

RESEARCH THEMES IN AGRICULTURAL EDUCATION: FUTURE GAP ANALYSIS OF THE NATIONAL RESEARCH AGENDA

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Abstract

Agricultural education relies on multiple research journals to disseminate findings. This study focused on a ten-year content analysis of research published in identified premier agricultural education journals. The purpose of the study was to ascertain primary and secondary research theme areas in premier journals from 1997 to 2006 and compare those themes to the National Research Agenda (NRA): Agricultural Education and Communications, 2007-2010. This study employed a mixed-method content analysis design with gap analysis. There were 49 primary and 49 secondary research theme areas identified with food, agriculture, natural resources, health, and family (14.16%; 11.12%) being the most frequently researched theme area reported in our research. The researchers used compiled research theme data to analyze frequencies and gaps in the NRA. Agricultural education in domestic and international settings: extension and outreach was identified as the contextual area most researched. RPA 9 (ascertain the public's knowledge, views, and openness regarding the agri-food and natural resource system) was the most frequently researched priority area (26.2%). There were no gaps identified in the NRA, which indicated that there may be no emerging or futuristic research priority areas identified for the discipline. To continue to strengthen agricultural education research, findings from this study must be used to adjust research priority areas in the NRA.

Introduction

Agricultural education contributes scholarship of agricultural and educational systems by linking technical areas of agriculture and the humanistic dimensions (Barrick, 1989). In the past, it has been difficult to appraise the impact of agricultural education, and it is equally difficult to perceive its potential (Williams, 1991). With recognition of agricultural education as a discipline, research has sought to further understand the theoretical and conceptual underpinnings of agricultural education in its context, and numerous attempts have been made to focus the discipline (Barrick, 1989).

Newcomb (1993) identified the need to transform university agricultural education programs and encouraged programs to embrace a different approach to research to include a defined program of inquiry. Although there have been few specific calls from the discipline to examine its essence, numerous scholars have expounded on disciplinary topology (Baker, Shinn, & Briers, 2007; Barrick, 1989; Buriak & Shinn, 1989, 1993; Crunkilton, 1988; Dyer, Haase-Wittler, & Washburn, 2003; Frick, Kahler, & Miller, 1991; Hamlin, 1966; Harder & Roberts, 2006; Knight, 1984; Kotrlik, Barlett, Higgins, & Williams, 2001, 2002; Love, 1978; Mannebach, 1981; Mannebach, McKenna, & Pfau, 1984; McCracken, 1983; McKinney, 1987; Miller, 2006; Miller, Stewart, & West, 2006; Moore, 1991, 2006; Moss, 1986; Radhakrishna, 1995; Radhakrishna, Eaton, Conroy, & Jackson, 1994; Radhakrishna & Jackson, 1992, 1993, 1995; Radhakrishna & Mbagha, 1995; Radhakrishna & Xu, 1997; Shinn, 1994; Silva-Guerrero & Sutphin, 1990; Warmbrod, 1986, 1987; Warmbord & Phipps, 1966; Williams, 1991). However, the review of literature failed to identify a holistic examination of research in the discipline. It is essential to examine critical components of agricultural education research and suggest strategies to focus the discipline. By understanding the components of past research it is possible to understand the current state of research and take a more futuristic approach to knowledge pursuit, development, and stratagem.

“The future of agricultural research depends upon many variables, not the least important of which is acquisition and application of new knowledge generated from research” (Dyer et al., 2003, p. 61). Moore (2006) posited that it is clear that agricultural educators are not “driving” the profession, they spend their time “dabbling in esoteric research that doesn’t have much relevance to the real world” (p. 1). Concerns have been voiced about whether future agricultural education is actively engaged in research that is both needed and futuristic.

Peter Drucker (1998) suggested:

...in human affairs political, social, economic, and business, it is pointless to try to predict the future, let alone attempt to look ahead 75 years. But it is possible and fruitful to identify major events that have already happened, irrevocably, and that therefore will have predictable effects in the next decade or two. It is possible, in other words, to identify and prepare for the future that has already happened (p. 16).

Scholarship varies in importance, need, content, superiority, and capacity; however, the research created in the discipline influences the future efforts of the field. Since the 1990s, rapid growth in research and publishing activities in the agricultural education profession has resulted in enormous growth of agricultural education literature (Radhakrishna & Jackson, 1995), and new research outlets were created. “Given the institutional demands of research, teaching,

extension, and service, faculty often must allow one area to suffer to meet the expectations of another” (Myers & Dyer, 2004). If research suffers, then every aspect of the agricultural education discipline suffers with it.

