

The Journal of International Agricultural and Extension Education: A Ten Year Look

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Abstract

The Journal of International Agricultural and Extension Education (JIAEE) has been a primary outlet of international agricultural education publishing and research and activity dissemination—a claim verified in this study. The purpose of this study, which was a part of a larger study, was to assess ten-years of JIAEE to determine primary and secondary research theme areas, frequent primary and secondary research themes by year, prolific authorship, and research methods and types used, using a mixed-methods design. Analyzed in this study were 144 research articles published in JIAEE issues I and III, from 1997 through 2006. There were 27 primary research theme areas and 31 secondary research theme areas identified. The compiled list of primary and secondary research themes, and prolific themes identified by year are reported. There were 329 JIAEE authors identified, with Mohammad Chizari, Barnabas Dlamini, and James Lindner (6.3%) being the most prolific. Quantitative research methods were the most common (75.7%). The most frequent research method types were survey methods (45.8%). Research themes appear cyclic and additional research must be completed to determine depth and research influence of the potential cycles. Researchers should consider diversifying their methodological research types beyond survey research. Results of this research should be used comparatively with research priority areas identified in the National Research Agenda: Agricultural Education and Communication 2007-2010 to determine where future research focus must be incorporated.

Key words: content analysis, research themes, research methods, prolific authors, Journal of International Agricultural and Extension Education

Introduction

Agricultural education researchers have sought to understand the theoretical and conceptual underpinnings within its context, and numerous attempts have been made to focus the discipline. These attempts have typically focused on three main objectives: (a) analyzing the dimensions of agricultural education, (b) summarizing critiques of agricultural education research, and (c) suggesting strategies to focus the discipline (Barrick, 1989); more recently, the scope has expanded to include (d) summarizing prolific authors (Harder & Roberts, 2006; Radhakrishna & Jackson, 1995; Radhakrishna, Jackson, & Eaton, 1992); and (e) identifying statistical methods used (Bowen, Rollins, Baggett, & Miller, 1990; Dyer, Haase-Wittler, & Washburn, 2003; Mannenbach, McKenna, & Pfau, 1984). Newcomb (1993) indicated the need to transform university agricultural education programs by broadening programs and defining programs of inquiry. In 1990, agricultural education researchers were encouraged to “develop an improved conceptual framework for future investigators” and “integrate existing work” (Birkenholz, Harbstreit, & Law, 1990, p. 32).

The need for this research is grounded in research by Ball and Knobloch (2005); Baker, Briers, and Shinn (2007); Crunkilton (1988); Knight (1984); Miller, Stewart, and West (2006); Newcomb (1993); and Radhakrishna and Xu (1997). Knight wrote that a discipline’s journals and magazines are good indicators of research priorities in the discipline. Radhakrishna and Xu found that research journal articles are indicators of the profession’s scientific activity, philosophy, and application. Ball and Knobloch indicated that it is critical for practitioners to examine the knowledge base of the field to allow the profession to reflect upon actions and ultimately improve the discipline. Crunkilton identified the need for agricultural education to know where it can and should go with research in its pursuit to develop empirical knowledge. Newcomb called for agricultural education research to become more focused, coordinated, and conducted passionately. Miller, Stewart, and West identified the need to review literature in an effort to maintain a clear sense of the discipline’s research agenda. Baker, Briers, and Shinn indicated the need to examine core knowledge objects and knowledge domains. The expressed need to focus the agricultural education discipline, examine its knowledge base, and review its literature creates a call for the employment of a holistic approach to examine research in agricultural education.

There have been few specific calls in agricultural education to examine the very essence of its research. Yet there is a need to understand where the discipline has been to assist the profession in more fully understanding where to focus research efforts in the future. “There is a need to re-examine agricultural education in a future that has already happened. Has the knowledge changed along with the times?” (Baker, et al., 2007, p. 1). Baker, Shinn, and Briers indicated a need to examine core knowledge objects and collective knowledge domains for agricultural education, and this need remains. In an effort to strengthen research agendas, the *National Research Agenda [NRA]: Agricultural Education and Communication 2007-2010*, was created as a guide for developing futuristic research (Osborne, n.d.). Yet, how can we be sure where we are headed with research, and if the direction is adequate and appropriate, if we are unclear as to where we have been? There is a need, as illustrated by research, to analyze the dimensions of agricultural education in a holistic manner and suggest strategies to focus the discipline and prepare it for the future.

