DOCUMENT RESUME

ED 285 718 RC 16 379

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TITLE The Swaziland Agriculture Teacher Education Program as Perceived by Professionals in Agricultural Education.
PUB DATE Apr 87
NOTE 13p.; Paper presented at the Annual Meeting of the Association for International Agricultural Education (3rd, Chevy Chase, MD, April 24-26, 1987).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Admission Criteria; *Agricultural Education; Developing Nations; Educational Needs; Foreign Countries; Higher Education; Inservice Teacher Education; Participant Characteristics; *Preservice Teacher Education; *Program Effectiveness; Program Evaluation; Relevance (Education); Rural Education; Secondary Education; Student Teaching; *Teacher Attitudes; *Teacher Education Curriculum; Teacher Educators; *Vocational Education
IDENTIFIERS *Swaziland

ABSTRACT

Descriptive correlational research employing a mailed questionnaire was used to study perceptions of agricultural education professionals regarding Swaziland's preservice teacher education program in agriculture. Areas examined were student selection, student teaching, inservice education, teacher educators, coordination and linkage with other agencies, content, and competencies needed by agriculture teachers. A total of 116 useable questionnaires was returned from the target population consisting of all 128 professionals in agricultural education in Swaziland. The majority of respondents were teachers in secondary schools, males, relatively young, working in rural areas, held the associate degree, had low levels of experience in their work, received their training in Swaziland, and had not studied agriculture while in high school. Respondents perceived the agriculture teacher education program to be credible in terms of admission standards, qualification of faculty, and quality of technical and professional courses taught, but saw weaknesses in student teaching, conduct of inservice courses for agriculture teachers, coordination and linkage with other agencies, general courses taught, and skill training. Level of education slightly influenced the way professionals in agricultural education viewed the agriculture teacher education program; whereas, gender, work experience, age, type of profession, place of training, and place of work had no major influence. (JHZ)

THE SWAZILAND AGRICULTURE TEACHER EDUCATION PROGRAM AS PERCEIVED BY PROFESSIONALS IN AGRICULTURAL EDUCATION

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Paper presented at the Annual Meeting of the Association for International Agricultural Education (AIAE) held April 24-26, 1987 at the National 4-H Center, Chevy Chase, Maryland

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Introduction

In recent years, education has experienced rapid technological changes. One example of such changes was the methods espoused in teacher preparation programs because of the increased attention to individualized instruction and competency-based teacher education (Denton, 1979). This example indicated that teacher education programs should keep improving in order to meet the needs of the people it serves. An effective teacher education preparation program should educate teachers to understand and be able to conduct the processes of teaching and learning effectively and perform their teaching jobs with high levels of ability and competency.

Considerable research has been completed in developed countries in the last twenty years examining the adequacy of teacher preparation. Teacher education programs were studied in terms of content, teacher certification requirements, administrative responsibilities, student teacher supervision, staffing and recruitment (Howsam, Carrigan, Denemark and Nash, 1976; Page, 1983; Birkeley, 1983); strengths and weaknesses (Newcomb, 1978); professional competencies (Welton and Okatahi, 1985); student teaching (Pfister, 1984); influence of personal characteristics (Dlamini, 1982; Dlamini, 1983; Anderson, 1982; Harrison, 1979).

In Swaziland, the Ministry of Education has increased concern for the teaching ability of agriculture teachers in secondary schools (Roques, 1982). In order to improve the teacher education program, perceptions of what should be changed to bring about improvement must be ascertained from teacher educators, supervisors and teachers.

Teacher educators were assumed to be well qualified to know what was a good teacher education program, supervisors know teachers' needs based on their experiences in working with them, and teachers know best the local environment and their working conditions. A combination of views from these people should constitute a foundation upon which a good teacher education program could be developed. All these should be investigated to ensure that appropriate training in agricultural education is conducted to produce competent teachers of agriculture.

Therefore, in order to have a sound preservice training program for agriculture teachers in Swaziland, an assessment of the adequacy of the agriculture teacher education program in meeting the needs of secondary school teachers was imperative.

Research concerning teacher preparation in agriculture has been lacking particilarly in Swaziland. Therefore, such an investigation that examined student selection, student teaching, inservice education, teacher educators, coordination and linkage with other agencies, content, and competencies needed by agriculture teachers was in order.

