

# Professional Dimensions of Long Term International Agricultural Development Assignments

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## Abstract

*Universities involved in international agricultural development projects often provide scientists with opportunities for long-term foreign assignments from six months to several years. The objectives of this study were to evaluate scientists' perceptions of prior preparation for international positions, benefits and difficulties associated with working overseas, and competitiveness upon return to the U.S. domestic job market. Two-hundred twenty surveys were distributed to faculty and administrators in Agronomy, Animal Science and Agricultural Economics departments at 31 U.S. universities. There was a 60% survey return, and 74% of those who responded had long-term foreign experience. Eighty percent or more of these respondents reported they were well prepared for overseas assignments. Fifty percent of the respondents felt a need for more prior language preparation, and 33% felt more prior background information on the host country would have been helpful. The level of support experienced during assignment was high, with less than 20% reporting problems with personal or professional support. More than 70% of the respondents benefitted from experience gained in cultural awareness, farming systems, and applied research. The communication, organization and team research skills developed overseas were considered valuable for returning to the domestic job market. These qualifications were rated among the most important by administrators and faculty who evaluate candidates for domestic academic positions. The most important criteria used to evaluate candidates for domestic U.S. positions (e.g., experience, references, publications and seminar) may not highlight these skills. Care must be taken by scientists in foreign assignments to document achievements, maintain professional contacts, and keep up with the latest technical advances in their disciplines. Overall, the surveys indicated that professionals who work for a time overseas greatly benefit from that experience.*

## Introduction

Nearly all universities in the U.S. and some people in most technical disciplines are involved in international programs. Many colleges, land-grant universities and private organizations cooperate in international programs concerned with agricultural and rural development. Such programs involve sending personnel to a co-operating program and host country on long term assignments, from six months

to several years. These persons may be tenured faculty taking leave from a domestic position or professionals hired specifically for the duration of the international assignment.

The challenge of training for overseas assignments has been reviewed (Cowan and Robertson, 1969). Practical experience, greater exposure to agricultural systems, and access to appropriate technology were needs reported by graduate students interested in international agriculture (Cooper and Cashman, 1985). Francis and Youngquist (1990) noted that language capability, cultural sensitivity, awareness of gender roles and broad general knowledge of geography, history, politics and economics are essential for scientists preparing to work overseas. As early as 1972, over half the agronomy departments in the U.S. had no language requirement for graduate students (Mobey and Colgrave, 1972). Given the nature of international assignments, the broad spectrum of knowledge needed, and the recruitment process, individuals may not be getting the preparation needed to be effective in their jobs. A catalog of important considerations for the professional both before travel and on the assignment location was given by Yahya and Moore (1986).

Upon completion of an international assignment, most professionals eventually return to domestic positions. The readjustment and refocusing process may inhibit returning faculty trying to re-start an interrupted research project. The return to the domestic scene could be especially difficult for people with overseas experience who must compete in the job market with younger professionals who have experience in the latest basic techniques. Francis and Youngquist (1990) noted that isolation from the home professional culture can result in fewer professional contacts and difficulty in publishing results from applied research. This could reduce an individual's competitiveness in the domestic job market, particularly if benefits from overseas experience are not considered important enough to offset a lack of publications or state of the art research skills.

The objectives of this study were to evaluate prior preparation for overseas positions, benefits and difficulties associated with international positions, and competitiveness upon returning to the domestic job market.

## Materials and Methods

A descriptive survey was prepared with three sections. Section one pertained to background information including discipline, current position, overseas position, years overseas, geographic region, type of assignment, type of organization, highest degree earned, age and gender. The second section concerned specific aspects of the international assignment for those with at least 6 months overseas experi-

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ence. Questions explored people's perceptions of prior preparation for the assignment, personal and professional support while on assignment, benefits of international work, and preparation for return to domestic positions. The third section involved prioritization of professional qualifications and criteria used to evaluate professional candidates for academic positions. Respondents were asked to list special qualifications expected of candidates returning from an international assignment. This section was directed toward those administrators and faculty who participate in the evaluation of candidates for professional positions and included individuals both with and without overseas experience. Questions in the survey included some requiring a quantitative response as well as open, short answer responses. The survey was initially sent for pre-testing evaluation to 15 persons in various disciplines at several universities and to the Biometrics Center at the University of Nebraska. Their comments for improvement were incorporated, and 220 copies of the final survey were sent to faculty and administrators in Agronomy, Animal Science and Agricultural Economics Departments representing 31 U.S. institutions. Fifty-six of the surveys were sent to individuals with known overseas experience, 62 to department heads, and 102 to be distributed by department heads to personnel with overseas experience.

