

# FOLLOW-UP OF INTERNATIONAL GRADUATE STUDENTS IN AGRICULTURAL EDUCATION AT THE OHIO STATE UNIVERSITY

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The primary goal of international students who attend U.S. colleges and universities for graduate study is to receive the best education available (Kaplan, 1983). These international students do not differ from domestic students in their desire to acquire the necessary knowledge and skills that will adequately equip them for a professional role in society; however, unlike domestic students, 85% of the international students do not remain in the United States upon completion of their degrees (Altbach, Kelly & Lulat, 1985).

The 1986/87 annual census of foreign students conducted by the Institute of International Education (Open Doors, 1987) reported over 349,000 foreign students in U.S. colleges and universities, of which 42% were at the graduate level. The 1988 enrollment at The Ohio State University, Columbus, indicated that international students at the graduate level represented 22% of the total graduate enrollment. In the College of Agriculture at The Ohio State University, international students comprised 48% of those enrolled at the graduate level in 1988. The international students assume they will apply their U.S. education and training upon returning to their home country.

Studies that investigate the relevance of academic programs offered by U.S. institutions indicate that when returning to their country, international students may not make effective use of their U.S. education, and their graduate program of study does not always correspond to their job responsibilities (Lee, Abd-Ella, & Burks, 1981). Altbach, Kelly, & Lulat (1985) summarized the research on the curricular relevance of academic programs offered by U.S. institutions:

...in general, U.S. curricula are not particularly suited to the needs of international students coming from Third World countries—especially with respect to technical disciplines (engineering, agriculture, etc.) at the advanced levels... also, international students find technical knowledge (gained from practical training experience obtained following completion of studies) more useful than theoretical knowledge. (p. 32)

The relevancy of U.S. education is a critical issue in planning graduate programs for international students.

## Purpose and Objectives

At the present time, reliable data do not exist that provide an accurate record of the current positions and job responsibilities of international students who graduated from The Ohio State University with advanced degrees in agricultural education. To effectively plan and deliver quality graduate education for international students, information is needed on the relationship between the graduate program of studies for international students and their current job responsibilities. The purposes of this study were to describe the employment status of international agricultural education graduates and to determine the usefulness of their graduate education program. The specific objectives were:

1. To identify the types of positions currently held by international students with advanced degrees in agricultural education.
2. To assess the usefulness of courses in the agricultural education graduate program as perceived by the international students in relation to their current job responsibilities.
3. To provide anecdotal data regarding perceptions of graduate study.

## Procedures

The design was a descriptive survey. The target population was the international students who graduated from the Department of Agricultural Education at The Ohio State University during the years 1980-1988. Thirty-five international students were identified who had received graduate degrees between the years 1980 and 1988. Fifty-five percent of the students had obtained Ph.D. degrees and

45% had received Masters degrees. Seventy-one percent of the students had an extension education focus and 29% had a teacher education focus. A follow-up study of these 35 graduates was conducted.

A questionnaire was developed specifically for use in the study. Part I collected background information and a description of current job responsibilities. Part II asked the graduates to evaluate the usefulness of specific university courses in relation to current job responsibilities using a four-point Likert-type scale with a 4 = very useful to 1 = not useful. Part III consisted of four open-ended questions that documented student perceptions of graduate study. Content validity was established by a panel of teacher educators and international graduate students. A reliability coefficient (Cronbach's alpha) of .87 was calculated for the scale used in Part II of the questionnaire.

The questionnaire, a cover letter, and a self-addressed envelope were mailed to the 35 international graduates. Two months after the initial mailing, a second questionnaire, a cover letter, and a self-addressed envelope were sent to non-respondents. Twenty-nine of the international graduates returned usable questionnaires for an 83% rate of return. Two questionnaires were returned due to inaccurate addresses; attempts to locate accurate mailing addresses were unsuccessful. Two former students declined to return the questionnaire and two questionnaires were undeliverable due to political unrest in the particular country.