Knight (1984) and Radhakrishna and Xu (1997) indicated that research journal articles are indicators of the profession’s current state. Ball and Knobloch indicated that it is critical for practitioners to examine the research base of the practice to allow the profession to reflect upon those actions and ultimately improve the discipline (2005). Miller, Stewart, and West identified the need to review literature and track citations to maintain a clear sense of the discipline’s research agenda (2006). Crunkilton identified the need for agricultural education to know where it can and should go with research in its pursuit to develop empirical knowledge (1988). The expressed need to focus the agricultural education discipline, examine its research base, and create a futuristic framework calls for use of a holistic examination of research in the discipline. This can be accomplished through the comparison of past research to a futuristic framework.

Theoretical and Conceptual Framework

The theoretical framework of this study lies in Boulding’s (1956) general systems theory: “the skeleton of science that aims to provide a framework or structure of systems on which to hang the flesh and blood of particular disciplines and particular subject matters in an orderly and coherent corpus of knowledge” (p. 208). The theory is used to study all relationships abstracted from any body of empirical knowledge. In a sense, agricultural education corresponds to a specific segment of the empirical world, and the discipline develops theories that have applicability to its own empirical segment. Agricultural education creates certain elements of the experience of individuals and develops theories and patterns of research that provide understanding to its empirical knowledge.

Systems theory deals with epistemological processes underlying knowledge acquisition and allows algorithms to be developed for computer-based systems modeling (Gaines & Shaw, 1984). It is typically a part of positivistic research that can be used with gap analysis. “System theory can be used to analyze -- logically, precisely and completely -- the implications of a philosophical position” (Gaines, 1978, p. 13). Theoretically, this model (Figure 1) can assist agricultural education in establishing a system of past and futuristic research. The agricultural education context is based on research theories derived from the discipline. The general systems model works to develop theoretical models having applicability to two or more of the integrated specializations in agricultural education (Gaines, 1978). General systems theory indicates that the agricultural education discipline is embedded in the agricultural and education contexts which encompass the integrated specialization areas of teacher education, extension education, agricultural communications, international agricultural education, and leadership education.

The conceptual framework of the study was grounded in these integrated specialization areas that support the context of agricultural education. These specialization areas have faculty involved in scholarship (research), and this scholarship influence research occurring in journal articles both inside and outside the discipline. This study was conceptually grounded in past research indicating that research theme areas are important in determining the current state of research (Buriak & Shinn, 1993; Dyer et al., 2003; Miller et al., 2006; Moore, 1991; Radhakrishna & Xu, 1997; Silva-Guerrero & Sutphin, 1990). This past research frame becomes

the experience-base of agricultural education research. The *National Research Agenda (NRA): Agricultural Education and Communication, 2007-2010* was developed, in an effort, to outline future research priorities for the discipline (Osborne, n.d.). The *NRA* was used as a benchmark for the study. The *NRA* is the first holistic document outlining research priority areas in each of the integrated specialization areas of agricultural education. The *NRA* was used to provide a benchmark for agricultural education research. Gap analysis was used to compare the experience-base (past research) to the benchmark (*NRA* priority areas) to determine the future state of agricultural education research. The use of gap analysis provided insight in to the research theme area frequencies and gaps represented in agricultural education research.

Purpose and Objectives

The purposes of this study, which was part of a larger study, were to review research published in major research journal outlets in agricultural education from 1997 to 2006 and examine the status of the journals to provide a base from which to direct future research. Three objectives guided this study:

1. Determine premier research journals in agricultural education.
2. Describe and synthesize primary and secondary research theme areas from the journals identified in objective one for the timeframe of 1997 to 2006.
3. Determine frequencies and gaps in agricultural education (Ag Ed) research by comparing past research theme areas, identified in the premier Ag Ed journals, to the *NRA*.