Returned surveys were tabulated and the response frequencies and mean responses for quantitative questions were determined for all respondents and for each sub-group by discipline. Response frequencies in section three were also calculated for sub-groups of those with versus those without overseas experience. Chi-square values were calculated to determine if distributions were significantly different from those expected due to random chance and to determine if any interactions existed between response frequencies and sub-groups of respondents (Steel and Torrie, 1980).

## Results

One hundred thirty-two (or 60%) of the questionnaires were returned. The breakdown by current assignment and discipline is shown in Table 1. The 17 respondents from related fields were in the social sciences, horticulture, gen-

Primary	Discipline				Total
	Agronomy	Animal Sci.	Ag. Econ	Other+	
Current Assignment*	number of respondents				
Research	24	7	7	5	43
Teaching	5	3	7	4	19
Extension	3	0	3	2	8
Administration	22	11	16	6	55
Other	3	3	1	0	7
Total	57	24	34	17	132
International Assignments					
Long term (> 6 mo.)	41	16	26	15	98
Short term (> 6 mo.)	4	5	2	1	12
None	12	3	6	1	22
Gender	118 males	14 females			
Age	20-29: 2	30-39: 15	40-49: 42	50-59: 53	Above 60: 20
* 116 respondents currently held joint assignments					
+ other includes volunteer, mission, International Centers and private					

Table 2. Background Information 98 Respondents With Long-term International Experience.

Years Overseas	Mean Range	5.4 years 0.5-24 years
Type of Organization*	(number of respondents)	
University		76
U.S. Government		23
Local Government		8
Industry		13
Other †		28
Primary Overseas Activity*		
Research		96
Teaching		37
Extension		19
Administration		30
Other		7
Geographic Regions*		
Latin American		44
African		32
Middle East		3
Asian		30
European		5
Australia/New Zealand		4

\* total more than expected due to those respondents involved in more than one organization, activity or region during their international careers  
† other includes volunteer, mission, International Centers and private

eral agriculture, and life sciences. The majority of the respondents were in their 40's and 50's, and 91% were men. The small percentage of women is a reflection of the low number of women faculty members in agricultural fields and prevented any meaningful analysis based on gender.

Seventy-four percent of the respondents had been on long term overseas assignments of six months or greater duration (Table 2). Nine percent had only been on short term assignments, while the remaining 17% had never been overseas and consisted primarily of persons currently in administrative positions. Overseas assignments in all regions of the world were represented, with the greatest number of long-term respondents having worked in Latin America. Most respondents were associated with a U.S. university while overseas, although other organizations were also represented. Research was the primary activity, followed by teaching and administration.

Types of assignments in an overseas job differed, with most time spent with host country counterparts. The majority, approximately 90% of respondents, who had been on long term overseas assignments spent 60% or more of their time working with host country counterparts, while only 29% spent that amount of time working with local govern-

Table 3. Frequency of estimated time spent in different situations by respondents on long term international assignments and chi-square value ( $X^2_d$ ) for determining interactions between response frequency and discipline.

Situation	Estimated time (%)						$X^2_d$
	0	20	40	60	80	100	
percent of respondents							
With host counterpart	3.6	1.2	6.1	20.7	42.8	25.6	11.3
With gov't official	20.7	29.3	20.7	13.4	8.5	7.4	20.8
With local clientele	26.8	23.2	11.0	14.6	13.4	11.0	25.0*
In field	7.3	13.4	17.1	25.6	23.2	13.4	32.2*
In office	11.0	9.5	21.4	27.4	23.8	6.0	20.0

\* indicates significant at the 0.05 probability level

**Table 4. Ratings of preparation, support and benefits of foreign assignments: frequency of response, mean response and chi-square values for interactions of frequency of response with disciplines ( $X^2_d$ ) of 98 respondents to survey.**