In 1984, agricultural education faculty members interested in international development organized the Association for International Agricultural Education. This 24-year-old organization is now named the Association for International Agricultural and Extension

Education (AIAEE). In 1994, AIAEE published the first issue of the *Journal of International Agricultural and Extension Education (JIAEE)*. *JIAEE* has been one of the primary outlets for publishing and disseminating research and developmental activities in international agricultural and Extension education. In the past, agricultural education has used a limited and fragmented approach to examining its research. By holistically examining the critical components of international agricultural education research, the discipline can deepen its understanding of the current state of research and take a more futuristic approach to knowledge pursuit, development, and examination. Research can analyze the dimensions of international agricultural education in *JIAEE*. Understanding research occurring in international agricultural education can assist the discipline and other integrated specialization areas, as identified in the *NRA*, to more fully focus literary contexts and further strengthen the discipline. This study will assist in the creation of a discipline baseline in determining the experience-base of research occurring in *JIAEE*. This is a small portion of a larger study that examined five integrated specializations areas associated with agricultural education as outlined in the *NRA*.

Conceptual Framework

The future of agricultural education depends on many variables and application and acquisition of new knowledge via research is extremely important (Dyer, et al., 2003). Yet, the quality of research has been questioned for more than two and a half decades, and in some cases has been identified as inferior to other disciplines (Buriak & Shinn, 1993; Dyer, et al., 2003; Radhakrishna & Xu, 1997; Silva-Guerrero & Sutphin, 1990; Warmbrod, 1986). The conceptual framework of the study was grounded in work by numerous scholars in agricultural education. Researchers have completed various components of journal analysis in agricultural education: familiarity and quality of journals and importance of faculty publishing (Radhakrishna, 1995; Radhakrishna & Jackson, 1993); research theme areas (Buriak & Shinn, 1993; Dyer, et al., 2003; Miller, et al., 2006; Moore, 1991; Radhakrishna & Xu, 1997; Silva-Guerrero & Sutphin, 1990); prolific authors (Harder & Roberts, 2006; Radhakrishna & Jackson, 1995; Radhakrishna, et al., 1992); and statistical methods used (Bowen, et al., 1990; Dyer, et al., 2003; Mannenbach, et al., 1984).

This study examined all research articles published in *JIAEE* yearly issues I and III, from 1997 to 2006. Issues II were excluded from the study because these issues possessed the annual conference articles per respective year. The study assessed primary and secondary research theme areas, authorship, and research methods and types using a content analysis approach. This research is the first step in identifying a research experience-base framework for international agricultural education, using the premier journal (*JIAEE*), as identified in a field study. Conceptually, this research examined international agricultural educations' current research activity. The experience-base, from this research, can then be used as a framework to suggest future research strategies when compared to the *NRA*.

Purpose and Objectives

The purposes of this study, which was a part of a larger study, were to review research published in the *Journal of International Agricultural and Extension Education* annual issues I and III, from 1997 to 2006, and to examine the status of the journal to provide a base from which to direct future research. The specific objective was to describe and synthesize published research in the *JIAEE* during the ten-year period by identifying: (a) primary and secondary research themes in published research articles; (b) primary and secondary research theme areas

among research articles published by year; (c) the most prolific authors; and (d) research methods and designs.

Research Methods and Procedures

This study employed a mixed-methods content-analysis design. Content analysis as a research method has existed for decades, and the best content-analytic studies use mixed-method methodologies (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).

Face and content validity were maintained using previous research as a guide, and a field study to focus the research. One hundred four individuals were identified as active agricultural research authors based on a Delphi study by Baker, Shinn, and Briers (2007). A field questionnaire was developed and sent to 96 of those authors with valid email addresses. (Eight individuals were eliminated after failed attempts to identify usable 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 specialization areas of international agricultural education, Extension education, teacher education, agricultural communications, and leadership 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 thirty-seven research theme areas in relation to 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 in annual issues I and III from 1997 to 2006, in the identified premier journal, the *Journal of International Agricultural and Extension Education*, were used as the frame for the study. The researcher 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 emerging 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 of coding was completed independently, 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 for each variable. Reliabilities met or exceeded the minimum standard of .70.

The study content analysis identified thirty-one research theme categories in *JIAEE*. 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 theme areas based on negotiations.