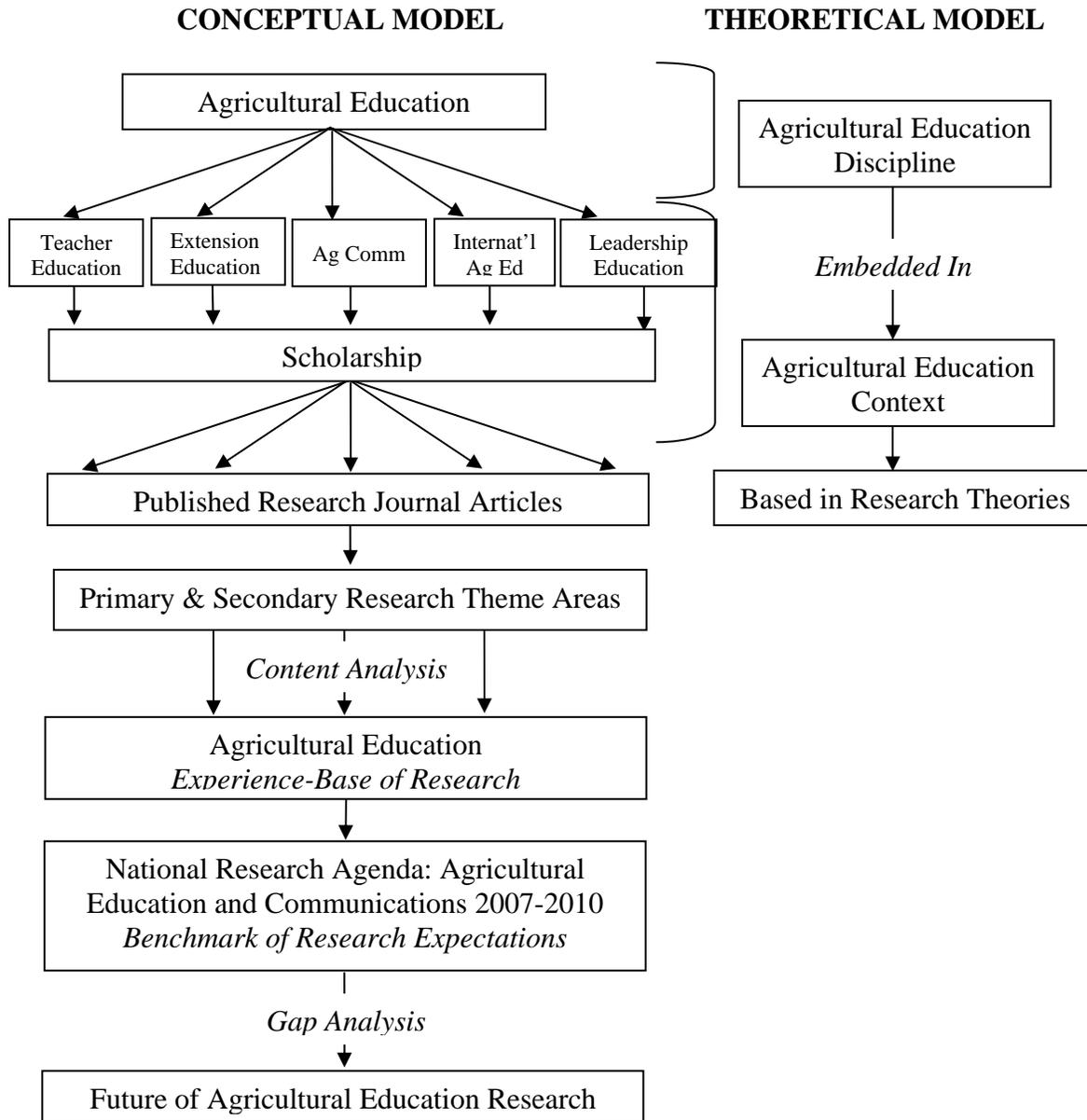


Figure 1. Theoretical and conceptual base of the study.

Research Methods and Procedures

This study employed a mixed-method content analysis design. Content analysis as a research method has existed for decades, and the best content-analytic studies use mixed-methods methodology (Weber, 1990). Content analysis can be used to give researchers insight into problems or hypotheses that can then be tested by more direct methods. Content analysis is a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding (Berelson, 1952; Krippendorff, 1980; Weber, 1990).

Content validity was maintained using both previous research as a guide, and a field study to focus the research. Baker, Shinn, and Briers (2007) identified 104 individuals as active agricultural education research authors. A field questionnaire was developed and sent to 96 of those authors with valid email addresses. The contacted authors were asked to identify premier journals and to validate or add to research theme categories. Research theme categories were created based on previous content analyses of journals in the integrated specializations of teacher education, leadership education, agricultural communications, international agricultural education, and extension education. These categories were provided to the pilot study, and it was the respondents' responsibility to compress or expound on research theme areas. The pilot study identified 37 research theme areas for the five specialization areas identified in the *NRA*. Dillman's (2000) Tailored Design Method was used, and 62 of 96 possible respondents completed the questionnaire, yielding a 65% response rate.

