

~~THURSDAY 1742304~~

## ABSTRACT

### A FACTORIAL STUDY OF INTERNATIONAL COMMUNICATION AND PROFESSIONAL CONSEQUENCES REPORTED BY FULBRIGHT AND SMITH-MUNDT GRANTEES, 1947-1957

by Jeanne E. Gullahorn

This analysis of survey data from over 5,300 Fulbright and Smith-Mundt grantees provides evidence concerning the impact of overseas experiences on grantees' roles as professionals and as cross-cultural communicators, and also presents comparisons of different methods of dimensionalizing the data and of assessing relations between background information and dependent dimensions.

Grantees selecting roles as Lecturers and Teachers generally reported more extensive interaction and communication both abroad and after their return than did faculty Research Scholars and graduate Students. Within the different groups, grantees in natural sciences or humanities reported less interaction than those in social science and professional social service. Furthermore, grantees from small towns reported more enduring relationships with individuals abroad; whereas those from metropolitan areas listed more post-return public appearances concerning their sojourn experiences.



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While older, more established faculty members enumerated more communication opportunities and maintained more contacts with foreign colleagues, the younger less well-known academicians from institutions outside of high prestige areas reported the greatest professional capital accruing from their awards. Moreover, the relative prestige of overseas experience varied with grantees' field of work--the sojourns were viewed as beneficial to those in humanities and arts, but as less relevant to natural scientists. While Students' evaluations of professional development were related to their reports of scholarly achievements, among faculty members these aspects of professional consequences were virtually unrelated--for them, professional productivity seemed to be a relatively routine aspect of role performance rather than an indicator of role fulfillment.

While appraisals concerning professional development and prestige were closely related to faculty members' and Teachers' assessments of personal development and overall satisfaction with their award experiences, for Students these were alternative outcomes of study abroad. Among Students, those reporting extensive interaction overseas and greater satisfaction with their sojourns tended to be less settled in adult roles and less committed to academic goals than were Students who indicated their professional careers had been furthered by their work abroad.

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The patternings of questionnaire items concerning grantees' international communication experiences, the professional consequences of their awards, and their personal satisfaction with their sojourns were summarized in terms of Guttman scales, rotated factors, and Tryon clusters. In general, the three methods showed remarkable agreement in identifying dependent dimensions. Reconciling divergences between the Guttman and factoring approaches provided additional insight into the organization of items defining the dimensions. Instances of a lack of numerical invariance made the Tryon clustering less satisfactory than the principal components factor analysis; however, as a group of integrated programmed procedures, the Tryon system appeared superior to current factor analysis computer programs.

Assessments of relationships between grantees' background characteristics and outcomes of their award experiences included analyses of correlations between factor scores from separate factorings of background and dependent variables; cluster analyses of the two subsets of variables together as though they formed a single battery; a series of within- and across-group clusterings of dimensions from previous analyses of subsets of variables; and analyses of the canonical correlations between background data and dependent dimensions.

Of these methods, the cluster analysis of dimensions contributed the most information concerning relationships

among variables within and across the different groups of grantees. In examining associations between individual characteristics and dependent dimensions, multiple regression analyses and cluster analyses assessing the relative loadings of background items on independently-defined outcome dimensions were most useful.

Incorporating a methodological comparison in an exploration of substantive relationships assisted in interpreting empirical findings by producing different organizations of the data; furthermore, consistencies in the analytic replications provided greater confidence in conclusions concerning the structuring of relationships among variables.

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1965

A FACTORIAL STUDY OF INTERNATIONAL COMMUNICATION  
AND PROFESSIONAL CONSEQUENCES REPORTED BY  
FULBRIGHT AND SMITH-MUNDT GRANTEES,  
1947-1957

By

Jeanne E. Gullahorn

A THESIS

Submitted to  
Michigan State University  
in partial fulfillment of the requirements for  
the degree of

DOCTOR OF PHILOSOPHY

Department of Psychology

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## DEDICATION

To the following HUMAN GROUPS whose members facilitated  
the data analysis on which this dissertation is based:

My family;

Survey Research Center, University of California, Berkeley;

Computer Center, University of California, Berkeley;

Claremont Day Nursery, Berkeley, California;

My Guidance Committee, Michigan State University,  
East Lansing;

Reva Thompson Play Center, Lansing, Michigan

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## ACKNOWLEDGMENTS

My primary debt is to the Fulbright and Smith-Mundt grantees whose cooperation furnished the survey data on which this investigation is based, and to the International Educational Exchange Service of the U.S. Department of State, who sponsored the original study. The research was designed and conducted jointly with John T. Gullahorn, who also consulted in designing and interpreting the secondary analysis of data reported here.

Many other individuals and organizations facilitated this endeavor. The comparative investigation of methods of data analysis was possible because both the Survey Research Center and the Computer Center at the University of California, Berkeley, provided free use of data processing equipment. I am particularly indebted to Hanan Selvin, Travis Hirschi, and Alan Wilson of the Survey Research Center for their assistance regarding the use of the factor analysis and correlation analysis programs and for their willingness to spend time discussing the substantive findings. In addition, Mr. Gehrke, Mr. Fredrickson, and members of the technical staff of the Survey Research Center facilitated much of the data processing. I am grateful also for the assistance given by members of the Computer Center staff, and in particular to Eleanor Krasnow for

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guidance in use of the Guttman scalogram program. Daniel Bailey deserves particular thanks for the time he spent assisting in all phases of the use of the Tryon system for multidimensional analysis and in the interpretation of the findings.

For guidance in organizing this report as a dialogue between substantive and methodological findings, I am indebted to Eugene Jacobson, my thesis adviser. He and other members of my committee--Erwin Bettinghaus, M. Ray Denny, and Charles Wrigley--assisted in interpreting the findings and exhibited great fortitude in digesting the masses of data involved in the comparative analyses.

1895

I.

II.

III.

IV.

## TABLE OF CONTENTS

Chapter	Page
I. THE FOCUS AND METHODOLOGY OF THE INVESTIGATION . . . . .	1
Focus of the Present Investigation	4
Strategy of Analysis	7
Description of Alternative Modes of Analysis	8
Choosing Among the Methods	22
Analyses of Outcomes of Award Experiences	30
Analyses Relating Background and Outcome Variables	35
II. CHARACTERISTICS OF THE GRANTEES . . . . .	42
Interrelations Among Background Variables	66
III. OVERSEAS EXPERIENCES OF GRANTEES . . . . .	76
Analyses Dimensionalizing Overseas Interaction	85
Guttman Scale Analysis	86
Factor Analysis	93
Cluster Analysis	96
Relation of Overseas Interaction to Background Variables	99
IV. SUBSEQUENT INTERNATIONAL COMMUNICATION . . . . .	128
Continued Interaction with Host Nationals	128
Sharing Overseas Experiences with Fellow Americans	132
Analyses Dimensionalizing Subsequent Communication	135
Guttman Scaling	135
Factor Analysis	147
Cluster Analysis	155

Chap. 1

1.

1.

1.

1.



Chapter		Page
	Relation of Background Variables to Post-award Communication Dimensions	157
V.	PROFESSIONAL CONSEQUENCES . . . . .	176
	Analyses Dimensionalizing Professional Consequences	177
	Guttman Scaling	177
	Factor Analysis	182
	Cluster Analysis	187
	Summated Achievement Scale	194
	Relation of Background Variables to Professional Outcome Dimensions	195
	Professional Achievements	216
VI.	OTHER EVALUATIONS OF THE AWARD EXPERIENCES . .	221
	Analyses Dimensionalizing Personal Development and Satisfaction	222
	Guttman Scaling	222
	Factor Analysis	229
	Cluster Analysis	229
	Summated Scaling	234
	Relation of Background Variables to Satisfaction Dimensions	235
VII.	RELATIONS AMONG BACKGROUND VARIABLES AND OUTCOME DIMENSIONS . . . . .	247
	Canonical Correlation of Antecedents and Outcomes	248
	Cluster Analyses Involving Background and Outcome Variables	264
VIII.	SUBSTANTIVE AND METHODOLOGICAL CONCLUSIONS . .	305
	Comparison of Results of Different Modes of Analysis	306
	Description of Dimensions and Association with Background Data	307
	Associations Among Major Dependent Dimensions	340



Chapter	Page
Summary of Substantive Findings Concerning Fulbright and Smith-Mundt Grantees	359
Conclusions Regarding Different Methods of Analysis	368
Analyses of the Organization of Dependent Dimensions	369
Analyses Relating Background Data and Dependent Dimensions	376
BIBLIOGRAPHY . . . . .	392
APPENDICES . . . . .	398

Table

II

II

II

II

II

II

II

II

II

II-

II-

II-

II-

II-

II-

II-

II-

II-

## LIST OF TABLES

Table	Page
II-1. Percentage distribution of men and women . . . . .	43
II-2. Percentage age distribution . . . . .	45
II-3. Distribution of grantees among census divisions at award time . . . . .	46
II-4. Post-award mobility . . . . .	48
II-5. Distribution among urban and rural centers at award time . . . . .	50
II-6. Reasons for award application . . . . .	51
II-7. Period of award . . . . .	53
II-8. Distribution by geographic region of host country . . . . .	53
II-9. Distribution by field of work abroad . . . . .	55
II-10. Grantees' occupations at time of award . . . . .	57
II-11. Grantees' post-award occupations . . . . .	58
II-12. Teachers' and Students' highest earned degrees . . . . .	60
II-13. Grantees' self-rated proficiency in host countries' language . . . . .	63
II-14. Background items: orthogonal factor loadings . . . . .	67
II-15. Background items: cluster loadings . . . . .	69
II-16. Correlations among oblique clusters . . . . .	72
III-1. Number of friendships established abroad . . . . .	78
III-2. Interaction abroad: Guttman scale analysis . . . . .	87

Table

III-3

III-4

III-5

III-6

III-7

III-8

III-9

III-10

III-11

III-12

III-13

IV-1

IV-2

IV-3

IV-4

Table	Page
III-3. Interaction abroad: distribution of respondents among the Guttman scale types . . . . .	90
III-4. Interaction abroad: factor loadings . . .	94
III-5. Interaction abroad: cluster loadings . . .	97
III-6. Interaction abroad: multiple regression analysis . . . . .	102
III-7. Loadings of background variables on the interaction abroad cluster dimension .	103
III-8. Relation of age to Guttman interaction abroad scale scores . . . . .	105
III-9. Relation of field of work overseas to Guttman interaction abroad scale scores . . . . .	107
III-10. Relation of geographic region of host country to Guttman interaction abroad scale scores . . . . .	110
III-11. Relation of selected host countries to Guttman interaction abroad scale scores . . . . .	111
III-12. Relation of language competence to Guttman interaction abroad scale scores . . . . .	115
III-13. Relation of award period to Guttman interaction abroad scale scores . . . .	125
IV-1. Continued foreign interaction: Guttman scale analysis . . . . .	136
IV-2. Continued foreign interaction: distribution of respondents among the Guttman scale types . . . . .	139
IV-3. Internationally-oriented communication with Americans: Guttman scale analysis . . . . .	142
IV-4. Internationally-oriented communication with Americans: distribution of respondents among the Guttman scale types . . . . .	145

I

I

I

IV

IV

IV-

IV-

IV-

IV-1

V-

V-

V-

V-

V-5

V-6

V-7



Table	Page
IV-5. Interpersonal international communication: factor loadings . . . . .	149
IV-6. International public relations: factor loadings . . . . .	151
IV-7. International public relations: cluster loadings . . . . .	156
IV-8. Guttman continued foreign interaction scales: multiple regression analyses . . . . .	160
IV-9. Guttman internationally-oriented communi- cation with Americans scales: multiple regression analyses . . . . .	162
IV-10. Interpersonal international communication factors: multiple regression analyses .	164
IV-11. International public relations factors: multiple regression analyses . . . . .	166
IV-12. Loadings of background variables on the interpersonal international communication cluster dimension . . . . .	168
IV-13. Loadings of background variables on the international public relations cluster dimension . . . . .	169
V-1. Professional consequences: Guttman scale analysis . . . . .	178
V-2. Professional consequences: distribution of respondents among the Guttman scale types . . . . .	183
V-3. Professional development: factor loadings . . . . .	184
V-4. Professional prestige: factor loadings . . . . .	185
V-5. Enduring professional relations: factor loadings . . . . .	188
V-6. Professional development: cluster loadings . . . . .	189
V-7. Professional prestige: cluster loadings .	190

Table

V-

V-

V-1

V-1

V-1

V-1

V-1

V-1

V-1

VI-1

VI-2

VI-3

VI-4

VI-5

VI-6

VI-7

Table	Page
V-8. Other professional outcome clusters: loadings from oblique rotation . . . .	192
V-9. Guttman professional consequences scales: multiple regression analyses . . . .	197
V-10. Professional development factors: multiple regression analyses . . . .	198
V-11. Professional prestige factors: multiple regression analyses . . . .	200
V-12. Professional achievement summated index: multiple regression analyses . . . .	202
V-13. Enduring professional relations factor: multiple regression analysis . . . .	205
V-14. Loadings of background variables on the professional development cluster dimensions . . . . .	206
V-15. Loadings of background variables on the professional prestige cluster dimensions . . . . .	207
V-16. Loadings of background variables on other professional outcome clusters . . . .	208
VI-1. Professional satisfaction: Guttman scale analysis . . . . .	223
VI-2. Personal satisfaction: distribution of respondents among the Guttman scale types . . . . .	230
VI-3. Personal development and satisfaction: factor loadings . . . . .	231
VI-4. Personal development and satisfaction: cluster loadings . . . . .	233
VI-5. Other general evaluation clusters: loadings from oblique rotation . . . .	234
VI-6. Guttman satisfaction scales: multiple regression analyses . . . . .	237
VI-7. Personal development and satisfaction factors: multiple regression analyses . . . . .	239

Table

VI-

VI-

VII-

VII-

VII-

VII-

VII-

VII-

VII-7

VII-8

VII-9

VII-10

Table		Page
VI-8.	Loadings of background variables on the personal development and satisfaction cluster dimensions . . . . .	241
VI-9.	Loadings of background variables on other general evaluation clusters . . . . .	242
VII-1.	Lecturers: canonical correlations of background variables x dependent variables . . . . .	249
VII-2.	Research Scholars: canonical correlations of background variables x dependent variables . . . . .	251
VII-3.	Teachers: canonical correlations of background variables x dependent variables . . . . .	253
VII-4.	Students: canonical correlations of background variables x dependent variables . . . . .	255
VII-5.	Dimensions extracted in the combined variable cluster analysis . . . . .	266
VII-6.	Lecturers: cluster analysis of dimensions extracted in previous analyses of background, dependent and combined variables . . . . .	273
VII-7.	Research Scholars: cluster analysis of dimensions extracted in previous analyses of background, dependent, and combined variables . . . . .	275
VII-8.	Teachers: cluster analysis of dimensions extracted in previous analyses of background dependent, and combined variables . . . . .	277
VII-9.	Students: cluster analysis of dimensions extracted in previous analyses of background, dependent, and combined variables . . . . .	279
VII-10.	Across-groups cluster analysis of background dimensions . . . . .	297

Table

VII-

VII-

VII-

VII-

VII-

VII-

VII-

VII-

VII-

VII-

VII-9

VII-10

Table		Page
VII-11.	Across-groups cluster analysis of dependent dimensions . . . . .	298
VII-12.	Across-groups cluster analysis of dimensions from combined background and dependent variable analyses . . . . .	300
VIII-1.	Correlations among overseas interaction and post-award communication dimensions . . . . .	308
VIII-2.	Summary of multiple regression and cluster loading data regarding associations between grantees' characteristics and dimensions concerning their interaction and communication experiences . . . . .	312
VIII-3.	Correlations between background factor scores and communication factor scores . . . . .	314
VIII-4.	Correlations among professional outcome dimensions . . . . .	322
VIII-5.	Summary of multiple regression and cluster loading data regarding associations between grantees' characteristics and dimensions concerning professional outcomes of their award experiences . . . . .	324
VIII-6.	Correlations between background factor scores and professional outcome factor scores . . . . .	326
VIII-7.	Correlations among satisfaction dimensions .	333
VIII-8.	Summary of multiple regression and cluster loading data regarding associations between grantees' characteristics and dimensions concerning their satisfaction with their sojourn experiences . . . . .	335
VIII-9.	Correlations between background factor scores and satisfaction factor scores . . . . .	337
VIII-10.	Correlations between communication and professional outcome dimensions . .	342





Table	Page
VIII-11. Correlations between communication and satisfaction dimensions . . . . .	348
VIII-12. Correlations between professional out- come and satisfaction dimensions . . .	354

Appendix

I.

II.

III.

## LIST OF APPENDICES

Appendix		Page
I.	DESCRIPTION OF THE RESEARCH . . . . .	399
II.	QUESTIONNAIRE . . . . .	417
III.	CODING OF BACKGROUND VARIABLES FOR MULTIVARIATE ANALYSES . . . . .	431

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## CHAPTER I

### THE FOCUS AND METHODOLOGY OF THE INVESTIGATION

In the history of education large-scale travel abroad in pursuit of learning dates back to the development of universities in the twelfth century (Metraux, 1952). Organized programs of international educational exchange designed to advance intergovernmental objectives, however, appear to be a social novelty. Since World War II there has been a vast expansion in such programs and in the number of participants involved. In 1960 one publication listed over 75,000 fellowships sponsored by government agencies, private foundations, and educational institutions available for study throughout the world (Study Abroad). Excluding students in the Iron Curtain countries, for whom reliable data are not available, about one-fourth of the remaining individuals who study outside their home countries come to the United States. As early as 1950 almost 30,000 foreign students annually attended institutions of higher education in the United States, and today the number has risen to approximately 60,000. As to the migration of Americans, in 1962 official records showed about 19,000 Americans enrolled as students overseas (Open Doors, 1962).

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While the students account for most of the personnel involved in educational exchange, the numbers of teachers and college professors participating in cross-cultural exchange are not trivial. One informed estimate is that under current programs over 5,000 senior scholars enter the United States and approximately 3,000 American senior scholars venture abroad (Open Doors, 1962). These figures do not include the yearly average of 7,000 foreign physicians in American hospitals and certain other technical personnel. Furthermore, the data do not include individuals carrying out research or other educational activities on their own funds, nor those whose stay in an alien culture is for a period of less than six months.

American institutions sponsoring educational exchanges cite as their objectives the promotion of "international understanding"; the development of friends and supporters for the United States; assistance in economic, social, or political development of other countries; and educational development of outstanding individuals (The Goals of Student Exchange, 1955).<sup>1</sup> Partly as a reflection of these goals and partly as a consequence of current interest among social scientists in the influence process, much of the

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<sup>1</sup>It is interesting to note that the goals of individuals participating in educational exchange do not appear to parallel those of the sponsoring agencies. For example, interview and questionnaire data indicate that educational and personal development are most salient among the reasons for venturing abroad cited by American students in France (Gullahorn and Gullahorn, 1956 and 1958a).

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evaluational research in cross-cultural education has focused--ethnocentrically--on whether foreign sojourners do in fact develop more positive attitudes toward Americans and the United States in general as a consequence of their experiences here.

