

# International Students of Agriculture in U.S. Institutions Precursors to Academic Success

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International training has become an important component of the mission of American universities. Recent reform movements within education, specifically higher education, have focused upon increasing the awareness of the cultural diversity of this nation and its importance in a global economy. Repeatedly, there has been a recommitment to educating peoples of other nations.

Colleges of agriculture and departments of agricultural education have recognized the importance of training international scholars as part of their missions. In other nations and other contexts, agricultural education is defined more broadly than the traditional definition used in the U.S. This broad definition includes all of education about agriculture. As an increasing number of individuals from other nations seek educational programs from U.S. institutions, questions have arisen concerning the equitable treatment of the admission applications from these individuals. How are records and transcripts from international institutions evaluated and interpreted to determine if an applicant has a reasonable chance of success in an American institution? How may standards for admission be applied to a diverse set of prior educational experiences? Answers to these questions are significant to agricultural education in both a national and an international context.

U.S. institutions which accept international students into graduate programs have had difficulties in properly evaluating the academic performance records of these students (Sentz, 1985). Standards for admission are not easily assessed when compared with unfamiliar measures. Further, many international students come from countries in which the English language is not the native language. In an effort to assist in the assessment for acceptance for graduate study, U.S. personnel who oversee the academic programs of these individuals have often functioned on the assumption that a positive relationship exists between measures such as English proficiency and academic success in graduate study in the U.S.

As departments of agricultural education increase their activities in international training, information on the reliability and validity of assessment measures would be useful to individuals responsible for evaluating the academic records of potential students from educational systems similar to each other but dissimilar to the U.S. system. These personnel would have increased confidence in determining acceptable standards for admittance into their programs. Personnel from the sending institutions would have like standards on which to base their decisions to send students to U.S. institutions.

The concern associated with predicting the success of students in transition between education in other countries and advanced education in the U.S. is not one with a single obvious cause. Many interrelated

factors may contribute. Adjustment to cultural change when moving from the home country to the U.S. is a commonly accepted phenomenon which affects academic performance. This ability to adapt is seldom considered when making admissions decisions. Morocco is a country where the native languages of the participants, Arabic and Berber, are difficult ones from which to make the transition to English. Some African nations, such as Morocco, were once French colonies; the educational systems are French-speaking. In nations such as Morocco, even the language of instruction (French) may not be completely mastered by the student when the native language of the individual is different (such as Arabic). Further, the educational systems in these nations are often based upon a model which includes the periodic testing of students to remain in the system for advanced study. The assignment of grades within these systems is made on a numerical scale, not always easily interpreted by U.S. university personnel.

### Purpose and Objectives

If educational programs from other countries are to function in concert with U.S.-based programs, there must be procedures for accurately translating the probability of success for students with unlike cultural and educational experiences. This study sought to describe the level of English proficiency and academic success of selected international students studying at U.S. institutions. The study attempted to measure if relationships between selected measures which are assumed to exist do, in fact, exist. The results are limited to those sets of students whose cultural backgrounds and educational experiences are similar to those of the students in the study. The inquiry was guided by several research questions which follow:

1. What is the relationship between the academic performance of students in their home countries and their academic performance as graduate students in U.S. institutions?
2. What is the relationship between the English language ability of these students, as measured by standardized tests, and their academic performances in their home countries and their performances in U.S. institutions?
3. What combination of student characteristics might best predict their likelihood of success in graduate study in the U.S.?

### Procedures

The population included all 327 participants of the Minnesota-Morocco project who pursued and completed graduate study in institutions in the U.S. between 1970 and 1985. Since all individuals were included in the study, the study was a census study and population statistics were employed. The term "completion of graduate study" was defined as completing the individualized prescribed programs as determined prior to the commencement of the programs by the project office and their respective undergraduate departments at the Institute Agronomique et Veterinaire (IAV) in Morocco. The types of programs included doctoral and masters level study.

