

The mean scores for males' and females' respective ratings for "should be fulfilled" and "is being fulfilled" were compared using analysis of variance. Six functions were perceived differently by males and females (.05 level) Table 2 summarizes these findings. Females had higher expectations for advisors ("should scores") than males on all six of the significant functions and gave advisors lower "is" scores on half the functions. Females had greater needs (different scores) than males on all six functions suggesting that advisors need to pay special attention to these functions for female advisees.

Table 2. Mean Scores for Males and Females for "Should Be Fulfilled" and "Is Being Fulfilled" Functions that Show Significant Differences

Functions	Means for Males			Means for Females		
	Should	Is	Difference	Should	Is	Difference
11. Suggest ways to improve study habits	1.83	1.26	0.57	1.58	0.46	1.02
22. Clarify career/life goals	1.90	1.29	0.61	2.27	1.31	0.96
23. Identify career areas to fit current skills, abilities and interests	2.24	1.45	0.79	2.53	1.27	1.26
25. Discussion of opportunities for continuation of education after graduation	2.11	1.11	1.00	2.29	0.75	1.54
34. Is on time for appointments	2.70	2.29	0.41	2.58	2.42	0.16
41. Has posted office hours and/or is available when necessary	2.61	2.13	0.48	2.86	2.27	0.59

Student Satisfaction With Academic Advising

To obtain an overall measure of student satisfaction with advising at WSU, students were asked: "How well does the academic advising service at WSU meet your needs?" Students rated this question on a four point scale where 1 = exceptionally well, 2 = adequately, 3 = less than adequately and 4 = poor. A chi-square test was used to determine whether level of satisfaction differed on ten variables: (1) length of time advised by current advisor, (2) frequency of meetings with current advisor, (3) satisfaction with frequency of meetings with advisor, (4) satisfaction with amount of time spent with advisor at each meeting, (5) gender of advisor, (6) class level, (7) whether student had certified a major, (8) whether student was enrolled in an agriculture or a home economics major, (9) gender of student, (10) grade point average of student. The only variable found to be significant at the .05 level was frequency of meetings with advisor. Students' levels of satisfaction were higher for those students who met more often with their advisors. This suggests a need to explore ways of increasing student contact with their advisors.

Conclusions and Recommendations

The academic advising services provided by advisors in the college appear to be very good since advisors are performing the functions which students rate as most important. The need scores suggest that students would like even more help from advisors in securing jobs and scholarships, finding graduate school opportunities, improving study habits and identifying career areas that fit their personal strengths and interests. Career development concerns are especially high for women in the college. These findings support the research of Vener and Krupka (1980) who found that career information was neglected in the advising process. They suggest that universities need to

restructure their academic advising to meet the needs of the "new" student who is more vocationally oriented. Specific areas of need identified here are scholarship improvement, career development to enhance employment upon graduation, and funding to subsidize the cost of attending college. Advisors, with the help of the department and/or college, should maintain scholarship and job information and build networks with outside agencies, businesses, and organizations to aid in placing students for internships and permanent employment.

The needs identified in this study support a developmental approach to advising (Bostaph and Moore, 1980). This approach, initiated at the beginning of the student's educational experience, emphasizes long range planning. The academic major, individual courses, and work related programs such as internships are tied together through the long range plan. Once such a foundation is laid, information provided by the advisor becomes meaningful in the context of the student's entire academic program and life goals. Better understanding of the developmental approach to advising by advisors and administrators appears to be one way to better meet the advising needs identified in this study.

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What Motivates Nigerians To Study Technical Agriculture

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In an attempt to increase agricultural production and farm income in Nigeria, the government and institutions of higher learning have been working on the problem of planned agricultural development aimed at revolutionizing agriculture through the introduction of different types of technological innovations (Okuneye, 1985). The main objective of these efforts is to raise the standard of living of subsistence farmers (Atala, 1984).

At the same time, Atala (1984) indicated that a variety of factors have inhibited widespread adoption of recommended agricultural innovations. These included educational, economic, political, sociological and sociopsychological factors. However, the lack of

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highly trained agricultural scientists and extension specialists seems to be one of the most serious constraints to the development and transfer of improved agricultural technology to the Nigerian farmer (USAID Africa Bureau, 1984). Sub-degree level technical agricultural colleges were established immediately after independence in 1960 "to provide a stream of intermediate-level extension workers in agriculture" (Onazi, 1976). Consequently, the bulk of the agricultural extension work in Nigeria is done by graduates of technical agricultural colleges.

In view of the prevalent derogatory attitudes toward production agriculture and the low prestige of technical education in Nigeria, Ejembi (1985), Floyd (1980), Okorie (1975), and Fafunwa (1974) have asserted that sub-degree level technical agricultural students are not committed to the field of agriculture. However, no research has been conducted to determine the factors responsible for technical agricultural students' choice of agriculture as a vocation.