Aside from the practical interest in attempting to give operational clarification to and an assessment of the achievement of the goals of sponsoring agencies, social scientists have been interested in the foreign scholar as a natural object for investigations of international communication, stereotype persistence and modification, personality concomitants of the acculturation process, and intergroup interaction. Situations of cross-cultural contact offer unique opportunities to test the generality and limitations of hypotheses developed in one cultural context; furthermore, the research may contribute to the discovery of hitherto unanticipated interactions among variables (cf. Jacobson, et al., 1960). In the field of intergroup relations, for example, most generalizations have been developed from studies in one cultural setting where a common language and an overall reference framework of commonly acknowledged values and norms may be taken for granted. Such assumed "constants" become variables whose relative influence must be assessed when one shifts to contact situations involving nationals from different cultures. Thus, in the final study of the series sponsored by the Social Science Research Council, attention focused

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not only on the association between variables relating to interaction between foreign students and Americans and to the students' subsequent attitudes concerning the United States, but also on the impact of the students' language proficiency and other background characteristics on the variables investigated (Selltiz, et al., 1963).

#### Focus of the Present Investigation

Similar variables concerning social interaction and affective evaluations are involved in the present research which also explores background influences on these variables. Instead of gathering data from foreign sojourners in the United States, however, this investigation extends the range of knowledge regarding educational contacts across cultures by eliciting information from Americans who sojourned in all areas of the world under sponsorship of the International Educational Exchange Service of the United States Department of State. A full description of the study appears in Appendix I. The present report concentrates on the questionnaire data gathered from over 5,300 American Fulbright and Smith-Mundt grantees whose awards took them abroad during the 1947-1957 period. Illustrative material from interviews as well as comments added on the questionnaires are also included.

The questionnaire respondents represent four types of award holders under State Department sponsorship, comprising 785 Lecturers, 744 Research Scholars, 1,082 Teachers, and 2,659 Students. The first two categories

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of "senior" grantees include American college professors whose awards affiliated them with universities abroad. Typically the Lecturers focused on teaching in their host institutions, whereas the Research Scholars conducted research, often in collaboration with host colleagues. The Teacher category is composed of American elementary and secondary school teachers who frequently participated in actual exchange relationships, wherein the Americans replaced counterparts from the host schools who in turn taught in the United States. The Student category consists of college graduates who pursued graduate studies in universities overseas.

Specifically, the questionnaire information elicited from these four groups of grantees concern the following aspects of their award experiences:

1. Overseas interaction, focusing on the frequency, range and depth of the grantees' interaction with host nationals;
2. Continued foreign interaction, focusing on the maintenance of contacts and continued collaboration between grantees and host nationals;
3. Internationally-oriented communication with Americans, focusing on efforts of former grantees to disseminate information regarding their award experiences and to assist fellow Americans in cross-cultural educational activities;
4. Professional consequences, focusing on two related aspects--the professional development of grantees, including their acquisition of new skills or of data for subsequent analysis; and the professional prestige accruing to the grantees, including recognition from administrators and colleagues, promotions, fellowships, etc.;

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5. Personal satisfaction and development, focusing on the grantees' assessments of the contributions of the award experiences on their self-perceptions and their general perspectives on their home and host countries.

In the present report we shall discuss the behavior patterns describing each of these outcome areas and explore means of dimensionalizing them such that we may rank-order respondents in a meaningful manner with respect to each dimension. In addition, we shall analyze the interrelationships among these dimensions. To a limited extent this will enable us to compare findings with available data from other research and thus broaden our knowledge regarding concomitants of cross-cultural educational exchange. For example, other investigators studying foreign students on American campuses have noted a positive association between the extent of the students' participation in American life and the quality of their academic adjustment as well as the degree of favorableness of their attitudes regarding their host country (Sewell and Davidsen, 1961). In terms of related variables in the present investigation we may ask whether overseas interaction is associated with one or both aspects of professional consequences and with personal satisfaction for the Students--and for the grantees in the other award categories as well.

Besides describing and interrelating these five general outcomes of the award experiences for each group of grantees we shall examine the relationship between these dimensions and available data concerning the grantees'

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background characteristics. Again, comparisons for the Student group can be made with data from studies of foreign students in the United States.

### Strategy of Analysis

An overview of the principles guiding the construction of the questionnaire is presented in Appendix I. Items were selected such that the grantees' responses would vary with respect to their positions on the set of award outcomes just described. As inspection of the questionnaire will verify (see Appendix II), the items have a manifest rather than a latent relationship to the topics of interest.

The initial step in quantifying these data involves a simple enumeration of the frequency functions of the item categories. Since, as already indicated, we wish to assess the covariation of the dimensions within the questionnaire as well as the covariation between these dimensions and certain external variables, it is obvious that treating the items individually would be a laborious and unparsimonious procedure. How then should we combine items so that individuals may be assigned to numerical positions representing distinctions in the degree of their endorsement of each dimension? We shall go into some detail in exploring alternative methods of analysis inasmuch as this report is designed not only to describe a set of outcomes of cross-cultural educational experiences but also to assess the utility of different modes of analysis for survey material of the type represented here.

Typically, two principal methods are employed to accomplish the data reduction sought here--a subject-centered mode of analysis involving constructing summated indices, or a response-centered technique involving developing cumulative unidimensional scales. Factor analysis or cluster analysis are other possible alternatives, although for reasons to be discussed later these methods have been applied less in survey data analysis than the two other approaches. Let us now consider the general logic of each of these alternatives as well as their relative merits.

#### Description of Alternative Modes of Analysis

##### Summated Scaling

In its more popular form in survey analysis the subject-centered approach involves some variation on the Likert technique (1932). Actually, many items in the present questionnaire were phrased in the recommended format for such analysis. For example, the items dealing with general evaluations of the award experiences were selected to increase individual differences on a continuum related to satisfaction. For each item four response options ranging from "Agree Strongly" to "Disagree Strongly" were available. The grantees' task was to respond to each item on the basis of the extent to which they were willing to endorse it.

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To score the items in the simplest manner, scores ranging from 4 to 1 may be assigned to the response categories of each item, with the 4 being assigned to the extreme favorable position (either the Agree Strongly or Disagree Strongly category, depending on the direction implied by the wording of the item). An individual's score on the set of items could then be calculated by summing the integers into which his responses had thus been mapped. As Goode and Hatt note, such a simple scoring technique is based on two assumptions regarding the weighting of items and the weighting of each response within an item (1952, ch. 17). The items are treated as equivalent; therefore, differences in extremes of favorableness may not be reflected by assigning a score of 4 to strong endorsement of different items. Would it be preferable to weight items differentially rather than arbitrarily to class them as the same? Not only does equal weighting assume an equality between similar responses to all items, but it also assumes that the distance between "Strongly Agree" and "Agree Somewhat" equals one unit and therefore is the same as the distance between "Agree Somewhat" and "Disagree Somewhat."

Both items and responses may be weighted differentially on the basis of intuitive criteria. A more rigorous empirical approach involves using the standard deviations of the distributions of the items. Actually, however, research has indicated that the converted sigma technique correlates about .99 with the arbitrary scoring

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of the simpler method (Murphy and Likert, 1938; Goode and Hatt, 1952, pp. 273-274). Since before the advent of electronic computers calculating sigma scores was more laborious than assigning arbitrary weights, the evidence just cited apparently has tended to promote reliance on arbitrary scoring.

Perhaps the most cogent critic of the summated index approach is Louis Guttman who claims that omitting a scale analysis (as he defines the procedure) and developing a single arbitrary index may completely obfuscate the purpose of the research. A Guttman scale analysis will determine whether a set of items "comprises but a single factor in the sense that from but a single set of scores (on this factor) the responses to each of the items can be reproduced" (Stouffer, et al., 1950, p. 181). Since only an intuitive assessment of unidimensionality is involved in the summated scaling procedure, Guttman claims arbitrary indices are subject to five basic defects (Stouffer, et al., 1950, ch. 6).

1) Lack of descriptive meaning. The summated score cannot reproduce a person's responses to the items. Different behaviors can yield the same score. Since reproducibility is the foremost criterion in Guttman scaling, his condemnation of this shortcoming in the Likert approach is obvious. Defenders of the latter approach have suggested, however, that the same behavior may be determined by different patterns of antecedent

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conditions. From reactions to an apparently heterogeneous collection of items one might develop an index of some process reflecting a tendency to positive or negative action; therefore, two persons agreeing with different statements may in fact be comparable with respect to the strength and direction of this tendency to act in a given manner. "We do not know as yet that independent measures of the same unidimensional processes in different people furnish the best means to the prediction of behavior" (Peak, 1953, p. 260).

2) No criterion for weights. Guttman notes that by changing weights in the arbitrary indices persons who are "equal" according to one set will probably not receive the same scores according to another set. Persons with higher scores than others according to one set of weights may be lower on the other set. Decisions among sets of weights might be made according to subjective or empirical criteria. It is not unlikely that different sets of weights will be selected in different replications; hence there are serious problems of reliability.

3) Sampling of items and description. Guttman contends that index scores can change if different items from a "nonscalable" area are used. According to him, if an area forms a Guttman scale then any sample of items from the area will yield essentially the same rank order for the people as any other set of items. Actually, Guttman has not presented evidence concerning this superiority



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of his method. Torgerson presents a detailed discussion of the limitations in the statistical sampling analogy Guttman presents regarding the "universe of content" from which the researcher "samples" items--obviously in a non-random manner (1958, ch. 12).

4) Improper weights for prediction. Guttman claims that an arbitrary index generally underestimates the predictability of any criterion from the items. According to him, the index can have practically a zero correlation with a given criterion, whereas if an actual multiple correlation of the items were determined, the items could be found to correlate very highly with the criterion.

5) Sampling of items and prediction. Guttman's comments on this apparent shortcoming develop some of the points already mentioned. He notes,

If the area is scalable, then it is known that not only the multiple correlation of the thing being predicted with the set of items is essentially the correlation of that thing with the scale scores, but also it is known that adding more items to the sample from the same scalable universe will not increase the multiple correlation. That is why relatively few items can be used from a scalable area for prediction purposes, yet the predictive power of the infinite number of items from which this sample was drawn is being fully realized (Stouffer, et al., 1950, p. 179, italics in original).

According to Guttman, the five defects just described apply in particular to arbitrary summated indices developed from items which do not scale according to his criteria. Indeed, he concludes,

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It is true that if an area is scalable, then the resulting scale scores will correlate very highly with any index obtained by arbitrary weights, provided the weights are in the right direction. Scale theory proves that there is no harm in obtaining an apparently arbitrary index from a scalable area, either for descriptive or predictive purposes (Stouffer, et al., 1950, p. 175).

If one has gone to the trouble, however, of ascertaining whether a set of items satisfies the criteria for a Guttman scale, then selecting arbitrary index scores--which actually carry less information than Guttman scale scores--seems unsatisfactory. The reason the simple scoring procedure is recommended (cf. Riley, et al., 1954, ch. 12), however, is that generally tests for unidimensionality are done with only a sub-sample of respondents; therefore, with a desk calculator or an IBM 101, ascertaining Guttman scale scores for the total sample requires more time and effort than does computing summated scores. It is interesting to note that the development of computer technology within the past five years has made this simple scoring procedure for Guttman scales, as well as many of the other recommendations included in the Rutgers volume published just ten years ago, virtually obsolete.

In actual practice Guttman's recommendations appear to be ignored. That is, arbitrary indices seem to be the most popular means of dimensionalizing survey data, and in the reports of such applications one generally will not find evidence of the items' scalability (in the Guttman sense). As noted previously, however, there is not consensus among social scientists regarding the necessity

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of Guttman's criteria; furthermore, apparently many researchers are satisfied with the pragmatic consequences of developing summated scales for the dimensions assessed in their studies. Let us turn now to a more detailed consideration of Guttman scaling.

### Guttman Scaling

Like the summated scaling technique just considered, Guttman's procedure adheres to the logical structure of an ordinal scale--that is, it makes possible a ranking of respondents in terms of the favorableness of their attitude toward a given object, but it does not provide a basis for saying how much more favorable one person is than another. "The result of a Guttman analysis on data which satisfy the necessary conditions is an ordinal scale with the stimuli and the response patterns of the individuals simply ordered." (Coombs, 1953, p. 526).

In a Guttman scale analysis the following questions are explored: Do the set of items and the set of subjects together form a scale? Can the subjects and/or the items be ordered along a continuum such that responses of subjects to items can be accounted for by this order? Can responses to items be considered dependent on a single, though perhaps complex, attribute? (cf. Torgerson, 1958, pp. 301-302.)

If a set of dichotomous items forms a perfect scale, then of the  $2^n$  possible response patterns, only  $n+1$  of

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these non-overlapping patterns will occur. It is the relative non-occurrence of the deviant patterns that enables the Guttman scaling procedure to recover from the observed data the order of the individuals and the category boundaries of the underlying continuum.

For example, a perfect seven item Guttman scale will have the following eight scale types associated with it.

		Item Number						
		1	2	3	4	5	6	7
Scale Type	0	0	0	0	0	0	0	0
	1	1	0	0	0	0	0	0
	2	1	1	0	0	0	0	0
	3	1	1	1	0	0	0	0
	4	1	1	1	1	0	0	0
	5	1	1	1	1	1	0	0
	6	1	1	1	1	1	1	0
	7	1	1	1	1	1	1	1

The  $j$ -th scale type, therefore, is a set of dichotomized scores such that the responses to the first  $j$  items in the Guttman scale are all positive, and the responses to the last  $n-j$  items are all negative.

Since scale analysis regards the score as a representation of the items, each respondent can be assigned a scale score corresponding to scale types 0 to  $n$ . A score of  $j$  means the response pattern for a respondent is



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closest to the  $j$ -th scale type. In other words, the ordering of the items in a Guttman scale is such that individuals who respond positively to a given item have higher rank scores than do those who respond negatively to that item. Furthermore, if an individual responds positively to an item of a certain rank, then he will respond positively to all items of a lower rank. Not only is there a perfect positive correlation between the scale type and the number of items responded to positively, but there is also a perfect inverse correlation between the order of the items and the item marginals (the positive frequency functions for each item).

So far our discussion has concentrated on the ideal model of the perfect Guttman scale. Since Guttman's deterministic approach makes no provision for error or unsystematic variance, in principle one variant observation is sufficient to reject the hypothesis that an area is scalable. In practice the problem addressed in scaling analysis is not that of testing whether a perfect scale exists--it usually does not--but rather of checking certain criteria to determine whether the observed approximation is close enough to treat the data as if they constituted a perfect scale.

Of central importance in measuring the amount of error in observed scale scores is the concept of reproducibility. According to Guttman,

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Scale analysis tests the hypothesis that a group of people can be arranged in an internally meaningful rank order with respect to an area of qualitative data. A rank order of people is meaningful if, from the person's rank order, one knows precisely his responses to each of the questions or acts included in the scale (Stouffer, et al., 1950, p. 88).

An error thus is an error in reproducibility, occurring when the response predicted from an individual's total score does not agree with his actual answer to a given item. The reproducibility for a given item, therefore, is the proportion of responses to the item which can correctly be reproduced. The over-all reproducibility of a Guttman scale is the average of the item reproducibilities. That is, if  $E_i$  represents the item error (taken over  $N$  respondents) for the  $i$ -th interval of a Guttman scale of  $n$  items, the reproducibility of the scale is defined as

$$\text{Reproducibility} = 1 - \frac{\sum_{i=1}^m E_i}{n(N)} \times 100\%$$

In early work on Guttman scaling a reproducibility coefficient of .85 was considered adequate (Guttman, 1947); later, however, a Reproducibility coefficient of .90 was recommended for judging a cumulative scale unidimensional (Guttman, 1950, ch. 3). Thus, of all the responses of all the surveyed sample to all of the items in a scale, no more than 10% should correspond to errors of reproducibility.

Inasmuch as the reproducibility coefficient may be inflated spuriously by extreme dichotomizations in the item marginals, auxiliary criteria are necessary to assess the unidimensionality of a set of items. For example, if a

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dichotomous item has 92% of the respondents in one category and 8% in the other, there cannot be less than 92% reproducibility for that particular item, regardless of its relationship to other items or to the total score. Guttman therefore recommends that a wide range of marginal distributions be represented by the items--including items with marginals around 50-50. The smaller the number of items included in a scale the more the reproducibility is affected by the item marginals; consequently, Guttman recommends including ten items (Stouffer, et al., 1950, chs. 3, 4, 5). As Stouffer and associates note, in practice four or five item Guttman scales are developed more frequently than the desirably longer scales (1962, p. 276). Indeed, most of the scales reported by the Rutgers researchers are composed of three or four items (Riley, et al., 1954, p. 83).

Further criteria for judging the goodness of fit between the observed scaling and the ideal model include recommendations that no individual item have less than 85% reproducibility and that no item in the scale have more error than non-error. Some methodologists have objected to the relative subjectivity in the general rules of thumb advanced to assist in judgment of unidimensionality (cf. Peak, 1953). A more direct attack on the problem of assessing the possible contamination of the reproducibility coefficient is illustrated in the work of the Rutgers researchers who determine for each scale a

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coefficient representing the reproducibility by chance, calculated from the item marginals (Riley, et al., 1954).

In comparison with summated indexing, Guttman scaling provides a less ambiguous approach to studying the organization among items; furthermore, when items are shown to scale a rational method of weighting items is provided. Changing weights will not change the relative positions of the scores if the weights assigned are equal or if they increase or decrease consistently with the scale position of the item.

### Factor Analysis

The general purpose of scale analysis and factor analysis are similar. Indeed, Guttman describes his technique as "a single-factor theory for qualitative data" (Stouffer, et al., 1950, p. 192). While scale analysis deals directly with item marginals, however, factor analysis begins with the matrix of item intercorrelations and is designed to find the smallest set of dimensions sufficient to account mathematically for the observed correlations. The computations involved in factor analysis involve an assumption of an interval scale level of measurement; thus from this viewpoint it seems less defensible than the more conservative ordinal level involved in Guttman scale analysis--or in summated indexing. However, it should be noted that in practice, unless the researcher relies solely on contingency table analyses



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in exploring relationships between his Guttman or summated scales and other variables, he does in fact treat the scale scores as if they comprised an equal interval scale--for example in computations of correlations, multiple regressions, etc. This does not, of course, answer the question concerning the consequences of making strong assumptions regarding measurement levels in the beginning of the data reduction process. At present there seems to be much speculation but a relative paucity of actual data concerning this issue.

As indicated previously, factor analysis has been less popular in survey data analysis than the summated or Guttman scaling techniques. Selvin's recent application of the method in studying leadership climates is a noteworthy exception (1960). As suggested above, in part the relative neglect of factor analysis may stem from relative conservatism regarding the measurement level assumptions of the technique--an attitude that receives reinforcement from Guttman's dictum:

From a scale analysis it can be known what a factor analysis will show. The converse is not true; from a factor analysis it will be difficult, if not impossible, to know what a scale analysis will show (Stouffer, et al., 1950, p. 192, italics in original).

Another reason, of course, for the relatively infrequent application of factor analysis to survey data involves the time and labor expended on matrix computations with a desk calculator when questionnaires are composed of large numbers of items. This practical limitation apparently has also been a deterrent to the application of cluster

analysis, a variant of factor analysis which we shall now describe briefly.

