cited and documents cited were then printed and frequency counts were made. Since this was a complete population for the time period studied, no other statistical analysis was conducted.

After identifying, through frequency counts, the most cited people and documents a second analysis of the data was made. Three knowledgeable educators examined the complete list of persons cited (all 2,511 citations) and identified people (Such as Dewey, Maslow, Bloom) whose work could possibly be used to develop a theoretical/conceptual framework for agricultural education research.

#### RESULTS

##### What is Being Cited

Four documents were cited more than ten times in the Journal of the American Association of Teacher Educators in Agriculture. These documents

were Phipps' Handbook on Agricultural Education (14 citations), Craig's supply and demand of vocational agriculture teacher studies (11 citations), the Statistical Package for Social Sciences (SPSS) manual (11 citations) and a 1977 study of supervised occupational experience programs conducted by David Williams (11 citations). The next five most cited items (from six to nine citations each) were statistics or research methodology books.

Fourteen agricultural education documents (journal articles and dissertations) and two research books/articles were cited four or five times. No documents outside of agricultural education that could be used in theory building were cited as much as four times. All documents cited four or more times in the Journal of the American Association of Teacher Educators in Agriculture between 1977 and 1987 are listed in Table 1.

#### Who Was Cited

Excluding authors of statistics or research methodology books, researchers who publish in the Journal of the American Association of Teacher Educators in Agriculture tended to cite agricultural educators as opposed to educational theorists, adult education experts, curriculum specialists, etc. David Williams was cited 33 times. He was followed by Newcomb (18), McCracken (17), Cheek (16), Phipps (16), Miller (15) and Stewart (15). Table 2 contains a list of agricultural educators who have been cited in the journal six or more times.

A listing of people outside of agricultural education who were cited six or more times is found in Table 3. With few exceptions they were authors of statistics or research methodology publications. The most cited non-statistician/research methodologist was R. M. Steers (administration) who was cited nine times; however it should be noted that one writer did all of the citing of Steers. Rupert Evans (vocational education philosopher and historian) and Charles Prosser (early vocational education leader) were each cited seven times.

Educational theorists, curriculum theorist and adult education theorist were rarely cited. Thomas Sergiovanni (educational administration) was cited five times. He was followed by Benjamin Bloom (of Bloom's Taxonomy fame), John Dewey (educational philosopher), George Deyoe (early agricultural educator), Curtis Finch (vocational curriculum specialist) and Alvin Toffler (futurist) with three citations each. A complete list of people who were identified as possibly being able to contribute to the development of a theoretical/conceptual framework in agricultural education but who were cited five or less times are found in Table 4.

#### CONCLUSIONS

Kapes, Bartley and Thompson appear to have been correct in their assessment of the use of theoretical/conceptual frameworks in agricultural education research. Simply put, the theoretical/conceptual foundation for research in agricultural education is deficient. There is considerable

room for improvement. Of the nine most cited documents, a person would question how many could be used in developing a theoretical/conceptual framework for research. Nationally recognized theorists who could contribute to the development of theoretical/conceptual frameworks in agricultural education are rarely cited. The profession does tend to cite, fairly heavily, statistical procedures and research methodology.

Agricultural educators do a respectable job of citing each other. While building on the research of others in the profession does help contribute to the development of a knowledge base and should be encouraged, one needs to be careful in relying solely on this to establish the foundation for a study. Often the work cited may not be adequate for building a foundation or is research that was not originally built on a theoretical/conceptual foundation.

In the keynote address to the Southern Agricultural Education Research Conference in 1986, Warmbrod indicated that research in agricultural education had made tremendous strides during the past couple of decades. He said the research design and statistical procedures had improved in sophistication and increased in quality. However, he warned of over emphasizing these components of the research process and forgetting about such considerations as the significance of the problem being researched. This advice coupled with his remarks about the importance of the theoretical/conceptual framework cited earlier need to be heeded by the profession. If research in agricultural education is to be truly useful, it must examine the significant problems facing the profession and be built on a solid theoretical/conceptual foundation. The resulting findings can then be used to improved practice in agricultural education which will lead to additional research and more theory building. The professional will be on a continuous upward spiral. As Thompson (1989, p. 9) put it, "Our research, I am suggesting, should begin with a look at theory and end there." It currently isn't!