Research journal articles from 1997 to 2006 in the identified premier agricultural education journals were used as the frame for the study. The main focus of each article (knowledge-base) was coded as the primary research theme area. The most prevalent supporting theme (conceptual-base) was identified as the secondary theme of each article. The principal investigator and a peer independently reviewed the material and formed a checklist of information required during the review of each journal article. The researchers compared notes and reconciled differences on their initial checklists via negotiations. Researchers used a consolidated checklist to independently apply coding. The researchers then checked for agreement in coding; if reliability was not acceptable, then the previous steps were repeated. Once reliability had been established, the coding was applied on a large-scale basis. The final stage was a periodic quality control check (Weber, 1990). Inter-coder reliability was completed, with at least 10% overlap for the reliability test. Final reliability was calculated using a random sample of 5% of the analyzed articles. Reliability was assessed using Spearman's rho. Reliabilities met or exceeded the minimum standard of .70 (Bowen et al., 1990; Tuckman, 1999).

The study content analysis identified 91 research theme categories. A panel of research experts was used to independently review and then compile, compress, and collapse research theme areas. After the independent review, researchers checked for agreement on research theme areas and adjusted research themes based on negotiations. This study identified 50 research theme areas during the ten-year assessment.

Findings

Field study respondents indicated that the *Journal of Agricultural Education* (93%) was the premier journal. The *Journal of International Agricultural and Extension Education* was identified as the second premier journal (67%) in the discipline. The *Journal of Extension* was identified as the third premier journal (63%). The fourth premier journal identified was the *North American Colleges and Teachers of Agriculture Journal* (48%). *Journal of Applied Communications* (43%) and the *Journal of Leadership Education* (41%) were identified as the fifth and sixth most popular premier journals. Respondents nominated 21 journals as premier research outlets in agricultural education. Those journals identified by 40% or more of the respondents were used in this study. The researcher looked for a natural split in the frequencies of premier research journals. That natural split existed at a frequency level of 40%. The *National*

Association of Colleges and Teachers in Agriculture Journal (48%) was excluded from the study due to its broad college and teaching scope. Furthermore, the journal does not have a distinct focus on one of the five integrated specialization areas in agricultural education as outlined *NRA*.

There were 1,151 articles analyzed. All research articles from 1997 to 2006 (323 articles) were examined in the *Journal of Agricultural Education (JAE)*. Articles in the *Journal of International Agricultural and Extension Education (JIAEE)* issues I and III, from 1997 to 2006, were analyzed (144 articles); issue II was excluded because they house annual conference proceedings. All research (in brief) articles and feature articles with research methodologies in the *Journal of Extension (JOE)*, from 1997 to 2006, were analyzed (548 articles). Articles in the *Journal of Applied Communications (JAC)* identified as research or professional with research methodologies, from 1997 to 2006, were analyzed (91 articles). The *Journal of Leadership Education (JOLE)* was first published in the summer of 2002; research articles with research methodologies, since its inception until 2006, were analyzed (45 articles). The above journals were identified as the premier agricultural education (Ag Ed) journals in the discipline by participants in the field study.

Primary research theme areas identified in premier Ag Ed journals are shown in Table 1. There were 49 of the 50 identified research theme areas represented in the primary research theme area of premier Ag Ed journals. Graphic design was not identified as a primary research theme area; however, it was noted as a secondary research theme. Food, agriculture, natural resources, health, and family was the most frequently identified primary research theme area (14.16%). Those primary research theme areas identified in premier Ag Ed research articles 6.26% or fewer are identified in the table.

Table 1

Primary Research Themes Identified in Premier Ag Ed Journals 1997–2006 (N = 1,151)

