

# Factor Structure of Deterrents to Agriculture Teachers' Participation In Credit and Non-Credit Courses

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Upgrading professional and technical competence and skills of vocational agriculture teachers is a primary concern of persons and groups in agricultural education leadership positions. Program planners and conductors of inservice education programs related to agricultural education must seek to understand what deters vocational agriculture teachers from participating in educational activities designed to assist in improving their competence. Many deterrents to agriculture teachers' participation in inservice activities are within the program planners span of control to change or adjust, while others are not.

For the purposes of intervention, understanding patterns of participation of vocational agricultural education teachers is central to the development of effective inservice programs. Participation research studies and refinement of participation theory appear to be the key to assisting agricultural education leaders in fulfilling their commitment of continual professional development for their group.

## Objectives

Specific research objectives were: (a) to identify the source variables or constructs that deter secondary vocational agricultural education teachers from participating in college credit courses and non-credit courses, and (b) to determine the relationships, if any, among sociodemographic variables, such as age and sex, and the constructs identified as deterring participation.

## Related Literature/Theoretical Framework

"Participation is central to theory and practice in adult education because the great majority of adults are voluntary learners" (Darkenwald & Merriam, 1982, p. 117). Most of the theory-oriented research on participation, especially the early research, focused on the identification and characterization of learner types, motives, and motivation orientation (Boshier, 1971; Boshier & Collins, 1985; Burgess, 1971; Howle, 1961; Sheffield, 1964; Thompson, 1984). The focal point of those research efforts was what impels participation, not what deters it, yet this approach to participation research has consistently failed to develop the ability to predict participation.

The void in the literature of deterrents to participation was viewed as serious by Darkenwald and Valentine (1985). This was noted since the construct of deterrents or barriers occupies a central place in virtually all theories or models of participation (Cross, 1981; Darkenwald & Merriam, 1982; Miller, 1967); yet, these theories lead to no serious empirical base for their rationale.

In initiating a promising new line of inquiry into participation research, Scanlan and Darkenwald (1984) and Darkenwald and Valentine (1985) empirically demonstrated support for incorporating the constructs of deterrents into theories of participation in adult education. Darkenwald and Valentine made refinements and developed a more

generic form of the DPS instrument that was utilized in the 1984 study, which they call the Deterrents to Participation Scale--Form G (DPS-G). Utilizing the new DPS-G scale, they sought to identify factors that deter the general public from participating in organized adult education. The rotated solutions of Darkenwald and Valentine and of the present study maximize the collinearity of DPS-G item clusters with the most important principal components. The variance accounted for by the unrotated factor matrices was thereby spread across all the rotated factors. No interpretation should be attached to their order of identification using the following deterrent factor labels identified in the Darkenwald & Valentine Study: (a) Lack of Confidence, (b) Lack of Course Relevance, (c) Time Constraints, (d) Low Personal Priority, (e) Cost, and (f) Personal Problems. Martindale (1986), utilizing the DPS-G instrument in a study involving enlisted personnel, found similar deterrent factors.

### Methodology

An ex post facto design was used in this study. The population consisted of all secondary vocational agriculture teachers in Alabama who had been at their present school for two years or more and who had completed a four-year degree program at least two years ago. The questionnaire was administered to the subjects by the researcher in six area meetings throughout the state during the first two weeks of April, 1987. Completed questionnaires were received from 292, which represented 94.2% of the total population.

The instrument utilized in this inquiry was the Deterrent to Participation Scale (DPS-G) developed by Darkenwald and Valentine (1985) utilizing the concepts employed in Scanlan's DPS (1982). The 34-item DPS-G, 5-point Likert-type scale ranged from not important (1) to very important (5). Respondents were first provided with a general statement about how the state universities and the State Department of Education, Agribusiness Education Section offer credit and non-credit courses or workshops generally in off-duty hours or in the summer in order that they might continue their education and professional development. That was followed by the statement:

Try to think of some course or workshop, any course or workshop at all, offered through the agribusiness section or the university system that you wanted to take, but never did. Then look at the reasons below and decide how important each was to your decision not to participate in this educational activity.

Factor analysis was used to explore the data for underlying deterrent factors spanning the vector space of the raw data matrix of Likert values. The factor analysis process consisted of three steps: preparation of the raw data matrix, extraction of orthogonal factors via principle component analysis, and rotation to a final solution using the varimax procedure (Kim & Mueller, 1978).

Rotated factors were defined on the basis of theoretical abstraction from questions having loadings of .45 or higher. Items loading .45 or higher on each factor were further analyzed using the RELIABILITY subprogram of SPSS<sup>X</sup> to determine inter-item alpha coefficients comparable to those reported by Darkenwald and Valentine (1985). SPSS<sup>X</sup> was also used to compute factor scores for each of the six rotated factors. These factor scores were analyzed using the ONE-WAY and REGRESSION subprograms (as appropriate) to determine relationships, reported as correlations, between the factors and participation status and between the factors and socio-demographic variables.