### Cluster Analysis

Like the other methods of analysis just considered, the general objectives of cluster analysis are to search out, conceptualize, and score general groups of variables which are operationally alike in the sense that they order individuals in the same general manner (cf. Tryon, 1958b). The clustering technique, like factor analysis, focuses on the intercorrelations of items in attempting to group the total number of variables into a reduced number of general dimensions that are most independent and that best predict the scores of the respondents on the total number of variables. Two principal criteria are involved in the clustering procedure: maximal congruence of the correlation profiles, and maximal independence from other variables (Tryon, 1958a). Two variables are considered congruent if their  $n-2$  matched correlation coefficients are proportional. The Index of Proportionality is defined as follows:

$$p^2 = \frac{(\sum r_{1i} r_{2i})^2}{\sum r_{1i}^2 \sum r_{2i}^2} \quad \text{for } i = (3, 4, \dots, n)$$

The degree of independence of a variable is assessed in terms of the variance of its  $n-1$  squared correlation coefficients in the matrix  $(\sigma_r^2)^2$ .

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In actual practice cluster analysis has received even less attention in survey data processing than has factor analysis. Indeed, only a small cluster of researchers working with Tryon have been developing the technique, and the method has been virtually neglected in most treatises on factor analysis.

### Choosing Among the Methods

In order to dramatize the impact of computer technology on current decisions regarding approaches to data analysis, let us describe what our decision dilemma would have been only five years ago. At that time it would have been necessary to choose among the four alternatives just discussed, and our decision would have been heavily influenced by practical considerations relating to the cost of analysis and the time expenditure involved. In effect, we would have constructed a payoff matrix in which we assigned probabilities for success with each method of analysis on the basis of available information, intuitive hunches, advice from colleagues, etc. Had our decision rules involved minimaxing the regret function, we would have selected the more conservative--but possibly less desirable--technique of summated scaling. Let us go into some detail concerning our decision procedure.

In our previous discussion of the apparent shortcomings of summated indexing as contrasted to Guttman scaling, we concluded that the Guttman method provides a more systematic means of studying the organization among

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items. Factor analytic techniques also seem preferable to summated scaling in terms of relative objectivity, since the procedures operate on observed correlations independently of the investigator's preconceptions. With reference to the two types of factoring methods considered, a principal components factor analysis seems preferable because of the paucity of information currently available regarding applications and critical evaluations of cluster analysis.

Our decision space thus might be narrowed to two preferred methods--Guttman scaling and factor analysis. Unfortunately, information from comparative studies involving the two techniques is not available to assist us in further assessing their relative merits. One reason for this deficiency is that in the past, when the principal tools for data analysis consisted of the desk calculator and the IBM 101, applying either Guttman scaling or factor analysis required a considerable investment of time, effort, and money; consequently, subjecting the same data to both procedures was not practicable.<sup>1</sup>

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<sup>1</sup>It is interesting to note that the amount of tedious labor involved in these two techniques--along with their methodological rigor--apparently has contributed toward their relative prestige. Indeed, at times the reinforcement accorded for "doing" one of these analyses seems to be granted in recognition of the labor involved in applying the "sophisticated" methods, without reference to their appropriateness or relevance.

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Inasmuch as empirical comparisons are not available to influence our choice between Guttman scaling and factor analysis, let us turn to specific considerations pertaining to our present data. As noted previously, the survey questionnaire was designed to elicit information concerning a number of consequences of Fulbright and Smith-Mundt grantees' award experiences. Practical limitations precluded our developing sets of pre-tested cumulative scales for each dimension. Thus, while we would expect the items pertaining to each subject area to combine into meaningful complex dimensions, it does not seem highly probable that they would in fact exhibit the cumulative quality of the Guttman model. Given limited funds and limited time, and a low probability of success in applying the method, we would conclude that a Guttman scalogram exploration of our data using a desk calculator or an IBM 101 would not be worthwhile.

Would factor analysis then be selected by default? Hopefully, our questionnaire measured what we proposed to measure; therefore, the factoring process should retrieve the dimensions of interest and thus enable us to score respondents on these factors. Of course, we might feel uneasy about the consequence of assuming interval level measurement and applying factor analysis to qualitative data--Guttman's criticisms, even when supporting evidence is absent, are not to be dismissed lightly. However, if we put a risk component in our decision rules we might

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tentatively decide that factor analysis would be a potentially worthwhile investment. That is, the probability of a meaningful outcome from factor analysis seems reasonably high; whereas the probability of developing acceptable unidimensional Guttman scales seems relatively lower.

But what about practical limitations involving the nature of our data? In order to factor analyze the questionnaire items regarding the outcome experiences, a correlation matrix of approximately the order 60 by 60 must be processed. A principal components solution for a 20 variable problem is in itself considered a tour de force on a desk calculator; consequently, the labor involved in thus processing our present problem would be prohibitive (cf. Harman, 1960, ch. 9). It should be recalled that in this discussion of our decision procedure we are referring in particular to the situation we would have confronted five years ago. At that time, of course, electronic digital computers were available commercially, and programs to perform the matrix calculations of factor analysis had been developed. Memory storage capacities of most of the hardware available five years ago were limited, however; consequently a principal components analysis of a matrix of the order involved in our present data generally would have been unfeasible.

Thus, as indicated at the beginning of this discussion, considerations involving high costs and low probability of success lead us to reject a Guttman exploration of our data; and considerations concerning costs and

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practical limitations along with some questions regarding the relative appropriateness of the procedure lead us to reject the factor analytic method of dimensionalizing our data. Given this structuring of the situation--as it was five years ago--we conclude that the maximum regret from our decision regarding data analysis will be minimized if we choose summated scaling--an operation guaranteed to provide numerical positions for our respondents on the dimensions we select.

Perhaps the payoff matrices developed by other researchers in making decisions regarding modes of analysis are not too dissimilar from that just described. As noted before, the most popular method of scaling data appears to involve applications of arbitrary indices. For example, summated scales are used in such exemplars of contemporary research as the Lipset, Trow, and Coleman study of Union Democracy (1956) and the Lazarsfeld and Thelens study of The Academic Mind (1958). Of course, the relative popularity of summated scaling may stem from actual preference for the procedure based on researchers' satisfaction with the pragmatic consequences of this approach, rather than from a choice by default when applications of other more desirable methods are impracticable or their outcomes are unattainable (as in the Lazarsfeld and Thelens study where summated scaling apparently was applied only after attempts to develop cumulative unidimensional scales failed). But whatever the reasons for the popularity of the summated

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scaling technique--pragmatic "satisficing," practical limitations, or uncertain payoffs--it is unfortunate that virtually no comparative data are available concerning the relative merits of the three other methods of analysis.

Having described the cognitive dissonance inherent in the necessity of choosing what seems to be a less desirable method of analysis because practical considerations defining the situation five years ago precluded applying the other approaches, let us turn now to the impact of technological change on the decision situation one year ago. By that time computer developments in two areas--in the increased speed and memory capacities of the modern hardware as well as in the development of accompanying software, or libraries of programs--meant that the methods previously judged too slow and too expensive for the expected payoff actually were faster and cheaper than summated scaling on the IBM 101.

Thus, because we had access to a powerful computer (the IBM 7090) and a well-developed library of programs at the University of California Berkeley campus, our decision regarding data analysis did not have to be determined primarily by the practical limitations previously described. A computer program was available for Guttman scale analysis (Krasnow and Schutz, 1961), another was available for a principal components factor analysis (Wilson, 1963), and a set of programs was available for processing Tryon's system of cluster analysis (Tryon, et al., 1963). Since it

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actually was practicable to choose any of the four methods previously described, what should we do?

As suggested before, we might confine our decision to choosing between Guttman scaling or the principal components factor analysis. Since practical limitations no longer are a deterrent to either procedure what considerations should influence our decision? In the absence of empirical comparisons of the two techniques, our decision might reflect relative allegiances to certain reference groups as well as relative systems of beliefs regarding measurement theology. That is, there seem to be relatively non-overlapping sociological groupings of researchers who do Guttman analyses as opposed to those who perform factor analyses. While Guttman, himself, has contributed to both approaches, as noted previously, he considers factor analysis inappropriate for qualitative data--although he does not present empirical evidence to support his viewpoint.

Since our reference groups are multiple and our beliefs amenable to change, these considerations do not produce a particularly strong preference. We might consider the following decision tree: Try Guttman scaling; if unidimensional scales are developed for areas of interest, proceed to other processing involving background data; if cumulative dimensions cannot be developed, proceed to factor analysis; if the factors identified assist in describing the dimensions of interest or lead to further insights, proceed to other processing involving background

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data; if the factors seem uninterpretable, Tryon's system probably would not help either, so return to the summated scaling decision and hope the pragmatic consequences will be satisfactory.

But while such a decision network might satisfy our own interests in data analysis, what would it contribute to other researchers? Hopefully, the research might demonstrate the insights to be gained from application of a procedure other than summated scaling and thus might assist others in decisions regarding analyses of comparable data. However, the procedure just outlined would not help fill the hiatus in the research literature previously described--it would not necessarily generate data from comparative analyses. Actually, therefore, our purposes in processing our own data would be served and a potential contribution to the research literature would be forthcoming if, instead of essentially choosing between Guttman scaling and factor analysis, we applied both approaches. Indeed, for a relatively small additional expenditure of time and effort a three-way comparison could be undertaken in order to gain information concerning Tryon's cluster analysis--a relatively neglected procedure to date, but one which soon will be in the public domain with the publication of a manual and distribution of system tapes for computer processing of Tryon's multidimensional analysis.

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It is interesting to note that actually our initial structuring of the decision situation such that we sought to decide among the alternatives and virtually neglected the possible decision of doing more than one analysis (except in the case where a selected method failed) reflects a decision necessity imposed by limitations of the past and not by present contingencies. We are not here advocating indiscriminate applications of different methods simply because they are available. However, when on the basis of present knowledge different techniques appear to be reasonable approaches to data analysis, it seems desirable that researchers expend the extra time and effort to experiment with different methods so that a body of actual empirical comparisons will be developed to contribute to the field of research methodology.

Let us now outline our strategy in analyzing the survey material from our study of American grantees. First we shall describe the analyses of the questionnaire data regarding consequences of the grantees' award experiences; then we shall describe the analyses used to relate these outcomes to the available information concerning the grantees' background characteristics.

#### Analyses of Outcomes of Award Experiences

1. Guttman Scaling. For each category of grantees--Lecturers, Research Scholars, Teachers, and Students--we attempted to develop cumulative unidimensional scales for

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the following areas of interest: overseas interaction; continued interaction with foreigners; internationally-oriented communication with fellow Americans; professional consequences of the awards; and overall evaluations or satisfaction regarding the award experiences. Scales were judged acceptable if the following criteria were met:

1. The reproducibility coefficient was .90 or more.
2. The reproducibility coefficient differed significantly from chance.<sup>1</sup>
3. No item had a reproducibility of less than .85.
4. No item had more error than non-error--that is, the percentage error for a single item could not exceed 1/2 of the percentage accepting the item or 1/2 of the percentage rejecting the item, whichever was smaller.
5. Item marginals were distributed over a wide range, and the scale included items with marginals around 50%.
6. At least six items--and preferably more--were included in the scale.

Chapters III through VI incorporate Guttman scale data relating to the dimensions listed above. Details regarding items, item errors and reproducibilities, and scale reproducibilities are included.

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<sup>1</sup>The computer program used did not calculate the chance reproducibilities for the scales developed. Such figures were computed on a desk calculator for a sample of scales. Actually, with the large populations involved in the present study, it was found that the other general rules of thumb outlined above provided adequate guides for developing scales with reproducibility coefficients significantly different from chance expectations.

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2. Factor Analysis. For each category of grantees the same 58 questionnaire items used for the Guttman scale analysis were subjected to a principal components factor analysis--a method preferred for its "elegance and precision of mathematical form" in obtaining the initial factor structure of a correlation matrix (Harman, 1960, p. 179). Communalities were estimated by calculating the squared multiple correlation of each variable with the remaining 57 variables, thus providing a measure of the proportion of common variance in the given set of variables (cf. Wrigley, 1957). Once the initial set of reference axes was determined, two orthogonal rotational schemes were employed: Kaiser's varimax rotation and the Neuhaus and Wrigley quartimax rotation. We decided to use both rotations for the following reason. While available evidence suggests that the varimax rotation provides a better approximation to "simple structure" than does the quartimax method (Harman, 1960, ch. 14), one of the so-called shortcomings of the quartimax solution--a tendency toward a general factor--appeared to be an attraction vis-a-vis the present data. That is, it seemed worthwhile to explore the data in such a manner that a possible general factor of high interaction (be it overseas or subsequent to the award experiences) might appear. Aside from this consideration, performing the two rotations on the same factor matrix provided additional comparative data concerning the two methods. Factor loadings for the two orthogonal rotations are presented in Chapters III through VI

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In determining the number of common factors that were necessary and meaningful in explaining the observed item intercorrelations, we generally followed Kaiser's criterion that the number of common factors should be equal to the number of eigenvalues of the correlation matrix greater than one (cited in Harman, 1960, ch. 17). It so happened that in all but two instances this criterion led to an identification of factors corresponding to the previously listed dimensions that we sought to explore in our survey. One factor regarding professional outcomes fell short of the Kaiser criterion in the analyses for Teacher and Students. As noted in Chapter V, we decided nevertheless to include information concerning this dimension for those groups for purposes of general comparisons among the four groups.

Factor scores on the dimensions thus identified in the varimax rotation were computed by the "complete estimation method" (Harman, 1960, pp. 338-348), and were used in some of the canonical correlation analyses discussed in Chapter VII. An oblique solution was also obtained for the factor matrix, and oblique factor scores were used in conjunction with background data in the multiple regression analyses discussed in Chapters III through VI. Oblique factor scores were also used in exploring interrelations among the dimensions, discussed in Chapter VIII.

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3. Cluster Analysis. For each category of grantees the same 58 questionnaire items used for the Guttman scaling and factor analysis were input in a cumulative communality key cluster analysis (Tryon, 1958a). An additional analysis included 13 items enumerating the grantees' professional achievements resulting from their award experiences along with the 58 other outcome variables (see the publications section of the questionnaire in Appendix II for the 13 items). Communalities were estimated from the most collinear subsets of variables, and clustering was terminated on the dimension at which the sum of predetermined communalities converged. As described previously, pivot variables for each dimension were selected by the variance of the squared correlation method, and up to three additional collinear cluster variables were selected per dimension by application of the index of proportionality. Once the subset of variables defining the cluster dimensions had been obtained, an oblique rotation was performed. Cluster loadings for the initial clustering as well as the oblique rotation are presented in discussions of the outcome dimensions in Chapters III through VI. Data from the oblique rotation were used in further analyses discussed in Chapter VII.

4. Summated Scaling. Since we decided to focus the analysis on the other three methods, arbitrary indexing was virtually neglected in this investigation. Before we had access to a suitable computer and programs, however, we had developed a summated index for the satisfaction outcome

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dimension; therefore, some comparisons of scores from the index and comparable dimensions from the other analyses are presented in Chapters VI and VIII. In order to get a summary measure for the enumerations of the grantees' professional publications and artistic accomplishments, we also developed a summated index of professional achievements, and data from this scale are included in Chapters V and VIII. As noted previously, the professional achievement items were also included in one of the cluster analyses discussed in Chapter V.

#### Analyses Relating Background and Outcome Variables

In seeking to interrelate available information regarding background characteristics of the grantees with the dimensions pertaining to outcomes of the award experiences, we decided to follow the same general strategy finally advocated in the analysis of the outcome dimensions. That is, rather than choose among a number of apparently reasonable approaches we decided to subject the data to several methods of analysis in order to gain comparative data.

Since most of the background information gathered from the grantees concerned attributes rather than continuous variables, for purposes of the analyses to be described below it was necessary to transform many items into dummy variables, scored either 1 or 0 according to the presence or absence of a selected characteristic or combination of

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attributes. The coding applied to the background items appears in Appendix III. The transformed variables were used in the following analyses.

1. Factor and Cluster Analyses of Background Items.

Although the number of background items was small so that the variables could be handled individually in procedures associating them with the outcome dimensions, for some of the analyses the additional data reduction provided by the factoring process seemed desirable. Thus, the background items were input in a rotated principal components factor analysis and in a cumulative communality cluster analysis. The results of these factorings are presented in Chapter II. In subsequent descriptions of analyses associating background variables and outcome dimensions we shall specify whether individual background items or the factor or cluster data are involved.

2. Multiple Regression Analysis. In a series of multiple regression analyses, scores on the different Guttman scales as well as scores on comparable factors were input as the dependent criterion measures to be predicted separately from a set of individual background items. These analyses provided an assessment of the relative importance of different background characteristics in the set available for predicting scores of grantees in each category on the outcome dimensions. A program based on Efroymson's stepwise procedure for multiple regression analyses was used (1960). This procedure enters variables

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into the regression one at a time, using an analysis of variance in selecting the order of variables, so that the variable chosen in a single iteration is the one which produces the greatest reduction in the variance of the dependent variable. At each step variables are evaluated and may be removed from the equation if they are no longer significant. Only significant independent variables, therefore, are included in the final regression equation computed.

In Chapters III through VI results of multiple regression analyses are presented in discussions of the relationship between the grantees' background characteristics and their award outcomes. The tables summarizing the results of the regression analyses for each group of grantees include the following information:

- (1) The first figure reported is the coefficient of multiple determination,  $R^2$ , which provides a measure of the proportion of the total variance in the dependent variable that can be predicted from the known variance in the background items.
- (2) Along with  $R^2$  the probability value is reported for the F ratio obtained in evaluating the significance of  $R^2$ .
- (3) The standard error of the dependent variable, Y, is presented next.
- (4) Information for calculating a raw score regression equation is included in the tables. Thus, the intercept constant for such an equation is presented.
- (5) In the body of the tables the significant background variables in the regression equation are identified in the first column where they are rank-ordered in terms of the magnitude of their Student  $t$ 's listed in the fourth column. The final column in the tables presents the Beta coefficients--i.e., the weights for the variables

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in the normalized regression equations. Weights for the raw score regression equations are also presented in the second column labelled "coefficient," and a measure of the reliability of each of the weights for raw scores appears in the third column labelled "standard error of coefficient."

3. Canonical Correlation Analysis. In the multiple regression analyses just described we considered each outcome dimension separately in its association with the set of background items. In order to assess the maximum correlation between the set of background variables and the total set of outcome dimensions, we performed a canonical correlation analysis. The general purpose of this procedure seemed attractive--instead of considering outcomes one at a time we were enabled to evaluate the multiple composite of outcome dimensions as well as the composite of background variables.

Because of the complexity of the calculations involved in the canonical correlation procedure, to date the method has received relatively little application--indeed, as Kendall notes, "there is a shortage of good illustrations. Theory, though far from complete has outrun practice" (1957, p. 81). With the development of computer technology, however, programs now are available to perform canonical analyses, and recent publications on computer applications in behavioral science include discussions of the canonical procedure (Cooley and Lohnes, 1962, ch. 3; Koons, 1962).

In the present investigation three separate canonical correlations were computed for each group of grantees: one

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interrelating the background items with the Guttman scale scores; another interrelating the background items with the outcome factor scores; and finally one interrelating factor scores from the analysis of the background items with the factor scores from the analysis of the outcome items. Data from these analyses appear in Chapter VII, along with further details regarding the procedure.

