PERCEPTIONS OF UNDERGRADUATE DIPLOMA TEACHERS CONCERNING THE USEFULNESS OF THE COURSES OFFERED FOR TRAINING SECONDARY AGRICULTURAL EDUCATION TEACHERS AT THE BOTSWANA COLLEGE OF AGRICULTURE

P. J. Squire, Lecturer
Botswana College of Agriculture

Abstract

The study was a descriptive survey, designed to determine the graduates' perceptions of the diploma in agricultural education courses offered at the Botswana College of Agriculture. The specific objectives were to: (I) determine the perceived usefulness of the courses taught at the college for teaching agricultural science, (2) determine the perceptions of the graduates about the relevance of practical training programmes to teaching agricultural science, and (3) determine the headmasters' perceptions of graduate teachers of the diploma in agricultural education in the schools. The findings revealed that the majority of the socio-economic, crop science andproduction, agricultural engineering, animal science andproduction, and teacher education courses were rated very useful while the majority of the basic science courses were rated useful. The headmasters had very goodperceptions of the agricultural education diploma graduate teachers. The diploma graduates rated the majority of the practical training programmes relevant to teaching agricultural science in the schools. It was recommended that the diploma in agricultural education curriculum be reviewed based on the findings of the study and that the agriculture teachers be provided in-service training programmes in communication skills, time management and human relations.

Introduction

The word curriculum is defined based on the beliefs and curriculum practices of the different schools of thought (Ornstein and Hunkins, 1993). Walker (1990) views a curriculum as those educational matters that: (a) teachers and students attend to together, (b) students, teachers and others concerned generally recognize as important to study and learn and (c) are organized in relation to one another in the immediate educational situation and in time and pace. According to Bell (1971), Ureubu (1985), and Orstein and Hunkins (1993), a curriculum is the offering of socially valued skills, knowledge and activities made available to students through a variety of arrangements during the time the students are in school, college or university.

The quality of instruction is one of the most important determinants of the level of learning achievement. Teachers, as agents of curriculum implementation, are central to the education system and can make or break the system. The enhancement of the status and motivation of teachers to enable them to discharge this role effectively cannot be overemphasized (Botswana Government Paper No. 2, 1994).

The curriculum is not a fixed and authoritative structure which contains the organized content for learning; it is a dynamic instrument which reflects the educational purposes to be attained and the educational experiences that should be provided to achieve those purposes. Since the purposes of the curriculum will change over time, so will judgements as to what are the best experiences likely to achieve the purposes. As the curriculum will change and develop while the program itself is implemented, and while society itself develops and changes, the need is created for continuing curriculum reform (FAO, 1998, p.7).

Crowder, Lindly, Brueing and Dorn (1999) and FAO (1997) stated that although agriculture generally kept up with scientific progress in the past, the pace of change is much faster today, requiring continual updating of curricula in the areas of new global developments in science and technology which have profound implications for agricultural education institutions.

In a study by Sprecker and Rudd (1997) to determine the opinions of instructors, practitioners, and alumni concerning curricular requirements of agricultural communication students at the University of Florida, the respondents indicated that instruction about Florida agriculture on a broad level (including commodities, trade/economics, and policy/law) was important but communication abilities were more important than agricultural knowledge and that students must have versatile communication skills and learn to network with others. Instructors and alumni emphasized in-depth communication courses while practitioners and alumni stressed desk top publishing. Instructors and practitioners underscored internships and training in issues management but only instructors emphasized electronic media/Internet.

Foster, Bell and Erskin (1995) carried out a study to determine the importance of selected instructional areas in the present and future secondary agricultural education curriculum as perceived by teachers, principals and superintendents in Nebraska. The results showed that no instructional topics were identified as either very important or of little importance in either the current or future Nebraska curriculum. Instructional topics identified by all groups as important in the current curriculum were agricultural economics, marketing, and computer technology. In the future curriculum, all groups identified leadership, personal development, agricultural business management, natural resources and the environment, in addition to agricultural economics and marketing and computer technology. Although the Nebraska and Florida studies were conducted in a different geographical location and with different population characteristics in comparison to the geographical location and the teacher demographic characteristics in Botswana, both studies have implications for agriculture teacher training in Botswana.