Research Themes	<i>JAE</i>	<i>JIAEE</i>	<i>JOE</i>	<i>JAC</i>	<i>JOLE</i>	Total	Total
	<i>f</i>	<i>f</i>	<i>f</i>	<i>f</i>	<i>f</i>	<i>f</i>	<i>P</i>
Food, Agriculture, Natural Resources, Health, and Family	20	12	128	3	0	163	14.16
Needs Assessment	29	13	29	0	1	72	6.26
Instructional and Program Delivery Approaches	12	3	45	1	1	62	5.39
Youth Leadership and Development	12	0	45	0	3	60	5.21
Evaluation	12	23	22	0	1	58	5.04
Information Sources and Technology	2	2	28	17	0	49	4.26
Volunteer Development and Leadership	6	1	29	1	2	39	3.39
Teacher Preparation and Competence	33	2	1	0	1	37	3.21
Research (methods and models)	17	3	13	0	1	34	2.95
Curriculum and Program Development	7	9	13	3	0	32	2.78
Leadership Development	6	2	9	0	14	31	2.69
Perceptions and Attitudes Assessment	21	7	2	0	0	30	2.60
Distance Education	12	0	12	5	0	29	2.52
Diversity (culture, ethnicity, gender)	6	8	11	0	0	25	2.17
Professional Development	7	5	9	2	1	24	2.09
Communication Management	4	1	4	13	1	23	2.00
Globalization and Internationalization	2	14	5	0	0	21	1.82
Institutional Organization and Institutionalization-	8	5	5	3	0	21	1.82
Collaborations, Partnerships, and Coalitions	0	5	14	0	0	19	1.65
Academic Programs	12	5	0	0	1	18	1.56
Leadership Education	5	0	2	0	11	18	1.56
Leadership Management	10	0	7	0	1	18	1.56
Processes, Principles, and Styles of Learning	12	0	5	1	0	18	1.56
Critical Thinking	12	2	1	2	0	17	1.48

Table 1 (continued)

Research Themes	<i>JAE</i> <i>F</i>	<i>JIAEE</i> <i>f</i>	<i>JOE</i> <i>f</i>	<i>JAC</i> <i>f</i>	<i>JOLE</i> <i>f</i>	Total <i>f</i>	Total <i>P</i>
Career Development and Assessment	5	4	6	0	1	16	1.39
Policy Issues	3	1	11	1	0	16	1.39
Organizational Development and Leadership	2	3	11	0	0	16	1.39
Communications of Scholarship	2	0	3	9	0	14	1.22
Service and Experiential Learning	7	0	4	0	3	14	1.22
Formal and Informal Teaching Approaches	4	0	8	0	1	13	1.13
Skill Development and Competencies	4	1	8	0	0	13	1.13
Accountability	0	0	9	3	0	12	1.04
Appropriateness of Education	10	0	2	0	0	12	1.04
Communication Technology	3	2	3	4	0	12	1.04
Knowledge and Competencies	6	5	0	0	0	11	0.96
Diffusion of Innovations	1	5	3	0	1	10	0.87
Biotechnology Communications	0	1	2	6	0	9	0.78
Marketing and Promotion	1	0	8	0	0	9	0.78
Media Relations	1	0	1	6	0	8	0.70
Quality of Life and Life Skills	1	0	7	0	0	8	0.70
Community Development and Leadership	0	0	7	0	0	7	0.61
Consumer/Audience Response and Analysis	0	0	4	3	0	7	0.61
Agricultural Literacy	4	0	0	1	0	5	0.43
Electronic Media	0	0	2	3	0	5	0.43
Funding (resource development and needs)	0	0	5	0	0	5	0.43
Risk and Crisis Communications	0	0	2	2	0	4	0.35
Business/Employee Management and Expansion	0	0	3	0	0	3	0.26
Framing	0	0	0	2	0	2	0.17
Writing	2	0	0	0	0	2	0.17

Secondary research themes identified in premier Ag Ed journals are displayed in Table 2. There were 49 secondary research theme areas identified. Biotechnology communications was the only research theme area not identified as a secondary research theme in premier Ag Ed journals. The most frequently identified secondary research theme was food, agriculture, natural resources, health, and family (11.12%). Those secondary research theme areas identified 8.69% or fewer are identified in the table.

Table 2

Secondary Research Themes Identified in Premier Agricultural Education Journals 1997–2006
(*N* = 1,151)

Research Themes	<i>JAE</i> <i>f</i>	<i>JIAEE</i> <i>f</i>	<i>JOE</i> <i>f</i>	<i>JAC</i> <i>f</i>	<i>JOLE</i> <i>f</i>	Total <i>f</i>	Total <i>P</i>
Food, Agriculture, Natural Resources, Health, and Family Evaluation	21 18	16 12	78 67	13 0	0 3	128 100	11.12 8.69
Instructional and Program Delivery Approaches	16	5	53	3	1	78	6.78
Curriculum and Program Development	20	8	42	1	1	72	6.26
Youth Leadership and Development Needs Assessment	17 8	2 6	42 37	0 4	2 1	63 56	5.47 4.87
Teacher Preparation and Competence	38	2	3	0	0	43	3.73
Institutional Organization and Institutionalization-	17	3	19	4	0	43	3.74
Distance Education	18	1	8	3	0	30	2.61
Diversity (culture, ethnicity, gender)	9	0	14	4	2	29	2.52
Information Sources and Technology	2	5	11	10	1	29	2.52
Formal and Informal Teaching Approaches	17	4	5	0	2	28	2.43
Academic Programs	12	6	0	2	4	24	2.09
Appropriateness of Education	15	4	4	1	0	24	2.09
Perceptions and Attitudes Assessment	9	11	1	3	0	24	2.09
Professional Development	9	8	5	0	0	22	1.91
Skill Development and Competencies	4	2	10	4	2	22	1.91
Globalization and Internationalization	1	15	1	3	1	21	1.82
Leadership Management	7	2	11	0	1	21	1.82
Research (methods and models)	6	4	8	1	0	19	1.65
Community Development and Leadership	3	5	8	1	1	18	1.56
Accountability	2	0	10	3	2	17	1.48
Leadership Development	4	0	8	1	4	17	1.48
Collaborations, Partnerships, and Coalitions	1	1	14	0	0	16	1.39
Processes, Principles, and Styles of Learning	12	0	3	0	1	16	1.39