### Findings

The findings are presented regarding: (a) background information on the responding graduates; (b) a description of current job responsibilities; (c) an evaluation of the usefulness of specific university courses; and, (d) perceptions of graduate study.

Background Information: The 29 graduates represented 14 different countries. Forty-three percent ( $n = 13$ ) of the responding graduates are from southeast Asia, 31% ( $n = 9$ ) are from Africa, and 14% ( $n = 4$ ) are from the Middle East. Six of the former students are female and 23 are male. Sixty-five percent of the graduates had received funding from their home government to attend graduate school and 14% used personal funds. The remaining 21% received funding from U.S. and international agencies (e.g., World Bank, USAID). Two former students had graduate associations to help fund their schooling.

Current Employment Status: As illustrated in Table 1, 25 of the 29 responding graduates are employed. Three are full-time doctoral students, and one former student is fulfilling mandatory military obligations. Of the 25 graduates who are employed, 21 responded that they are working in a position for which they were educated. During their graduate study, 17 of the graduates indicated that they had been on a leave of absence from a position in their home country and 13 had returned to this same position.

Sixty-eight percent ( $n = 17$ ) of the employed graduates are working in a university. Nine graduates are lecturers, four are assistant/associate professors, three are department heads, and one former student is the dean of a college of agriculture. Six graduates are agricultural extension training officers for their home governments. One former student was unable to obtain a university position and is working in private industry, and one graduate is teaching agriculture at the secondary level. Over two-thirds (72%) of the graduates indicated that a portion of their job is administrative in nature. Administrative responsibilities ranged from 5% to 60% for the respondents, and included the following types of activities: supervising office staff or technicians, serving as a liaison between the university and the ministry of education, directing a regional research center, serving as secretary of an academic unit, and serving on university, college, and departmental committees.

Usefulness of University Courses: The graduates were asked to rate the usefulness of specific categories of courses in relation to their current job responsibilities. As illustrated in Table 2, the courses rated the most useful were those dealing with a) teacher educator preparation, b) data collection/instrumentation, c) research methodology, design, and analysis, and d) program planning. Eighty-three percent of the graduates who had taken coursework in teacher education rated these courses as very useful in relation to their current job responsibilities. As illustrated by the mean rankings, extension program planning had the highest mean score for usefulness of course, followed by data analysis, instrumentation, and research methods. Coursework in technical agriculture and computers received the lowest mean scores.

**Table 1**  
**Current Positions of International Graduate Students; N = 29**

Position	<u>N</u>
University Lecturer	9
Assistant Professor	3
Associate Professor	1
Department Head	3
College Dean	1
Ministry of Agriculture/Education (Extension Training Officer)	6
Private Industry	1
Secondary Agriculture Instructor	1
Full-time Graduate Student	3
Military Service	1

**Table 2**  
**Usefulness Rating of Courses in Relation to Current Job Responsibilities N = 29**

Category	# Students Taking Class	Very Useful	% Response			Mean
			Useful	Somewhat Useful	Not Useful	
Teacher Educator Preparation	11	83	0	0	17	3.45
Instrument./Data Collection	18	78	11	11	0	3.67
Data Analysis	21	76	14	10	0	3.68
Research Methods	28	72	21	7	0	3.64
Ext. Program Planning	25	72	28	0	0	3.72
Research Design	11	64	23	13	0	3.50
Program Evaluation	24	58	38	4	0	3.54
Curriculum Development	11	55	27	9	9	3.27
Beginning Statistics	23	52	31	13	4	3.30
Adult Education	12	50	33	17	0	3.33
Computers	12	50	40	42	8	2.92
Administration/Supervision	22	41	36	18	5	3.14
Secondary School Program	13	39	39	15	7	3.08
Technical Agriculture	13	23	39	31	7	2.77

Note. Mean is based on a 4-point scale with 4 = Very useful, 3 = Useful, 2 = Somewhat useful, and 1 = Not useful.

Perceptions of Graduate Study: When asked why they had chosen The Ohio State University for graduate education the respondents identified three main reasons: a) the outstanding reputation of the Department of Agricultural Education, b) the courses offered at the university matched their personal educational goals, and c) the availability of excellent computer and library facilities.