Purpose of the Study

The primary purpose of the study was to determine the diploma graduate teachers' perceptions of the usefulness of courses offered in the curriculum for training secondary agricultural education teachers at the Botswana College of Agriculture. A secondary purpose was to determine the perceptions of junior community secondary school headmasters about the diploma graduate agriculture teachers. The specific objectives were to:

1. Determine graduate teachers' perceptions of the usefulness of the diploma courses taught at the college for teaching agricultural science.
2. Determine the graduate teachers' perceptions of the relevance of diploma practical training programmes to teaching agricultural science.
3. Determine the head masters' perceptions of the diploma in agricultural education graduate teachers.

Methodology

A total of 43 graduates of the diploma in agricultural education program at the Botswana College of Agriculture and 36 headmasters participated in the study. As the population frame for the agriculture teachers did not exist because of a number of factors (including deaths, transfers to other schools, migration, study leave, and

resignations), cluster sampling of 36 junior community secondary schools rather than the graduate teachers was conducted from a population of 62 junior community secondary schools in the Serowe Region of Botswana. Agricultural education diploma graduate teachers and head masters in the 36 schools that were cluster sampled constituted the study sample.

Instrumentation

The researcher developed the attitude instrument for the study. The instrument was divided into three sections as follows: In Section A, the respondents used a five point Likert - type response scale (1= not useful, 2 = fairly useful, 3 = useful, 4 = very useful and 5 = very much useful) to rate their perceptions of the courses offered at the college and in Section C the head masters used a five point Likert - type response scale (1 = Poor, 2 = Fairly Good, 3 = Good, 4 = Very Good and 5 = Excellent) to rate their perceptions of the Botswana College of Agriculture diploma graduate teachers in the schools. The headmasters are administrative heads of secondary schools in Botswana. Section B comprised questions designed to measure the levels of relevance of the practical training programmes to teaching agricultural science. A panel of experts examined the instrument for content validity and a reliability estimate yielded a Crombach's Alpha of .87 on the data collected in the pilot test. The instrument was further subjected to a field test to ascertain its clarity and appropriateness for the study.

Data Collection and Analysis

Due to communication problems in the country, the enumerators administered the instruments to the respondents in the 36 schools that were cluster sampled for the study. Forty-three graduates of the diploma programme and 3 6 headmasters completed the instruments. Data were analyzed with the aid of a personal SAS programme and the findings reported using descriptive statistics.

Results

1. Perceptions of students regarding the usefulness of courses offered at the college for teaching agricultural science in schools

The first research question was designed to ascertain the respondents' (n =43) perceptions of the relevance of the diploma courses taught at the college for teaching agricultural science in junior community secondary schools. The findings show that the majority of the socio -economic science, crop science and production, agricultural engineering, animal science production and teacher education courses were rated very useful, with mean ratings above 4.00, while majority of the basic science courses were rated relevant, with mean ratings above 3.00. (Table 1).

2. Graduates Perceptions of the Relevance of Practical Training Programmes (n =43)

The second research question was designed to determine the perceptions of the relevance of the practical training programmes to teaching agricultural science in junior community secondary schools as follows:

Farm Practice

Farm practice is a component of each technical agriculture course taught in the college. The purpose of the farm practice programme is to give students an opportunity to put into practice what they learn in the theory classes under college farm, laboratory and workshop conditions. Most (77%) of the graduates rated farm practice very relevant to teaching agricultural science (Table 2).

Teaching Practice

Teaching practice gives opportunity to

Table 1. Students' Perceptions of the Usefulness of Courses Offered at the College to Teaching (n = 43)

Courses Offered at The College	M	SD
A. Socio-Economic Courses		
Principles of Economics	4.36	1.22
Farm Records and Accounts	**4.32**	**0.85**
Management of School Agricultural Enterprises	**4.22**	**0.83**
Rural Sociology	3.04	0.93
Communication Skills	3.01	1.33
B. Basic Science Courses		
Biology	3.40	1.01
Mathematics	3.37	1.26
Chemistry	**3.23**	1.35
Genetics	3.17	1.36
Microbiology	3.17	1.43
Genetics	3.11	1.21
Physics	2.45	1.54
Biometry	**2.25**	1.13
C. Crop Science & Production Courses		
Vegetable Production	**4.67**	**1.02**
Soil Science	**4.52**	**1.13**
Soil Fertility and Fertilizers	**4.46**	**1.28**
Crop Production	**4.37**	**1.19**
Crop Protection	**4.32**	**1.19**
Agronomy	**4.28**	**1.25**
Fruit Production	4.16	1.06
Plant Breeding	3.14	1.26

