

RESEARCH PRIORITIES FOR ADULT EDUCATION IN AGRICULTURE IN THE NORTH CENTRAL REGION

Robert J. Birkenholz, Assistant Professor
University of Missouri-Columbia Center
Steven R. Harbstreet, Assistant Professor
Kansas State University
Dale A. Law, Assistant Professor
University of Illinois

Changes in the industry of agriculture during the 1980's have occurred at a rapid pace. Information acquired in both formal and informal educational settings quickly becomes outdated as new knowledge is generated. Although the number of agricultural producers in the United States has continued to decline, the number of persons employed in related agribusinesses has increased (AgFocus, 1986). Therefore, the need for educational programs in agriculture has expanded beyond those directed toward increasing agricultural productivity (Harbstreet, 1987).

Theoretical Framework

Recent changes in education have also contributed to the need to direct attention toward issues and problems relating to adult education in agriculture. Emphasis on continuing education and the trend toward life-long learning (Zemsky and Meyerson, 1985) necessitates that adjustments be made in educational programs for adults in agriculture. However, before positive changes can begin, there is a need to determine the appropriate direction for future programs.

Defining the term agricultural education is necessary to place into context a study relating to the development of a research agenda for the profession. A definition adopted by a committee in the North Central Region of Experiment Stations (NCA-24 Committee on Research in Agricultural Education, 1986) was: Agricultural Education refers to the processes of education applied to the body of knowledge generally defined as agriculture. It includes such subjects as: needs assessment, formal and informal teaching approaches, curriculum and program development, instructional and program delivery approaches, applications of educational technology, program and instructional evaluation, appropriateness of education, policy issues related to education in agriculture, institutional organization, and management of agricultural institutions in domestic and international settings.

The NCA-24 committee also recommended the formation of a research committee to fulfill the following objectives (NCA-24 Committee on Research in Agricultural Education, 1987):

1. Build on existing research in adult education in the region.
2. Develop an improved conceptual framework for future investigations.
3. Collaborate in design methodologies, instrumentation and data analysis.
4. Integrate existing work.

Buriak and Shinn (1989) examined the mission, initiatives, and obstacles to research in agricultural education by conducting a Delphi study involving Deans of Agriculture, Deans of Education, and Directors of Experiment Stations. These researchers reported that each of the respondent subgroups cited a lack of focus as a major obstacle to programmatic research in agricultural education. As a result of this study Buriak and Shinn (1989) recommended:

The research missions and initiatives should be:

1. Focused and articulated to take advantage of the knowledge and talents within the profession;
2. Clustered to reflect the focus and direction of different organizational structures, i.e., agriculture, experiment station, education, and;
3. Refined by internal decision-makers. Objectives should be developed leading to researchable problems, which if pursued rigorously, will lead to clear solutions. (p. 22)

Buriak and Shinn (1989) further noted that an established base and research agenda in agricultural education was lacking. To overcome this problem it was suggested that expert opinion be solicited and tempered with intuition to identify research priorities. Based on these perceptions, members of the agricultural education profession are uniquely qualified to judge the priority issues for research in the field.

Research conducted by Schmidt, Lynch, and Frantz (1988) analyzed the priorities for research and development in vocational education after Oakes (1986) reported that researchers had ignored fundamental issues. Six priority categories were identified which included: (a) program development and improvement, (b) policy studies in vocational education, (c) effectiveness of vocational education, (d) basic skills development in vocational education, (e) collaborative relationships in vocational education, and (f) vocational education personnel development. It was also suggested that the continual updating of research priorities was essential to the viability of the profession.

The above studies assessed research priorities in agricultural education (Buriak and Shinn, 1989) and vocational education (Schmidt, Lynch, and Frantz, 1988). However, there was an absence of studies which attempted to prioritize research issues related to adult education in agriculture.

On October 1, 1988 the request for a North Central Region research (NCR) committee was approved by the Directors of State Experiment Stations in the region. The committee, labeled NCR-158-Adult Education in Agriculture, met in January, 1989 for an organizational meeting. During the initial meeting the committee identified the need to validate research priorities related to adult education in agriculture. A subcommittee of three was appointed to conduct the validation procedure.