Table 2 (continued)

Secondary Research Themes	<i>JAE</i> <i>f</i>	<i>JIAEE</i> <i>f</i>	<i>JOE</i> <i>f</i>	<i>JAC</i> <i>f</i>	<i>JOLE</i> <i>f</i>	Total <i>f</i>	Total <i>P</i>
Career Development and Assessment	4	4	5	1	1	15	1.30
Quality of Life and Life Skills	4	0	10	0	1	15	1.30
Leadership Education	5	1	0	0	8	14	1.22
Consumer/Audience Response and Analysis	1	0	9	3	0	13	1.13
Policy Issues	1	1	9	2	0	13	1.13
Volunteer Development and Leadership	5	0	7	0	1	13	1.13
Communications of Scholarship	5	2	2	3	0	12	1.04
Communication Management	0	0	5	6	0	11	0.96
Funding (resource development and needs)	0	1	7	2	0	10	0.87
Critical Thinking	4	3	1	0	1	9	0.78
Organizational Development and Leadership	0	0	6	0	3	9	0.78
Diffusion of Innovations	0	3	5	0	0	8	0.70
Knowledge and Competencies	4	4	0	0	0	8	0.70
Risk and Crisis Communications	0	2	4	1	0	7	0.61
Marketing and Promotion	1	0	5	0	0	6	0.52
Media Relations	2	0	0	4	0	6	0.52
Service and Experiential Learning	1	0	4	0	0	5	0.43
Writing	0	0	1	3	0	4	0.35
Business/Employee Management and Expansion	0	0	3	0	0	3	0.26
Communication Technology	0	1	0	2	0	3	0.26
Agricultural Literacy	0	0	1	1	0	2	0.17
Framing	0	0	0	1	1	2	0.17
Electronic Media	0	0	2	0	0	2	0.17
Graphic Design	0	0	0	1	0	1	0.09

Research themes identified in the premier Ag Ed journals were used to analyze the *National Research Agenda: Agricultural Education and Communication 2007-2010* (Osborne, n.d.). Data (research theme areas) from the content analysis were transformed /renamed /reclassified based on *NRA* content categorizes. Transformed data were used to identify frequencies and gaps in the agricultural education discipline. There are five contextual research category identified in the *NRA*, and 22 research priority areas. The *NRA* outlines research priority areas in the following areas: agricultural communications; agricultural leadership; agricultural education in domestic and international settings: extension and outreach; agricultural education in university and postsecondary settings; and agricultural education in schools.

Table 3 outlines research priority areas (RPA) and descriptions associated with each RPA as listed in the *NRA* and frequencies and percentages associated with the comparative gap analysis. RPA 1 through 4 relate to the context area of agricultural communications ($P = 66.0$). RPA 5 through 8 relate to agricultural leadership ($P = 52.7$). RPA 9 through 13 relate to agricultural education in domestic and international settings: extension and outreach ($P = .94.8$). RPA 14 through 17 relate to agricultural education in university and postsecondary settings ($P = 54.2$). RPA 18 through 22 relate to agricultural education in schools ($P = 76.7$). The following table identifies the primary and secondary research theme frequencies, derived from research theme areas identified in content analysis of premier Ag Ed journals, as the research themes relate to the *NRA*. RPA 9 (ascertain the public's knowledge, views and openness regarding the agri-food and natural resource system) was the most frequently identified research priority area (26.2%). The research context area with the highest frequencies of research currently occurring was agricultural education in domestic and international settings: extension and outreach.

