

A REVIEW OF SUBJECT MATTER TOPICS RESEARCHED IN AGRICULTURAL AND EXTENSION EDUCATION

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Abstract

Two premier publications of the agricultural and extension education profession were examined to identify subject matter topics researched in agricultural and extension education. A total of 853 articles (402 in Journal of Agricultural Education and 451 in National Agricultural Education Research Meetings) published during 1986-1996 were reviewed. A total of 30 subject matter topics were identified using an expert panel. The 853 articles were categorized into the relevant subject matter topics. The top five subject matter topics researched during this 11 years were: secondary ag programs, learning styles/theory, extension education, professionalism, and ag mechanics/engineering. Emerging topics included.. distance education, international, undergraduate/graduate education, agricultural literacy, diverse audiences and environment/sustainability. Agricultural and extension educators research a variety of subject matter topics which address diverse issues related to the profession. It is recommended that the profession develop a systematic research agenda focusing on: 1) critical issues of the profession; 2) collaborative approach to research; and 3) periodic reviews of premier publications of the profession

The agricultural education profession has a long history and tradition of research and development support (Mannebach, McKenna and Pfau, 1984). Rapid growth of research activities has resulted in enormous growth of the agricultural education literature (Radhakrishna, 1995). Articles appearing in the *Journal of Agricultural Education (JAE)* and papers presented at the National Agricultural Education Research Meeting (NAERM) are good indicators of the profession's scientific activity, philosophy and application. According to Knight (1984) "what a profession writes about in its journals and magazines might be considered a fairly good indicator of what is perceived as being important and the topics researched might give insight into the priorities of a profession."

Effective analysis of subject matter topics researched lies in the categories used for grouping the topics under appropriate categories (Knight, 1984). Over the years, numerous researchers have categorized subject matter topics based on central

themes or focus of the journal articles, papers presented, summaries of abstracts and by just looking at the titles of the research study (Burke & Keplinger, 1996; Crunkilton, 1988; Moore, 1987; and Moss, 1986). Other researchers have used established practices, replication and use of review panel to determine subject matter topics (Radhakrishna & Mbaga, 1995; Silvia-Guerrero and Sutphin, 1988). For example, Crunkilton (1988) identified eight categories: administration/supervision; curriculum development; pedagogy; special needs; instructional resources; supervised experience programs; leadership; inservice and evaluation. Moore (1987) identified nine categories--professional and general; teacher education; extension, international, FFA, SOEP, curriculum/planning, teaching and agricultural mechanics. Radhakrishna and Mbaga using Kahler's classification identified 18 categories which included adult/post secondary; elementary ag programs; evaluation; experiential learning; extension; inservice education; international;

learning theory; philosophy; policy; program development; recruitment; research methodology; secondary ag programs; special needs; teaching methods; youth/youth organizations; and other.

In the last decade, several scholars in the profession have expressed concerns regarding the conduct of research activities in agricultural education. Prominent among these scholars are Warmbrod(1986), Crunkilton (1988), Moss (1985), Moore (1987), Stewart, Shinn and Richardson (1977), Shinn and Buriak (1988), Silvia-Guerrero and Sutphin (1988), Mannebach, et al., (1984), and Radhakrishna (1995). The most striking concern, though expressed by Warmbrod a decade ago, still remains a concern to the profession today. Warmbrod wrote, "Progress during the past years in the technological and methodological aspects of research in agricultural education has not been accompanied by comparable improvement in another very important aspect of research, namely, the relevance, significance, and importance of problems and issues that we investigate. I propose that our highest priority for continuing progress in research in agricultural education must be that we pay greater attention to the significance and importance of the problems and issues that we research" (Warmbrod, 1986, p. 9).

Stewart, Shinn and Richardson (1977) determined the problems challenging agricultural education and found 14 areas of concern. The concerns provided both implications for research and a source of researchable topics. Silvia-Guerrero and Sutphin (1988), in their study of research priorities in agricultural education in the United States, found that 22 topics should be addressed at the national level and 5 topics at the state level.

Based on the examination of summaries of research in agricultural and extension education, Crunkilton (1988) concluded that research in agricultural education is focused, but that focus has come about more by accident rather than through

planned activities (p.327). Further, Crunkilton suggested that "If we, as a profession, want to chart a course for our research, , then we need some type of framework that will show us where *we* have been, where we can or should go, as individual professional researchers, as institutions, and as a total profession. Moss (1985), who analyzed the contents of papers presented at NAERM for the years 1974-1985, found that agricultural educators have examined a variety of topics in agricultural education. Moss concluded that priorities for research in agricultural education are not static (p. 6).