Purpose and Objectives

The central purpose of this study was to validate research priorities related to adult education in agriculture. Objectives developed to guide this research effort were as follows:

1. To validate the research issues related to adult education in agriculture in the North Central Region.
2. To prioritize the research issues related to adult education in agriculture in the North Central Region.
3. To determine if differences existed between state supervisors and teacher educators concerning research priorities related to adult education in agriculture in the North Central Region.

Procedures

The population for this study consisted of all state supervisors and teacher educators in agriculture in each of the 12 states in the North Central Region. The accessible population was determined to include 43 state supervisors of agricultural education and 110 agriculture teacher educators.

Members of the NCR-158 committee collectively identified possible research issues and problems which were included in the validation process. Each of the seven segments included in the data collection instrument consisted of questions relating to the issues or problems identified by members of the NCR-158 committee. Respondents were asked to rate the importance of each question using a five-point, Likert-type, response scale which ranged from 1 = no importance to 5 = utmost importance. Demographic data were also requested which included years of experience as a state supervisor or an agricultural teacher educator, the age, and gender of the respondent. Instrument reliability was estimated by calculating a Cronbach's alpha coefficient for the dependent variables included in the data collection instrument.

Cover letters and survey instruments were mailed to each of the 153 possible respondents. Two weeks following the initial mailing, a reminder postcard was sent to those who had not responded. After another two-week period, a second letter and instrument was sent to those persons who had not yet returned completed data collection instruments. The results of the χ^2 -test procedure revealed no significant differences in the responses of early and late respondents. Therefore, the data collected was judged to be representative of the target population (Miller and Smith, 1983).

Data Analysis

The data were coded onto an IBM microcomputer and the data file was uploaded onto the University of Missouri-Columbia mainframe computer for data analysis. Statistical analyses required to satisfy the objectives included the computation of both descriptive and inferential statistics. Descriptive statistics were calculated for the purpose of data analysis included means and standard deviations.

Inferential statistics were computed to determine if there were significant differences between the supervisor and teacher educator respondent groups. T-tests were used to identify mean differences. The alpha level was set at .05.

Results

Usable data were collected from 116 of a possible 153 respondents for a 75.8 percent response rate. Data were collected from 32 state supervisors and 84 teacher educators. A Cronbach's alpha reliability coefficient of 0.95 was computed on the data collected.

The first research objective was undertaken to validate research priorities related to adult education in agriculture in the North Central Region. This objective was fulfilled by examining the mean importance ratings of the research questions included in the data collection instrument. Mean importance ratings for each item are presented in Table 1 for both respondent groups. Each item received a mean importance rating in excess of 3.23 by both respondent groups on the five point response scale.

The research question which received the highest mean rating by the teacher educator group was "What should be the focus of adult education in agriculture in terms of philosophy, mission, and target audience?" ($X = 4.17$). The highest rated research question for the state supervisor respondent group resulted in a tie between "Who needs adult education in agriculture?" and "What competencies are needed by adult educators who work in various formal and nonformal educational environments?" ($X = 4.38$). The teacher educator respondent group produced four item means greater than or equal to 4.00, whereas the state supervisor produced 16 item means at or above that level.

Research objective two was undertaken to identify the priority research issues related to adult education in agriculture in the North Central Region. Unweighted item means were used to rank the research questions to control for the difference in the number of respondents in each subgroup. This procedure placed equal emphasis on the responses of teacher educators and state supervisors. Unweighted means were computed by averaging the means for the two respondent group means for each item.

Table 2 presents the top ten research questions as identified by the unweighted item means. The highest rated item was "How effective are adult education programs in agriculture?" The two items related to determining the philosophy and mission, and target audience for adult education programs in agriculture were ranked second and third, respectively.

The third research objective was undertaken to determine if differences existed between respondent groups regarding the importance of the priority research questions identified in this study. Two research questions produced means which differed significantly between the respondent groups. State supervisors rated the question "Who needs adult education in agriculture?", significantly higher than did the teacher educator group. Also, the item "How should the present delivery system be modified for rural audiences?", was rated significantly higher by state supervisors than by teacher educators. The importance of other items ranked among the ten priority research questions were not found to be significantly different between the respondent groups.