4. Cluster Analyses Involving Background and Outcome Variables. Two separate cluster analyses involving both background and outcome items were performed. In both, the items concerning background characteristics of the grantees were input along with the items regarding outcomes (i.e., along with the same items used in the cluster analysis of dependent variables described previously). In one procedure all of these items were cluster analyzed together in order to ascertain whether both background items and outcome items would cluster together on the same dimensions. Data from this combined analysis appear in Chapter VII.

In the other procedure, while the background items were input along with the dependent items in the initial correlation matrix, an option in the Tryon system made it possible temporarily to delete these variables from the correlation matrix until the clustering of the dependent items had been completed. Thus the suppressed background variables in no way influenced the clusterings for the outcome dimensions. Once the intermediate cumulative communality cluster analysis had been completed, however,

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factor coefficients were computed for these suppressed variables. Thus we obtained an assessment of the relative loadings of each background item on all of the dependent dimensions. These data are incorporated in the discussions of the individual outcome dimensions in Chapters III through VI.

In order further to explore interrelations among background and dependent dimensions, data from three separate cluster analyses were used in two additional applications of the cluster technique. First, for each group of grantees, a within-groups type of analysis was performed by cluster analyzing the oblique dimensions from the following previous analyses: the cluster analysis of background items; the cluster analysis of outcome items; and the cluster analysis of combined items (with none suppressed). We thus obtained a clustering of oblique cluster dimensions with respect to all (background and outcome) variables, providing additional information regarding the structuring of the dimensions within each group. These data are discussed in Chapter VII.

In addition to the within-groups analysis of clusters, another exploration of the data focused on variable classifications across subject groups in order to compare the cluster domain structure of each group with that of the other groups. One of these analyses involved clustering the oblique dimensions obtained from the Lecturers', Research Scholars', Teachers', and Students' analyses of background items. Another across-groups analysis

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focused on the four groups' cluster analyses of the outcome items; and still another concerned their cluster analyses of combined background and dependent items (with none suppressed). These data appear in Chapter VII.

As indicated in our description of the methods of analysis employed in this investigation, comparative data are incorporated in the discussions of the substantive findings in Chapters II through VII. Chapter VIII presents a general overview of the implications of the analyses.

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## CHAPTER II

### CHARACTERISTICS OF THE GRANTEES

Americans of many types have represented the United States abroad under sponsorship of educational awards administered by the Department of State. The present chapter will describe some of their background characteristics as these were reported in the questionnaires.

Ninety-two per cent of the survey respondents were abroad under Fulbright awards; 3% went under Smith-Mundt sponsorship; and 5% noted other types of supplementary grants. The distribution of respondents among the four major award categories exhibited the following pattern: 785 Lecturers, 744 Research Scholars, 1082 Teachers, and 2659 Students. Since the expectations for role performance involved in the four status categories often result in different experiences and opportunities, data generally will be presented for each group separately.

Sex. Table II-1 presents the percentage distribution of men and women in the award categories, along with comparable figures for the total American population during the 1954 and 1955 academic years--a midpoint in terms of the time span in period of awards covered by this study. In comparison with the resident instructional staff for

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degree-credit courses in American colleges and universities, women are underrepresented among the Lecturers and particularly among the Research Scholars included in this study. Our data do not include information to indicate whether this discrepancy reflects a lack of motivation for overseas experience among women faculty members or a relative lack of opportunity.

Table II-1. Percentage distribution of men and women.

	Men	Women
Lecturers	85%	15%
Research Scholars	90	10
Teachers	37	63
Students	66	34
Faculty in American Colleges & Universities <sup>1</sup>	77	23
Teachers in Public Elementary & Secondary Schools <sup>1</sup>	24	76
Graduating College Seniors <sup>1</sup>	64	36
Recipients of Master's Degrees <sup>2</sup>	67	33

<sup>1</sup>These data are for the midpoint (1954 and 1955) in terms of the period covered by this study and were compiled from the U.S. Office of Education Digest of Educational Statistics, 1962.

<sup>2</sup>These data are from the World Almanac, 1958.

Among the Teachers the same situation prevails--men are overrepresented in terms of the distribution of the sexes in public elementary and secondary schools. Students, on the other hand, resemble both the graduating college seniors, among whom the distribution is 64% male and 36% female, as

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well as the recipients of second level (master's) degrees, among whom the breakdown is 67% male and 33% female.

The highest proportions of male grantees occurred among those in agriculture (93%), technical and professional fields (90%), and the natural sciences and mathematics (83%). The highest proportions of women were in languages other than English (50%), professional social service (60%), and English or American studies (39%). These figures seem to reflect American cultural definitions of what subject matter is appropriate for members of each sex.

With reference to grantees' host countries, the highest representation of women was among grantees to Northwestern Europe (37%), and this group included over half the women grantees. Women were most underrepresented in Latin America and the Near and Middle East, with each having 21%.

Age. Awards under the educational exchange program provide opportunities for Americans in all age groups subsequent to graduation from college, and the distribution of grantees according to age at the time they received their awards indicates that members of all eligible age groups do participate (Table II-2). Twenty Students were in the precocious group who received grants when under 20 years of age; 250 members of the other three categories were past 55 years of age, with the largest proportion among Lecturers.

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Table II-2. Percentage age distribution.

	Lecturers	Research Scholars	Teachers	Students
25 and under	1%	4%	6%	58%
26 to 30	3	8	14	27
31 to 35	8	17	14	11
36 to 40	14	21	15	3
41 to 45	19	18	19	1
46 to 50	22	13	18	--
51 to 55	16	10	9	--
Over 55	17	9	5	--
Median Age	42.2	36.1	36.1	24.3

In terms of geographic distribution, the younger grantees were most likely to be assigned to Europe or to Oceania. All regions other than these had a larger proportion than average of grantees 51 years of age and older--ranging from 19% for South America and 22% for Central America to 31% for the Near and Middle East. This compares with the 11% of grantees who were within these age brackets.

Home State at Time of Award. All 50 states were represented by the grantees sojourning overseas under State Department auspices. Table II-3 presents the percentage distribution of grantees from the different census regions and also gives comparable data in parentheses indicating the percentages of members of the same category in the American population (college faculty members, instructional staff of public elementary and secondary schools, and degree-credit

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college students). Since the table is rather complex, the figures are underlined where there is a difference of 4% or larger between the proportion of grantees and of all Americans who would fall within their same occupational categories.

Table II-3. Distribution of grantees among census divisions at award time.<sup>1</sup>

	Lecturers	Research Scholars	Teachers	Students
New England	9% ( 8%)	11% ( 8%)	<u>10% ( 6%)</u>	<u>11% ( 7%)</u>
Middle Atlantic	19 (20)	20 (20)	18 (17)	<u>26 (19)</u>
East North Central	19 (19)	21 (19)	20 (19)	<u>16 (20)</u>
West North Central	<u>14 (10)</u>	<u>15 (10)</u>	14 (11)	<u>15 ( 9)</u>
South Atlantic	10 (13)	<u>7 (13)</u>	<u>9 (15)</u>	10 (12)
East South Central	3 ( 6)	<u>2 ( 6)</u>	<u>3 ( 8)</u>	4 ( 5)
West South Central	<u>3 ( 8)</u>	<u>4 ( 8)</u>	<u>5 (10)</u>	<u>6 (10)</u>
Mountain	5 ( 4)	3 ( 4)	4 ( 4)	3 ( 4)
Pacific	<u>16 (12)</u>	<u>16 (12)</u>	<u>17 (10)</u>	<u>8 (14)</u>

<sup>1</sup>Data in parentheses represent the 1954 figures for resident degree-credit faculty of American colleges and universities, instructional staff of public elementary and secondary schools, and degree-credit student enrollment in American institutions of higher education (see the U.S. Bureau of the Census, Statistical Abstract of the United States, 1959).

New Englanders are slightly more represented among grantees than in the total population of teachers and students in the United States. The Middle Atlantic region has 26% of the Student grantees but only 18% of total college enrollment in the country. The West North Central region is somewhat overrepresented among grantees in all categories.

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On the other hand the South Atlantic region contains a larger proportion of members for each category than it has of grantees, and the same trend appears for both South Central regions. The Pacific region has a larger proportion of award holders than of college faculty members and teachers, but it is underrepresented among Student grantees.

Present Home State and Post-Award Geographic Mobility.

Since their awards some grantees, particularly Students, have changed their places of residence. In general, the shifts to and from various census regions left the proportions about the same in each. Two regions, however, had noteworthy changes. The West North Central region lost 4%, moving from 15% to 11% of the total; and the Pacific region gained 3%, moving from 12% to 15%. In both instances the loss and gain held for all categories of grantees. One other change in region of residence appeared of interest. Despite the fact that a follow-up was not made for grantees who were known to be overseas during the study, about four and a half times as many respondents were then overseas or in the territories as was true at the time they received awards. The strongest influences accounting for this change appear to be the number of grantees who have gone into foreign service, either for the government or for business as a result of their award experiences; the number of Students who have remained abroad to complete work on a higher degree, and the Students who have been inducted into military service upon completion of their awards.

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As Table II-4 indicates, about one-third of the respondents have moved from the home state in which they resided when they received their awards. In general Lecturers and Teachers seem to be the most established group, and Students the most mobile. Another interesting fact is demonstrated in this table. Academic people seem to follow different patterns of migration from those characteristic of other Americans. In a classic paper Samuel Stouffer pointed out that Americans migrate in accordance with certain principles, and he named his observation the theory of intervening opportunities (1962, ch. 4). That is, people move to new communities in a pattern which maximizes opportunities and minimizes distance--they may reject a better opportunity at a great distance in order to take advantage of a lesser one nearer home. For academic people, however, the terminal point for those who move seems to be determined by the opportunity available rather than the distance, for when they move at all they are almost five times as likely to move to a new census region as to move to another state within the same census region.

Table II-4. Post-award mobility.

	Present Home State		
	Same as Before Award	Same Census Division	Different Census Division
Lecturers	87%	2%	11%
Research Scholars	80	4	16
Teachers	85	5	10
Students	53	8	38

Population of Home City. While the greatest difference between grantees and the population at large would undoubtedly lie within the areas of level of education and occupation being pursued, another striking variation occurs in the strong overrepresentation of large urban centers as well as of cities between 10,000 and 49,999 in population.

Table II-5 shows the distribution of grantees among urban and rural centers at the time they received their awards. In general there have been no major changes when one compares the size of city where grantees live now. In both instances 23% of all grantees live in cities of one million or over; 19% in the next largest group; 20% in those from 50,000 to 249,999; and 5% in communities under 2,500. Cities between 10,000 and 49,999 have gained from 22% to 23%; and those between 2,500 and 9,999 have lost from 10% to 9%.

Both Research Scholars and Students cluster most highly in the large metropolitan areas. Lecturers, too, are well represented in these urban centers. Teachers, on the other hand, tend to come from communities between 10,000 and 49,999. In general both creative artists and non-academic technical and professional practitioners are highly represented in cities of one million or over--with 37% and 33% respectively.



Table II-5. Distribution among urban and rural centers at award time.

	Lecturers	Research Scholars	Teachers	Students	Population <sup>1</sup> of U.S.A.
1 million and over	22%	28%	13%	28%	11%
250,000 to 999,999	20	18	20	19	12
50,000 to 249,999	20	19	20	20	13
10,000 to 49,999	24	22	27	19	16
2,500 to 9,999	9	9	13	9	10
Under 2,500	4	4	7	5	38

<sup>1</sup>Data estimated for 1955 from the U.S. Bureau of the Census, Statistical Abstract of the United States, 1963.

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Reason for Application. Former award holders were asked to respond to a questionnaire item, "What led you to apply for an award as a government-sponsored grantee?" The pattern of their replies to the response options is shown in Table II-6. Lecturers have the largest number who were requested either by an American agency administering the program or by a university or agency overseas. Students, with 34%, make up the majority of the group who applied at the instigation or encouragement of professors or others in their home universities.

Table II-6. Reasons for award application.

	Lecturers	Research Scholars	Teachers	Students
I initiated the application independently	52%	75%	76%	64%
Colleagues, professors, etc. suggested it	5	10	13	34
Requested by an American agency	12	2	4	--
Requested by an overseas university, school, or agency	28	12	5	1
Other reason	3	1	2	1

Comments from two individuals who were requested for service abroad illustrate some of the consequences of the contacts as well as their great number:

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I received a Fulbright grant for a visiting professorship in Torino. . . . This was the result of a formal invitation from the University of Torino Medical School, to hold there a post-graduate course on the Surgical Pathology of neoplastic diseases. I held that course--I believe 18 lectures--apparently with success, since it was attended by large numbers of local surgeons, specialists and pathologists; and then I repeated some of these lectures in the Universities of Milano, Parma, and Bari, upon their invitation. No publications of any kind have resulted from that project, but I have reason to think that my course, as well as frequent consultations held with Italian colleagues during my stay in Italy, have resulted in a definite modernization of their "Surgical Pathology" services.

When Dr. ----- . . . went to India in 1949 to serve on the University Commission, he felt India needed small shops and industries in which the villagers could learn modern techniques as well as how to produce useful articles. The fact that I had done similar work for UN in China helped influence his decision to send me to India. . . . My task was to build and put into operation . . . a small machine shop, foundry, tin shop, and carpenter shop. Tooling was set up to make pressure cookers (to save fuel). I introduced the centrifugal spinning of castings to India. . . . The school shop still operates for both production and education.

Period of Award and Host Country. Table II-7

presents the percentage distribution of grantees according to the period of their awards. As the data indicate, a larger proportion of the respondents sojourned overseas after 1953. During the 1947-1957 period covered by the present study Americans participated in educational activities under government auspices in nearly all parts of the world. One grantee even wrote of accompanying a group from his host country on an IGY expedition to the South Polar region. Table II-8 presents the distribution of geographic regions for each category of award holders.



Table II-7. Period of award.

	1947- 1949	1949- 1951	1951- 1953	1953- 1955	1955- 1957
Lecturers	1%	8%	21%	30%	40%
Research Scholars	--	17	21	29	33
Teachers	2	15	24	28	31
Students	--	13	21	32	34

Table II-8. Distribution by geographic region of host country.

	Lecturers	Research Scholars	Teachers	Students
Far East	24%	11%	8%	3%
Near and Middle East	11	1	5	1
Northwestern Europe	45	60	74	80
Other Europe	9	15	6	10
South America	2	1	1	1
Central America	3	2	1	1
Africa (without Egypt)	1	2	1	--
Oceania	5	8	4	4

Within the Far East, Lecturers were most likely to sojourn in India, Japan, the Philippines, or Pakistan. The few Research Scholars in that region were concentrated in Japan and India. In Northwestern Europe the three countries with the largest proportions of Lecturers and Research Scholars were the British Isles, France, and Germany. For Teachers the third most popular country was the Netherlands, followed by Germany. Among the Students the rank-ordering placed France first, followed by the British Isles and Germany. Of the other European countries Italy had the highest proportion of Lecturers, Research Scholars, and Students. With reference to the Teachers, however, Greece had over three times as many grantees as did Italy.

The geographic regions where award holders in various fields of work sojourned varied considerably. In the Far East there was a relative concentration of social scientists, professional social service workers, and natural scientists. In Oceania there were large proportions of natural scientists, social scientists, and professional social service personnel as well as agriculturists. Creative artists, on the other hand, tended to cluster in Europe more than any other group except the students of foreign languages. Over 92% from these two groups spent their award years in Europe.

Field of Work. Almost every aspect of educational activity common to our country is represented by the grantees in this study. As Table II-9 indicates, two-thirds

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of the Teachers were included in Professional Social Service (a category incorporating elementary or secondary teaching if no particular field was emphasized) and English or American Studies. Among Lecturers, Research Scholars, and Students, Social and Political Sciences ranked first. Only a one per cent difference occurred, however, between this field and Natural Sciences or Mathematics for Research Scholars and between the first-ranked field and foreign languages for Students. Among the humanists in the Lecturer category those specializing in English or American studies showed the highest representation.

Table II-9. Distribution by field of work abroad.

	Lecturers	Research Scholars	Teachers	Students
Natural Science or Mathematics	15%	24%	7%	12%
Social or Political Science	22	25	8	20
Foreign Languages	3	7	9	19
English or American Studies	17	5	33	6
Other Humanities	4	14	1	13
Creative Arts	7	6	2	13
Agriculture	2	3	1	1
Professional Social Service	17	6	36	3
Other Technical or Professional	12	8	1	7
Other	4	2	2	2

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On the whole, grantees reported relatively few changes between the fields of work they pursued overseas and those in which they were currently engaged at home. There was a slight shift away from English and American Studies, but this might have been anticipated since Americans specializing in other related areas at home occasionally are requested to meet a need for American Studies on an overseas assignment. This shift was particularly marked among Teachers, where the percentage concentrating in the field decreased from 33% to 18%. Along with this change, specialization in Foreign Languages gained from 9% to 13%.

Among Student grantees, Creative Arts held first place in post-award fields with 17% reporting current concentration in that area. Professional Social Service increased from 3% to 9% in the Student reports, reflecting the large number who have entered elementary and secondary teaching as well as those who have gone into civil service positions. The fields of Social and Political Science as well as of Foreign Languages both lost 6%; so that currently 14% and 13% of the Students grantees are specializing in these areas.

Occupational Orientation of Grantees. Although the majority of grantees were recruited from the ranks of college faculty members and students as well as elementary and secondary school teachers, still a number of individuals outside of traditional academic disciplines were included.

For example, respondents included 118 professional or technical practitioners such as physicians or engineers; 21 agricultural specialists not connected with universities; 53 civil servants, public health workers, and others in various areas of social service; 82 educational administrators; and 117 creative artists. Table II-10 summarizes the distribution of grantees among different occupational statuses at the time of their awards. Table II-11 presents comparable data concerning the grantees' current occupations.

Table II-10. Grantees' occupations at time of award.

	Lecturers	Research Scholars	Teachers	Students
Teacher or researcher in college or university	84%	80%	17%	9%
Teacher in elementary or secondary school	1	1	73	6
Student	1	5	5	72
Professional or technical practitioner	3	3	1	3
Agricultural specialist	--	2	--	--
Social service practitioner	1	1	1	2
Educational administrator	6	2	2	--
Actor, artist, musician, writer, etc.	1	1	--	5
Other	3	5	1	3

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Table II-11. Grantees' post-award occupations.

	Lecturers	Research Scholars	Teachers	Students
Teacher or researcher in college or university	79%	76%	20%	33%
Teacher in elementary or secondary school	1	1	64	9
Student	--	1	1	19
Professional or technical practitioner	3	4	1	9
Agricultural specialist	--	2	--	1
Social service practitioner	2	2	1	4
Businessman	--	1	--	2
Educational adminis- trator	7	3	7	1
Actor, artist, musician, writer, etc.	1	2	--	7
Housewife	--	--	2	5
Other	5	7	3	9
Not employed	1	1	1	1

As might be expected, the greatest difference between pre- and post-award statuses occurs for those listing their occupations as students. Where have the students turned professionally? A glance at the fourth column of Table II-11 indicates that one third are now faculty members! in colleges or universities--the single occupation experiencing the greatest gain. Almost one in ten students can be found in each of two fields--elementary and secondary school teaching or in professional or technical practice. One fifth of the

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students are still pursuing graduate studies.