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- Warmbrod, J. R. (December, 1986). The theoretical/conceptual framework: What is its relevance to conclusions and recommendations? Unpublished paper presented to the American Vocational Education Research Association, Dallas.
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Table 1

Documents That Have Been Cited at Least Four Times in the Journal of AATEA, 1977-1987

| No. of Citations | Author  | Document and Publication Information  |
|------------------|---|---|
| 14               | Phipps, L. J.   | <u>Handbook on Agricultural Education in Public Schools</u> , Danville, IL: Interstate, (1972, 1978, 1980).   |
| 11               | Craig, D. G.  | <u>A National Study of the Supply and Demand for Teachers of Vocational Agriculture</u> , Knoxville: University of Tennessee (1971, 1976, 1977, 1979, 1980, 1982, 1983).                        |
| 11               | Williams, D.L.  | <u>A Study of Supervised Occupational Experience Programs of Iowa Vocational Agriculture Students</u> , Research Report Project 2150, Ames: Iowa State University, 1977.                        |
| 11               | Nie, N.H.; Hull, T.G.;<br>Steinbrenner, K.;<br>Jenkins, J. G.; &<br>Bent, D. H. | <u>Statistical Package for the Social Sciences</u> , New York: McGraw Hill Book, (1975, 1983).  |
| 9                | Campbell, D. T.<br>Stanley, L. C.   | <u>Experimental and Quasi-Experimental Designs for Education</u> , Chicago: Rand McNally, 1963.   |
| 9                | Warren, P. D.<br>Klonlan, G. E.<br>Sabri, M.M.                                  | <u>The Certainty Method: Its Application and Usefulness in Developing Empirical Measures in Social Sciences</u> , Rural Sociology Report No. 82, Ames: Iowa State University, 1969.             |
| 7                | Kerlinger, F. N.  | <u>Foundations of Behavior Research</u> , New York: Holt, Rinehart and Winston, 1973.   |
| 7                | Snedecor, G. W.<br>Cochran, W. G.   | <u>Statistical Methods</u> , 1980   |
| 6                | Hinkle, D. E.<br>Wiersma, W.<br>Jurs, S. G.                                     | <u>Applied Statistics for Behavioral Sciences</u> , Boston: Houghton Mifflin, 1979.   |
| 5                | Binkley, H. R.  | Teacher Education Programs in Agricultural Education Should be Located in Colleges of Education, <u>Journal of the American Association of Teacher Educators in Agriculture</u> , 1977, 18 (3). |

Table 1 (continued)

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|---|---------------------------------|---|
| 5 | Knebel, E. H.                   | Teacher Education Programs in Agricultural Education Should be located in Colleges of Agriculture, <u>Journal of the American Association of Teacher Educators in Agriculture</u> , 1977, <u>18</u> (3).              |
| 5 | Briers, G. E.                   | <u>An Experimental Evaluation of an Instructional Packet on Supervised Occupational Experience Programs for Beginning Vocational Agriculture Students in Iowa</u> , (Dissertation) Ames: Iowa State University, 1978. |
| 5 | Krejcie, R. V.<br>Morgan, D. W. | Determining Sample Size for Research Activities, <u>Educational and Psychological Measurement</u> , 1970, <u>30</u> .   |
| 5 | Williams, D. L.                 | Relationships Between Vocational Agricultural Student's Supervised Occupational Experience and Selected Variables, <u>Journal of Vocational Education Research</u> , 1977, <u>11</u> (1).                             |
| 4 | Dillman, D. A.                  | <u>Mail and Telephone Surveys: The Total Design Method</u> , New York: John Wiley, 1978.  |
| 4 | Iverson, M. J.                  | The Role of Vocational Agriculture in the Occupational Success of Graduates--A Southern Region Study, <u>Journal of the American Association of Teacher Educators in Agriculture</u> , 1980, <u>21</u> (2).           |
| 4 | Mattox, K. E.                   | Why Teachers Quit, <u>The Agricultural Education Magazine</u> , 1974, <u>47</u> .   |
| 4 | Moore, E. A.                    | Professional Education Competency Needs of Three Groups of Vocational Bender, R. E. Agriculture Teachers in Ohio, Summary of Research, Columbus: The Ohio State University, 1975.                                     |
| 4 | Moore, G. E.                    | Why Vocational Agriculture Teachers Leave the Profession: A Camp, W. G. Comparison of Perceptions, <u>Journal of the American Association of Teacher Educators in Agriculture</u> , 1979, <u>20</u> (3).              |
| 4 | Rawls, W. J.                    | Parental Perceptions of Vocational Agriculture Supervised Occupational Experience Programs in Iowa, Dissertation, Ames: Iowa State University, 1978.  |
| 4 | Scheid, C. L.                   | Organizational and Instructional Problems of Selected Iowa Teachers of Vocational Agriculture, Masters Thesis, Ames: Iowa State University, 1982.   |