A project advisory committee was established to guide the research. Members of this committee included, university faculty members who had advised Moroccan students and had worked with their faculty counterparts in the Moroccan agricultural institute, university training personnel who had assisted in designing academic programs for these students, an associate dean of the graduate school, and a representative of the university admissions office. These individuals served to identify and validate the variables of interest included in the study. The specific variables of interest included:

(a) performances on three different standardized measures of English proficiency at the beginning of graduate study including the Test of English as a Foreign Language (TOEFL), the Institutional TOEFL and the Michigan exam; and scores in English courses at IAV in Morocco;

(b) grade point averages earned in course work in U.S. institutions (CPA) and U.S. adviser ratings of student abilities to meet professional expectations; and,

(c) undergraduate class ranks in Morocco and performances in selected common courses in Morocco.

Inclusion of measures of performance on standardized exams and academic performance can be validated through the literature. The adviser ratings of these students as compared with all other graduate students with whom the adviser had worked was included by the advisory committee. IAV stresses the need for their students to be assessed equally with all other students in all other settings regardless of home country.

Data were collected during the Spring and Summer of 1986 from the permanent records of the University of Minnesota International Agriculture Programs Office and the records offices of IAV in Morocco. A simple recording sheet served as the data collection instrument. Since these data were of a factual nature and were collected from the permanent records of the respective institutions, instrument validity and reliability were not of concern to the study. Recorder reliability was monitored by the periodic verification by a second party to insure the correct recording of data. The researchers traveled to Morocco to begin the data collection process and to train a Moroccan counterpart in the collection of the necessary data. Adviser ratings were collected by an instrument which was determined by the advisory panel to possess content validity. This study served to provide a measure of validity for each of the sources of data included in the study in making decisions regarding student admissions.

The data were summarized and descriptive statistics were utilized to address specific research questions in the study. Pearson product-moment correlations were calculated to determine relationships between variables of interest.

## Results

Table 1 indicates that moderate to substantial positive correlations were found to exist between several variables of interest. However, the lack of strong correlations previously assumed to exist between several variables of interest was as significant a finding.

Table 1.

Pearson Product-Moment Correlations Between Selected Variables (N =327).

	TOEFL	MiE	IT	MOE	MR1	MR2	MR3	MR4	USC	ARA	ARC	MoB	MAP	MAV
MiE	.61	1.00												
IT	.53	.44	1.00											
MOE	.18	.08	.34	1.00										
MR1	.25	.11	.26	.15	1.00									
MR2	.25	.26	.29	.08	.40	1.00								
MR3	.28	.23	.25	.06	.34	.65	1.00							
MR4	.22	.18	.29	.15	.33	.54	.51	1.00						
USC	.34	.39	.09	.00	.03	.24	.20	.30	1.00					
ARA	.21	.17	.40	.03	.08	.27	.14	.21	.38	1.00				
ARC	.17	.14	.46	.02	.02	.21	.09	.22	.31	.84	1.00			
MoB	.05	.11	.07	.06	.27	.24	.04	.26	.15	.22	.28	1.00		
MAP	.12	.08	.02	.13	.09	.13	.16	.40	.29	.20	.17	.32	1.00	
MVP	.08	.06	.11	.20	.25	.35	.26	.38	.21	.20	.17	.36	.38	1.00

**Note.** MiE = Michigan English  
 MoE = Morocco English  
 MR2 = Morocco Class Rank 2  
 MR4 = Morocco Class Rank 4  
 ARA = Adviser Rating/Acad. Ability  
 MoB = Morocco Biometry  
 MVP = Morocco Vegetable Production

IT = Institutional TOEFL  
 MR1 = Morocco Class Rank 1  
 MR3 = Morocco Class Rank 3  
 USC = U.S. Grade Average  
 ARC = Adviser Rating/Conceptualize  
 MAP = Morocco Animal Production