For the senior grantees relatively few changes in status have occurred since their sojourn overseas. The one field showing noteworthy gain for Teachers in particular is that of educational administration. The category Other for occupations in Tables II-10 and II-11 includes a number of positions grantees did not wish to place under the titles provided--e.g., librarian, officer in the armed forces, newspaper reporter, industrial researcher or private researcher, administrator with an international health organization, museum director, freelance cartographer, foundation executive, editor and translator, secretary in a foundation engaged in international philanthropic activities.

Highest Earned Degree. By its very nature the educational exchange program deals with a highly select population. For most aspects of the program it is assumed that the applicant will have graduated from college, and for senior awards it is expected that in most academic disciplines the applicant will hold a doctoral degree. Of course, there are exceptions; for example, in certain areas of the fine arts, graduate degrees are less of a prerequisite. As the data regarding the increase in the number of Teachers now teaching in universities as well as the number of Students now engaged in professional teaching and university roles indicate (Table II-11), a number of grantees in these two categories have earned higher degrees subsequent to their awards. Indeed, as Table II-12

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demonstrates, 13% of the Teachers and 42% of the Students have earned further degrees since their work overseas. Among the Teachers 10% have earned master's degrees, 2% have gone from master's to doctor's degrees, and 1% have made the hurdle from bachelor's to doctor's degrees. Among the Students, 21% have earned master's level degrees, 14% have proceeded from master's to doctorates, and 6% have gone from bachelor's to doctor's degrees.

Table II-12. Teachers' and Students' highest earned degrees.

Pre-award	Post-award	Teachers	Students
Bachelor's	Bachelor's	20%	27%
Master's	Master's	56	25
Doctor's	Doctor's	10	4
Other	Other	1	2
Bachelor's	Master's	10	19
Bachelor's	Other	--	2
Master's	Other	--	1
Master's	Doctor's	2	14
Bachelor's	Doctor's	1	6

Language Competence. According to many of the grantees interviewed in this study, one of the most important background variables for anyone sojourning in non-English speaking areas is the level of the individual's competence in his host country's language. Indeed, the questionnaire item pertaining to a self-evaluation of language proficiency

drew forth more comments from respondents than did any other single statement included in the survey. Representative of these comments were the following:

I cannot overemphasize the great need for more language skills on the part of U.S. grantees. It is the grossest kind of exaggeration that foreigners (or foreign scholars) generally speak English. They generally do not, and, in any event, expect educated Americans to speak if not some non-major or esoteric language, at least one of the "normal" languages of international communications. In Italy, for example, if an American scholar does not speak Italian, he should be able to handle French or Spanish. All too often we appear to be illiterate and inarticulate when this is not necessarily the case.

As a teacher of languages with some years' experience, I feel the following to be extremely important. There is, in this country at least, a prevalent and widespread belief that the panacea for language learning is to throw a person into the foreign country and that by being there he will be automatically transformed into a good speaker of that language. This is not the case. After observing the progress of dozens of fellow Americans abroad it is evident to me that only the person with a solid foundation in the language can benefit from contact with native speakers. From the group of students sent over with only the usual inadequate college language preparation, I do not know of one in my experience who did not finally become frustrated and isolated from non-English speaking foreigners. . . . However, I think it pointless to stiffen the language requirements for the awards. Rather a solution will be achieved when language training in this country rises to that achieved in European schools.

In response to the language question (Item 70), 64% of the grantees evaluated their competence in the language of their host countries as "adequate to permit ease in social interaction"; 63% considered it adequate to facilitate achieving the professional purpose of their awards; 14% considered their language proficiency inadequate for ease in social interaction; and 6% evaluated it as

inadequate to facilitate achieving the professional purpose of their awards. Since grantees were asked to check all response options which applied to them, the percentages just listed exceed a total of 100%. The figures as given are somewhat difficult to interpret since a large proportion of grantees sojourned in English-speaking countries. Approximately one fifth of the grantees to other lands, however, admitted to inadequacies in their command of the language of their host countries. Table II-13 summarizes the self-reports of the grantees according to the geographic region of their host countries. Data for the British Isles are not included with the tabulation for Europe; similarly, data concerning Oceania are omitted.

Students, with 92%, and Research Scholars, with 88% in the two high score categories evaluated their proficiency higher than did the Teachers, with 80%, and the Lecturers, with 79% in the high score range. Like all self-assessments, these data are subject to individual response idiosyncrasies. It may be that on the whole Students and Research Scholars were more realistically prepared in language skills for their roles abroad; furthermore, those pursuing rather isolated library research might have experienced fewer confrontations that would lead them to question their overall proficiency. Lecturers and Teachers, on the other hand, generally are involved in situations of higher interaction potential and might therefore have their inadequacies highlighted.





Table II-13. Grantees' self-rated proficiency in host countries' languages.

<u>Lecturers</u>				
Level of Language Skill	Europe (without British Isles)	Far East	Near and Middle East	Africa, Central + South America
Definitely satisfactory (Response options 1 and 3)	38%	44%	16%	34%
Fairly satisfactory (1, 3, 3 and 2)	46	32	37	58
Fairly unsatisfactory (2, 4, 1 and 4)	11	15	23	5
Definitely unsatisfactory (2 and 4)	5	9	24	3
COLUMN FREQUENCIES	294	164	62	38
<hr/>				
<u>Research Scholars</u>				
Level of Language Skill	Europe (without British Isles)	Far East	Near and Middle East, Africa, Central and South America	
Definitely satisfactory (Response options 1 and 3)	49%	34%		46%
Fairly satisfactory (1, 3, 3 and 2)	44	48		37
Fairly unsatisfactory (2, 4, 1 and 4)	5	5		11
Definitely unsatisfactory (2 and 4)	2	13		6
COLUMN FREQUENCIES	354	71		35

Teachers

Definitely satisfactory (Response options 1 and 3)	53%	33%	29%
Fairly satisfactory (1, 3, 3 and 2)	30	39	46
Fairly unsatisfactory (2, 4, 1 and 4)	11	19	17
Definitely unsatisfactory (2 and 4)	6	9	8
COLUMN FREQUENCIES	305	69	78

Students

Definitely satisfactory (Response options 1 and 3)	61%	55%	62%
Fairly satisfactory (1, 3, 3 and 2)	31	27	35
Fairly unsatisfactory (2, 4, 1 and 4)	6	13	3
Definitely unsatisfactory (2 and 4)	2	5	--
COLUMN FREQUENCIES	1584	75	68



One further limitation of these data should be mentioned. While the language question specifically referred to the language of the grantees' host countries, it may be that some sojourners in India and parts of Africa considered English language proficiency sufficient. The problem is not confined to former colonies; indeed, there is controversy among sojourners in Scandinavian countries and in the Netherlands regarding the necessity for competence in the particular countries' languages. As one former award holder commented,

As a Fulbright in Denmark, I found that some grantees did not bother to learn the language, "since almost all Danes speak English." That may be true, but language is more than a means of communicating thoughts. It sums up the whole culture of a country, the attitudes of its people, the character of its institutions. I met a lot of older Danes who couldn't speak English; so my fluency in Danish helped there. But more important, I cannot conceive my really knowing Denmark and its people--and becoming a part of it--without knowing the language. The Danes are different people when they express themselves in English. Their national characteristics, such as their own kind of humor, do not come through clearly. Living in Denmark without knowing Danish means that you see the country through cloudy glasses--you see most of it, but something always eludes you.

In discussing the grantees' overseas interaction in the next chapter and in Chapter VIII, we shall present suggestions for research concerning the influence of different levels of language competence.

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## Interrelations Among Background Variables

Having described the characteristics of questionnaire respondents in terms of the individual items relating to background information, let us turn now to a more systematic analysis of the relations among the background variables themselves. Tables II-14 and II-15 present the results of a factor analysis and a cluster analysis of the background items. In general, much the same information is produced by either factoring technique. That is, both methods agree in the item composition of four dimensions for the same groups--the dimension relating to home state and language competence; that concerning essentially the combination of being a male and taking one's family abroad; the clustering of items regarding degree change and mobility for Students; and the dimension relating to degrees and present occupation for Teachers (though the items in one analysis are the reflection of those in the other). In two situations--the doublet of items on city size and the combination of items on relative youth and mobility--the two methods of analysis agree in the identification of the dimensions, but the cluster analysis does not isolate these for as many groups as does the factor analysis.

A greater discrepancy in the outputs of the two factoring techniques occurs in two situations where a separate dimension identified by the factor analysis does not appear in the cluster analysis. In one case, the factor for Students relating to relative maturity and a

Table II-14. Background items: orthogonal factor loadings.<sup>1</sup>

	Varimax Rotation					Quartimax Rotation				
	Lec- turers	Research Scholars	Tea- chers	Stu- dents		Lec- turers	Research Scholars	Tea- chers	Stu- dents	
<b>Factor Number:</b>										
61. Home state at award time <sup>2</sup>	I	I	I	III		I	I	II	III	
62. Present home state	.90	.83	.86	.70		.90	.83	.87	.69	
70. Language competence	.90	.78	.84	.60		.90	.79	.86	.61	
	--	.39	.49	.44		--	.38	.46	.40	
<b>Factor Number:</b>										
64. City size at award time	II	II	V	V		II	II	IV	V	
65. Present home city size	.75	.73	.73	.50		.75	.73	.73	.49	
	.75	.73	.74	.53		.75	.73	.74	.52	
<b>Factor Number:</b>										
II-44. Took family abroad	III	III	IV	IV		III	III	V	IV	
58. Sex (male)	.70	.59	.61	.40		.71	.62	.59	.40	
69. Present occupation (prof.)	.70	.56	.68	.39		.70	.55	.66	.40	
60. Period of award	.21	.24	--	--		.23	.27	--	--	
55. Region of host country	--	.23	.19	--		--	.21	.17	--	
71. Initiated application	--	--	-.30	-.10		--	--	-.33	-.09	
66. Humanities + Arts	--	--	--	.29		--	--	--	.28	
	--	--	--	-.20		--	--	--	-.20	
<b>Factor Number:</b>										
63. Post-award mobility	V	IV	III	III		V	IV	III		
59. Age at award time	.41	.49	.31	.30		.40	.48	.30		
72 x 73. Degree change	-.40	-.46	-.31	-.27		-.40	-.46	-.27		
	--	--	.89	.91		--	--	.91		

Factor Number:	IV	V	IV	V
55. Europe + Oceania	.39	-.30	.39	-.30
66. Humanities + Arts	.32	-.32	.31	-.32
71. Application requested	.30	.35	.29	.34
70. Language competence	.35	--	.33	--
Factor Number:	II		I	
73. Highest degree now	.95		.94	
72. Highest degree then	.86		.93	
69. Present occ. (teacher)	-.29		-.31	
71. Initiated application	-.18		-.17	
Factor Number:	I		I	
72. x 73. Degree change	.91		.92	
73. Highest degree now	.77		.79	
69. Present occ. (professor)	.36		.34	
63. Post-award mobility	.26		.26	
60. Period of award	-.23		-.22	
Factor Number:	II		II	
59. Age at award time	.41		.40	
72. Highest degree then	.88		.89	

<sup>1</sup>Factor loadings are given only for items making their maximum contribution to a factor, according to the quartimax solution.

<sup>2</sup>For coding of attribute background items into dummy variables see Appendix III.



Table II-15. Background items: cluster loadings.

	Initial Clustering				Oblique Rotation			
	Lec- turers	Research Scholars	Tea- chers	Stu- dents	Lec- turers	Research Scholars	Tea- chers	Stu- dents
Cluster Number:								
61. Home state at award time <sup>1</sup>	I	I	I	I	I	I	I	I
62. Present home state	.91	.96	.68	.76	.91	.96	.68	.76
70. Language competence	.86	.77	--	.68	.85	.77	.93	.69
71. Application requested	.30	.37	.53	.54	--	--	.53	--
	.27	--	--	--	--	--	--	--
Cluster Number:								
II-44. Took family abroad	II	III	II	II	II	III	II	II
58. Sex (male)	.79	.79	.77	.56	.80	.81	.77	.56
69. Present occupation (prof.)	.75	.57	.79	.38	.76	.57	.79	--
59. Age at award time	--	.25	--	.46	--	--	--	.46
72. Highest degree then	--	--	--	.42	--	--	--	.42
	--	--	--	--	--	--	--	.49
Cluster Number:								
59. Age at award time	III	IV			III	IV		
63. Post-award mobility	-.54	-.56			-.54	-.55		
	.42	.49			.48	.53		
Cluster Number:								
64. City size at award time	II	II		III	II	II		III
65. Present home city size	.76	.84		.61	.77	.84		.61
				.62				.65
Cluster Number:								
69. Present occupation (teacher)	III				III			
73. Highest degree now	.40				.53			
72. Highest degree then	-.40				-.50			
	-.36				-.43			

Cluster Number:	IV	IV
72 x 73. Degree change	.36	.48
72. Highest degree now	.32	.51
71. Initiated application	-.32	-.36
63. Post-award mobility	.24	--
70. Language competence	--	.67

<sup>1</sup>For coding of attribute background items into dummy variables see Appendix III.

higher academic degree at award time (factor number II for Students in Table II-14) appears in the cluster analysis as part of the dimension concerning taking the family and being a male (cluster number II in Table II-15). In the other situation the factor for Lecturers and Research Scholars relating to host country, reason for application, and field of work abroad does not appear in the cluster analysis either separately or as a part of the principal definition of another dimension. These items do, however, load highly on the cluster concerning home state and language. Since an oblique rotation was not performed for the background factor analysis data, we lack information concerning the correlations among the background factors. On the basis of the information from the cluster analysis, however, we would expect the following relationships to appear in an oblique rotation of the factor matrix: factor number II for Students would be highly associated with factor number IV for that group; factor numbers IV and I would be positively correlated for Lecturers; and factor numbers V and I would be highly related for Research Scholars (see Table II-14).

As indicated in Table II-15, an oblique rotation was obtained for the cluster data. The correlations among the cluster dimensions for each group of grantees are presented in Table II-16. It is interesting to note that for Lecturers and Research Scholars the dimension concerning relative youth and mobility correlates negatively with that relating to taking the family and being a male. The association



Table II-16. Correlations among oblique clusters.

Lecturers				
Cluster description: <sup>1</sup>	Home state, language	Took family, male	Age, mobility	
Home state, language	--	.15	.02	
Took family, male		--	-.10	
Age, post-award mobility			--	
-----				
Research Scholars				
Cluster description:	State, language	City size	Family, male	Age, mobility
Home state, language	--	-.04	.12	.04
City size then and now		--	.14	.01
Took family, male			--	-.26
Age, post-award mobility				--
-----				
Teachers				
Cluster description:	Home state, language	Took family, male	Teacher, degree	
Home state, language	--	-.01	.48	
Took family, male		--	-.46	
Teacher, degree			--	
-----				
Students				
Cluster description:	Home state	Family, degree then	City size	Language, degree now
Home state then and now	--	-.06	-.19	.50
Took family, degree then		--	.13	-.09
City size then and now			--	.06
Language, degree now				--

<sup>1</sup>A more detailed description of the oblique clusters appears in Table II-15.

seems reasonable since on the whole the older senior scholars with family responsibilities are likely to be more settled in their home environments.

For the Teachers the cluster relating to present occupation along with relatively low level academic degrees (with no subsequent change in degrees) correlates positively with the dimension concerning home state and negatively with that relating to taking the family and being a male. The negative relationship is consonant with other data we shall discuss in Chapter V. That is, among Teachers being a male and achieving a higher academic degree are associated with not being a school teacher now in the multiple regression prediction of professional prestige emanating from the awards.

For the Students the highest correlation occurs between the dimension on home state and that concerning degree change and language competence. On the latter dimension relating to degree change (cluster number IV, Table II-15), a high loading item concerns post-award mobility. Thus, the negative correlation between this cluster (IV) and that concerning taking the family, being a male, and being older (cluster number II, Table II-15) agrees with the patterning of attributes previously observed for Lecturers and Research Scholars.

As we shall see in subsequent chapters, the factorings of the data concerning outcomes of the grantees' award experiences produced more information than was

obtained in the present instance involving the background items. With so few background items to begin with, some of the data reduction produced rather trivial doublets--for example, in the combination of being a male and taking one's family abroad. Similarly, the doublet regarding city size before and after the award period is readily obvious since the majority of grantees have not moved. The same is true for the clustering of the items concerning census division of home state before and after the awards; however, in this instance the association of these items with high scores on language proficiency suggests that grantees from states including many of the more prestigious universities (see combination of census attributes in Appendix III) apparently have received what they consider more adequate language preparation.

Among the other dimensions, that combining relative youth and post-award mobility seems relatively obvious for college faculty members, as noted previously; however, it is interesting to note that for Teachers the main component of this factor involves earning a higher academic degree. Similarly, on a related dimension for Students (factor number I or cluster number IV) a meaningful syndrome appears from the combination of earning a higher degree, becoming a college professor, and moving to a new locale. Since graduate work generally is a lengthy process it is reasonable that period of award loads negatively on this dimension.

With reference to the factor for Lecturers and Research Scholars pertaining to host country, reason for application, and field of work, interesting differences appear in the direction of the correlations between the items and the factor for each group. That is, while in both instances having one's application requested loaded positively, the groups differed with respect to host country and field, with the Lecturers included in the Europe and Oceania group of professors in the Humanities and Arts, and the Research Scholars including those sojourning in other areas and representing other academic disciplines.

Data from the factor and cluster analyses of background items just described are incorporated in other analyses to be discussed in Chapter VII. In Chapters III through VI analyses interrelating dimensions concerning outcomes of the awards and background characteristics of the grantees involve the individual background items.



### CHAPTER III

#### OVERSEAS EXPERIENCES OF GRANTEES

Interviews conducted with Fulbright and Smith-Mundt grantees in nine Midwestern states indicated that the grantees' feelings about the personal relationships they established abroad very much colored their formal and informal discussions of their host countries. Furthermore, the tenor of these overseas experiences influenced the grantees' continued professional and personal contacts with foreign nationals. This chapter, therefore, will review the award holders' assessments of the number and quality of friendships formed abroad as well as their reports of other opportunities to communicate with nationals of their host countries.

At first glance, some of the figures to be reported below seem to be gross exaggerations. However, it should be noted that some grantees were in situations of unusual interaction potential--and since, from all appearances, many were gregarious and energetic individuals, their rate of interpersonal communication was high. For example, in commenting on her reactions to some of the questionnaire items to be considered in this chapter, one grantee noted,

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It is difficult for me even to estimate numbers in I-19 to I-27. . . . it was arranged that every one of the 300 students enrolled be in my classes. I supervised all student teachers and was expected to lecture or give a demonstration class to every one of their classes and to all other teachers in the school. Many of my students, all of the other college teachers, and the . . . head masters and mistresses invited me to tea. Every educational organization, many service clubs, USIS, etc. invited me to lecture. . . . I organized the first workshops. I was in ten centers, lived in village homes, taught, and talked constantly. Since my return, I receive an average of ten friendly letters from teachers, pupils, and acquaintances every week. I am notified of and send gifts to their weddings, births of babies, etc., etc. We discuss friendly, family matters and professional problems.