## Results

Characteristics of the six-factor varimax rotated solutions are reported in Table 1. Measures of sampling adequacy were computed for each item and for the complete factor solution. Based on the anti-image correlation matrix output by SPSS<sup>x</sup>, the item measures of sampling adequacy range between .82 and .93. The Kaiser-Meyer-Olkin measure of sampling adequacy for the complete solution was .88. The six rotated principal components selected using eigenvalue greater than 1.0 and scree criteria accounted for 56.1% of the original variation in the data matrix.

Overall scale reliabilities for items loading on the six factors reported in Table 1 by factor were .88, .85, .87, .83, .76, and .82 respectively. The six rotated factor deterrents satisfied criteria for simple structure and are labeled (a) Lack of Course Relevance, (b) Cost, (c) Lack of Confidence, (d) Time Constraints and Personal Priority, (e) Lack of Encouragement, and (f) Personal Problems.

No correlation coefficients reflected an overlap of more than 6% between any factor and any sociodemographic variable.

## Findings

Six deterrent factors that appear to deter secondary vocational agriculture teachers in Alabama from participating in credit and non-credit courses were: (a) Lack of Course Relevance, (b) Cost, (c) Lack of Confidence, (d) Time Constraints and Personal Priority, (e) Lack of Encouragement, and (f) Personal Problems.

Correlations between each factor and a selected set of sociodemographic variables were computed and are available to the interested reader upon request. The principal findings for those correlations follow:

1. Factor 1, Course Relevance, while an important dimension of Deterrents to Participation, is not a factor highly related to the sociodemographic variables isolated for this study.

Table 1

Item Means and Loadings for Items of Deterrent to Participation, Form G, Broken Down by Factor (n = 292)

Factor and Item	Mean	Loading <sup>a</sup>
Factor 1: Lack of Course Relevance		
Because the available course did seem useful or practical	2.09	.78
Because I didn't think the course would meet my needs	1.95	.77
Because the course available did not seem interesting	2.20	.71
Because I am not that interested in taking the courses	1.86	.67
Because the courses available were of poor quality	1.92	.62
Because the course was not on the right level for me	1.55	.50
Because I wanted to learn something specific, but the course was too general	2.11	.49

(table continues)

Factor and Item	Mean	Loading <sup>a</sup>
Because I was not willing to give up my leisure time	1.67	.45
(Because I prefer to learn on my own)	1.35	.42
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Factor 2: Cost		
Because the course was scheduled at an inconvenient time	2.55	.71
Because I couldn't afford the registration or course fees	1.89	.67
Because course was offered at an inconvenient location	2.92	.66
Because I couldn't afford miscellaneous expenses like travel, books, etc.	1.72	.62
Because of transportation problems	1.66	.62
Because of the amount of time required to finish the course	1.85	.56
Because my employer would not provide enough financial assistance or reimbursement	2.08	.53
(Because I didn't know about courses available for adults)	1.56	.44
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Factor 3: Lack of Confidence		
Because I didn't meet the requirements for the course	1.32	.68
Because I was not confident of my learning abilities	1.19	.64
Because the course was offered in an unsafe area	1.31	.64
Because I felt unprepared to take the course	1.27	.60
Because I felt too old to take the course	1.21	.59
Because I didn't think I could attend regularly	1.53	.50
(Because I didn't know about courses available for adults)	1.56	.44
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Factor 4: Time Constraints and Personal Priority		
Because I don't enjoy studying	1.42	.75
Because I didn't have time for the studying required	1.59	.66
Because I didn't think I would be able to finish the course	1.26	.59
Because I felt I couldn't compete with younger students	1.14	.58
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Factor 5: Lack of Encouragement		
Because my friends did not encourage my participation	1.22	.76
Because my family did not encourage participation	1.38	.56
Because education would not help me (In my job)	1.56	.49
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Factor 6: Personal Problems		
Because of family problems	1.32	.79
Because I had trouble arranging for child care	1.33	.62
Because of personal health problems	1.20	.60

<sup>a</sup>Loadings in the table are based on criterion of .45 or higher except for two items displayed in parentheses. Those items were included in the table for completeness under the factors on which they were most highly loaded.

2. Factor 2, Cost, is significantly related to educational level, age, teaching experience, and experience in present school.
3. Factor 3, Lack of Confidence, and Factor 4, Time Constraints and Low Personal Priority, are functions of age and teaching experience.
4. Factor 5, Lack of Encouragement, is a function only of age.
5. Factor 6, Personal Problems, was associated with recency of course participation and with teaching goals.

#### Implications

Agricultural teacher educators, state department of education personnel, and other educational planners cannot intervene to increase participation without a more thorough understanding of deterrents to participation. It must be recognized that some deterrents to participation, such as cost, financial assistance for course, and lack of interest, may be beyond the control of program planners to intervene, while others, such as course relevance and course location, are not.

Agricultural education program planners should solicit more teacher input into the identification of courses they might need and into the identification of the course content to be taught. Program planners must upgrade courses to reflect changes in the economy and technology while focusing on more practical applications of that information. It might encourage teachers, particularly older teachers, to participate on a continuous basis if course participation could be coupled to some type of monetary incentive plan. An example might be provisionally to increase compensation to teachers for two years for taking the course. Then if they fail to take the course after two years, this compensation increment would be stopped.

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