Preparation for International work	Frequency of Response (%)					mean	$X^2_d$
	1 (poor)	2	3	4	5 (excellent)		
Technical Competence	0	4	18	37	41	4.1	25.5*
Cultural Sensitivity	2	16	38	28	16	3.3	14.8
Local Living Standards	2	5	40	33	20	3.6	11.8
Language	32	21	17	7	23	2.7	7.6
Re-entry to U.S. careers	7	10	19	37	27	3.7	10.3
<b>Concurrent Support</b>							
Language training	7	16	25	21	31	3.5	12.1
Professional support	2	14	21	46	17	3.6	16.3
Personal support	3	6	24	40	27	3.8	17.3
Opportunity to work with host country professionals	0	3	6	34	57	4.4	6.9
Acceptance by host institutions	0	1	12	34	53	4.3	3.1
Acceptance by host individuals	0	0	5	26	69	4.6	2.3
<b>Benefits</b>							
Farming methods/systems	1	3	9	39	48	4.3	40.0**
Cultural Awareness	0	0	4	36	60	4.6	11.8
Project Organization	2	8	33	37	19	3.6	12.8
Project Implementation	4	8	31	37	20	3.6	14.7
Interdisciplinary approach	0	13	21	32	34	3.9	19.2
Applied Research Experience	0	4	19	39	38	4.1	15.4

\* indicates significant at the 0.05 probability level  
 \*\* indicates significant at the 0.001 probability level

ment officials and 39% with local clientele (Table 3). More agronomists reported a higher percentage of time in the field and with local clientele, thus accounting for the significant interaction between response frequency and discipline. Most respondents split their time between field and office situations.

Chi-square analyses of response frequencies of quantitative questions indicated all were significantly different ( $P < 0.001$ ) from those expected for random responses in Tables 4 and 5. The majority of respondents who had been on long term overseas assignments reported they were fairly well prepared for their assignment, particularly in terms of technical competence (Table 4). A positive interaction between response frequency and discipline for technical competence was due to a lower rating by persons in Agricultural Economics and related fields. However, technical competence was rated higher than other factors by those in all disciplines. Eighty percent or more of all respondents felt somewhat prepared to well prepared in terms of cultural sensitivity, perception of their adjustment to local living standards, and preparation for re-entry to U. S. domestic positions. In response to a short answer question on preparation for re-entry, 48% of these respondents reported that preparation for re-entry was not an issue, as they were on leave from a domestic position. Another 21% reported that preparation for re-entry was not needed. They were able to secure positions readily upon return to the U.S. Those who did report some difficulty upon re-entering the domestic job market cited publishing, keeping up with the literature, and attending annual conferences as strategies helpful in remaining competitive. Maintaining professional contacts, re-tooling or going to graduate school, obtaining domestic work experience prior to going overseas, and reduced expectations

upon return from an overseas assignment were also mentioned as helpful when preparing for re-entry. One respondent felt that the overseas employer should be obligated to help in preparing for re-entry. Several respondents felt that obtaining a tenured position prior to going overseas was essential. It should be noted that persons surveyed included only those who had or were successful in securing academic positions upon re-entry. There may be individuals who were unsuccessful in re-entry and remain in overseas positions, or have had to find employment outside of academia. They were not included in the survey.

When preparing for overseas positions, people reported that language was the one skill that needed more emphasis. Over 50% of the respondents felt they were poorly prepared in terms of language (sum of responses 1 and 2), and 23% felt concurrent language training during assignment was inadequate (sum of responses 1 and 2). For 22%, language was not a problem either due to adequate training or English being a major language in the host country (data not shown). A number of respondents wrote comments about more general knowledge of host country culture, politics, and history as priority needs before starting an overseas assignment. Information on farming practices, interviewing persons who had been in the host country, prior field experience in the host country, contact with local professionals, awareness of gender issues, and written commitments by the employer were also factors listed by respondents who felt these activities would have better prepared them for an overseas assignment.