Our inquiry concerning experiences abroad focused on three correlated aspects of interaction: the frequency of the grantees' interaction with their hosts; the range of their contacts with various kinds of people overseas; and the depth of friendship in their associations (cf. Homans, 1950). Before considering the summary scaling and factoring of these items let us examine response distributions to certain individual items as well as representative comments from grantees clarifying the personal significance of their answers.

Friendships Abroad. Table III-1 summarizes the percentage distribution of responses to the question, "While you were abroad, with how many foreign citizens did you establish friendships you expect to be lasting?" (Item I-19, Appendix II). The figures are impressive in indicating the extent of relatively close personal relationships established between grantees and their hosts. Of

Table III-1. Number of friendships established abroad.

	None	One to Five	Six to Ten	Over Ten	Row Frequency
Lecturers	2%	19%	37%	42%	785
Research Scholars	1	19	37	42	744
Teachers	1	17	39	42	1082
Students	4	36	36	24	2659
Others <sup>1</sup>	4	40	16	38	57
Total %	3	28	36	32	5327
Column Frequency	140	1484	1926	1734	5284 <sup>2</sup>
Total Friendships <sup>3</sup>	--	4452	15,408	33,747	53,607

<sup>1</sup>The "Others" category includes grantees abroad under special State Department grants. Because of the small number this group was not included in the Guttman, Factor, and Cluster analyses.

<sup>2</sup>The row frequency does not equal the total number because 43 grantees did not respond to this questionnaire item.

<sup>3</sup>The figures representing total friendships established abroad were computed by multiplying the total frequency of responses for each column by the median of the number of friends indicated by that column. For example, 1,484 grantees checked the response "one to five." Multiplying 1,484 by 3 (the median) gives 4,452. The figure 33,747 for the "over ten" column was calculated by adding the numbers which the grantees checking this category wrote in on their questionnaires. Space was provided after this and also after other questions for such write-ins (see questionnaire in Appendix II).

course, these data reflect only the grantees' perceptions. Our research design precluded investigating their hosts' attitudes. However, as we shall indicate in subsequent chapters, we do have some evidence supporting the belief that host nationals as well as grantees value the relationships established. In general we may assume that relationships which are trivial or unrewarding will be terminated when it becomes convenient to do so, or when the cost of continuing them increases. Yet grantees maintain relationships after their return home--and this implies cooperation of the host nationals in at least responding to communications, and in some instances in assuming the more active role in maintaining contact.

Perhaps we should note one further qualification regarding the figures reported in Table III-1. Even within our relatively homogeneous grouping of American award holders we may expect divergences in definitions of "lasting" friendships. Some grantees might consider annual exchange of Christmas notes a sufficient index of an enduring relationship. Others, however, delineate further criteria:

I consider a lasting friendship . . . someone with whom I would stay in Europe, or who would stay with me if visiting America, and with whom I correspond more than once a year.

We have some Norwegian guests every year here in New York. I have more first-name friends in Oslo, Norway, than in New York City!

Grantees' reports of close friendships are influenced not only by their individual expectations but also by the

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particular cultural definitions of friendship relationships they encountered abroad. Across cultures there is considerable variance in the length of acquaintance preceding the establishment of first-name relationships as well as in the introduction of a stranger into one's home; furthermore, there are differences in the degree of intimacy of friendship implied by such behavior (cf. Lewin, 1948, ch. 1).

In many of the countries where the grantees sojourned, invitations into homes are accorded to outsiders only when they are considered close friends of the family. Thus it is not surprising to find that responses to a questionnaire item asking the number of homes grantees were entertained in closely parallel answers to the friendship question.<sup>1</sup> Only 1% reported no such experiences; 24% had visited one to five foreign homes; 32% had been received in six to ten homes abroad; and 42% had been entertained in over ten homes of foreign citizens during their sojourns. In all, grantees were entertained in approximately 61,200 homes overseas. On the average, therefore, each grantee established close friendships with 10 foreign nationals and was entertained by his hosts in an average of 12 homes abroad.

Some indication of the personal significance of these figures is given by the following comments from grantees:

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<sup>1</sup>The correlation between these items (I-19 and I-20) was .47 for Lecturers, .54 for Research Scholars, .49 for Teachers, and .52 for Students--all significant  $r$ 's.





I lived with a wonderful French family and spent many, many hours each week with . . . my landlady, and with her friends who included me in all their activities--a vernissage; chasse a courre; an afternoon at the Tribunal. . . ; tea for an artist, the nephew of Monet; a French wedding and later reception in the groom's home; Concours Hippique National . . . ; the International Electrical Engineers' Convention at Paris--activities arranged for the women guests or couples; trips; concerts; lectures; plays; and so forth. The French pastor and his family, and four or five other French families also "adopted" me. One may well imagine that the day I left to come home was one of the saddest days in my life.

I told them at the end that I did not want them to spend any money having elaborate farewell dinners for me . . . but they went right ahead and did so. I remember it was very hard for them to get out to the airport . . . but nevertheless, those teachers got out there. . . . They were all there and they gave me . . . their famous gold embroidery, and they presented me with this flag, which is perhaps the most touching thing. On one side is embroidered the Turkish flag and on the other side is the American flag. This, they said, symbolized the close friendship that we had; and it certainly did. To me, this was one of the most touching moments. I still keep in contact with these people. They write me about their problems and ask for advice, and they keep me informed about what they are doing in their schools. I have some very, very close friends in Turkey, and I certainly cherish them.

Professional Contacts. A large percentage of the personal friendships grantees established abroad were with professional colleagues.<sup>1</sup> Approximately 83,300 foreign professionals were in frequent, face-to-face contact with

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<sup>1</sup>Again, responses on the friendship item (I-19) correlated significantly with those on the inquiry regarding the number of frequent, face-to-face contacts with foreign professionals (I-21). The observed  $r$ 's were .33 for Lecturers, .48 for Research Scholars, .35 for Teachers, and .35 for Students.

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grantees represented in this survey. On the average, therefore, each grantee interacted frequently with about 16 professional colleagues during his stay overseas. Many of these contacts involved actual collaboration on research; indeed 38% of the Lecturers, 61% of the Research Scholars, 11% of the Teachers, and 29% of the Students reported such joint endeavors with foreign colleagues or students. Some of the far-reaching consequences for the advancement of knowledge emanating from such collaboration are indicated by the following reports from grantees:

During my stay at the Institute of Theoretical Physics, . . . I developed a Nuclear Chemistry laboratory. . . . In addition, the newly formed Danish Atomic Energy Commission asked me to train their nuclear chemists. . . . The contribution of the Nuclear Chemistry group to experimental research at the Institute occurs in several realms. The preparation of radio-active sources and the study of radioactive decay schemes, the preparation of Van de Graaf targets, the preparation of chemicals for the isotope separator, and the preparation of targets and chemical separations necessary for the cyclotron group are all regions in which the newly formed Chemistry group works. Therefore, in spite of the great professional gain to me, I feel that my Fulbright Awards and my experience in Europe have been of a considerable benefit to Denmark. . . . I was able to get a Nuclear Chemistry group functioning which is destined to continue to make a research contribution.

I would like to add here that my second year abroad . . . permitted me to make a modest contribution to the development of the social sciences in Italy. For example, I helped to organize both a national and regional Social Science Association. I participated in the first professional meetings of these groups. I persuaded 14 scholars to collaborate in the conduct of empirical research in connection with elections, etc.

Classroom Contacts. Over 217,300 foreign students were in classes conducted by American grantees included in this study. On the average, therefore, each grantee who taught abroad had a total of slightly over 100 foreign students. The diversity of teaching experiences ranging from institutionalized seminars to informal classes is represented by the following reports from grantees:

I was so impressed with the superior quality of my students at Marburg that I published the following work: Studies in Walt Whitman's "Leaves of Grass," written by students at Philipps-Universitat, Marburg/Lahn, Western Germany, Winter Semester, 1953-1954. Gainesville, Florida: Scholars' Facsimiles and Reprints, 1954.

The institution with which I was affiliated had not yet set up administrative organization, nor had they received the anticipated funds necessary for establishing a course in Rehabilitation Therapies, in which I was to teach. Instead, another Fulbright grantee and I expanded the out-patient treatment center for cerebral palsied children and also did much informal clinical teaching and demonstration, translated medical record forms into Italian, had special therapy equipment made, and taught parents of the children to carry on a home exercise program as a supplement to clinic treatment. In general, we aided in laying the ground-work for the University of Rome's course in Rehabilitation, which is now proceeding successfully--and to which grantees are still being sent.

Two other Fulbright grantees and I conducted bi-weekly English conversation classes at the . . . USIS library. Our groups included people from all walks of life, eager for this contact since the host city . . . was without other formal English-speaking representation. . . . our meetings were devoted to discussion of every aspect of American culture, from the arts to farming and the use of umbrellas.



Other Contacts Overseas. In addition to classroom and research contacts, most of the award holders met frequently with foreign students on an informal basis. Indeed, grantees reported frequent, extracurricular contact with over 78,300 foreign students, making an average of approximately 15 informal student contacts per grantee.

So far we have considered only relatively close relationships between grantees and their hosts. With reference to more casual contacts, grantees reported interacting informally with over 103,600 foreign acquaintances--an average of about 20 per grantee. While many of these contacts were characterized by relatively frequent interaction--e.g., with shopkeepers--in general the depth was such that only casual conversations regarding local customs, American life, etc., ensued.

Public Appearances Abroad. With the possible exception of classroom contacts, the relationships discussed thus far have been of a person-to-person nature. Now data will be presented concerning the appearances of grantees before audiences of foreign nationals. Grantees in this survey presented almost 30,000 professional lectures, concerts, art exhibits, etc., to foreign audiences totaling over 1,400,000 foreign nationals. On the average ten presentations were made by each award holder reporting such appearances; the average attendance per grantee participating in these functions was slightly over 500;

and the average number of foreign guests at each function was approximately 50.

With reference to other talks of a less professional nature--e.g., on general topics about American culture--it is interesting to note that grantees made approximately the same number of presentations. Approximately 30,000 talks on general topics about American culture were presented to foreign audiences--an average of about eleven appearances per award holder reporting such presentations. As compared with the numbers attending professional presentations of the award holders, smaller gatherings appeared at each function. Total attendance was approximately 775,500, making an average of 26 foreign nationals per talk.

#### Analyses Dimensionalizing Overseas Interaction

Having presented a summary enumeration of responses to items concerning the grantees' overseas interaction with foreign nationals as well as some explanation of the personal significance of these experiences, let us now consider whether grantees can be arranged in an internally meaningful rank order with respect to interaction abroad. First we shall present results from a Guttman scaling of these data. Then we shall consider comparable factor and cluster dimensions.

### Guttman Scale Analysis

For the Guttman scale analysis, items concerning the size of classes taught by the grantees and the size of audiences attending their public appearances were not included. While these data were of importance for the research, in terms of the dimension relating to the grantees' overseas interaction, these items seemed more dependent on fortuitous circumstances than were the others.

Table III-2 presents the best scales for each group. For Lecturers, Research Scholars, and Teachers, seven-item cumulative scales were developed; for Students, only six of the items satisfied the criteria for unidimensionality listed in Chapter I. As these data illustrate, unidimensionality reflects the patterning of experiences in a given group of individuals and is not a property of the measuring instrument, per se (cf. Selltiz, et al., 1962, ch. 10). Variations in the experiences of the four groups of grantees resulted in different patternings of the items. For example, Item 22 concerning collaboration with foreign researchers scaled reliably only for Research Scholars.

While the patterning of items in the four scales is unique for each group, some trends across groups may be noted. For all groups Item 19 occurs after Item 20--that is, grantees who reported establishing close friendships with a number of foreign citizens also indicated they had been entertained in at least the same number of homes overseas. Thus interaction within the more intimate setting



Table III-2. Interaction abroad: Guttman scale analysis.

Lecturers			Research Scholars			Teachers			Students		
Item	Margin- al	Cut- off	Item	Margin- al	Cut- off	Item	Margin- al	Cut- off	Item	Margin- al	Cut- off
20	82%	3	20	79%	3	24	85%	2	20	69%	3
19	79	3	24	72	2	21	71	4	19	60	3
28	63	2	22	61	2	20	63	4	25	33	4
24	48	3	19	42	4	25	46	4	24	26	4
25	46	4	21	23	5	19	43	4	21	24	4
21	30	5	25	22	5	28	40	3	26	8	3
26	11	5	26	12	4	26	16	4			
REPRODUCIBILITY: 91.7%			REPRODUCIBILITY: 91.1%			REPRODUCIBILITY: 91.1%			REPRODUCIBILITY: 92.3%		

<sup>1</sup>The general content of the items is given below. For full wording see the questionnaire in Appendix II.

<sup>2</sup>The marginals indicate the percentage of subjects responding positively to the items.

<sup>3</sup>A respondent is considered to accept the item if he checks a response category at or beyond the designated cutoff level.

<sup>4</sup>Item reproducibilities may be calculated by subtracting the given error percentage from 100%.

GENERAL CONTENT OF ITEMS:

- I-19. Number of enduring friendships established with foreign citizens.
- I-20. Number of homes entertained in overseas.
- I-21. Number of foreign professionals contacted frequently.
- I-22. Collaboration with foreigners on research. (This item was reflected for the analysis; therefore, the cutoff 2 indicates a positive response to the item; categories 2 and 3 on the questionnaire were scored 1, indicating a negative response in this analysis.)
- I-24. Number of foreign students contacted frequently in extracurricular situations.
- I-25. Number of other foreign citizens frequently contacted in casual interactions.
- I-26. Number of professional lectures, concerts, exhibits, etc. presented to foreign audiences.
- I-28. Number of other talks presented overseas.

of a foreign citizen's home appears to be an important condition for the establishment of a close and meaningful friendship. It is interesting to note, furthermore, that in three scales (Lecturers, Research Scholars, and Students) Item 20 at cutoff level 3 is the first item. That is, in terms of the scalings for the given set of items, the minimum interaction experience reported by these groups involved being entertained in at least six homes of foreign citizens during their sojourns.

In the Teachers' scale, this group's institutional relationships are reflected in the patterning of the first two items: the minimum interaction involved frequent extracurricular contact with foreign students (Item 24); the next level concerned frequent contact with at least sixteen foreign professional colleagues (Item 21). For all groups, presenting a number of professional lectures, concerts, or art exhibits (Item 26) represented the maximum point on the scales. Grantees reporting a relatively large number of such appearances also tended to report all the other interaction experiences included in the dimension.

If we examine the distribution of respondents within each group among the scale types, some interesting differences appear (Table III-3). Interaction rates were higher for those grantees whose roles overseas focused on teaching. Thus if we divide the Guttman scales at the midpoint (combining scores 0, 1, 2, and 3 as opposed to scores 4, 5, 6, and 7 for the three professional groups



Table III-3. Interaction abroad: distribution of respondents among the Guttman scale types.

<u>Lecturers</u>			<u>Research Scholars</u>			<u>Teachers</u>			<u>Students</u>		
Score	Frequency	Per- cent	Score	Frequency	Per- cent	Score	Frequency	Per- cent	Score	Frequency	Per- cent
0	85	11%	0	93	12%	0	113	10%	0	707	27%
1	56	7	1	72	10	1	166	15	1	399	15
2	135	17	2	114	15	2	146	14	2	639	24
3	116	15	3	170	23	3	129	12	3	338	13
4	86	11	4	121	16	4	103	10	4	225	8
5	116	15	5	57	8	5	135	12	5	240	9
6	127	16	6	73	10	6	172	16	6	111	4
7	64	8	7	44	6	7	118	11			

and combining scores 0, 1, and 2 as opposed to scores 3, 4, 5, and 6 for the Students), we find approximately 50%-50% split for the Lecturers and Teachers as contrasted to a 60%-40% difference between low and high scores for the Research Scholars and a 66%-34% difference for the Students. The differential rates of interaction among the four groups make sense in terms of the different expectations involved in their statuses. For example, as the following comment indicates, Lecturers often were asked to teach only one course at their foreign universities:

When I got to the Netherlands they refused to give me two courses; they said I could teach only one course. This meant that I gave only one lecture a week. I did my best to try to get a second course, but they refused. One reason was that they had no course under the title I suggested, and it's almost impossible to introduce a new course in The Netherlands. But the thing that was finally deciding--they said, "Why no, we can't give it to you at the hour it was planned because we have another course being offered at that hour, and there are no free hours left." I was incredulous about this. I said, "Do you mean to tell me that you don't offer two courses at the same time?" They replied, "No, not within the same faculty."

Obviously, for those faculty members who had not planned to do extensive research during the tenure of their lectureships, official teaching requirements often left much time for interaction with colleagues and others overseas. Possibly this factor also made the Lecturers more available for public appearances.

Even more than the Lecturers, the Teachers appeared to be in situations of high interaction potential, surrounded

by large numbers of colleagues and frequently being invited to address local groups. Through interaction with their students they were enabled to become acquainted with the pupils' families and other townspeople during their sojourns.

For Research Scholars, on the other hand, the focus of their energies abroad often led to solitary pursuits or to intensive interaction with small numbers of foreign colleagues and students. Particularly for those in the Humanities, the opportunity to gain access to rare manuscripts or other artifacts available only in the host country meant that the grantees spent relatively little time in more casual interaction with foreign citizens or in presenting non-professional talks to foreign audiences.

Among the four groups, the Students apparently were in situations involving the lowest degree of interaction potential. For one thing, "foreign students" are not a novelty in most of the countries where large numbers of American students sojourn (England, France, Germany, Italy). Particularly in the large metropolitan centers, American students are not likely to be called upon for talks concerning American culture; indeed, only those well advanced in their graduate research or those in the arts are likely to have opportunity for public appearances. For those who are particularly goal-oriented--e.g., students in the Humanities gathering dissertation data from libraries, or students in the Arts, endeavoring to perfect skills under

the direction of foreign masters--extracurricular interaction may be relatively slight. Furthermore, as we shall note in relating the interaction dimension to background factors, the Students' language competence also has a significant effect on the extent of their interaction with their hosts.

### Factor Analysis

As noted in Chapter I, the same items used in the various Guttman scaling procedures were factor analyzed in an effort to see whether the observed relationships among variables could be accounted for by a more fundamental set of dimensions and to ascertain whether such dimensions would correspond to those hypothesized in the initial attempts at scaling the data. In the factoring procedure a factor corresponding to our dimension concerning overseas interaction was extracted. As indicated previously, two orthogonal rotations were performed on the factor matrix. Since the quartimax method simplifies the description of each row in the factor matrix, we used information from this rotation to identify the factor on which a variable made its maximum contribution. Table III-4 summarizes the loadings of items on the interaction abroad factor for both the varimax and the quartimax rotations. Data are presented only for the items making their maximum contribution to this factor, according to the quartimax solution.