Purpose and Objectives of the Study

The purpose of this study was to determine the perceptions of professionals in agricultural education regarding the preservice teacher education program in agriculture. The following objectives were developed to guide the study and to serve as the basis for the research design:

1. To describe professionals in agricultural education on selected characteristics: gender, years of experience, highest qualification held, place of training, age, place of work, type of profession, and study of agriculture.

2. To identify and describe the perceptions of agriculture teachers, teacher educators, and state supervisors concerning the agriculture teacher education program in terms of:

a. process of student selection,
b. qualification and experience of lecturing staff,
c. process of student teaching,
d. inservice education,
e. coordination and linkage with other institutions,
f. value of technical and professional courses offered, and
g. adequacy of practical skills.

3. To determine whether there was a significant difference between the perception held by professionals in agricultural education regarding the agriculture teacher education program in Luyengo by gender, profession, place of training, place of work, and whether or not agriculture was studied in secondary school.

4. To identify and describe the relationship between each of the selected characteristics (gender, educational level, experience and age) of professionals in agricultural education and their perceptions of the agriculture teacher education program.

Methodology

Descriptive correlational research employing a mailed questionnaire was used in this study. The target population of the study included 128 professionals in agricultural education in Swaziland. These professionals consisted of 11 teacher educators in agriculture, nine state supervisors and 108 agriculture teachers in secondary schools. The study included all 128 professionals in agricultural education. The study was a census. Questionnaires were developed to meet the objectives of the study. The research instrument used was a four-part questionnaire consisting of closed-ended questions and scales. Part I of the questionnaire was comprised of 49 items pertaining to the process of student selection, student teaching, inservice training, qualification and experience of faculty, and coordination and linkage with other institutions. The rating scale was weighted as follows: 6=Strongly Agree; 5=Agree; 4=Slightly Agree; 3=Slightly Disagree; 2=Disagree; 1=Strongly Disagree.

Part II of the questionnaire consisted of 45 professional and technical courses offered to preservice agriculture teachers. Respondents rated the importance of each course to the teaching of agriculture in secondary schools. The rating scale was weighted as follows: 6=Extremely Important; 5=Very Important; 4=Important; 3=Unimportant; 2=Very Unimportant; 1=Extremely Unimportant; 0=Hadn't had the course. Fifty-six skills identified were contained in Part III of the questionnaire, and respondents indicated the adequacy of teacher preparation in each skill. The rating scale was weighted as follows: 6=Very Adequate; 5=Slightly Adequate; 4=Adequate; 3=Slightly Inadequate; 2= Inadequate; 1=Very Inadequate. Part IV of the questionnaire requested information on personal characteristics of respondents: gender, qualification, profession, years of experience, place of academic training, age and whether or not agriculture was studied in secondary school. A panel of experts in agricultural education consisting of three agricultural education faculty members at The Ohio State University and six other experts familiar with the Swaziland situation reviewed the questionnaire for content validity. A Cronbach's alpha was used to establish the reliability of the instrument, which ranged from .76 to .95.

The Senior Inspector for Agriculture provided an up-to-date list of state supervisors, agriculture teachers and teacher educators in teacher training colleges. The Dean, College of Agriculture, University of Swaziland, provided a list of the teacher educators in agricultural education. These procedures

controlled frame error. The list of participants in the study was purged to avoid duplications of respondents being included more than once and to control selection error. A series of follow-up procedures was conducted according to the suggestions provided by Dillman (1978). Early respondents, those who responded to the first mailing, were compared with late respondents, those who responded to the second mailing, to estimate the nature of non-response bias since late respondents have been shown to be most like non-respondents (Miller and Smith, 1983). Results showed no significant differences between early respondent and late respondent groups, thus allowing for generalization of the results to the target population. Differences between early and late respondents were determined by comparison of the mean data on the demographic characteristics and perception domains. In this study, sampling error was not a threat to validity since all professionals in agricultural education were included in the study.

A total of 116 (90.6%) usable questionnaires were returned, 11 (100%) from teacher educators, 8 (88.9%) from inspectors, and 97 (89.8%) from agriculture teachers. Data collected in this study were processed by the Instructional and Research Computer Center Facilities at The Ohio State University using the $SPSS_X$ statistical package to describe the data with frequencies, percentages, means, standard deviations, correlations and analysis of variance. Though this study was a census, inferential statistics procedures were employed as professionals in agricultural education were considered a sample at one point in time and, thus, findings of this study could be generalized to future agriculture teachers, teacher educators and state supevisors (inspectors). The alpha level was set at .05.