Pearson product-moment correlations described as substantial, using the adjectives forwarded by Davis (1977), were found between measures of English proficiency. When the TOEFL scores were correlated with the Michigan English exam and the Institutional TOEFL, correlations of .61 and .53, respectively, were found. A moderate correlation (.34) was found between the Institutional TOEFL and the performance of Moroccan students in English class in Morocco. Moderate relationships were found between academic performance in U.S. institutions, as measured by grade point average, and performance on the TOEFL and the Michigan English exam (.34 and .39, respectively). General academic abilities and abilities to conceptualize, when compared with other graduate students as rated by the academic advisers, were moderately related to English ability as measured by the Institutional TOEFL (.40 and .46, respectively).

Moderate to substantial relationships were recorded between several of the yearly Moroccan class ranks, a measure widely used as a predictor of success in U.S. institutions. Correlations between rank in year four and performance in core animal and vegetable classes (equivalent to animal science and plant science in U.S. institutions) in Morocco were found (.40 and .38, respectively). However, only year four of Moroccan class rank was found to be moderately correlated with academic performance in the U.S., as measured by U.S. grade point average (.30).

A very strong relationship (.84) was found between the students' abilities to conceptualize and their academic ability, as rated by their academic advisers in the U.S. These measures, previously unvalidated, were presumed by the project advisory committee to be reliable predictors of success in graduate study and of student abilities to meet professional expectations. The rated academic ability and ability to conceptualize were each moderately correlated with U.S. grade point average (.38 and .31, respectively).

Negligible to low correlations were found between scores on standardized English exams and class ranks in Morocco (.11 and .29). While a moderate relationship was found between Institutional TOEFL and the two adviser ratings of student abilities, negligible to low correlations were found between these ratings and the TOEFL and the Michigan English exam.

#### Conclusions

The findings indicated that for these international students, performance on measures of English proficiency was more highly correlated with success in graduate course work in U.S. institutions than was prior performance in undergraduate-level programs in the home country. The current U.S. admissions systems assume that among students for whom English is not their native language, an acceptable level of ability in English is required. However, little evidence exists to indicate that beyond a minimum level of English ability, this level of ability might be used to predict performance in course work. Further, there is little evidence that once a student is admissible to graduate study in a U.S. institution possessing a certain level of English ability, that level of ability could be used to predict the likelihood of success in graduate course work. Another assumption commonly used in making graduate program admissions decisions is that performance in previous course work is highly correlated

with performance in graduate courses. This was not found to be true when Moroccan undergraduate-level course work was correlated with U.S. graduate grade point averages. This would indicate that analyses of undergraduate performances in the home country were not good indicators of probable success in graduate programs in U.S. institutions.

English scores were, however, among the variables most highly associated with U.S. academic success, as were ratings by U.S. advisers. Each of the measures was moderately associated with graduate grade point average. This finding substantiates the belief that proficiency in communication is important to graduate coursework and to working with individual faculty members.

Students in this study were graduate-level students, nearly all of whom had completed undergraduate-level programs in Morocco and had been selected to study abroad. As such, they were likely a more homogenous group than the general population. This fact raises a question associated with the statistical power of the findings. With a homogenous selective group, less opportunity for natural variance exists than would exist in the general population. This could have reduced the values produced by the correlations. However, the reality is that a representative sample of the general population of Morocco (indeed, few countries) is not likely to ever be able to study in U.S. institutions. Therefore, one could assume that the students used in this study were more representative of Moroccans studying abroad, the most logical group to study.

#### Implications

The findings have important implications for the process of admitting international students in graduate study in agricultural education. The findings indicated that for the students included in this study, level of English speaking ability was at least as important, if not more important than, prior performance in college-level course work in their home country. Should graduate admissions standards continue to expect only a minimum level of English proficiency performance in course work in the home country as the major factor on which to make the admissions decision? Further study needs to be done with populations of students from the same country sufficiently large to allow analyses. Replication of this study among other multiple-language countries would also add to the knowledge base.

#### References

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