Table 2

Agricultural Educators Who Have Been Cited at Least Six Times in the Journal of The American Association of Teacher Educators in Agriculture, 1977-1987

| Agricultural Educator | Number of Citations <sup>a</sup> | %   | Agricultural Educator | Number of Citations | %   |
|-----------------------|----------------------------------|-----|-----------------------|---------------------|-----|
| David Williams        | 33                               | 61  | Kirby Barrick         | 8                   | 50  |
| L. H. Newcomb         | 18                               | 94  | Carl Beeman           | 8                   | 100 |
| J. David McCracken    | 17                               | 77  | Blannie Bowen         | 8                   | 75  |
| Jimmy Cheek           | 16                               | 50  | Lee Cole              | 8                   | 63  |
| Lloyd Phipps          | 16                               | 100 | James Leising         | 8                   | 100 |
| Larry Miller          | 15                               | 53  | Willie Rawls          | 8                   | 50  |
| Bob Stewart           | 15                               | 80  | John Crunkilton       | 7                   | 86  |
| Ralph Bender          | 14                               | 100 | Rick Foster           | 7                   | 100 |
| Gary Moore            | 14                               | 86  | Alan Kahler           | 7                   | 100 |
| M. J. Cepica          | 13                               | 69  | Earl Knebel           | 7                   | 100 |
| David Craig           | 13                               | 100 | James Knight          | 7                   | 100 |
| Jasper Lee            | 13                               | 100 | Jim Legacy            | 7                   | 57  |
| Max McGhee            | 12                               | 50  | Martin McMillian      | 7                   | 100 |
| J. Robert Warmbrod    | 13                               | 85  | Wade Miller           | 7                   | 100 |
| Harold Binkley        | 12                               | 100 | Keith Smith           | 7                   | 86  |
| Maynard Iverson       | 12                               | 83  | Harold Crawford       | 6                   | 100 |
| Glen Shinn            | 12                               | 92  | H. M. Hamlin          | 6                   | 100 |
| Bill Camp             | 10                               | 80  | Frank Lathrop         | 6                   | 100 |
| Ron Brown             | 10                               | 90  | Texton Miller         | 6                   | 83  |
| Rufus Stimson         | 10                               | 100 | Bill Richardson       | 6                   | 100 |
| Larry Arrington       | 9                                | 78  | Paul Vaughn           | 6                   | 83  |
| Ralph Bentley         | 9                                | 100 | Richard Welton        | 6                   | 83  |

<sup>a</sup> Percentage of citations in which the person cited was not one of the authors.

Table 3

Non-Agricultural Educators Who Have Been Cited at Least Six Times in the Journal of AATEA, 1977-1987

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| Person Cited    | Number of Citations |
|-----------------|---------------------|
| N. H. Nie       | 14                  |
| C. H. Hull      | 12                  |
| D. T. Campbell  | 10                  |
| W. G. Cochran   | 10                  |
| J. C. Stanley   | 10                  |
| D. H. Bent      | 8                   |
| G. E. Klonglan  | 9                   |
| M. M. Sabri     | 9                   |
| R. D. Warren    | 9                   |
| J. G. Jenkins   | 8                   |
| R. M. Steers    | 8                   |
| K. Steinbrenner | 8                   |
| Rupert Evans    | 7                   |
| D. E. Hinkle    | 7                   |
| F. N. Kerlinger | 7                   |
| C. A. Prosser   | 7                   |
| G. W. Snedecor  | 7                   |
| J. Cohen        | 6                   |
| S. G. Jurs      | 6                   |
| W. Wiersma      | 6                   |

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Table 4

Selected People Who Have Been Cited Less Than Six Times in the Journal of  
AATEA, 1977-1987

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| Person             | Number of Citations |
|--------------------|---------------------|
| Carsie Hammonds    | 5                   |
| Thomas Sergiovanni | 5                   |
| Benjamin Bloom     | 3                   |
| John Dewey         | 3                   |
| George Deyoe       | 3                   |
| Curtis Finch       | 3                   |
| Alvin Toeffler     | 3                   |
| Ralph Tyler        | 3                   |
| James Conant       | 2                   |
| W. F. Stewart      | 2                   |
| E. L. Thorndike    | 2                   |
| W. W. Charters     | 1                   |
| Edgar Dale         | 1                   |
| N. L. Gage         | 1                   |
| R. M. Gagne        | 1                   |
| Evon Guba          | 1                   |
| R. Havighurst      | 1                   |
| F. Herzberg        | 1                   |
| Malcom Knowles     | 1                   |
| W. H. Lancelot     | 1                   |
| Abraham Maslow     | 1                   |
| Wilbur McKeachie   | 1                   |
| James Popham       | 1                   |
| Barak Rosenshine   | 1                   |
| B. F. Skinner      | 1                   |
| Donald Super       | 1                   |
| Grant Venn         | 1                   |

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