The level of concurrent support while on assignment was perceived to be quite high by the majority of respondents. Nearly all respondents found favorable acceptance by host

**Table 5. Qualifications and re-entry evaluation criteria reported by 109 respondents to survey: frequency, mean response, and interaction with disciplines ( $X^2_d$ )**

Qualifications	Frequency of Response (%)					mean	$X^2_d$
	1 (poor)	2	3	4	5 (excellent)		
Technical skills	0	0	7	53	40	4.3	42.9**
Communication skills	0	3	9	42	46	4.3	29.8**
Innovative approaches	0	3	13	47	37	4.2	6.3
Leadership potential	0	8	22	39	31	4.1	14.2
Interpersonal relations	2	0	19	51	28	4.0	9.5
Organizational skills	1	2	27	44	26	3.9	13.4
Publication record	0	5	26	40	29	3.9	10.5
Educational record	2	12	17	49	20	3.7	34.7**
Team research experience	2	10	35	35	18	3.6	25.8*
Grantsmanship potential	1	10	25	51	13	3.6	14.2
Dissertation area	9	38	42	10	1	3.4	20.5
International experience	18	33	30	13	6	2.6	9.8
Foreign language skills	23	35	30	10	2	2.3	17.6
<b>Evaluation Criteria</b>							
Professional references	1	4	24	55	16	4.1	18.1
Publication record	1	5	22	43	29	3.9	14.0
Professional experience	2	5	19	48	26	3.9	10.1
Seminar	1	4	24	55	16	3.8	19.4
Educational transcripts	3	12	27	36	22	3.6	18.2
Honors/awards	5	20	38	28	9	3.2	17.3
Grants awarded	4	16	51	24	5	3.1	5.0
Professional memberships	21	40	33	3	3	2.3	8.9

\* indicates significant at the 0.05 probability level  
 \*\* indicates significant at the 0.001 probability level

country institutions and individuals. About 85% of the respondents felt the level of professional and personal support was adequate to excellent. Although one respondent felt that personal isolation was a given part of any international assignment, only 20% felt that such isolation had ever been a problem. Reasons stated by those people included physical isolation due to the nature of the assignment, limited entertainment, social isolation associated with single status, language barriers, and lack of support and contact with the home university. Several respondents mentioned family and good support staff as being effective in reducing effects of isolation.

Benefits reported from working in an international environment were multi-fold. Of those listed on the survey, cultural awareness and knowledge of different farming systems were ranked as positive benefits by more than 85% of the respondents. An interaction between knowledge of farming systems and discipline occurred due to the high rating given by agronomists and lower rating by those grouped in related fields. Experience in applied research was felt to be a positive benefit by 77%, and 65% found experience in interdisciplinary approaches to be a benefit. The majority of respondents also found experience in project organization and implementation beneficial, but these were not ranked as high as other aspects.

Although unique experiences associated with international assignments were perceived as beneficial, the question remains whether they confer any advantage in returning to a domestic position. One hundred nine respondents rated qualifications and criteria used to evaluate candidates for domestic academic positions (Table 5). This included 55 administrators and 54 faculty involved in research, teaching and extension activities. "Qualifications" are defined as those attributes the candidate should have to be successful in the new position. "Evaluation criteria" are defined as the methods used to determine if the candidate has the needed qualifications. Interactions between qualifications and discipline were significant only in the rating of technical skills, communication skills, team research experience, and educational record. More persons from agronomy rated team research experience as important than persons from other disciplines, while more in Agricultural Economics put greater importance on technical skills and educational transcripts. The interactions did not affect the relative importance placed on different qualifications, however. The most obvious qualifications that an applicant with overseas experience might possess, foreign language skills and international experience per se, were rated as the least important qualifications considered by those who make recruiting decisions for a domestic position. However, such an applicant should compete well in other areas.

Technical skills, communication skills, innovative approaches, leadership potential, and interpersonal relations were rated as most important by more respondents in all fields as compared to other qualifications. Publication record and organizational skills were also rated relatively more important than some other qualifications. Except for publication record and state of the art technical skills, overseas

experience should enhance the other highly rated qualifications. For instance, exposure to different systems enhances the ability to try innovative approaches. The interdisciplinary approach of many international assignments enhances communication and interpersonal skills. When asked what special qualifications might be expected from a candidate returning from an international assignment, organizational skills, communication skills, interpersonal relations, and the ability to be a team worker were listed by several respondents. Broader world knowledge was listed by 25% of the respondents. Five to ten percent also listed documented achievements, self-motivation, cultural sensitivity, the ability to apply their international experience to benefit the state or department, and current knowledge in technical skills as important qualifications. Also mentioned were willingness to re-tool, maturity, applied research skills, and international contacts.