Table 1
Teacher Educator and State Supervisor Importance Ratings of Research Questions Related to Adult Education in Agriculture

| Research Questions | Teacher Educators | | State Supervisors | |
|--|-----------------------|------|-----------------------|------|
| | \bar{X} (N = 84) | SD | \bar{X} (N = 32) | SD |
| A. The cultural, social, educational, and occupational trends affecting adult agricultural education programs | | | | |
| Who is providing adult education in agriculture? | 3.38 | 0.87 | 3.88 | 1.07 |
| Who needs adult education in agriculture? | 3.93 | 1.05 | 4.38 | 0.91 |
| What are the attitudes of decision makers toward adult education in agriculture? | 3.73 | 0.96 | 4.21 | 0.79 |
| Who do adults turn to when they need to solve agricultural problems? | 3.94 | 1.02 | 4.03 | 0.82 |
| What social and cultural trends are affecting adult agricultural education? | 3.95 | 0.89 | 3.69 | 0.93 |
| What is the public perception of agriculture? | 3.40 | 1.09 | 3.71 | 1.14 |
| B. Assessment of delivery methods and instructional technologies for adults | | | | |
| How can instructional technologies be utilized to deliver adult education? | 4.00 | 0.89 | 3.91 | 0.86 |
| What instructional delivery systems are appropriate for urban audiences? | 3.69 | 0.93 | 3.78 | 0.94 |
| How should the present delivery system be modified for rural audiences? | 3.69 | 1.03 | 4.28 | 0.81 |
| What instructional methods improve adult learning? | 3.81 | 1.13 | 4.03 | 1.00 |
| C. Evaluating adult education in agriculture | | | | |
| What are the costs and benefits associated with adult education programs in agriculture? | 3.89 | 1.10 | 4.00 | 1.08 |
| How effective are the instructional materials used in adult education? | 3.41 | 0.99 | 3.84 | 0.85 |
| How does adult education in agriculture influence rural development? | 4.00 | 1.07 | 4.03 | 1.00 |
| How effective are adult education programs in agriculture? | 4.16 | 1.01 | 4.31 | 1.06 |
| D. The content and organizations of adult education in agriculture | | | | |
| What should constitute the leadership development programs for adults in agriculture? | 3.75 | 1.19 | 4.13 | 0.98 |
| What should adults in agriculture know about other countries and their agricultural systems? | 3.34 | 1.02 | 3.63 | 1.07 |
| What should constitute the adult education programs related to noncommercial agriculture? | 3.71 | 0.96 | 3.23 | 0.87 |
| What should be the technical skills content of adult education programs in agriculture? | 3.83 | 1.09 | 4.00 | 1.12 |

| Research Questions | Teacher Educators | | State Supervisors | |
|--|-----------------------|------|-----------------------|------|
| | \bar{X} (N = 84) | SD | \bar{X} (N = 32) | SD |
| E. The policies and administration of adult education programs in agriculture | | | | |
| What should be the focus of adult education in agriculture in terms of philosophy, mission, and target audience? | 4.17 | 1.10 | 4.16 | 1.04 |
| Who should be responsible for conceptualizing, funding, administering, delivering, and evaluating adult education programs in agriculture? | 3.91 | 1.16 | 4.06 | 0.81 |
| What impact will continued urbanization have on policymakers' decisions to support adult education programs in agriculture? | 3.86 | 1.00 | 4.03 | 1.08 |
| F. The preparation and continuing education of adult educators | | | | |
| What are the most effective and efficient models of preparation of adult educators in agriculture? | 3.91 | 0.96 | 4.25 | 0.95 |
| What competencies are needed by adult educators who work in various formal & nonformal educational environments? | 3.84 | 1.11 | 4.38 | 0.83 |
| How can you identify and augment the intrinsic and extrinsic motivators that encourage educators to assume a role in adult education in agriculture? | 3.70 | 1.05 | 3.81 | 0.95 |
| How are agricultural education extension departments responding to the changing need of their adult educator clientele? | 3.69 | 1.03 | 3.61 | 0.76 |
| How are cooperative extension departments responding to the changing needs of their adult educator clientele? | 3.64 | 0.99 | 3.58 | 0.85 |
| G. The essence of adult learning in agriculture | | | | |
| What is the nature of the adult learner in agriculture? | 3.81 | 1.01 | 3.45 | 0.93 |
| What motivates adults to participate or not participate in adult agricultural education programs? | 3.99 | 1.07 | 4.19 | 0.95 |
| What are the theories that explain how and why adults learn? | 3.61 | 1.05 | 3.00 | 0.86 |
| What is the rationale for adult education in agriculture? | 3.63 | 1.19 | 3.81 | 0.95 |
| How do adults in agriculture make decisions and solve problems? | 3.84 | 1.08 | 3.81 | 0.98 |