Mannebach et al. (1984) analyzed the summaries of research and development activities in agricultural education for the years 1972-1984. They concluded that there is a dearth of research on agricultural education research. They recommended that agricultural educators should conduct more historical and experimental studies and encourage foreign studies. Moore (1987) examined over 900 doctoral dissertations to determine the focus of doctoral research in agricultural education conducted during 1900-1986. He found a variety of topics in agricultural education have been researched and concluded that doctoral research in agricultural education lacked focus. However, Moore said that doctoral research in agricultural education has focused more on addressing the problems of the profession.

Shinn and Bmiak (1988) identified obstacles that limit systematic research in agricultural education as viewed by three groups of decision makers (deans of agriculture, deans of education, and directors of experiment stations) who play key roles in the approval and support of research. The Delphi technique was used to determine the views of these three groups of decision makers. They found consensus among the three groups of decision makers for five obstacles to the conduct of research in agricultural education. These included: 1) lack of focus; 2) inadequate qualifications; 3) teaching and service orientations; 4) insufficient

funding; and 5) lack of value for research among agricultural educators. They suggested that agricultural education must identify important researchable problems, which, if pursued rigorously, will lead to clear solutions for the profession (p. 146).

Continuing their research efforts, Buriak and Shinn (1993) used internal experts (department heads and faculty) to identify research initiatives--research problem areas (RPA), research activities (RA), and research objectives (RO). Four RPAs, 10 RAs, and 47 ROs were identified. Comparing findings from their previous study which used external experts (deans and directors of experiment stations) and findings from a study which used internal experts, they found a lack of consensus on the ratings of individual research initiatives by the two groups of experts. Both external and internal experts, however, agreed that research in agricultural education lacked focus. They concluded that the process of structuring and identifying a research agenda for agricultural education can be valuable for: 1) maintaining compatibility with national priorities for the food and agricultural systems; 2) for guiding investments in research, and 3) for communicating our priorities to agencies and organizations which have national responsibilities to plan and budget research (p. 34).

McKinney (1987) offered several concerns and challenges to current research paradigms in agricultural and extension education. These included: 1) over reliance on empirical analytical perspectives; 2) expert domination of research framework; 3) insufficient consideration of context; 4) overemphasis on separate and discrete outcomes; 5) managerial orientation of research framework; 6) lack of attention to humanness of human research subject matter; and 7) inadequate conceptualization of what science is.

Here are some questions we must ponder, discuss, and debate as we look into our past research efforts to determine future research

priorities for the profession. According to a study conducted by Bowen, Radhakrishna and Jackson (1991) responsibilities of agricultural education faculty are changing. To what extent do these changes in responsibilities of faculty reflect the research priorities of the profession? Have we broadened our research focus to other areas such as communications, extension education, agricultural education in higher education and non-vocational areas as suggested by Warmbrod (1987)? Are we researching subject-matter topics which address the most critical issues facing the profession (Flowers, 1995)? Have we, as a profession, focused our attention and resources to address problems such as lack of programmatic focus, theoretical base and conceptual framework, broadening the scope of our research activities to address critical issues or problems facing the profession? As Mannebach, et al. (1984) indicated, if research and development are to lead the way, we must continually review and evaluate our efforts (p. 15). This investigation was designed to determine subject matter topics researched in agricultural and extension education from 1986 to 1996. This review of research will assist us in examining our priorities and directions for our research efforts as we approach the year 2000.

Purpose and Objectives

The major purpose of this investigation was to examine subject matter topics researched in agricultural education over a ten year period. Specific objectives of the study were to:

1. identify subject matter topics researched in agricultural and extension education in the last decade (1986-1996).
2. categorize subject matter topics published in the Journal of Agricultural Education and proceedings of the National Agricultural Education Research Meeting over a ten year period (1986-1996).

Methods and Procedures

Two data sources were used to examine subject matter topics researched in agricultural education. These included, the articles published in the Journal of Agricultural Education (JAE) and papers presented at the National Agricultural Education Research Meetings (NAERM) during 1986-1996. Selection of these two data sources resulted in examination of 402 journal articles published in the *JAE* and 451 papers presented at NAERM (Table 1).