The most frequently mentioned courses that the students wished they had taken during their graduate program included, in rank order: statistics, extension administration, computer education, research design, and program planning.

The graduates recommended that international students get involved in a variety of activities during graduate study. Attending professional conferences and visiting secondary schools and extension offices were the most frequent responses. Several of the graduates stressed the importance of internship programs at local schools and county extension offices. Participation in social/cultural events, sponsored by the department, university, or community was also recommended as an essential component of graduate education. The graduates warned international students not to isolate themselves from other students in the department.

The graduates were asked what general advice they would give to international students considering graduate study in the United States. Learning about U.S. culture, customs, and traditions was the most frequently mentioned response. The graduates advised prospective students to choose carefully their area of graduate study and not to make major program decisions hurriedly. Practicing oral and written English skills was mentioned by several former students. The graduates told potential students to be prepared to study long hours and to carry a heavy course load.

### Conclusions and Recommendations

The majority of the international graduate students are working in a position for which they were educated. The international students perceived that most of their graduate courses were useful or very useful in relation to their current job responsibilities. Courses involving teacher educator preparation, research methodology, instrumentation, data collection, and analysis techniques, and program planning/evaluation were perceived to be the most useful. Technical agriculture and computer courses were the least useful in relation to current job responsibilities.

Providing a quality graduate program of study is a primary objective of the Department of Agricultural Education at The Ohio State University. Both domestic and international students need to be involved in meaningful learning experiences during their graduate program. Information from international graduates may help to develop relevant programs of studies for future international students.

Advisors in the department should share the findings from the study with their new international graduate students. Advisors need to discuss the expected job responsibilities of the advisee upon completion of graduate study. Future job duties may not be clearly articulated by the student's home government or university. A programmed course of graduate study will not necessarily be appropriate for all international students. With over two-thirds of the graduates in this study involved in some level of administrative work, administration/supervision courses may need to be emphasized. Internships and/or informal meetings with local extension agents and agriculture teachers appear to be important considerations when planning international graduate programs. Departments may need to develop a systematic, structured approach for ensuring that international students obtain first-hand experience. International and domestic students usually are involved in an informal network system. Advisors should be aware of their international advisee's involvement in a variety of departmental, university and community activities. International students may be reluctant to participate in certain meetings or activities; advisors should take the initiative in inviting students to specific activities.

Additional questions remain that could be investigated by teacher educators in agricultural education. Are international students being "overeducated" in some areas and "undereducated" in others? Students may be taking a disproportionate number of courses in one field at the expense of gaining knowledge and skills in other fields of study. Documenting daily job activities upon return home with actual coursework taken may reveal a different dimension of usefulness of courses as perceived by international students. What forms of communication linkages have been established to maintain contact with international graduates upon graduation? Former students need to receive periodic updates on professional improvements and activities. Investigating type and number of communications would portray departmental contact with international graduate students.

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# CAREER MOBILITY IN AGRICULTURAL EDUCATION: A SOCIAL LEARNING THEORY APPROACH

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Much of the research on factors relative to career turnover of teachers has focused on specifics such as long hours or the amount of paper work (Cole, 1984; Bundy and Fruehlich, 1969; Dillon, 1978; Knight, 1978). While interesting and potentially beneficial, such studies could be enhanced by linking these specifics to underlying concepts thereby giving a more in-depth perspective of the career mobility phenomenon. An appealing approach for such an in-depth inquiry into turnover is social learning theory. Social learning theory posits that psychological functioning can be explained in terms of the interaction of personal characteristics, previous behavior (learning) and environmental determinants (Chapman, 1984). This psychological functioning involves valuing certain outcomes, discriminating among situations in terms of their potential to bring about these valued outcomes, judging one's ability to function and decide which situations to enter and how to behave in them. Krumboltz (1979) expanded this basic definition of social learning theory in career decision-making as a way to identify the interaction of personal characteristics, learning experiences, cognitive and emotional responses, and performance skills that produce movement along one career path or another. This movement includes an individual's decision to stay in a profession or leave.