Findings

The *Journal of International Agricultural and Extension Education* was identified in the field study as a premier research journal by 67% of respondents. All research journal articles (n=144 articles) published in *JIAEE* issues I and III from 1997 to 2006 were analyzed. There

were 27 primary research themes identified, as shown in Table 1. The most frequently identified primary research theme was evaluation (16.0%). The second most frequent primary research theme was globalization and internationalization, identified in 9.7% of the research articles. Primary research theme areas identified in *JIAEE* research articles 9.0% or fewer times are identified in the table.

Table 1

Primary Research Themes Identified in the Journal of International Agricultural and Extension Education 1997–2006 (N = 144, 27 primary research themes)

Research Theme	<i>f</i>	%
Evaluation	23	16.0
Globalization & Internationalization	14	9.7
Needs Assessment	13	9.0
Food, Agriculture, Natural Resources, Health, & Family	12	8.3
Curriculum & Program Development	9	6.3
Diversity (culture, ethnicity, gender)	8	5.6
Perceptions & Attitudes Assessment	7	4.9
Academic Programs	5	3.5
Collaborations, Partnerships, & Coalitions	5	3.5
Diffusion of Innovations	5	3.5
Institutional Organization & Institutionalization	5	3.5
Knowledge Competencies & Development	5	3.5
Professional Development	5	3.5
Career Development & Assessment	4	2.8
Instructional & Program Delivery Approaches	3	2.1
Organizational Development & Leadership	3	2.1
Research (methods and models)	3	2.1
Communication Technology	2	1.4
Critical Thinking	2	1.4
Information Sources & Technology	2	1.4
Leadership Development	2	1.4
Teacher Preparation & Competence	2	1.4
Biotechnology Communications	1	0.7
Communication Management	1	0.7
Policy Issues	1	0.7
Skill Development & Competencies	1	0.7
Volunteer Development & Leadership	1	0.7

The 31 secondary research themes identified in the *JIAEE* are displayed in Table 2. The most frequently identified secondary research theme was food, agriculture, natural resources, health, and family (11.1%). The second most frequent secondary research theme was globalization and internationalization, identified in 10.4% of the research articles. Secondary research theme areas identified 6.2% or fewer are identified in the table.

Table 2

Secondary Research Themes Identified in the Journal of International Agricultural and Extension Education 1997–2006 (N = 144, 31 secondary research themes)

Research Theme	<i>f</i>	%
Food, Agriculture, Natural Resources, Health, & Family	16	11.1
Globalization & Internationalization	15	10.4
Evaluation	12	8.3
Perceptions & Attitudes Assessment	11	7.6
Curriculum & Program Development	8	5.6
Professional Development	8	5.6
Academic Programs	6	4.2
Needs Assessment	6	4.2
Community Development & Leadership	5	3.5
Information Sources & Technology	5	3.5
Instructional & Program Delivery Approaches	5	3.5
Appropriateness of Education	4	2.8
Career Development & Assessment	4	2.8
Formal & Informal Teaching Approaches	4	2.8
Knowledge Competencies & Development	4	2.8
Research (methods and models)	4	2.8
Critical Thinking	3	2.1
Diffusion of Innovations	3	2.1
Institutional Organization & Institutionalization	3	2.1
Communications of Scholarship	2	1.4
Leadership Management	2	1.4
Risk & Crisis Communications	2	1.4
Skill Development & Competencies	2	1.4
Teacher Preparation & Competence	2	1.4
Youth Leadership & Development	2	1.4
Collaborations, Partnerships, & Coalitions	1	0.7
Communication Technology	1	0.7
Distance Education	1	0.7
Funding (resource development/needs)	1	0.7
Leadership Education	1	0.7
Policy Issues	1	0.7

Table 3 shows the most frequently-occurring primary research themes by year. Theme details, frequencies, and percentages can be seen in the table.

Table 3

Most Identified Primary Research Themes in the Journal of International Agricultural and Extension Education by Year (N = 144)

Year	Primary Research Theme	<i>n</i>	<i>f</i>	%
1997	Evaluation	11	4	36.4
1998	Curriculum and Program Development			
	Evaluation (3-way tie)			
	Globalization and Internationalization	11	2	18.2
1999	Evaluation	15	4	26.7
2000	Evaluation	12	3	25.0
2001	Food, Agriculture, Natural Resources, Health, and Family			
	Professional Development (2-way tie)	13	3	23.1
2002	Diffusion of Innovations			
	Diversity (culture, ethnicity, gender) (7-way tie)			
	Evaluation			
	Globalization and Internationalization			
	Information Sources and Technology			
	Institutional Organization and Institutionalization			
	Knowledge Competencies and Development	20	2	10.0
2003	Perceptions and Attitudes Assessment	17	3	17.6
2004	Institutional Organization and Institutionalization			
	Needs Assessment (2-way tie)	21	4	19.0
2005	Evaluation			
	Needs Assessment (2-way tie)	12	3	25.0
2006	Communication Technology			
	Institutional Organization and Institutionalization (3-way tie)	12	2	16.7

Table 4 outlines the frequently used secondary research themes, identified in the *JIAEE*, by year. Theme details, frequencies, and percentages are included in the table.