(table continues)

Courses Offered at The College	M	SD
D. Agricultural Engineering Courses		
Farm Workshop Skills	3.78	1.24
Irrigation Practices	3.71	1.01
Soil and Water Conservation	3.64	1.63
Crop Production Machinery	3.63	1.16
Farm Structures and Services	3.44	1.43
Surveying and Land Planning	2.40	1.24
Tractor Operations and Maintenance	2.26	1.12
E. Animal Science & Production courses		
Animal Nutrition	4.58	1.14
Animal Health	4.53	1.17
Beef Production	4.50	1.10
Range Management	4.47	1.21
Dairy Production	4.44	1.11
Poultry and Pig Production	4.43	1.27
Goat and Sheep Production	4.39	.1
Anatomy and Physiology	4.23	1.16
Animal Breeding	3.15	1.12
F. Teacher Education Courses		
Educational Psychology	4.92	1.16
Philosophy of Education	4.87	1.11
School Organization and Management	4.68	1. .8
audio-Visual Aids Development	4.55	1.15
Teaching Methods	3.58	1.12
Curriculum Development and Design	3.33	1.43
Educational Evaluation	3.21	1.14

Note. Likert Scale : 1=not useful, 2 = fairly useful, 3 = useful, 4 = very useful and 5 = very much useful.

Table 2. Graduates Perceptions of the Relevance of Practical Training Programmes (n =43)

Practical Training Programme	f	%
A. Levels of Relevance of Farm Practice		
• Very Irrelevant	1	2.0
• Irrelevant	1	2.0
• Relevant	8	19.0
• Very Relevant	33	77.0
B. Levels of Relevance of Teaching Practice (TP)		
• Very Irrelevant	0	0.0
• Irrelevant	4	9.0
• Relevant	31	72.0
• Very Relevant	8	19.0
C. Levels of Relevance of Field Practical Training (FPT) 1		
• Very Irrelevant	6	14.0
• Irrelevant	12	28.0
• Relevant	18	42.0
• Very Relevant	7	16.0
D. Levels of Relevance of Field Practical Training (FPT) 2		
• Very Irrelevant	4	9.0
• Irrelevant	24	56.0
• Relevant	11	26.0
• Very Relevant	4	9.0
E. Levels of Relevance Students' Special Projects		
• Very Irrelevant	5	12.0
• Irrelevant	8	19.0
• Relevant	30	70.0
• Very Relevant	0	0.0

students to gain practical experience in teaching under the supervision of their own lecturers as well as experienced school administrators and teachers. During teaching practice, students are given guidance to learn by observation and practice, the various aspects of school organization and administration. Students are assessed during the teaching practice period by both faculty lecturers and external assessors (Botswana College of Agriculture Prospectus, 1997/98/99 p.114). The majority (72%) of the graduates rated teaching practice relevant to teaching agricultural science (Table 2).

Field Practical Training 1 & 2 (FPT 1 & 2)

Field Practical Training (FPT) in agriculture and industry is an integral part of the diploma programs offered through the Faculty of Agriculture of the University of Botswana in the Botswana College of Agriculture (BCA). The FPT is a course, like any other course offered in the program, and is assessed and counts toward the final diploma grade and successful completion of all FPT sessions is essential before the diplomas in the Faculty of Agriculture are awarded. Students in the diploma in agricultural education program participate in two FPT sessions, each of which is conducted over an eight week period. FPT1 is conducted on private and government farms while FPT 2 is conducted in District agriculture offices (Botswana College of Agriculture Prospectus, 1997/98/99 p. 99 - 106). A plurality (42%) of the respondents rated FPT 1 relevant, while a majority (56%) rated FPT 2 irrelevant to teaching Agricultural science (Table 2).