Each of the 402 journal articles and 451 papers presented were given a code number. Then these articles and papers were reviewed in order to categorize into relevant subject matter categories. Three criteria were used to categorize the studies into subject matter topics--title of the study, central theme or focus of the study, and findings and conclusions. Based on this review, a total of 25 subject-matter topics were identified. The list of 25 subject-matter topics was given to a panel of experts for review and validation. The panel of experts was asked to comment on 1) the appropriateness of categories; 2) add or identify categories they thought that were left out or delete categories they thought were not relevant; and 3) suggest whether some categories could be combined. After receiving feedback from the panel, a revised list of categories was developed (Figure 1). This revised list contained 30 subject-matter topics (See Figure 1). The 402 journal articles and 451 papers presented were

grouped into the categories. Data were summarized using frequencies and percentages.

Findings

Objectives 1 and 2

The subject matter topics that were published during 1986-96 in *JAE* and NAERM proceedings are shown in Tables 2 and 3. During this eleven year analysis, the category with the most subject matter topics reported is that of secondary agriculture programs (75 studies--27 in *JAE* and 48 in NAERM), followed closely by learning styles/theory and cognition (70 studies--32 in *JAE* and 38 in NAERM), professionalism (43 studies--28 in *JAE* and 15 in NAERM), extension (42 studies--18 in *JAE* and 24 in NAERM), ag mechanics /safety /engineering (38 studies--17 in *JAE* and 21 in NAERM). These were the top five subject matter topics investigated by agricultural and extension educators. The other frequently researched subject-matter topics included: historical/philosophical (35 studies) undergraduate education (34 studies), followed by FFA and SAEP (33 studies each), job satisfaction/morale/burnout (32 studies) and microcomputers (31 studies). The least researched subject matter topics were evaluation, special needs, and recruitment and retention (see Table 3). But the top category was the "other," (86 studies--31 in *JAE* and 55 in NAERM) a mixture of subject matter topics or studies unrelated to the other categories.

Table 1. Total Number of Journal Articles Published in *JAE* and Papers in NAERM Proceedings by Year (1986-1996)

Source	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total
JAE	35	34	30	35	45	36	31	44	47	34	31	402
NAERM	39	36	36	36	44	36	44	48	48	48	36	451
Total	74	70	66	71	89	72	75	92	95	82	67	853

Table 2. Subject Matter Topics Published in the Journal of Agricultural Education (1986-96)

Subject Matter	86	87	88	89	90	91	92	93	94	95	96	Total
Learning styles/theory cognition	1		3	1	5	2	4	4	4	5	3	32
Professionalism	3	3	2	2	2	6	2	4	1	1	2	28
Secondary ag programs	2	3		3	3		5	6	2	3		27
SAEP	3	2	5	1	1	2		2	1	1	2	20
Hisotrical/philosophical	3	2	1	1	3	1	2		1	2	4	20
Undergraduate/graduate education	3				5	2	1	3	1	3	1	19
FFA	3	3	1	2		2	1	2	2		2	18
Extension		3	1	3		1	2	4	2	1	1	18
Ag mechanics/engineering	1	4		2	4		1	3	1	1		17
Job satisfaction/morale burnout	2	2	2	1	3	3	3				1	17
Microcomputers	2	3		3	3	2	1	1	1			16
International			2	2	2			1	5	1	2	1s
Instruction/teaching	3		1	2	2	3	2				1	14
Leadership			2	1			1	3	5			12
Program development/curriculum	3	2	1	1		1			1	1	1	11
Environmental			1			1	2	2	2	2		10
Agribusiness			1	5		2	1					9
4-H youth/youth programs			1				1	3	3	1		9
Ag careers		1	1		1	1	1	2		1		8
Adult education				1	3	2				1	1	8
Problem solving			1	1	1	1			1		2	7
Women/Minorities		2			1			1		3	1	7
Research methodology			1				1		3	1		6
Ag literacy	1					1			2	1	1	6
Distance education									3	2		5
Inservice/training		2							2			4
Young farmers		1	2								1	4
Special needs												
Retention/recruitment					1	1						2
Evaluation		1										1
Others	5		1	3	5	2		3	4	3	5	31
Total	3s	34	30	35	45	36	31	44	47	34	31	402

Table 3. Subject Matter Topics Presented at NAERM (1986-96)