This perspective offers a general explanation of career choice. Specific definition of each construct for this study was: (a) personal characteristics - reasons (motivation) for entering teaching, (b) learning experiences - educational preparation, grade point average, quality of first year employment, (c) cognitive and emotional responses - attainment and importance of criteria of professional success, initial commitment, and (d) performance skills - professional integration into teaching as defined by perceived competency.

## Purpose

The purpose was to examine the Krumboltz's extension of social learning theory to career decision-making by comparing individuals who left teaching to those who have remained, on selected constructs. By comparing stayers and leavers on constructs associated with more fundamental concepts of the theory, basic processes of turnover can be identified and understood in a more systematic, theoretical fashion. Given the theoretical proposition that career behavior can be explained by the positive or negative nature of the social learning experience, the hypothesis that stayers would report more positive outcomes on the defined constructs than leavers was developed. An additional hypothesis was constructed that stated that a linear combination of variables would be identified that maximally discriminate leavers from stayers.

## Method

**Population and Sample:** The target population was all graduates of the University of Wisconsin System certified to teach agricultural education from 1962-1982 who were either still teaching or had taught and left the profession (678). All individuals identified as leavers (393) were sent a postcard to confirm addresses and willingness to participate. A total of 266 responded. The number of individuals in the sample who were still teaching totaled 285.

**Instrumentation:** The instrument employed was a modified version of an instrument used by Chapman (1984) in a similar study. The variables and their definitions are below. The dimension of the Krumboltz expansion that is associated with each variable is noted in parentheses.

1. Educational preparation (learning experiences) - This construct addressed the teacher's perception of the adequacy of his/her preparation for teaching (e.g. level of scholarship, quality of agricultural education courses). Also included was grade point average as a measure of academic success (McCoy & Mortensen, 1983).
2. Quality of first year teaching experience (learning experiences) - Early frustration can be brought on by a dissonance experienced between reality and how adequate one feels to handle that reality. As such, the quality of first year experience can be compromised. Quality was assessed by asking how positive the individual felt about various aspects of teaching during the first year (e.g., salary, disciplining students, excessive time demands).

3. Initial commitment to teaching (cognitive and emotional responses) - initial commitment reflects the degree of commitment one had prior to career entry (e.g., commitment to teaching, commitment to agriculture).
4. Importance and attainment of criteria for professional success (cognitive and emotional responses) - These two constructs assessed the importance assigned to various criteria considered important for success (Chapman, 1984) and the degree to which the individual attained or experienced these criteria (e.g., enough time to get the job done, seeing the results of my work, interesting work).
5. Professional integration into one's career (performance skills) - Integration was defined as the degree to which individuals felt they possessed selected skills and abilities to teach successfully or, how competent they felt (e.g., how competent one felt in plant science, asking questions as part of teaching, using a variety of teaching methods). These included both pedagogical and technical agriculture skills (Cole, 1984).
6. Reasons for entering teaching (personal characteristics) - This dimension references a variety of factors (mostly external) that could have influenced one to enter teaching (e.g., high school counselors, agricultural education professors).

A Likert-type scale (1-not at all to 6-extremely) was used as an indicator of subject response to all items except grade point average. Response to grade point average was coded A = 4, B+ = 3.5, B = 3, C+ = 2.5, C = 2. Turnover was coded 1 = stayers and 2 = leavers. A principal components analysis was conducted on multi-item scales as an index construction procedure. The resulting component scores (standardized) were used in each analysis. These scores reflect the weighted contribution of each item to its component and its eigenvalue was used to determine the maximum alpha coefficient of internal consistency (Serlin & Kaiser, 1976).