There were no gaps identified in the *NRA*. Gaps are areas of research outlined in the *NRA* (also referring to the research benchmark) that have not been identified in past research, as identified in the content analysis of premier Ag Ed journals (experience-base of research). However, there were research themes that were not categorized into the *NRA*; yet, they were identified in analyzed premier Ag Ed research articles from 1997 to 2006. The research theme areas were: funding (resource development and/or needs), graphic design, policy issues, research (methods and models), and writing. All research priority areas, outlined in the *NRA*, have previously been researched to some degree as identified in the assessed premier Ag Ed journals.

Table 3

Summary of Primary and Secondary Research Themes Related to the Priority Areas of the National Research Agenda (N = 2,302)

RPA	Research Priority	<i>f</i>	<i>P</i>
1	Enhance decision making within the agricultural sectors of society.	182	7.9
2	Within and among societies, aid the public in effectively participating in decision making related to agriculture.	510	22.2
3	Build competitive societal knowledge and intellectual capabilities.	480	20.9
4	Develop effective agricultural work forces for knowledge-based societies.	346	15.0
5	Develop and disseminate effective leadership education programs.	367	15.9
6	Support leadership opportunities for underrepresented populations.	257	11.2
7	Ensure leader succession in sustaining agricultural enterprises, and enhance citizen engagement in rural and urban community development.	193	8.3
8	Engage citizens in community action through leadership education and development.	399	17.3
9	Ascertain the public's knowledge, views and openness regarding the agri-food and natural resource system.	604	26.2
10	Identify the needs and competencies of stakeholders and professional practitioners in nonformal agricultural extension education.	285	12.4
11	Identify appropriate learning systems to be used in nonformal education settings.	249	10.8
12	Examine appropriate nonformal educational delivery systems.	547	23.8
13	Identify and use evaluation systems to access program impact.	498	21.6
14	Recruit and prepare students for the future workforce in the agricultural and life sciences.	199	8.6
15	Improve the success of students enrolled in agricultural and life sciences academic and technical programs.	405	17.6
16	Enhance the effectiveness of agricultural and life science faculty.	341	14.8
17	Assess the effectiveness of educational programs in agricultural and life sciences.	305	13.2
18	Enhance program delivery models in agricultural education.	358	15.6
19	Provide a rigorous, relevant, standard-based curriculum in agricultural, food, and natural resources systems.	414	18.0
20	Increase access to agricultural education instruction and Programming.	494	21.5
21	Prepare and provide an abundance of fully qualified and highly motivated agricultural educators at all levels.	289	12.6
22	Determine the effects of agricultural education instruction.	208	9.0

Conclusions

Agricultural education relies on numerous journals to disseminate research in the discipline. Six journals were validated as premier in this study. They are: the *Journal of Agricultural Education*, the *Journal of International Agricultural and Extension Education*, the *Journal of Extension*, the *North American Colleges and Teachers of Agriculture Journal*, the *Journal of Applied Communications*, and the *Journal of Leadership Education*. Research articles housed in these journals are adding to the scope and topography of scholarship occurring in the discipline. However, research theme area variation across journals is an indication that research journals in agricultural education are specialized, and they carry with them unique needs, authorships, focus, and impact.

This study discovered variety in research theme areas in all identified premier agricultural education journals; research articles are adding to the scope and topography of agricultural education scholarship. It was also discovered that there is extensive variety in research theme areas in journals with fewer research articles. In *JAC* and *JOLE* the breadth of identified research theme areas appear to contribute a lack of continuity in discovery. In *JAC* there were 22 research themes identified as primary and 30 as secondary in the 91 analyzed articles. The primary research theme “framing” and the secondary theme “graphic design” were housed only *JAC* articles. In *JOLE* there were 17 research themes identified as primary and 23 as secondary themes in the 45 analyzed articles. There were no research theme areas confined solely to *JOLE* articles. When research themes in the respective journals are compiled, this lack of continuity in discovery appears to be contributed to the journals less frequently identified as premier by experts in our field. This study found that new research outlets (*JAC* and *JOLE*) have provided venues for additional research publications while also adding to the research variation, perhaps, excessively. This excessive variety in research themes may be due to agricultural communications’ and leadership educations’ attempt to find their place in agricultural education academic units and research agendas. The results from research theme areas can be seen as indicative of what the discipline has valued in terms of research. Although these themes are indicators of the breadth of research occurring in the field, are they indicators of research depth?