Subject Matter	86	87	88	89	90	91	92	93	94	95	96	Total
Secondary ag programs	2	4	5	8	3	2	4	3	7	6	4	48
Learning styles/theory cognition	1	3	4	3	2	1	3	4	5	6	6	38
Extension	1	1	4	1	1	2	1	6	3	2	2	24
Ag mechanics/engineering	2	1	3		2		4	2	1	6		21
Job satisfaction/morale burnout	2		1		4	4	3			2		16
FFA	3	3	1	2		2	1	1	2			15
Professionalism	2	1	4	2	3	1		1	1			15
Women/minorities		2			1	1		2	5	3	1	15
Undergraduate/graduate education	1	2	1	1	1	3		3	1	1	1	15
Microcomputers	2	2		2	4	2	1	1			1	15
Historical/philosophical	4	1			1	3	1		1	1	3	15
Instruction/teaching		1	1		1	3	4	3	1			14
Problem solving	1	3	1		2		2	1	1	2		14
Ag literacy		1		1	2			1	4	2	1	13
SAEP	1	3	2		1	2	2		1		1	13
Program development/curriculum		2	1	2	1		1	2	1		2	13
Distance education					1			1	3	5	3	13
International	2	1		1	1	1		1	2	2	1	12
Leadership	1	1	1	1	1		1	3		1		10
Inservice/training	2	1	1	1			1	2	1		1	10
Ag careers	1			2	1	2			1	2		9
4-H youth/youth programs	1		2	1	1	1	1	1			1	9
Environmental					1		2	1	3	1	1	8
Young farmers	2					1		1		1	1	6
Adult education			1		1					3		5
Research methodology					1		1	1	1			4
Agribusiness		1		1								2
Evaluation		1									1	2
Retention/recruitment								1			1	2
Special needs				1								1
Others	8	1	3	6	6	5	11	6	3	2	4	55
Total	39	36	36	36	44	36	44	48	48	48	36	451

Table 4. Subject Matter Topics Published in JAE and presented at NAERM (1986-96)

Subject Matter	JAE (N= 402)	NAERM (N=451)	Total (853)
Secondary ag program	27	48	75
Learning styles/theory/cognition	32	38	70
Professionalism	28	15	43
Extension	18	24	42
Ag mechanics/engineering	17	21	38
Historical/philosophical	20	15	35
Undergraduate/graduate education	19	15	34
FFA	18	15	33
SAEP	20	13	33
Job astisfaction/morale burnout	16	16	32
Microcomputers	16	15	31
Instruction/teaching	14	14	28
International	15	12	27
Leadership	12	10	22
Women/minorities	7	15	22
Program development/curriculum	11	13	24
Problem solving	7	14	21
Ag literacy	6	13	19
Ag careers	8	9	17
4-H youth/youth programs	9	9	18
Environmental	10	8	18
Distance education	5	13	18
Insevice/training	4	10	14
Adult education	8	,	13
Agribusiness	9	2	11
Research methodology	6	4	10
Young farmers	4	6	10
Retention/recruitment	2	2	4
Evaluation	2	2	4
Special needs		1	1
Others	31	55	86
Total	402	451	853

<p>Moss (1986)</p> <ol style="list-style-type: none"> 1) Adult education 2) College faculties 3) Curriculum 4) Employment opportunities 5) Future Farmers of America 6) Research methodology/ impact 7) Special needs/ populations 8) Supervised occupational experience 9) Teacher attitudes and problems 10) Teacher training 11) Teacher effectiveness and methods 12) Other 	<p>Moore (1987)</p> <ol style="list-style-type: none"> 1) International 2) Extension 3) History and philosophy 4) Adult/Young Farmer/Post Sec 5) Agricultural mechanics 6) FFA 7) SOEP 8) Teacher education 9) Curriculum/ program planning 10) Org., adm. and supervision 11) Professional and general 	<p>Crunkilton (1988)</p> <ol style="list-style-type: none"> 1) Administration/ supervision 2) Ag instructors 3) Adult/post secondary 4) Extension education 5) Learning theory 6) Teaching methods 7) Inservice education 8) Philosophy/historical 9) International 10) Program development/ curriculum 11) Recruitment 12) Evaluation 13) Experiential learning 14) Elementary ag program 15) Youth/youth organization 16) Research methodology 17) Policy 18) Special needs 19) others 	<p>Radhakrishna & Jackson (1992) Radhakrishna & Mhaga (1995)</p> <ol style="list-style-type: none"> 1) Secondary ag programs 2) Ag instructors 3) Adult/post secondary 4) Extension education 5) Learning theory 6) Teaching methods 7) Inservice education 8) Philosophy/historical 9) International 10) Program development/ curriculum 11) Recruitment 12) Evaluation 13) Experiential learning 14) Elementary ag program 15) Youth/youth organization 16) Research methodology 17) Policy 18) Special needs 19) others 	<p>Radhakrishna & Xu (1997)</p> <ol style="list-style-type: none"> 1) Ag mechanics/engineering 2) SAEP 3) Microcomputers 4) Distance education 5) Leadership 6) International 7) Environmental 8) Extension 9) Evaluation 10) Learning styles/theory/cognition 11) Adult education 12) Inservice/training 13) Job satisfaction/morale/burnout 14) Secondary ag programs 15) Problem solving 16) FFA 17) Research methodology 18) 4-H youth/youth programs 19) Special needs 20) Undergraduate/graduate education 21) Program development/ curriculum 22) Historical/philosophical 23) Instruction/teaching 24) Retention/recruitment 25) Professionalism 26) Young farmers 27) Ag literacy 28) Ag careers 29) Women/minorities 30) Agribusiness 31) Others
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Figure 1. Comparison of Past Studies on Subject Matter Topics Researched in Agricultural and Extension Education