Purpose and Objectives

The purpose of a study (Ejembi, 1988) submitted to the Iowa State University Graduate College was to determine Ahmadu Bello University (ABU) colleges of agriculture students' perceptions of agriculture in Nigeria. Specific objectives of this study were a) to determine motivational factors that influence ABU colleges of agriculture students to study technical agriculture; and b) to analyze the relationship of selected demographic variables to students' motivational factors.

Methods

The study was descriptive in nature (Van Dalen, 1974). The study population consisted of 1434 students at the four colleges of agriculture administered by the ABU Division of Agricultural Colleges. The number of respondents in each college was determined by proportional sampling and particular respondents were selected by simple random sampling. A total of 234 students, out of a sample of 300, participated in the study. A five-part survey instrument was developed and used to collect data pertinent to the Ejembi (1988) study. The motivational factors section consisted of 24 items scored on a 99-point scale. Items were grouped into six logical categories to facilitate inferential statistical analysis. Descriptive and inferential statistical procedures were used to analyze the data. The .05 level of significance was used to test for significant differences between groups.

Results

Means, standard deviations, and mean rank of motivational factors are revealed in Table 1. Of the 24 factors, the first five that had the most influence on the respondents' decision to become involved in agriculture were, in descending order of importance, a *desire* to help develop Nigerian agriculture (80.53); possibility of self-employment after graduation (76.57); personal initiative in agriculture (65.96); a strong desire

to work with rural people (65.51); and love of nature, especially animals and plants (65.43).

The five factors that had the least influence on the students were, in descending order, perceived honesty of agricultural workers (36.52); travel opportunities in agriculture (35.73); high starting pay (32.60); agriculture as a last resort (28.12); and the perception that agricultural work is easy (27.35).

Table 1. Means, Standard Deviations, and Mean Rank for Motivational Factors.

Factor	N	Mean	SD	Mean rank
Secondary school course(s)	224	55.86	32.81	10
Secondary school teacher	221	38.46	30.33	18
Desire to develop Nigerian agriculture	225	80.53	22.13	1
Talk with a friend	221	45.62	31.5	14
Father	224	52.90	33.82	12
Mother	217	41.90	33.96	17
Other relatives	223	37.64	31.14	19
The belief that 'there is money' in agriculture	224	46.71	33.04	16
The only field in which I was accepted	221	28.12	32.17	23
The practical nature of agriculture	224	62.83	27.17	6
The challenging nature of agriculture	222	61.95	25.61	7
Agriculture provides for personal initiative	223	65.96	25.61	3
High starting salary	225	32.60	27.90	22
Security of employment in agriculture	223	56.46	31.90	9
Possibility of self-employment after graduation	225	76.57	25.47	2
A desire to continue the family tradition of working in agriculture	226	44.50	32.52	16
Love of nature, especially animals and plants	224	65.43	28.75	5
A strong desire to work with rural people	225	65.51	29.55	4
The perception that agricultural work is easy	223	27.35	26.48	24
The belief that agricultural workers are honest	224	36.52	30.28	20
Agricultural work offers travel opportunities	223	35.73	30.81	21
Agricultural work enables one to know people well	225	53.03	31.24	11
Agricultural work is a sign of one's patriotism	224	59.79	31.73	8

The number of cases, means, standard deviations, and mean rank for motivational factors categories are presented in Table 2. It was observed that national motivational factors had the highest mean score (70.23). The next most influential factor was economic (50.13). It is interesting to note that family factors influenced the respondents the least (44.69) in their decision to become involved in agriculture.

Table 2. Number of Cases, Means, Standard Deviations, and Mean Rank for Motivational Factors Categories.

Category	N	Mean	SD	Mean Rank
Economic	227	53.18	20.32	2
Family	227	44.69	24.93	6
National	227	70.23	22.07	1
Personal	227	51.78	16.03	3
School	224	46.37	27.10	4
Social	226	45.92	21.17	5

Multiple classification analysis of variance (ANOVA) of the relationship of motivational factors to selected demographic variables revealed that first-year ordinary diploma students were influenced more by economic (F-value=5.44, F-probability=.02), family (F-value=6.98, F-probability=.01), and personal (F-value=5.47, F-probability=.02) factors than first-year higher diploma students. But second-year ordinary diploma students were influenced less by these factors than second-year higher diploma students. Ordinary and higher diploma students varied significantly in their response to national motivational factors. The former were influenced more by these factors than the latter. Female first-year students as a group were influenced more by economic factors than their male colleagues, but male second-year students were influenced more by these factors than female second-year students.