*Responses were coded: 1 = no importance, 5 = utmost importance.

Table 2
Priority Research Questions Related to Adult Education in Agriculture

| Unweighted ranking | Research questions | Teacher educators | | | State supervisors | | | t | p |
|--------------------|--|-------------------|-----------|------|-------------------|-----------|------|--------|------|
| | | n | \bar{X} | SD | n | \bar{X} | SD | | |
| 1 | How effective are adult education programs in agriculture? | 82 | 4.16 | 1.01 | 32 | 4.31 | 1.06 | 0.72 | .473 |
| 2 | What should be the focus of adult education in agriculture in terms of philosophy, mission, & target audience? | 82 | 4.17 | 1.10 | 31 | 4.16 | 1.04 | 0.04 | .967 |
| 3 | Who needs adult education in agriculture? | 82 | 3.93 | 1.05 | 32 | 4.38 | 0.91 | 2.12 | .036 |
| 4 | What competencies are needed by adult educators who work in various formal and nonformal educational environments? | 81 | 3.84 | 1.11 | 32 | 4.38 | 0.83 | 2.46 | .015 |
| 5 | What motivates adults to participate or not participate in adult agricultural education programs? | 80 | 3.99 | 1.07 | 31 | 4.19 | 0.95 | 0.94 | .351 |
| 6 | What are the most effective and efficient models of preparation of adult educators in agriculture? | 81 | 3.91 | 0.96 | 32 | 4.25 | 0.95 | 1.68 | .096 |
| 7 | How does adult education in agriculture influence rural development? | 82 | 4.00 | 1.07 | 32 | 4.03 | 1.00 | 0.14 | .887 |
| 8T* | How should the present delivery system be modified for rural audiences? | 81 | 3.69 | 1.03 | 32 | 4.28 | 0.81 | 111.00 | .005 |
| 8T | Who do adults turn to when they need to solve agricultural problems? | 82 | 3.94 | 1.02 | 32 | 4.03 | 0.82 | 0.46 | .650 |
| 8T | Who should be responsible for the conceptualizing, funding, administering, delivering, and evaluating adult education programs in agriculture? | 82 | 3.91 | 1.16 | 31 | 4.06 | 0.81 | 0.77 | .442 |

*Item mean rankings resulted in a tie.

Conclusions

The following conclusions formulated as a result of this study are limited to the 12 states included in the North Central Region of Agricultural Experiment Stations:

1. Teacher educators and state supervisors perceive the research questions included in this study to be important issues which should be investigated.
2. Teacher educators reported that evaluation of adult programs and a determination of the focus of adult education programs in agriculture were the two most important research issues to address.
3. State supervisors reported that determining who needs adult education programs in agriculture and identifying the competencies needed by adult agricultural educators were the two most important research issues.
4. Teacher educators place significantly less importance on three research questions which state supervisors rated highly.

Recommendations

Teacher educators in the North Central Region should examine the priority research issues which were identified and identify the means through which studies can be planned and conducted to address those issues. Teacher educators, in their role as faculty advisors, should encourage doctoral students to conduct research related to the issues identified in this study. Furthermore, Agricultural Education faculty who are searching for an emphasis area on which to base a research program should consider the issues identified in this study. Conducting research in these areas would contribute significantly to the knowledge base in agricultural education.

Adult education programs in agriculture have been identified as important components of agricultural education programs in local communities. In order to sustain the viability of this component of agricultural education programs, teacher educators and state supervisors have identified questions which need to be answered. Researchers in agricultural education in the North Central Region would provide a valuable service to the profession by including these issues in their research agenda.

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