When the subject matter topics studied over a 10 year period were examined, several trends were evident. First, topics such as secondary agricultural programs, studies related to learning theory, agriculture mechanics, and job satisfaction, have been consistently researched by agricultural and extension educators. Second, traditional topics such as FFA, problem solving, and SOEP have been researched consistently but have shown a downward trend in recent years (Tables 2 and 3). Third, several other topics have emerged as subjects of interest to agricultural and extension educators. These include extension, international, agriculture literacy, environmental/sustainability, distance education, undergraduate and graduate education, and diverse audiences (women and minorities). Fourth, a moderate increase is evident in reporting topics such as historical and philosophical studies, research methodology, and leadership. Finally, topics such as evaluation, recruitment and retention, and special needs continue to be subject-matter topics not being studied by agricultural and extension educators. See Table 4 for a summary of articles by subject matter topics published in the *JAE* and papers presented at NAERM.

Conclusions and Recommendations

The findings from this study provide information on subject matter topics investigated by agricultural and extension educators, which in turn provides perspectives about the research efforts of the agricultural and extension education profession.

Findings indicate that agricultural and extension educators conduct research in a wide variety of subjects. In addition, the topics researched address diverse issues related to the profession. On one hand, it seems that as a profession we are expanding the scope of the subject matter topics researched, while, on the other hand, the findings suggest that no systematic research agenda exists for the profession due to lack of focus in our research, nature of funding, review process and personal interests. The findings also suggest that as a profession, we research only traditional subject

matter topics such as secondary agriculture programs, FFA, and SAE rather than focus on innovative topics.

In a time of declining resources, the profession should concentrate on topics which are crucial and important to the future of the profession such as research relative to agricultural science and the integration of vocational and academic education, and collaborative research within regions and among institutions. Collaborative approaches to research will become increasingly important since declining resources and downsizing are a certainty in the future. As an example, the recent USDA Challenge Grant Program emphasized collaborative actions at the regional level. Finally, smaller institutions should team up with large institutions to determine research priorities for the profession. Further research is needed to examine the nature and extent of collaboration in our research.

A need exists to develop a systematic research agenda for the profession as we look into the year 2000 and beyond. The research agenda should emphasize three important aspects: 1) focus more on issues critical to the profession; 2) identify collaborative approach to research, and 3) conduct periodic reviews of our premier journals and proceedings. Undertakings like these will help to build a strong foundation to address problems and uniquely position ourselves to face future challenges. As Mannebach, et al. (1984) suggested, we must continually examine our research and scholarly activities as these tell us what we are doing and where we should be going as a profession.

A recommendation for future research would be to examine how the subject matter topics identified in this study fit into the Buriak and Shinn (1993) research structure to establish a research agenda in agricultural education.

Finally, the findings of this study have provided a basis to remind ourselves where we have been and where we are heading as a profession relative to

research in agricultural and extension education. In addition, the findings have helped us to evaluate or examine our past and present research efforts. Findings of this study provide a basis to avoid repetitive studies and focus more on where and on what topics should be emphasized in the future. Hopefully this study will help us to examine our priorities and determine the future direction for our research efforts.

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