As in the Guttman scaling, differences across groups may be observed in the compositions of the factors and in



Table III-4. Interaction abroad: factor loadings.<sup>1</sup>

Factor Number: General Content of Items <sup>2</sup>	Varimax Rotation				Quartimax Rotation			
	I Lec- turers	II Research Scholars	III Tea- chers	I Stu- dents	I Lec- turers	I Research Scholars	I Tea- chers	II Stu- dents
I-19. # enduring friendships with foreign citizens	.44	.61	.52	.57	.55	.66	.61	.61
I-20. # homes entertained in overseas	.52	.66	.64	.63	.60	.66	.69	.66
I-21. # foreign professionals contacted frequently	.54	.63	.54	.46	.58	.68	.58	.47
I-22. Collaboration with foreigners on research	--	.24	--	--	--	.31	--	--
I-24. # foreign students contacted frequently in extracurricular situations	.57	.34	.36	.49	.60	.34	.39	.51
I-25. # other foreign citizens frequently contacted in casual interactions	.64	.58	.58	.57	.58	.57	.62	.59
I-26. # professional lectures, concerts, exhibits, etc. presented abroad	.52	.42	.33	--	.57	.44	.38	--
I-28. # other talks presented overseas	.50	--	.45	.33	.49	--	.46	.34
II-20. Since award have assisted foreign citizens in arranging visits to the United States	.22	.36	--	--	.34	.42	--	--

II-24. Have maintained contact with host institutions	.19	.31	--	--	.29	.39	--	--
II-25. Have maintained contact with individuals abroad	--	.20	--	--	--	.28	--	--
II-27. Have maintained contact with clubs or organizations overseas	.23	.31	.15	.21	.33	.33	.20	.23
SUM OF SQUARES:	2.69	2.89	2.11	2.20	3.95	3.59	2.98	2.62

<sup>1</sup>Factor loadings are given only for the items which make their maximum contribution to the factor according to the quartimax solution.

<sup>2</sup>For full wording of the items see the questionnaire in Appendix II.

the compositions of the factors and in the relative loadings. Again, collaboration with foreigners on research conducted overseas is involved in the definition of this dimension only for Research Scholars. It is interesting to note that some items relating to continued interaction with foreigners also load on this factor, particularly for Lecturers and Research Scholars. In terms of their factor coefficients, however, these items are relatively less important than the items regarding overseas experiences in determining scores on the factor.

#### Cluster Analysis

For purposes of further comparison let us turn to the output of a cumulative communality cluster analysis of the same items. Again, a cluster corresponding to our dimension concerning overseas interaction was extracted. Table III-5 presents the cluster coefficients (analogous to factor loadings) for items included in the identification of this dimension in the initial clustering (where four collinear items per dimension are the maximum) and in the oblique rotation of the cluster matrix.

As inspection of the tables will verify, for this dimension concerning overseas interaction the results of the cluster analysis show close agreement with those of the factor analysis. In both of these factorings the highest loading items generally pertain to person-to-person



Table III-5. Interaction abroad: cluster loadings.

Cluster Number: General Content of Items <sup>1</sup>	Initial Clustering				Oblique Rotation			
	VII Lec- turers	IV Research Scholars	V Tea- chers	IX Stu- dents	VII Lec- turers	IV Research Scholars	V Tea- chers	IX Stu- dents
I-19. # enduring friendships with foreign citizens	.49	.68	.60	.50	.62	.70	.65	.68
I-20. # homes entertained in overseas	.60	.67	.70	.60	.69	.70	.75	.70
I-21. # foreign professionals contacted frequently	.38	.69	.52	--	.58	.69	.58	.54
I-24. # foreign students contacted frequently in extracurricular situations	--	--	--	.43	.63	--	.42	.48
I-25. # other foreign citizens frequently contacted in casual interactions	.54	.59	.56	.54	.70	.60	.60	.63
I-26. # professional lectures, concerts, exhibits, etc. presented abroad	--	--	--	--	.53	.43	--	--
I-28. # other talks presented overseas	--	--	--	--	.42	--	.47	--
II-24. Have maintained contact with host institution	--	--	--	--	.36	--	--	--
II-17. Have arranged correspondence between Americans and foreigners	--	--	--	--	.39	--	--	--

<sup>1</sup>For full wording of the items see the questionnaire in Appendix II.

contacts. Indeed, in the Tryon analysis it is these items which are included in the initial clusterings for all groups. This finding concerning the relative importance of the person-to-person contacts in describing the behaviors involved in the overseas interaction dimension is consonant with the Guttman scaling data where we observed that such items were in the more popular scale categories, appearing as the minimum levels of interaction reported by relatively large numbers in each group, in contrast to the items relating to public appearances which generally represented the maximum points on the scales.

For purposes of further comparison of the factoring techniques we selected items which loaded on the interaction abroad dimension in both of the orthogonal rotations of the factor matrix as well as in the oblique rotation of the cluster matrix. The selected items then were rank-ordered for each of the three rotations in terms of the magnitude of their factor or cluster coefficients. The overall association among the three representations of the correlation structure of the items appeared quite strong.

As one might expect, the rank orderings of item loadings for the varimax and quartimax rotations of the factor matrix generally correlated higher than did those for one of the orthogonal factor rotations and the oblique rotation of the cluster matrix. In one exception, the Spearman rank correlation between the varimax and quartimax loadings



for Lecturers was  $R_{Vq} = .68$ ; whereas the rank correlation between the quartimax loadings and the oblique clustering was  $R_{qc} = .71$ . The rank correlation between the Lecturers' varimax and cluster loadings was lower, however, ( $R_{vc} = .60$ ). For Research Scholars the three rank correlation coefficients were the same ( $R_{Vq} = R_{vc} = R_{qc} = .82$ ). In the data for Teachers and Students the association between the two orthogonal rotations was almost perfect; correspondingly, the rank correlations involving each orthogonal rotation and the oblique cluster rotation were equal. That is, for Teachers  $R_{Vq} = .94$ , and  $R_{vc} = .83$ . For Students  $R_{Vq} = .98$ , and  $R_{vc} = R_{qc} = .88$ .

As indicated in Chapter I, one reason for performing two orthogonal rotations of the factor matrix was to observe their correspondence and to see whether a general factor would occur in the quartimax solution. As it turned out, no general factor was developed by the quartimax analysis. In fact, as we shall see in the next three chapters--and as the data just cited indicate--the correspondence between the two orthogonal rotations of the factor matrix was quite close.

#### Relation of Overseas Interaction to Background Variables

In describing the samples of grantees included in the present study, we presented data in Chapter II concerning a variety of background variables. We shall now explore the





relationship between these background characteristics of grantees and the extent of their interaction abroad. First we shall present data from a multiple regression analysis assessing the relative importance of background items antecedent to the overseas experiences in predicting scores on the interaction abroad factor. Then we shall consider the relative loadings of these same background items on the cluster dimension relating to overseas interaction. Finally, in discussing the observed relationships we shall present additional data from cross-tabulations involving individual background items and scores from the Guttman interaction abroad scale.

In computing the multiple regression of background variables on the dependent factor scores for overseas interaction, we selected background items pertaining to characteristics and experiences of grantees antecedent to their sojourns abroad. That is, information regarding post-award changes in residence, in academic degrees, etc. were not included. There were slight differences in the items included in this analysis for each group. Information concerning highest academic degree at award time was omitted for senior scholars (almost all had doctorates), but it was included for Teachers and Students. For Teachers the three dummy variables relating to field of work overseas were not included (see item 66 in Appendix III), since a "professional social service" classification of their roles abroad generally seemed more appropriate. For Students information concerning

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geographic region of host country was not included since almost all had sojourned in Europe.

Thus, of the sixteen variables described in Appendix III, twelve were input in the analysis for Lecturers and Research Scholars (items 63, 69, 72, and 72 x 73 were omitted). Ten independent variables were included in the Teachers' analysis (items 63, 69, 72 x 73, and the three representations of item 66 were omitted). For Students twelve background items were input (items 55, 63, 69, and 72 x 73 were omitted).

Table III-6 summarizes the results of the multiple regression analyses, presenting the best least squares values for the weighting coefficients for variables making significant contributions in the regression equations (see Chapter I for further details concerning the tabular data).

Before discussing the multiple regressions let us also present data concerning the relative loadings of the same background items on each group's cluster dimension relating to interaction abroad (Table III-7). As noted in Chapter I, in cluster analyzing the outcome variables it was possible to assess the relative contributions of background variables on the dependent dimensions without the background items' influencing the actual clustering process.

As inspection of Tables III-6 and III-7 will verify, there is relatively good agreement between the two analyses in identification of important background characteristics vis-a-vis the factor and cluster representations of the

Table III-6. Interaction abroad: multiple regression analysis.

Lecturers				
Coefficient of Multiple Determination = .04, $p < .0005$				
Standard Error of Dependent Interaction Abroad Factor,				
Y = 9.84				
Intercept Constant = 46.27				
Variable	Co-efficient	Standard Error of Co-efficient	Student $t$	Beta Coefficient
Language competence	1.39	.38	3.62	.13
Took family abroad	-2.29	.82	-2.78	-.10
Natural Sciences	-2.51	.99	-2.55	-.09
Europe + Oceania	-1.57	.73	-2.14	-.08
Age	.45	.21	2.13	.08
-----				
Research Scholars				
Coefficient of Multiple Determination = .08, $p < .0005$				
Standard Error of Dependent Interaction Abroad Factor,				
Y = 9.66				
Intercept Constant = 46.66				
Variable	Co-efficient	Standard Error of Co-efficient	Student $t$	Beta Coefficient
Humanities + Arts	-3.91	.79	-4.92	-.18
Age	.58	.20	2.92	.10
Application requested	3.18	1.14	2.80	.10
Male	-2.94	1.22	-2.41	-.09
Europe + Oceania	-1.84	.97	-1.90	-.07
-----				
Teachers				
Coefficient of Multiple Determination = .04, $p < .0005$				
Standard Error of Dependent Interaction Abroad Factor,				
Y = 9.85				
Intercept Constant = 46.35				
Variable	Co-efficient	Standard Error of Co-efficient	Student $t$	Beta Coefficient
Age	.74	.17	4.39	.14
British Isles	1.62	.78	2.07	.08
Home state then	-1.35	.66	-2.03	-.06
-----				

Table III-6.--Continued

Students				
Coefficient of Multiple Determination = .04, $p < .0005$				
Standard Error Dependent Interaction Abroad Factor,				
Y = 9.83				
Intercept Constant = 50.96				
Variable	Co-efficient	Standard Error of Co-efficient	Student t	Beta Coefficient
Humanities + Arts	-4.09	.54	-7.54	-.20
Language competence	1.57	.24	6.41	.13
Natural Sciences	-2.95	.73	-4.04	-.09
Period of award	-.33	.09	-3.63	-.07
Social Sciences	-2.05	.63	-3.24	-.08
Home state then	-1.35	.42	-3.20	-.07
Degree then	-.73	.36	-2.05	-.04

Table III-7. Loadings of background variables on the interaction abroad cluster dimension.

Background Items: <sup>1</sup>	Lecturers	Research Scholars	Teachers	Students
55. Host country	-.03	-.09	.08	---
58. Sex: male	-.07	-.12	-.08	.003
59. Age at award time	.04	.09	.13	-.09
60. Period of award	-.03	-.04	-.06	-.06
61. Home state at award time	-.03	.000	-.06	-.06
64. Size of home city then	.04	-.001	.04	.01
66. Natural Sciences	-.06	.01	---	-.01
66. Social Sciences	.04	.02	---	.05
66. Humanities + Arts	-.04	-.16	---	-.12
70. Language competence	.12	.02	.04	.08
71. Reason for application	.03	.11	.06	-.05
72. Highest degree then	---	---	-.04	-.10
II-44. Took family abroad	-.09	-.02	.03	-.06

<sup>1</sup> See Appendix III for coding of background items.

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overseas interaction dimension. As we shall see in subsequent tables, these findings generally are consonant with data from cross-tabulations involving background items and Guttman interaction abroad scale scores. In some instances, however, it appears that in the multiple regression and cluster loading analyses involving combined attributes in some of the dummy variables--e.g., in the combined fields of Humanities with the Creative Arts--the combined variables actually masked interesting differences uncovered by the straightforward cross-tabulations which did not combine attributes of background items.

In the multiple regression analysis, age appears as a significant predictor of overseas interaction for the three professional groups. The relative magnitudes of the cluster coefficients also suggest the importance of the age variable for these groups; furthermore, the relatively high negative loading for this characteristic on the Student dimension indicates that for this group relative youth rather than increasing age contributes to more extensive interaction abroad. These findings are further illustrated in Table III-8 which summarizes cross tabulations involving the age variable and high and low levels of Guttman interaction abroad scale scores.<sup>1</sup>

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<sup>1</sup>Perhaps had the age discrimination categories been finer the relationship between age and extent of interaction among Students would have been clearer. The general trend in these data is consonant with Sewell and Davidsen's report that younger Scandinavian students on an American campus scored higher in the extent of their participation in American life (1961).



Table III-8. Relation of age to Guttman interaction abroad scale scores.

<u>Lecturers</u>					
<u>Interaction Scale Scores</u>	<u>Age</u>				Row %
	Under 30	31-40	41-50	Over 51	
Low (0,1,2,3)	52%	53%	49%	49%	50%
High (4,5,6,7)	48	47	51	51	50
Column Frequencies	31	174	317	259	781
-----					
<u>Research Scholars</u>					
	<u>Age</u>				Row %
	Under 30	31-40	41-50	Over 51	
Low (0,1,2,3)	73%	63%	59%	50%	60%
High (4,5,6,7)	27	37	41	50	40
Column Frequencies	95	274	228	141	738
-----					
<u>Teachers</u>					
	<u>Age</u>				Row %
	Under 30	31-40	41-50	Over 51	
Low (0,1,2,3)	60%	51%	49%	45%	51%
High (4,5,6,7)	40	49	51	55	49
Column Frequencies	220	317	390	150	1077
-----					
<u>Students</u>					
	<u>Age</u>			Row %	
	Under 25	26-30	Over 30		
Low (0,1,2)	65%	67%	67%	66%	
High (3,4,5,6)	35	33	33	34	
Column Frequencies	1532	716	405	2653	

In the multiple regression analysis, field of work abroad also contributes significantly to scores on the interaction abroad factor for Lecturers, Research Scholars, and Students. As noted earlier, the three dummy variables representing the general areas of Natural Sciences, Social Sciences, and Humanities + Arts were not included in the analysis for Teachers. In general the multiple regression

assessments agree with the cluster coefficient data, where Natural Sciences has a relatively high negative loading for Lecturers and where Humanities + Arts have relatively high negative loadings for Research Scholars and Students. These findings also are supported by the data in Table III-9, summarizing the relationship between high and low scores on the Guttman interaction abroad scale and field of work overseas for the relevant groups.

In the cross-tabular data (Table III-9), however, it is interesting to note that while Lecturers in Languages, English or American Studies tend to be low on the extent of their interaction abroad, those in the Arts score appreciably higher. Thus in this instance the combined dummy variable used in the other analyses apparently cancels out interesting differences for the Lecturers. While the Research Scholars in the Arts tend to score higher on the Guttman scale than their peers in the various combined fields of the Humanities, their interaction scores are not higher than the average for their group as a whole; therefore, the combined Humanities + Arts attribute does not seem to mask important differences for Research Scholars in the multiple regression or cluster loading analyses.

With reference to the Students' regression analysis, all three attributes relating to field of work abroad have negative weightings in relation to interaction factor scores. In the cluster coefficient data, however, Social Sciences has a low positive loading, a finding closer to the Guttman

**Table III-9. Relation of field of work overseas to Guttman interaction abroad scale scores.**

Lecturers											
	English or American Studies		Other Humanities		Creative Arts	Agriculture	Professional Service	Technical or Professional	Other	Row %	
	Natural Sciences	Social Sciences	Language	Studies							
Low Interaction	65%	47%	67%	52%	47%	35%	69%	36%	54%	44%	50%
High Interaction	35	53	33	48	53	65	31	64	46	56	50
Column Frequencies	118	175	12	126	32	26	13	134	95	32	763
Research Scholars											
Low Interaction	57	62	67	68	75	61	26	50	62	44	60
High Interaction	43	38	33	32	25	39	74	50	38	56	40
Column Frequencies	179	185	43	28	104	41	27	44	58	16	725
Students											
Low Interaction	70	62	75	60	70	61	38	54	60	54	66
High Interaction	30	38	25	40	30	39	62	46	40	46	34
Column Frequencies	307	541	444	114	340	469	26	89	176	46	2552

data summarized in Table III-9. As the Guttman data indicate, however, vis-a-vis Students in Agriculture, Professional Social Service, and other fields, those in the more traditional academic disciplines tend to score lower. It is interesting to relate these data to those from the study of foreign students in America conducted by Selltitz, and associates (1963). These researchers found that European students engaged in more extensive social relations with Americans than did Asians. Among the background factors confounded with cultural background, however, was one relating to field of work. European students tended to be majoring in social sciences or humanities in contrast to the Asians who were more likely to concentrate in natural sciences (Selltitz, et al., 1963, ch. 4). In our study, also, Students in Natural Sciences tend to exhibit low interaction with their hosts, whereas those in the Social Sciences appear relatively more gregarious. Because of the variance across the sub-fields, however, it is not possible to characterize Students in the Humanities as generally high or low--rather, they are "variable" in the extent of their interaction overseas.

According to the regression analyses and the direction of the relative loadings on the cluster dimensions, Lecturers and Research Scholars sojourning in Europe and Oceania tend to exhibit less extensive interaction with their hosts than do their peers in other areas; however, Teachers in the British Isles seem to be the high scorers for their group.

Table III-10 gives further data in terms of the relationship between geographic region of host country and Guttman interaction abroad scale scores.

As the data in Table III-10 suggest, the conclusion from the multiple regression and cluster analyses concerning the association between host country and interaction applies more appropriately to Europe than to a combination of Europe and Oceania. That is, grantees in Oceania actually seem to have more extensive interaction with their hosts than is generally true for those in Europe--a relationship which is especially marked for Research Scholars. Thus the decision to combine Europe and Oceania--based on general cultural similarities, especially between England and Oceania as well as on interview data--apparently was unwise.

One might conclude that English language facility is the relevant correlated characteristic accounting for the apparent supremacy in interaction of the grantees to Oceania vis-a-vis those to Europe as a whole. Indeed, as Table III-11 indicates, Lecturers in the British Isles exhibit the same interaction scores as their colleagues in Oceania. This pattern, however, is not characteristic of the other groups. Research Scholars in the British Isles actually do not score appreciably higher than their peers in other European countries. While Teachers and Students in the British Isles exhibit relatively higher interaction scores than their counterparts in other European countries, the difference is not so great as that between the interaction scores for

Table III-10. Relation of geographic region of host country to Guttman interaction abroad  
scale scores

	<u>Lecturers</u>							Row %
	East	Near and Middle East	North- western Europe	Other Europe	South America	Central America	Africa	
Low Interaction	36%	56%	53%	62%	50%	62%	80%	45%
High Interaction	64	44	47	38	50	38	20	55
Column Frequencies	190	87	349	69	18	24	5	40
-----								
-----								
<u>Research Scholars</u>								
Low Interaction	58	78	62	67	50	75	60	32
High Interaction	42	22	38	33	50	25	40	68
Column Frequencies	78	9	452	110	6	12	15	60
-----								
-----								
<u>Teachers</u>								
Low Interaction	51	68	51	52	73	67	25	27
High Interaction	49	32	49	48	27	33	75	73
Column Frequencies	85	54	798	62	15	9	16	41
								1080

Table III-11. Relation of selected host countries to Guttman interaction abroad scale scores.