Findings

About 84 percent of the respondents reported that they were males and about 15% were females. The majority (77.6%) of the respondents held the diploma qualification (Associate's degree), while 19 (16.4%) and 7 (6.0%) held the first and Master's degrees, respectively. The professional groups of the participants to this study were teacher educators (11 or 9.5%), inspectors (8 or 6.9%) and agriculture teachers (97, or 83.6%). The number of years of work experience ranged from 1 to 34. However, the average number of years of work experience was 7, 3 and 5.4 years for teacher educators, agriculture teachers and inspectors, respectively. The overall mean was calculated to be 3.6 years.

About 82.8 percent of the respondents were trained in Swaziland and only a small percentage (17.2) were trained outside Swaziland. The age of participants ranged between 21 and 63 years. The average age was 26.9, 33.4 and 35.9 for agriculture teachers, inspectors and teacher educators, respectively.

The majority (64.6%) of the professionals in agricultural education were working in rural areas. About 74 (63.8 percent) of the professionals in agricultural education had not studied agriculture as a subject in high school.

Analysis of Policy-Related Issues

Table 1 contained information regarding grouped means and standard deviations of policy-related issues. As can be observed in Table 1 , teacher educators, agriculture teachers and inspectors agreed with issues related to coordination and linkage with other agencies, inservice education, and qualification and experience of the agriculture education faculty. Professionals in agricultural education were somewhat in agreement with the suggestions regarding student teaching and were in disagreement with how students should be selected for the agricultural education program.

The Importance of the Courses Taught in the Agriculture Teacher Education Program

Six groupings of the courses and ranks were shown in Table 2 and respondents were asked to indicate the level of importance and rank of each of the groupings. All groupings were considered important with crop production courses ($x = 5.1$) receiving the highest rankings by all professional groups. Significant differences were observed on the rankings of professional courses, with low rankings by inspectors.

Adequacy of Skill Training by the Agriculture Teacher Education Program

Skills were grouped into five categories, as shown in Table 3, and professionals in agricultural education were asked to indicate the level of adequacy of each of the categories. The category "land use and mechanization-related skills" was considered somewhat inadequate and was ranked lowest by all professional groups, and the other four categories were rated somewhat adequate. None of the categories received an adequate rating. The conclusion was drawn that skill training is inadequate.

Differences in Perception of Professionals in Agricultural Education Toward the Agriculture Teacher Education Program

One-way analysis of variance was used to determine whether there was a significant difference between the perception held by professionals in agricultural education regarding the agriculture teacher education program in Luyengo by gender, profession, place of training, place of work, and whether or not agriculture was studied in secondary school. The information was contained in Table 4. Gender revealed a significant difference on three of the 16 domains regarding the agriculture teacher education program. These three variables were qualification and experience of teacher educators, coordination and linkage with other agencies, and importance of crop production courses. Females rated the three domains lower than males.

Significant differences between teacher educators, agriculture teachers and inspectors were revealed with respect to all aspects of skill training in the agriculture teacher education program. In general, the ratings of all areas of skill training were highest by teachers, teacher educators and inspectors, respectively.

When results were analyzed according to place of training, differences in opinion were noted with regard to professional, animal production, agricultural economics and land use and mechanization skills. Professionals trained in Swaziland tended to rate the agriculture teacher education program higher than those professionals trained elsewhere. Place of work had no influence on the perceptions of professionals in agricultural education toward the agriculture teacher education program.

The study of agriculture while they were secondary students had an influence on how professionals rated some aspects of the agricultural education program. Significant differences were observed with regard to professional and agriculture economics courses and animal production skills. Professionals who studied agriculture while in secondary school tended to rate the agriculture teacher education program lower than those professionals who had not.

Relationship Between Selected Characteristics of Professionals in Agricultural Education and Their Perceptions of the Agriculture Teacher Education Program

In this study, the relationship between each of the selected characteristics (gender, educational level, experience and age) of professionals in agricultural education and their perceptions of the agriculture teacher

education program was identified and described. The data were presented in Table 5. The relationship between gender and perceptions of professionals in agricultural education revealed a negligible to low association. Level of education and perceptions of professionals in agricultural education indicated a negligible to moderate degree of association.

A Pearson coefficient (r) was used to describe the relationship between years of experience and perceptions of professionals in agricultural education. Negligible to low associations were found. Age also revealed a negligible to low relationship for all categories of the agriculture teacher education program.