Conclusion

1. The desire to help develop Nigerian agriculture influenced the respondents more than any other consideration. Findings of this study indicated that school factors, such as teachers and coursework influenced students marginally. These observations were not supported by several previous studies. For instance, Arrington (1985), Bowen and Lee (1984), Houser and Garvey (1981) and Odebunmi (1984) indicated that family, economic, personal, and school factors were the most important motivational factors of agricultural students. Burnett and Venable (1986) reported similar findings. It is evident that the respondents felt that agricultural development was crucial to the development of Nigeria and would support any sound agricultural initiative in the country.
2. Findings of this investigation did not support the widespread misconception in Nigeria that secondary school graduates disdain farming and related agricultural occupations in favor of white collar occupations. On the contrary, respondents felt that agriculture was interesting as well as challenging. This finding seems to suggest that the failure of most agricultural projects in the past cannot be blamed on the negative attitudes of middle level agricultural staff toward agriculture. It seems that middle level agricultural staff can successfully promote agricultural change if given the resources needed.
3. Family motivational factors as a category influenced students the least. Other researchers had reported that the immediate family was the most influential factor on students' decision to pursue agricultural career objectives (Bowen and Lee, (1984); Findlay and Rawls, (1984); Odebunmi, 1984; Truffant et al, 1975). Strategies to attract young people into agriculture must also emphasize efforts to change any negative perceptions of agriculture parents may have

4. about their children's involvement in agriculture. At a time of high graduate and non-graduate unemployment in the country, ordinary diploma students, more than any other group, may see agriculture as a means of achieving economic independence through self-employment or salaried position. But the data did indicate that second-year ordinary diploma students did not share this optimistic view of agriculture. It could be that the depressed economy may have dampened the hopes of this group of students. Such students may think less of economic independence, and more about being in school longer to obtain the higher diploma. On the other hand, second-year higher diploma students may well share the view that agriculture is a path to economic prosperity.
5. Family motivational factors weighed more on the decisions of first-year ordinary diploma students than any other group. Ordinary diploma students tend to be relatively younger than higher diploma students, and as such may be more dependent on family members for guidance. Family considerations, such as fathers' goal expectations for their children, determine to a large extent the course of study students choose soon after graduation from secondary school. This is another argument in favor of involving parents in the agricultural decision of their children.
6. The fact that female first-year students were influenced by economic factors more than any other sub-group in the study may be a reflection of the growing awareness among women worldwide that they must work for their own economic independence in a rapidly changing world (Cepica and Quarles, 1984). Concerted efforts should be made to recruit female students into colleges of agriculture through scholarship awards and other incentives to deserving students, publicity campaigns, and visits to secondary schools.

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Systems Teaching

A Direction for Faculty Development and Curriculum Revitalization

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Introduction

Agriculture, like most professional fields taught in higher education, is faced with problems of compartmentalization and over-specialization (Ellerbrock, 1987). Graduates of colleges of agriculture have been found to lack problem solving skills and conceptual as well as communication abilities required in the work setting (Merritt, 1984; Wilson, 1986). Concerns about the inability of our education system to meet the challenges of an increasingly complex, inter-dependent world have led to a call for revisions in curriculum and teaching practices (Boyer, 1987). The fact that the curriculum in most colleges of agriculture have not had major revisions over the past 25 years (Sledge, 1987) makes the need for revitalization especially pressing.

One potential answer to these stated needs is to bring about more integrative, cross-disciplinary teaching and curriculum design, using a systems framework. This framework and its introduction through faculty development workshops are described here with suggestions based on some evaluation data and observations from the experience of attempting to involve faculty in curriculum revitalization.

The Systems Model of Teaching

The systems model of teaching and curriculum design which offers an alternative to reductionistic approaches may be traced to several roots, including the pragmatic philosophy of John Dewey (1929, 1932) who emphasized learning to learn in practice; the field

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theory of Kurt Lewin (1951) which considers all factors of change in the total environment; and general systems theory from which holistic concepts were derived (Bertalanffy, 1950, 1968). Whereas reductionism seeks to explain phenomena at a simplified level of linear relationship between factors studied in isolation from their context, the systems conception of causality is based on the totality of all factors in interaction in a given context.

Moreover, systems thinking, which has become more prevalent in the last twenty years in many fields, has only been recently applied to education. Conventional teaching has tended to be reductionistic, partly due to the historical influence of behaviorism on theories of teaching and learning (Paris, Olsen, & Stevenson, 1983), and partly due to the dominant model of professional knowledge which follows dualistic patterns of specialization by underlying disciplines (Schon, 1985). Reductionism is also reflected in the conception of agricultural problems and their solutions, as found in much of the theoretical content of existing curriculum. This combination of factors may have contributed to the deficiencies noted earlier. For example, a reductionist approach to the problem of food production would be to increase output with modern technology and inputs such as fertilizers, high-yield seeds, and chemical control of pests. The isolated effects of each input often constitute the focus of learning by the student of agriculture. It does not prepare the student to deal with the combined impact of technology and modern inputs on the total ecological environment of a developing area.

As an alternative, the systems model offers a multi-cause conception of problems that places