All constructs were assumed to be unidimensional except the construct assessing reasons for entry into teaching. The principal components analysis confirmed this assumption with five orthogonal components being identified for this dimension. Reasons for entry included the components identified as influence of high school agricultural education experience, college counselor/professors, parents/friends, high school counselors/teachers, and desire to be involved in teaching and agriculture. Scale reliabilities were computed for the constructs of initial commitment (.82), competence (.87), quality of first year experience (.81), educational preparation (.88), importance of criteria for success (.85), attainment of criteria for success (.86), influence of high school agricultural education experience (.90), influence of college counselors/professors (.77), influence of high school counselors/teachers (.56), influence of parents/friends (.66), and desire to be involved in teaching/agriculture (.46).

**Data Collection and Analysis:** A questionnaire was mailed to each subject in the sample (551). A total of 417 usable responses were received following a second mailing, yielding a 76% response rate. There were 219 responses from teachers (77% response) and 198 responses from those who had left teaching (75% response). A non-respondent follow-up and analysis was employed to determine if differences existed between respondents and non-respondents. Twenty randomly selected non-respondents were compared to the respondents on overall measures of each construct. No differences were identified.

Using SYSTAT 4.0 (Wilkinson, 1987), discriminant analysis was conducted to determine if the two groups (leavers and stayers) differed significantly on the variables discriminating between the two groups. The selection of variables to be included in the discriminant analysis was conducted by examining significant univariate analyses. Those variables not yielding significance ( $p \leq .05$ ) were deleted prior to the multivariate analysis. Variables are not expected to have a reasonable expectation of containing information about group differences by themselves should not be included in the analysis because one loses power in the process (Huberty, 1975).

Descriptive statistics were used to describe the data and sample. Pearson product moment correlations were computed to assess the degree of relationship among variables.

## Results

Table 1 displays means and standard deviations of discriminating variables for leavers and stayers in standard deviation units and univariate statistics computed prior to the discriminant analysis.

**Table 1**  
**Means and Standard Deviations for Discriminating Variables**

Variable	Stayers	Leavers	Univariate <u>F</u>	Prob.
Educational preparation	.117 0.994	-.133 0.995	5.474	.020
Grade point average	.148 0.984	-.164 0.994	11.836	.001
Initial commitment	.076 1.026	.087 0.968	2.740	.099
Quality of first year experience	.118 1.009	-.127 0.978	5.720	.017
Professional integration	.116 0.917	-.132 1.075	6.564	.011
Importance of criteria for success	.167 0.963	-.185 0.991	14.049	.000
Attainment of criteria for success	.163 0.920	-.183 1.0527	13.865	.000
Reasons for career				
High school ag ed	.071 0.969	-.077 1.033	2.029	.155
College experience	.014 0.967	-.034 1.033	0.165	.685
High school experience	.059 0.981	-.065 1.021	1.440	.230
Parents/friends	.002 1.016	.003 0.986	0.001	.975
Desire to teach	.024 1.046	-.026 0.951	0.221	.639

Note. Data are listed as means over standard deviations.

To select the variables for inclusion in the discriminant analysis, the discriminant feature in SYSTAT 4.0 (Wilkinson, 1987) computes the univariate F-statistic for each variable. Due to the significant differences ( $p < .05$ ) between leavers and stayers, the variables included in the discriminant analysis were educational preparation, grade point average, quality of first year teaching experience, professional integration into teaching, importance of criteria for success, and attainment of criteria for success. The discriminant analysis revealed that those remaining in teaching had significantly higher means than those who had left teaching on each of these variables.

Using these variables, the null hypothesis tested was that there was no difference between the leaver and stayer groups centroids on the discriminant scores. A Wilks' lambda of 0.924 and chi-square of 32.548 was reported with 6 degrees of freedom. Because the chi-square was significant at  $p < .001$ , the null hypothesis was rejected indicating a significant difference between leaver and stayer group centroids. As a result of the discriminant score, 62 percent of the groups were classified correctly (see Table 2).