Conclusions

1. The majority of professionals in agricultural education were teachers in secondary schools, were males, were relatively young, were working in rural areas, held the associate degree, had low levels of experience in their work, received their training in Swaziland and had not studied agriculture while in high school.

2. Professionals in agricultural education perceived the agriculture teacher education program to be credible in terms of admission standards, qualification of faculty, technical and professional courses taught, but doing less than adequately in the areas of student teaching, conduct of inservice courses for agriculture teachers, coordination and linkage with other agencies, general courses taught, and skill training.

3. Level of education slightly influenced the way professionals in agricultural education viewed the agriculture teacher education program, whereas gender, work experience, age, type of profession, place of training and place of work had no major influence.

Implications and Recommendations

1. Agriculture education programs in Swaziland were conducted mainly by males. More females need to be recruited as teacher educators, teachers and inspectors to provide role models for female teachers.

2. The agriculture teacher education program needed to strengthen practical training (skill training). This could be achieved through involvement of students in practical activities and a requirement of work experience in one area of technical agriculture before graduation. Practical activities could include management of poultry, rabbits, vegetables, field crops, citrus enterprises and/or participation in the day-to-day activities of the university farm for a period of one academic year.

3. The study indicated that student teaching needed strengthening. This could be done through increasing the duration of student teaching to one term (12 weeks) to enable student teachers to acquire the essential teaching experiences; assigning student teachers to master teachers and schools with adequate facilities; and assessment of the student teacher by university supervisor, the cooperating teacher and state supervisor based on defined criteria of the abilities the student teacher should acquire during the student teaching program.

4. The area of inservice education needed improvements. This might be achieved through starting a Master's degree program for the professional development of teachers and that both the Ministry of Education and the Department of Agricultural Economics, Extension and Education identify cooperatively teachers' technical and methodology needs and conduct inservice courses and workshops for agriculture teachers.

Table 1

Analysis of Policy Related Issues by Profession

Variable Rated	Type of Professional ($\bar{X}$/S.D.) Teacher Educators n=11	Teachers n=97	Inspectors n=8	Total N=116
1. Student Selection	3.9 / 0.4	3.8 / 0.4	3.9 / 0.7	3.8 / 0.4
2. Student Teaching	4.3 / 0.3	4.2 / 0.4	4.4 / 0.3	4.2 / 0.4
3. Inservice Education	5.0 / 0.2	5.0 / 0.5	4.9 / 0.5	5.0 / 0.5
4. Qualification and Experience of Lecturing Staff in Agricultural Education	5.1 / 0.6	5.0 / 0.6	4.8 / 0.5	5.0 / 0.6
5. Coordination and Linkage with Other Agencies	5.3 / 0.4	5.3 / 0.5	5.3 / 0.6	5.3 / 0.5

Rating Scale:

6 = Strongly Agree
5 = Agree
4 = Slightly Agree
3 = Slightly Disagree
2 = Disagree
1 = Strongly Disagree

Table 2

Importance and Rank of the Courses Taught in the Agriculture Teacher Education Program

Courses Rated	Type of Professional ($\bar{X}$/S.D.) Teacher Educators n=11 (ranks)	Teachers n=97 (ranks)	Inspectors n=8 (ranks)	Total n=116 (ranks)
1. Professional Courses[a]	5.1 (2) 0.5	4.8 (3) 0.5	4.4 (5) 0.5	4.8 (4) 0.5
2. Agricultural Economic Courses	5.0 (3) 0.5	4.8 (3) 0.8	5.0 (1) 0.5	4.9 (2) 0.8
3. Crop Production Courses	5.2 (1) 0.5	5.1 (1) 0.7	5.0 (1) 0.3	5.1 (1) 0.7
4. Land Use and Mechanization Courses	4.6 (5) 0.8	4.6 (5) 0.8	4.6 (3) 0.6	4.6 (5) 0.8
5. Animal Production and Health Courses	4.8 (4) 0.7	4.9 (2) 0.7	4.6 (3) 0.5	4.9 (2) 0.6
6. General Courses	4.2 (6) 0.8	4.0 (6) 1.1	4.0 (6) 0.4	4.0 (6) 1.0

Rating Scale:

6 = Extremely Important
5 = Very Important
4 = Important
3 = Unimportant
2 = Very Unimportant
1 = Extremely Unimportant

[a]Spearman Rank-order Correlation showed significant differences between ranks at the .05 alpha level