Table 4

Most Identified Secondary Research Themes Identified in the Journal of International Agricultural and Extension Education by Year (N = 144)

Year	Secondary Research Theme	<i>n</i>	<i>f</i>	%
1997	Community Development and Leadership			
	Perceptions and Attitudes Assessment (2-way tie)	11	2	18.2
1998	Food, Agriculture, Natural Resources, Health, and Family	11	4	36.4
1999	Food, Agriculture, Natural Resources, Health, and Family			
	Evaluation (2-way tie)	15	3	20.0
Table 4 (continued)				
		<i>n</i>	<i>f</i>	%

Year	Secondary Research Theme			
2000	Globalization and Internationalization	12	3	25.0
2001	Globalization and Internationalization			
	Perceptions and Attitudes Assessment (2-way tie)	13	2	15.4
2002	Needs Assessment	20	3	15.0
2003	Food, Agriculture, Natural Resources, Health, and Family	17	3	17.6
2004	Professional Development	21	4	19.0
2005	Curriculum and Program Development	12	3	25.0
2006	Globalization and Internationalization	12	3	25.0

The prolific authors identified in *JIAEE* are identified in Table 5. There were 329 authors (duplicated count) identified in the 144 analyzed *JIAEE* articles. Mohammad Chizari, Barnabas Dlamini, and James Lindner were the most prolific authors in the journal, authoring or co-authoring 9 of the 144 articles (6.3%). Additional prolific authors are identified in the table.

Table 5

Prolific Authorship in the Journal of International Agricultural and Extension Education 1997 – 2006 (N of Authors = 329, N of Total Articles = 144)

Prolific Author	<i>f</i>	% of Authors	% of Total Articles
Chizari, Mohammad	9	2.7	6.3
Dlamini, Barnabas M.	9	2.7	6.3
Lindner, James R.	9	2.7	6.3
Bruening, Thomas H.	8	2.4	5.6
Place, Nick T.	5	1.5	3.5
Radhakrishna, Rama B.	5	1.5	3.5
Martin, Robert A.	4	1.2	2.8
Shao, Xiaorang	4	1.2	2.8
Acker, David G.	3	0.9	2.1
Agunga, Robert	3	0.9	2.1
Ajayi, Michael T.	3	0.9	2.1
Al-Rimawi, Aahmad S.	3	0.9	2.1
Baker, Matt	3	0.9	2.1
Dooley, Kim E.	3	0.9	2.1
Frick, Marty	3	0.9	2.1
Hildebrand, Peter	3	0.9	2.1
Ladebo, Olugbenga J.	3	0.9	2.1
Wingenbach, Gary J.	3	0.9	2.1
Zinnah, Moses M.	3	0.9	2.1

Research methods used in *JIAEE* were identified. Quantitative research methods were the most common (75.7%), followed by qualitative (11.1%); the least often used research methods were mixed or qualitative and quantitative methods (13.2%).

Research designs used in the 144 analyzed articles published in the *JIAEE* are outlined in Table 6. Surveys were the most frequent research design used (45.5%). Correlation research designs were used in 10.5% of the published research. Additional research designs and procedures, in *JIAEE* research articles, are described in the table.

Table 6

Research Method Types Used in the Journal of International Agricultural and Extension Education 1997 – 2006 (N = 144)

Method Type	<i>f</i>	%
Survey	66	45.8
Historical	24	16.7
Interviews	8	5.6
Content Analysis	7	4.9
Correlation	7	4.9
Evaluation	7	4.9
Survey and Interviews	7	4.9
Interviews and Focus Group	5	3.5
Case Study	3	2.1
Holistic	3	2.1
Delphi	2	1.4
Experimental	2	1.4
Focus Group	1	0.7
Interviews and Observations	1	0.7
Survey and Case Study	1	0.7