**Table 2**  
**Discriminant Analysis Results**

Group	Number of Cases	Predicted Group	
		Group 1	Group 2
Stayers	220	140 64%	80 36%
Leavers	197	80 40%	117 60%

A tau coefficient, indicating degree of improvement in classification over that expected by random classification, was computed to be .26. Given a canonical correlation coefficient of .28, a Wilks' lambda of .924, and a tau coefficient of .26, the discriminating power of these variables was considered marginally beneficial in classifying these two groups even though the discriminant function was significant.

The standardized canonical discriminant function coefficients are shown in Table 3. The highest coefficient (.651) associated with importance of criteria for success was used to apply the rule of examining only those coefficients whose absolute value is not less than half of the largest. This indicates that all the discriminating variables were important in contributing to the discriminant function.

Table 3  
Discriminant Analysis Summary Data

Variable	Stand. Canon. Loadings	Group	Centroids
Educational preparation	.399	Teaching	.478
Grade point average	.575	Left teaching	-.495
Quality of first year experience	.450		
Professional integration	.440		
Importance of criteria for success	.651		
Attainments of criteria for success	.615		

$R_c = .28$

Wilks' lambda = .924

$p < .001$

Note.  $R_c$  = Canonical Correlation Coefficient.

#### Discussion and Implications

These findings suggest that social learning theory may offer unique insights into underlying dimensions of the career mobility phenomenon. This study was not designed to ascertain why potential differences existed but to examine the possibility of difference existing on dimensions of social learning theory as expanded by Krumboltz (1979) to a career decision-making model. As a result, individuals who have remained in teaching reported more positive learning experiences (educational preparation, grade point average) and felt more competent (performance skills) in teaching than leavers. This is consistent with the implication of the theory that individuals think, feel, and behave differently when they feel confident about their abilities than when they feel incompetent. Cole (1984) reported similar findings suggesting that competence in teaching skills was important to career longevity in teaching.

Leavers reported less importance assigned to the criteria for success and a lower acknowledgment of those criteria in teaching than did stayers. In concert with other differences in the study, it makes sense that individuals who report more positive educational preparation and professional integration may also have more realistic expectations of what to find in teaching given what one values (Grady, 1987; Michaels & Spector, 1982). In preservice preparation, more attention may be needed to help prospective teachers develop a more realistic assessment of what they could expect in teaching given what they want to get from a career.

Findings also suggest that stayers had a more positive experience on their first teaching job than did leavers. This is in line with previous studies describing the first year of teaching as a time of severe disillusionment for many (Chapman, 1984; Gaede, 1978). It seems appropriate for administrators and teacher educators to continue shaping the tone and quality of new teachers' first teaching experience in view of the recommendations of Martin & Howell (1983). The type of supervision by principals/supervisors can have profound influence on the perceived success of beginning teachers.

Although a set of variables consistent with the dimension posited by Krumboltz was identified that discriminated between leavers and stayers, the moderate power of the function to discriminate between the groups suggests that other variables ought to be included as discriminating variables



used in this study. This suggestion is not a determination that the expansion by Krumboltz is not a functional, valid theory. It is a suggestion that additional variables may be added to enhance the definition of certain constructs of the theory. For example, career satisfaction was not included in this study but might help further define the cognitive and emotional response dimension of the theory as it relates to career decision-making. Therefore, it would be premature to assume the theory has marginal validity until more exhaustive studies are conducted.

From this study, social learning theory appears to hold promise in helping us better understand the career mobility phenomenon. Further research should be conducted that hypothesizes plausible casual relationships among the dimensions of social learning theory. For example, some of the constructs identified occur prior to entry into teaching (e.g., grade point average, educational preparation), while others are more developmental while engaged in teaching (e.g., professional integration, attainment of criteria for success). Does the degree of success in the prior experiences effect the degree to which one is able to function successfully in the more developmental experiences of teaching? This suggests a future study which would offer a hierarchical structural model hypothesizing time-ordered relationships among variables.

Considering that two of the constructs addressing personal characteristics had marginal reliability, it would seem worthwhile for future researchers to investigate these more fully. This could be addressed by developing a more comprehensive construct to include more than two to three items. This may account for the fact that statistically significant differences were not found.

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