Table 3

Adequacy and Ranking of Skill Training by the Agriculture Education Program

Skills Rated	Type of Professional ($\bar{X}$/S.D.) Teacher Educators n=11 (ranks)	Teachers n=97 (ranks)	Inspectors n=8 (ranks)	Total n=116 (ranks)
1. Professional Skills	4.1 (1) 1.0	4.8 (1) 0.8	3.6 (4) 0.6	4.6 (1) 0.9
2. Crop Production and Related Skills	3.9 (3) 1.1	4.6 (3) 0.8	4.0 (1) 0.5	4.5 (3) 0.9
3. Animal Production and Related Skills	4.1 (1) 0.9	4.6 (3) 1.1	3.7 (2) 0.6	4.5 (3) 1.1
4. Land Use and Mechanization-Related Skills	3.5 (5) 0.7	4.1 (5) 1.1	3.0 (5) 0.9	3.9 (5) 1.1
5. Agricultural Economics-Related Skills	4.8 (4) 1.2	4.7 (2) 1.1	3.7 (2) 0.8	4.6 (1) 1.1

Rating Scale:

6 = Very Adequate
5 = Adequate
4 = Somewhat Adequate
3 = Somewhat Inadequate
2 = Inadequate
1 = Very Inadequate

Spearman Rank-Order Correlation showed no significant differences between ranks at the .05 alpha level

Table 4

Differences in Perceptions of Professionals in Agricultural Education Regarding the Agriculture Teacher Education Program

Characteristics	Domains Where Differences were observed	Means			F value
1. Profession		Teachers n=97	Teacher Educ. n=11	Inspectors n=8	
	Professional Skills	4.8	4.1	3.6	10.9
	Crop Production Skills	4.6	3.9	4.0	4.2*
	Animal Production Skills	4.6	4.1	3.7	3.7*
	Ag. Mechanics Skills	4.1	3.5	3.0	4.9
	Ag. Economics Skills	4.7	3.8	3.7	6.2
2. Place of Training		Swaziland n=96	Other n=20		
	Professional Skills	4.8	4.1		10.8
	Animal Production Skills	4.6	3.9		9.2
	Ag. Mechanics Skills	4.1	3.2		10.2
	Ag. Economics Skills	4.7	3.0		5.3
3. Gender		Males n=98	Females n=18		
	Qualif and Exp of Lecturing Staff	5.1	4.7		6.2
	Coordination and Linkage	5.4	5.0		4.7
	Crop Production Courses	5.1	4.7		6.6
4. Study of Agriculture		Studied n=42	Did not n=74		
	Professional Courses	4.7	4.9		4.3
	Ag. Economics Courses	4.7	5.0		4.2
	Animal Production Courses	4.8	4.3		4.6
5. Place of Work	No differences were observed				

Note: For complete list of Domains studied, refer to Table 5

_ _ Parallel lines indicated statistically significant difference between groups of professionals using the Tukey method

* Omnibus F-test was significant, but no statistically significant difference was detected between pairs of means using the Tukey method

Table 5

Relationships of Selected Personal Characteristics and Perceptions of Professionals in Agricultural Education (N=116)

Domain	Level of Education r_s	Experience r	Age r	Gender r_{pb}
1. Student Selection	.19	.02	.09	-.11
2. Student Teaching	.04	.02	.01	.01
3. Inservice Education	-.11	-.02	-.06	-.16
4. Qualification and Experience of Lecturing Staff in Agricultural Education	.03	-.06	-.10	-.23
5. Coordination and Linkage with Other Agencies	.05	.09	.01	-.20
6. Professional Courses	-.13	-.04	-.04	-.09
7. Agricultural Economic Courses	-.01	.09	.08	-.02
8. Crop Production Courses	-.07	-.08	.04	-.23
9. Land Use and Mechanization Courses	.01	-.04	-.01	-.06
10. Animal Production and Health Courses	-.10	-.10	-.15	-.02
11. General Courses	.01	-.08	.05	-.16
12. Professional Skills	-.34	-.06	-.24	.15
13. Crop Production Related Skills	-.21	.06	-.14	.12
14. Animal Production and Related Skills	-.29	.03	-.23	.16
15. Land Use and Mechanization Related Skills	-.32	-.16	-.21	.08
16. Agricultural Economics Related Skills	-.33	-.05	-.22	.16

Coding: Level of education; 1=Associate degree, 2=B.S., 3=M.S.
Gender; 1=Males, 2=Female
Experience=Interval Data
Age=Interval Data

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