Conclusions

The *Journal of International Agricultural and Extension Education* was identified as a premier journal in the context of agricultural education. The discipline relies on numerous additional journals as premier research outlets; research in *JIAEE* is adding to the scope and topography of research occurring throughout the discipline. In published articles, research theme area variety was seen. Research theme areas appear cyclic with research themes moving between primary and secondary and themes moving out of primary and secondary for a time before cycling back in. The results indicated what international agriculture and Extension education values in terms of research priorities: Evaluation, globalization and internationalization, and food, agriculture, natural resources, health, and family. Numerous researchers add to the scope of this integrated specialization area; no author or authors dominated *JIAEE*. *JIAEE* is a research journal with authors who are predominately faculty; it is also used as a practitioner-based outlet. Quantitative survey methodologies were most prevalent in research in the discipline.

Baker, Shinn, and Briers issued a specific call to examine the knowledge domains of agricultural education (2007). Miller, Stewart, and West (2006) identified the need to review literature to maintain a clear sense of the discipline's research agenda. Therefore, the current study identified variety in research theme areas in published international agriculture research. Research in *JIAEE* may reflect a broader view as it examines elements of various knowledge domains in the integrated specialization areas of international agricultural education and

Extension education. No clear domination in author or authors was seen. This finding is an important component in research diversity because researchers bring with them a variety of interests in both research topics and strategies.

Knight (1984) and Radhakrishna and Xu (1997) indicated that published research journal articles are indicators of the profession's current state. This research supports Knight and Radhakrishna and Xu in identifying the current state of international agricultural education; however, it also identifies a need for more variety in research methodology and design. If research published in *JIAEE*, over the past ten years, is indicative of all research in international agricultural education, there is a clear need to focus research themes while improving methodological research strategies beyond survey research. Because research rigor and diversity in the discipline has been criticized, the findings of this study should be used to support and strengthen research findings. There is also a need to engage in more rigorous research methodologies to answer the "why" questions in addition to the "what is."

In 1993, Newcomb identified the need to transform university agricultural education programs and encouraged universities to broaden programs by offering leadership programs, Extension education, agricultural communications, and international development, and to add depth to teacher education programs. It is critical that international agricultural education have a clear picture of past research priorities and strategies to allow the discipline to continue to move forward with its research. As faculty members involved in international agricultural education continue to forge new alliances and diversify their funding portfolios, it is important to know where we have been in order to identify where we should go in the future. This study was a first step in determining the current state of research in international agricultural education. This research attempted to outline research priorities, strategies, and designs used during the past ten years and this paper calls for additional research adjustments.

Recommendations

The profession must continue to reflect upon its research and to ultimately improve the discipline. This study must be followed by vigorous studies to examine the essence of the discipline. Reflections regarding efforts to improve and diversify the discipline must continue. Additional research must be completed to expand the research theme areas identified in this study. Broader research themes would assist international agricultural education in determining how research is incorporated into other integrated specialization areas, as identified in the *NRA*, as well as other disciplines and research initiatives.

There appears to be a pattern in the primary and secondary research themes identified in this study. Further research must be conducted to determine the pattern of research theme cycles, the meaning of cycles, and the affect of cycles on international agricultural education both as an area of scholarship and as an area of practice. International agricultural education researchers must diversify their methodological research portfolios to include variety in research types. Additional research must be completed to determine the depth of survey methodological rigor. Research must continue to determine whether current research methodologies are serving the greater context of agricultural education and this integrated specialization area to maintain progressiveness. Further research must be completed to provide methods and standards for exceptional and rigorous research in international agricultural education.

Current international agricultural education research (experience-base) must be compared to future research priority areas. By using a benchmark, such as the *National Research Agenda: Agricultural Education and Communication 2007 – 2010* (Osborne, n.d.), international

agricultural education can better determine if past research is supporting futurist research priority areas, and determine where adjustments must be made.