Students' Special Projects (AG 020)

All students registered in the diploma programmes are required to complete AG 020 - Project Work in semesters 3, 4, and 5. The purpose of this course is to avail to students an opportunity to learn how to undertake in-depth study of a particular topic and write a report on it (Botswana College of Agriculture Prospectus, 1997/98/99, p .107 - 11). A majority (70%) of the graduates rated Students special projects relevant to teaching agricultural science (Table 2).

3. Headmasters' Perceptions of Diploma of Agricultural Education Graduates (n= 36)

The third research question requested the respondents (n =36) to rate their perceptions of the graduate teachers job performance, human relationship, and other variables in the schools. The result showed that the head teachers had very good perceptions of the graduate teachers of the diploma in agricultural education programme as indicated by the mean ratings (Mean 3.50 - 4.50) of the items (Table 3).

Conclusion and Recommendations

The findings of the study showed that the respondents rated a majority of the courses offered at the college very useful, teaching practice and students' special projects, relevant; farm practice, very relevant; FPT 2 ,irrelevant; and a plurality rated FPT 1, relevant to teaching agricultural science in the schools. The head teachers' perceptions of the diploma graduates of the agricultural education programme were rated very good on a majority of the response items. The respondents rated FPT 2 irrelevant because the programme is conducted in District agricultural offices, and the skills and experience the graduates get in working in the agriculture offices have little or no practical value for teaching agricultural science in Junior Community Secondary Schools. Based on the findings of the study, it is recommended that: (1) the diploma in agricultural education curriculum be reviewed to reflect the findings of the study and (2) agriculture teachers in junior community secondary schools be provided in-service training programmes in communication skills, time management, and human relations.

Table 3. Headmasters' Perceptions of Diploma of Agricultural Education Graduates (n = 36)

Response Item	M	SD
Cooperation with administration	4.50	1.19
Judgement - ability to make worthwhile decisions	4.41	1.10
Attendance at work	4.38	1.18
Relationship with colleagues	4.26	1.12
Attitudes toward manual work	4.25	1.28
Technical competence	4.22	1.18
Initiative and innovation	4.19	1.18
Dependability	4.16	1.25
Relationship with students	3.94	1.24
Initiative and innovation	3.88	1.36
Dependability	3.13	1.26
Work habits - Use of working time	3.09	1.69
Punctuality	2.68	1.14
Communication skills	2.59	1.16
General work performance	2.47	1.24

Note. Likert Scale : 1 = Poor, 2 = Fairly Good, 3 = Good, 4 = Very Good and 5 = Excellent

References

Bell, R. (1971), Thinking about the curriculum. London, the Open University Press p. 5

Botswana Government Paper No. 2 (1994), The Revised Policy on Education. Gaborone, Government Printer. p. 11

Crowder, L. V., Lindly, W. I., Brueing, T. H. & Dorn, N. (1998), Agricultural Education for sustainable Rural Development: Challenges for Developing Countries in the 21 st Century. Journal of Agricultural Education and Extension. Vol. 5 No. 2.

FAO Report (1997), Issues and Opportunities for Agricultural Education and Training in the 1990s and Beyond. Rome, FAO. p. 22-23.

FAO Report (1998), Participatory Curriculum Development in Education : A training Guide, Rome, FAO. p.7.

Foster, R., Lloyd Bell & Noel Erskine (1995), the Importance of Selected Instructional Areas in the Present and Future Secondary Agricultural Education Curriculum As Perceived by Teachers, Principals, and Superintendents in Nebraska. Journal of Agricultural Education. Vol.

36, No. 3.

Ornstein, A. C. & Hunkins, F. P. (1993), Curriculum foundations, principles and theory. (2nd ed). England, Allyn and Bacon. p. 7-8

Sprecker, K. J. And Rick D. Rudd (1997), Opinions of Instructors, Practitioners, and Alumni Concerning Curricular Requirements of Agricultural Communication Students at the University of Florida. Journal of Agricultural Education. Vol. 38, No. 1.

Ureubu, A. (1985), Curriculum Studies. Hong Kong, Longman.

Walker, D. (1990), Fundamentals of Curriculum. Harcourt, Brace College publisher. p. 4