When rating actual criteria used to evaluate candidates, professional references, publication record, and professional experience were rated as most important by the highest number of respondents (Table 5). It is here where the person returning from an international assignment may not be perceived as being competitive, as these criteria do not specifically highlight positive skills gained overseas. Any persons planning to re-enter the domestic job market following an international assignment can offset perceived deficiencies through proper planning and preparation. Maintaining professional contacts at the home university and with other colleagues can keep references current as well as keep one in touch with the established academic network. Doing original research, either as a part of the international job, as a sideline, or in collaboration with a colleague, and then seeing that it gets published is necessary. Keeping up to date with technical advances and gaining experience with new techniques will add to professional experience. These activities will also assist the applicant in presenting an effective and up to date seminar, another important criterion used to evaluate professional candidates.

Prior international experience influenced the ratings of some of the qualifications and criteria used by those evaluating job applicants (not shown). Survey results showed thirty-four respondents did not have any long term international experience. More of these respondents rated the dissertation area higher in importance and team research and leadership potential lower than did those with overseas experience. People with personal overseas experience placed more importance on international experience, though they still ranked it lower than other qualifications. In rating actual criteria used to evaluate candidates, more persons without long term overseas experience placed importance on educational transcripts and honors than those with overseas experience. However, neither group felt these criteria were as important as references, publications, experience or seminar in evaluating candidates.

## Conclusions

Most professionals in agricultural disciplines with long

# Using Computer Assisted Hypermedia In the Classroom

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*Computers are becoming an affordable and effective tool for assisting with classroom instruction. This article describes a pilot project that utilizes a computer-controlled hypermedia presentation system for lecture in agriculture courses. The principles involved in using computer-controlled hypermedia in the classroom are summarized. Suggestions are offered to assist faculty and administrators planning to design and implement computer-assisted classrooms.*

## Introduction

The availability of affordable personal computers capable of displaying multiple forms of digitized media (text, graphics, animation, photographs, sound, and full-motion video) makes it possible to use this technology to present a greater variety of information to students in the classroom and laboratory (2). Most computer applications in education have focussed on using computers to teach students about computers. However, the greatest potential for computers in education will be unleashed when they are used to enhance learning on topics unrelated to computer science (1, 5).

Recent developments in computer projection display DeFelice is an associate professor in the Department of Agronomy, and Monson is an associate professor in the Department of Agricultural Economics at the University of Missouri, Columbia, MO 65211. Contribution from the Mo. Agric. Exp. Stn. J. Ser. No. 11,902.

(Continued from previous page.)

term foreign experience perceived their own prior preparation for international assignments as good to excellent. The two areas where improvement was needed were language training and background information on the host country. Most respondents experienced no problem in the level of support or with personal isolation during an international assignment. The majority of respondents reported positive beneficial experience gained in cultural awareness, different farming systems, project implementation, interdisciplinary approach, and applied research.

The communication, organization, interpersonal and team research skills gained overseas should make persons returning from an overseas assignment competitive in the domestic job market. These qualifications were rated as important by people who evaluate candidates for domestic U. S. academic positions. However, criteria used in evaluating prospective candidates for a faculty position may not highlight such skills. Heavy emphasis is put on experience, references, publications and seminar. The nature of over-

technologies, and the availability of hypertext-based, graphical authoring software make it possible for the 'non-programmer' to create sophisticated, interactive multimedia lecture aids and laboratory applications (1, 2, 3). This technology allows flexibility in curriculum design, assists with curriculum organization and structure, allows multiple representations of learning concepts, and can facilitate stimulating and creative presentations of information and discussion. Computer-controlled multimedia usually allows depiction of the concepts, processes, and data in more realistic ways than do traditional chalkboard or overhead transparency presentations.

Crucial to the successful use of computers for developing learning applications is an understanding by the teacher of how to use hypertext in the creation of computer-controlled hyperdocuments. Hypertext is the creation of specific blocks of information (usually one computer screen) that are linked, cross-referenced, and accessible in different ways by the reader (1, 3, 4, 6). Hypermedia is the linking of multiple media sources (e.g. text, graphics, pictures, sound, video) to create interactive, non-linear tools for presentation and self-guided learning applications. These computer-mediated 'hyperdocuments' are the key to accessing and teaching the rapidly increasing volumes of information and ideas that are now usually stored in digital forms (1, 3, 6).

seas work may result in a candidate who is deficient in these criteria unless care is taken during the time overseas to document achievements, maintain contacts at home institutions, and keep up with scientific advances. In general, respondents to this questionnaire were positive about the benefits of an overseas assignment as a part of their professional careers.

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