References

- Baker, M., Shinn, G. C., & Briers, G. (2007). Defining doctoral study in agricultural education-2010: Perceptions of U.S. scholars engaged in agricultural education. *Proceedings of the AAAE Research Conference*. Minneapolis, MN. Retrieved July 2, 2007, from http://aaae.okstate.edu/proceedings/2007/IndividualPapers/168-Baker_etal.pdf
- Ball, A. L., & Knobloch, N. A. (2005). A document analysis of the pedagogical knowledge espoused in agriculture teaching method courses. *Journal of Agricultural Education*, 46(2), 47-57.
- Barrick, R. K. (1989). Agricultural education: Building upon our roots. *Journal of Agricultural Education*, 30(4), 24-29.
- Berelson, B. (1952). *Content analysis in communications research*. Glencoe, IL: Free Press.
- Birkenholz, R. J., Harbstreit, S. R., & Law, D. A. (1990). Research prioritizes for adult education in agriculture in the north central region. *Journal of Agricultural Education*, 32(4), 32-38.
- Bowen, B. E., Rollins, T. J., Baggett, C. D., & Miller, J. P. (1990). Statistical procedures used in publishing agricultural education research. *Proceedings from the 44th Eastern Region Agricultural Education Research Meeting*, 64-71. New Brunswick, NJ.
- Buriak, P., & Shinn, G. C. (1993). Structuring research for agricultural education: A national Delphi involving internal experts. *Journal of Agricultural Education*, 32(2), 31-36.
- Crunkilton, J. (1988). Directing future research efforts in agricultural and extension education through a matrix. *Proceedings of the National Agricultural Education Research Meeting*, St. Louis, MO.
- Dillman, D. A. (2000). *Mail and Internet surveys: The tailored design method* (2nd ed.). New York: John Wiley & Sons.
- Dyer, J. E., Haase-Wittler, P. S., & Washburn, S. G. (2003). Structuring agricultural education research using conceptual and theoretical frameworks. *Journal of Agricultural Education*, 44(2), 61-74.
- Harder, A., & Roberts, T. G. (2006). *Seeing the forest for the trees: Authorship in the Journal of Agricultural Education*. Poster session presented at the Southern Region Agricultural Education Meeting, Orlando, FL.
- Knight, J. A. (1984). A content analysis of the agricultural education magazine 1929-1984. *Proceedings of the 15th National Agricultural Education Research Meeting*. New Orleans, LA.
- Krippendorff, K. (1980). *Content analysis: An introduction to its methodology*. Beverly Hills: Sage Publications.
- Mannebach, A. J., McKenna, P., & Pfau, G. (1984). An analysis of research methodology reported in agricultural education 1974-1982. *Proceedings of the 15th National Agricultural Education Research Meeting*. New Orleans, LA.
- Miller, J. D., Stewart, D. M., & West, L. M. (2006). Themes, authors, and citations in the Journal of Applied Communications, 2000-2004. *Proceedings of the SAAS Agricultural Communications Meeting*. Quebec City, Quebec, Canada.
- Moore, G. (1991). How firm is the foundation? A look at the knowledge base in agricultural education research. *Proceedings from the 18th Annual National Agricultural Education Research Meeting*, 151-157. Los Angeles, CA.

- Newcomb, L. H. (1993). Transforming university programs of agricultural education. *Journal of Agricultural Education*, 34(1), 1-10.
- Osborne, E. W. (Ed.) (n.d.). *National research agenda: Agricultural education and communication, 2007-2010*. Gainesville: University of Florida, Department of Agricultural Education and Communication
- Radhakrishna, R. B. (1995). Core journals used by agricultural and extension educators. *Journal of Agricultural Education*, 36(4), 48-54.
- Radhakrishna, R. B., & Jackson, G. B. (1993). Familiarity and quality of journals and importance of faculty publishing as perceived by agricultural and extension education department heads. *Proceedings of the 47th Eastern Region Agricultural Education Research Meeting*, 40-48. Woodstock, VT.
- Radhakrishna, R. B., & Jackson, G. B. (1995). Prolific authors in the *Journal of Agricultural Education*: A review of the eighties. *Journal of Agricultural Education*, 36(1), 55-63.
- Radhakrishna, R. B., Jackson, G. B., & Eaton, D. W. (1992). Characteristics of literature cited in the *Journal of Agricultural Education*: An empirical study. *Proceedings of the 19th Annual National Agricultural Education Research Meeting*, 272-278. St. Louis, MO.
- Radhakrishna, R. B., & Xu, W. (1997). A review of subject matter topics researched in agricultural and extension education. *Journal of Agricultural Education*, 38(3), 59-69.
- Silva-Guerrero, L., & Sutphin, H. D. (1990). Priorities for research in agricultural education. *Journal of Agricultural Education*, 31(3), 2-13.
- Warmbrod, J. R. (1986). Priorities for continuing progress in research in agricultural education. *Proceedings of the Southern Regional Conference in Agricultural Education*. Little Rock, AR.
- Weber, R. P. (1990). *Basic content analysis*. Iowa City: University of Iowa.