There were no gaps identified, at the macro-evaluation level, when comparing past research themes to the *NRA*. “Ascertain the public’s knowledge, views and openness regarding the agri-food and natural resource system” was identified as the most frequent research priority area. This research priority area relates to agricultural education in domestic and international settings: extension and outreach, which maintained the largest percentage of overall research. The least frequently researched theme was “enhance decision making within the agricultural sectors of society.” The theme is related to the agricultural communications construct. The construct area agricultural leadership maintained the lowest percentage of research, followed by agricultural communications. This may be due to the sheer lack of research articles in *JOLE* and *JAC*; the analyzed journals that respectfully represent these two contextual areas under the large umbrella of agricultural education.

Discussion and Implications

Although a framework for future research has been created (*NRA*), the framework, on a macro-evaluation level, can not be verified as futuristic. Past research theme areas, identified in

the discipline, are excluded in the framework and no new research priority areas are identified. Furthermore, it is not clear which *NRA* research priority areas are the most important and demand the most focus, or if past research is adequately fulfilling each research priority. This study identified past research supporting each of the priority areas outlined in the *NRA*, but is this research fulfilling each of the broad research priority areas needs? Each PRA represents one of five integrated specialization areas that support agricultural education. Is the research currently occurring adequate for these construct areas? If no, how do we determine where we need to expand our pursuit of knowledge? This study can not add to these questions. Also, the *NRA* outlines broad priority areas, what do we need to know and do to understand if we are fulfilling those needs?

This research joins with concerns expressed by Williams (1991) in that it has been difficult to appraise the impact of agricultural education, and it is equally difficult to see its potential. Although the *NRA* aids researchers in exploring priority areas in the discipline, it adds little to solving the apparent lack of continuity in discovery and future research needs of agricultural education. This research adds to work by Buriak and Shinn (1993) and data from this study can be used to provide a current frame for the discipline to assist researchers in a clearer picture of past research. By understanding past research and priorities outlined in the *NRA* researchers can better employ research strategies that will assist agricultural educators in becoming more progressive. This research supports the theoretical and conceptual model outlined in this study.

Faculty members must thrive in teaching, scholarship, service, and funding in order to achieve and maintain tenure. Scholarship is a critical piece to faculty success. This research supports Buriak and Shinn's (1993) position of the need for a research agenda to: (a) to maintain compatibility with the national priorities for the food and agricultural science system and the educational system, (b) to guide research investments, and (c) to communicate priorities to agencies and organizations that have national responsibilities for planning and budgeting research. However, the researchers express caution when adhering to such an agenda. This research discovered that the *NRA* is not all encompassing and although it does provide a reasonable framework for the discipline, it is not all inclusive. In part, the *NRA* was developed to assist with funding efforts in agricultural education and caution must be used to ensure that the discipline is not wielded by the highest dollar but by the needs of our diverse audiences.

Peterson (1999) posited that by 2009, a million-dollar research and development agenda focused on the teaching and learning processes in and about agricultural, food and environmental education would provide guidance to the discipline. The *NRA* was a step in preparing an all-encompassing agenda. However, there is a need to continue to revise and strengthen the agenda.

Recommendations

The profession must continue to reflect upon those actions that ultimately improve and strengthen the discipline. This study calls for additional discovery to expand the research theme areas identified. We must determine the breadth and depth of research themes identified in this study, and how/if these themes affect futuristic research in agricultural education. Research, in this study, regarding the *NRA* was completed at a macro level. More in-depth research must be conducted to determine which RPAs are the most critical and demand immediate attention.

Research priority areas in the *NRA* are broad. This allowed for multiple interpretations of RPA meaning and potential content theme match to each area. Efforts must be made to interpret the breadth of research that can occur in each research priority area and suggestions for future critical research must be made. It is not clear whether research currently occurring in agricultural education is adequately meeting the needs of each RPA identified in the *NRA*. Additional research must be conducted to determine whether current research is meeting the needs of each RPA and/or if additional futuristic research is needed. Additions, revisions, and deletions to the *NRA* must continue. Research agendas should also be developed on regional and state levels.

The discipline may benefit from identifying “expert” researchers in each of the RPAs and construct areas. These experts could serve as mentors for less experienced researchers. Efforts should be made to analyze the breadth, depth, and quality of research occurring in each of the RPAs. The identified premier agricultural education journals should be used, respectively, for further analysis regarding the quality and depth of research occurring in each integrated specialization area. It can be assumed that *JAC* is fulfilling research in the agricultural communications, and *JOLE* is fulfilling RPAs in agricultural leadership, etc. However, it is imperative that we use empirical knowledge to determine the degree and magnitude that premier journals are meeting RPA needs.

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