<u>Lecturers</u>									
	India	Japan	British Isles	France	Germany	Italy	Norway		
Low Interaction	20%	32%	46%	57%	53%	57%	52%		
High Interaction	80	68	54	43	47	43	48		
Column Frequencies	40	31	59	54	47	47	27		
<u>Research Scholars</u>									
Low Interaction	77	52	63	67	73	67	50		
High Interaction	23	48	37	33	27	33	50		
Column Frequencies	13	31	109	73	52	89	32		
<u>Teachers</u>									
	Japan	British Isles	France	Germany	Italy	Norway	Netherlands	Greece	
Low Interaction	59%	45%	88%	54%	73%	33%	53%	45%	
High Interaction	41	55	12	46	27	67	47	55	
Column Frequencies	24	414	84	54	15	12	64	47	
<u>Students</u>									
	India	Japan	British Isles	France	Germany	Italy	Norway	Netherlands	Oceania
Low Interaction	63%	82%	59%	75%	62%	72%	57%	66%	37%
High Interaction	37	18	41	25	38	28	43	34	63
Column Frequencies	30	23	405	630	331	254	48	96	84

Europe as a whole and for Oceania, where the Teachers and Students are markedly above the averages for their groups. Thus language alone does not account for the observed differences. We might speculate that Americans generally are more of a novelty in Oceania than in Europe and therefore might be sought out more. Furthermore, since Oceania resembles the United States in its historical status as a frontier region, there may be greater rapport between grantees sojourning there and their hosts than is true generally in Europe. These post hoc suggestions do not, however, account for the deviance of the Lecturers from the other grantees. More careful research focusing on grantees within specific countries will be necessary to clarify the significant factors contributing to the observed differences.

Before going on to a more detailed consideration of the relationship between language competence and extent of interaction, let us call attention to the relatively high interaction scores exhibited by Lecturers in the Far East (Table III-10). This pattern is most marked for those in India (Table III-11); however, Lecturers in associated areas also show high interaction scores: 68% of the Lecturers in Pakistan, 62% of those in Ceylon, 55% of those in Thailand, and 55% of those in the Philippines are in the high interaction category. Part of the reason for the higher interaction rates of Lecturers in the Far East as contrasted to those in Europe may reside in cultural differences regarding expectations for role relationships. That is, in terms of



one of Parson's pattern variables, role relationships in the countries of the Far East generally are characterized by particularistic rather than universalistic criteria (1951, Part 2, ch. 1). Particularistic criteria are dominant, for example, when primary consideration in selecting a person for a given position within a social system is given to cathectic standards--that is, to kinship or friendship relationships between the chosen incumbent and the selector. Universalistic normative patterns, on the other hand, imply the primacy of cognitive standards. That is, universalistic selection criteria involve the application of generalized evaluative measures rather than consideration of particular relationships between the aspirant and relevant power figures. The dilemma involved in trying to balance particularistic expectations of a host culture with the universalistic patterns prevalent in American society is well described in the following commentary on his "popularity" by a social scientist:

I was sought out most of the time I was in India and have been since my return by people who want to come to the U.S. to study. Of course, I'd like to help, but they are unaware of the difficulties involved in securing fellowships. . . . They believe that a personal contact here is the primary means of securing an appointment. They feel that because I am a member of an American university faculty a mere letter from me to any department--say, geology or biology--will get a fellowship or an assistantship for them. It was embarrassing in India when children of my friends would come and talk with me about coming here. . . . Nothing that I could say or do would convince them that a letter from me would not automatically win them a scholarship.

Let us turn now to a consideration of the influence of language competence on interaction overseas--an important

background variable for Lecturers and Students in terms of relative weightings in the regression prediction of factor scores and relative loadings on the cluster dimension (Tables III-6 and III-7). Since for some grantees there are interesting differences in interaction rates among those sojourning in the Far East as opposed to Europe, the data in Table III-12 have incorporated geographic area in an additional cross-tabulation. That is, separate tabulations of high and low Guttman interaction scores appear for European as opposed to Far Eastern sojourners exhibiting high and low scores in their self-reports of language competence (see Appendix III for language scoring). It should further be noted that the data for Europe in Table III-12 do not include those for the British Isles.

For Lecturers and Students a positive relationship between level of language competence and extent of interaction occurs for both the European and the Far Eastern sojourners. The importance of the geographic region on the Lecturers' interaction rate is even more apparent in these data. That is, Far Eastern Lecturers reporting relatively high competence in their host countries' languages exhibit the highest interaction scores among the whole group. Furthermore, even the less fluent Far Eastern Lecturers score notably higher on the interaction scale than the high proficiency group of European Lecturers.

The data regarding the positive association between language proficiency and extent of interaction for Students

Table III-12. Relation of language competence to Guttman interaction abroad scale scores.

<u>Lecturers</u>				
	Europe (Without British Isles) Language Competence		Far East Language Competence	
	Low (Scores 1,2)	High (Scores 3,4)	Low (Scores 1,2)	High (Scores 3,4)
Low Interaction: (Scores 0,1,2,3)	64%	56%	39%	24%
High Interaction: (Scores 4,5,6,7)	36	44	61	76
Column Frequencies	46	248	39	125
-----				
<u>Research Scholars</u>				
Low Interaction: (Scores 0,1,2,3)	68%	62%	48%	64%
High Interaction: (Scores 4,5,6,7)	32	38	52	36
Column Frequencies	26	328	13	58
-----				
<u>Teachers</u>				
Low Interaction: (Scores 0,1,2,3)	59%	62%	47%	44%
High Interaction: (Scores 4,5,6,7)	41	38	53	56
Column Frequencies	51	254	19	50
-----				
<u>Students</u>				
Low Interaction: (Scores 0,1,2)	76%	70%	79%	66%
High Interaction: (Scores 3,4,5,6)	24	30	21	34
Column Frequencies	124	1460	14	61

are consistent with findings from several studies of foreign students in the United States. Among Scandinavian students at a midwestern university (Sewell and Davidsen, 1961) as well as among foreign students at UCLA (Morris, 1960), those rated higher in English language facility by interviewers also scored higher on measures of participation in American life than did those considered less fluent. In another investigation, Goldsen found that foreign students at Cornell who scored high on measures of association with Americans also tended to report no difficulty in understanding American English and to rate themselves as fluent in the host language (unpublished data cited in Selltiz, et al., 1963). A more extensive recent study of foreign students in the United States also reports a positive relationship between interviewers' ratings of the students' English language skill and the extent of their social relations with Americans (Selltiz, et al., 1963).

In Table III-12 certain discrepancies appear in the patterns exhibited by Teachers and by Research Scholars--and these may clarify why language does not appear as an important background variable in the regression and cluster loading analyses for these two groups. Like the Lecturers, both Teachers and Research Scholars in the Far East exhibit generally higher interaction scores than do their colleagues sojourning in Europe. For Teachers in the Far East, the relationship between language skill and extent of interaction is positive; for Research Scholars, however,

the relationship is reversed. Conversely, with reference to the European sojourners, the relationship between language competence and extent of interaction is positive for Research Scholars but reversed for Teachers. Accounting for the deviant cases is difficult. Of course, the size of the deviant groups is relatively small--especially in the case of the less fluent Far Eastern Research Scholars--therefore, the findings may represent sampling idiosyncrasies. Such a conclusion seems gratuitous, however. Let us consider some alternative post hoc suggestions.

For Teachers the absolute percentage differences between low and high language proficiency groups are smaller (only 3%) than those observed in any other group. It may be that the conditions surrounding the status of exchange teacher--relatively high environmental interaction potential coupled with relatively low pressures for research and writing--afford this group of grantees more free time to develop language skills. A type of compensatory mechanism may operate--that is, those assessing their fluency as low may seek out host nationals in an effort to improve their conversational skills. Why would this mechanism operate noticeably more in Europe than in the Far East? Perhaps teachers in Europe feel freer (because of relative cultural familiarity) to initiate and maintain contacts designed to provide language practice. The overall high rate of interaction characteristic of Teachers in the Far East would seem to refute this supposition--unless we make

the additional hypothesis that the high interaction in the Far East generally is initiated and maintained more by host nationals; hence grantees with greater language skills are more likely to be sought out. Further sojourn research within different cultural areas would illuminate the hypothesized processes. In particular, it seems important to obtain data regarding the reciprocities in the interaction between grantees and their hosts and to assess the relative frequencies with which each initiates contacts and follows-up on interactions.

With reference to the Research Scholars it is noteworthy that the Far Eastern group reporting low language skill exhibits the highest interaction scores among all the subsamples of Research Scholars considered. Accounting for this markedly deviant group is difficult. As suggested previously, because of the focus of their roles overseas Research Scholars seem to be less visible and less available generally than their colleagues in lectureship status, a difference reflected in the differential patterning of interaction scores in the two groups. Thus, among the Research Scholars in Europe an increase in language skill level is not associated with as much of an increase in interaction scores as is true for the Lecturers. It may be that because of the possibly greater information available concerning resources, etc. in Europe, as well as the possibly more stringent selection reviews, grantees sojourning on the continent may have a more realistic assessment of what

they can accomplish given their level of language proficiency. Research in some fields such as mathematics, creative arts, or natural sciences may actually not require high level proficiency. In the Far East, on the other hand, where institutional norms may be relatively more difficult for grantees to comprehend, lack of language skill may impede the Research Scholars from securing necessary data or gaining access to necessary materials. In such a situation the grantees may develop alternative goals--including increasing their language competence and gaining greater familiarity with their host culture; consequently, they would exhibit more extensive interaction than is generally characteristic for Research Scholars.

Another possible interpretation of the observed discrepancy involves consideration of the fact that relative to Europe many Far Eastern countries are "hardship" areas; thus competition for grants may not be so keen as is characteristic for European awards; hence standards in evaluating research proposals may be more lenient. If this were the case, then perhaps the small group under consideration represents a more dilettantish segment of the population of grantees--a group motivated more by desires for adventure and general cross-cultural living experience than by serious research commitments. Of course, the validity of these post hoc suggestions remains to be tested.

In Chapter VIII we shall present further suggestions regarding research concerning the influence of language

proficiency on interaction. Let us turn now to a discussion of other background variables significantly associated with interaction factor scores (Table III-6). The negative weighting for the attribute involving the Lecturers' taking their families abroad was unexpected from interview data and is difficult to explain. In all, 75% of the Lecturers were accompanied by their families overseas. Interview and questionnaire comments from representatives of this group generally were favorable concerning the roles of their families in establishing rapport with host nationals (Gullahorn and Gullahorn, 1960b, ch. 4). Apparently, however, the unencumbered Lecturers were freer to establish relationships with a variety of host nationals and to travel more to make public appearances. To a lesser extent the same appears to be true of Research Scholars and Students, as indicated by the negative loadings for the family variable on their cluster dimensions (Table III-7). Then, too, experiences such as the following from a disgruntled grantee would tend to lower the scores for the married group as a whole:

I cannot too strongly recommend that any adults accompanying overseas grantees bend every effort, both before and during the stay abroad, to learn the language of the country, especially if those adults are generally very dependent upon the grantee. Ideally, the grantee's life abroad should revolve around his work and his contacts with citizens of the country he is visiting. If his relatives, however, are rendered incapable by their ignorance of the language, of taking care of or amusing themselves, then he must devote a disproportionate amount of time to being with them and taking care of the affairs of day-to-day living



which, with a working knowledge of the language, other members of the family could see to themselves. Quite frankly, I found that I had to spend more time at home than I would have liked because my wife could not make satisfactory social contacts for herself and hence needed me for company. Furthermore, our social contacts would have been more extensive and more rewarding had she been able to participate more fully in them. Social life is so organized that it is difficult enough to make family-to-family contacts without having the difficulties compounded by one member of the American family's not being at home in the language.

For Research Scholars the attribute sex is significant as a predictor of interaction factor scores (Table III-6); furthermore, the attribute has the second highest absolute loading among background characteristics on that group's interaction cluster dimension (Table III-7). In the Guttman scaling only 38% of the male Research Scholars are in the high score range in contrast to 51% of the females. Though differences in factor scores between the sexes are not significant for the other groups, it is interesting to note that among Lecturers and Teachers as well, males score lower than females (cf. the negative loadings of the sex variable on these groups' clusters in Table III-7). For Lecturers the high Guttman scale scorers include 49% of the males as opposed to 55% of the females. For Teachers the distribution of high scorers comprises 46% of the males in contrast to 50% of the females. Among the Students the sex attribute seems unimportant vis-a-vis interaction overseas (cf. Table III-7); indeed, in the Guttman data only a 1% difference appears between the sexes--34% of the males as opposed to 35% of the females are in the high



Guttman score range.

Another significant predictor of interaction factor scores for Research Scholars involves the reason for their seeking a government grant (Table III-6). For the senior scholars this dummy variable is represented by a combination of two possible responses--having one's application requested by an American agency administering the program or having it requested by a university or agency abroad. The multiple regression finding for Research Scholars is confirmed by the high loading of this dummy variable on the group's interaction cluster dimension (Table III-7), as well as by the Guttman data where 50% of those whose applications were requested by either an American or a foreign agency are in the high interaction score range, in contrast to 37% of those stating they initiated the application independently and 31% reporting they applied as a result of recommendations and encouragement from colleagues or administrators.

As indicated in Appendix III, the reason for application variable for Teachers and Students is represented by a different response option from those involved in the senior scholars' coding. That is, for Teachers and Students initiating the application for their awards independently is the relevant defining attribute. In terms of the interaction abroad cluster dimension, it is interesting to note that this dummy variable has a negative loading for Students (Table III-7). The Guttman scale data indicate that only 31% of the Students who initiated their applications independently

were in the high interaction category, in contrast to 37% of those who applied because of recommendations from professors and 52% of the small group who indicated their applications were requested by a university or agency overseas. The last group probably includes participants in exchange relationships with host institutions--a group likely to receive more attention and have more interaction opportunities than is generally characteristic for students abroad.

For Teachers and Students the census division of their home states has predictive significance vis-a-vis interaction factor scores; furthermore, this attribute is identified as a relatively important background item on the interaction cluster dimension (Tables III-6 and III-7). The negative regression weightings and the negative loadings suggest that Teachers and Students from the states selected for the dummy variable because they included many of the outstanding American universities tend to exhibit less extensive interaction abroad than is characteristic of their peers from other states. The distribution of Guttman interaction scores according to this background variable reveals that Teachers from two areas score higher than the group average: 60% of those from West South Central states and 71% of the Teachers from the Mountain states are in the high score range. The Mountain states are represented by high scorers among the Students as well, with 44% in the high category. One other region differs markedly from the group average in

Guttman interaction scores for Students: 42% of those from the East South Central states are in the high score range.

Another background variable significantly associated with interaction factor scores for Students concerns the highest earned degree at award time (Table III-6). As the negative regression weighting and the high negative loading for this item on the Students' interaction cluster dimension suggest (Table III-7), Students with bachelor's degrees tend to interact more with their hosts than do those with higher degrees. Indeed, high scorers on the Guttman interaction abroad scale include 36% of those with bachelor's degrees in contrast to 30% of those with master's degrees and 31% of those with doctorates. It seems likely that the more advanced students concentrate more seriously on specific professional pursuits. Among Teachers the distribution of high Guttman interaction scale scores comprises 50% of those with bachelor's degrees, 49% of those with master's degrees, and only 40% of those with doctorates.

Period of award is another significant predictor of Students' overseas interaction factor scores (Table III-6). In fact, as suggested by the negative loadings for this background variable on all of the groups' cluster dimensions (Table III-7), and as indicated by the data in Table III-13 relating to Guttman scale scores, the pre-1950 sojourners in all award categories tended to interact more extensively with their hosts than did grantees venturing abroad in subsequent years. Our interview data suggest that those

sojourning during this immediate post-war period were more popular and sought after by host nationals than was characteristic for grantees in subsequent years.

Table III-13. Relation of award period to Guttman interaction abroad scale scores.

	<u>Lecturers</u>			
	<u>Award Period</u>			
	1947-1950	1950-1954	1954-1957	Row %
Low Interaction	46%	52%	49%	50%
High Interaction	54	48	51	50
Column Frequencies	28	316	438	782
-----				
	<u>Research Scholars</u>			
Low Interaction	57%	62%	60%	60%
High Interaction	43	38	40	40
Column Frequencies	51	331	358	740
-----				
	<u>Teachers</u>			
Low Interaction	42%	52%	52%	51%
High Interaction	58	48	48	49
Column Frequencies	92	503	482	1077
-----				
	<u>Students</u>			
Low Interaction	57%	67%	65%	66%
High Interaction	43	33	35	34
Column Frequencies	166	1135	1341	2642

Actually, the data in Table III-13 give some evidence of a curvilinear trend in interaction. Our interview data had led us to expect such a relationship; in fact the cutting points for combining categories for this item were selected to probe expected differences. The middle category in Table III-13 represents the era when McCarthyism reached its peak (1950-1954), with overseas inspections of libraries

added to extensive investigations of alleged subversives in the United States. As other researchers have noted, a sojourner's national status becomes a salient aspect of his self-definition in an alien culture (Lambert and Bressler, 1956; Morris, 1960; Selltiz, et al., 1963). Events such as those occurring during the McCarthy era thus may have notable repercussions for Americans overseas. Among our interview respondents who had been abroad during this period, many indicated that they had experienced feelings akin to those reported by foreigners in this country who believe their hosts harbor a negative image of their homelands--an image which accords their homelands lower status than the sojourners consider warranted.

Thus, constraints were introduced in the interactions between some Americans and their hosts during the McCarthy period. Some felt excluded; others wished to be in order to avoid the necessity of "explaining" this example of American democracy. Of course, more detailed interviews with grantees sojourning abroad in each of the periods considered here as well as interviews with their hosts overseas would be necessary for more conclusive determination of the impact of McCarthyism on grantees' interactions abroad. Nevertheless, the available data lend some support to the expectation that an event which lowers the status of American democracy in the perceptions of foreigners will adversely affect the relations between representatives of the United States sojourning overseas and host nationals.

This concludes our exploration of the relationship between background variables and interaction overseas. Since interaction abroad is a variable occurring prior to the dependent variables to be considered in Chapters IV, V, and VI, the relative importance of overseas interaction scores on subsequent international communication, professional consequences, and evaluations of the award experiences will be assessed along with data concerning other background variables.



## CHAPTER IV

### SUBSEQUENT INTERNATIONAL COMMUNICATION

Having noted the efforts of Fulbright and Smith-Mundt grantees to interact with individuals overseas, we shall now consider the grantees' post-award experiences in maintaining relationships established abroad and in communicating with fellow Americans about their host countries. First let us present comments from grantees concerning the personal significance of the experiences summarized in the Guttman scales, rotated factors, and clusters to be discussed later.

#### Continued Interaction with Host Nationals

Over 93% of the questionnaire respondents stated that they had maintained contact with individuals abroad on an informal or personal basis. The warmth of some of these enduring relationships is indicated by the following remarks:

I maintain personal contact with my former French students. In 1957 on the occasion of the graduation of five of my students from l'Ecole des Artes Decoratifs in Strasbourg I sent each one personal congratulations in the form of an art text-book. Periodically I receive letters from all students. This brings a special pleasure to me because I have valued my personal contacts with the students as highly

as our work together in the classroom.

I returned to England to the town where I taught, this summer . . . I was received most cordially and entertained by many of the families of my students. I visited with all the members of our staff. . . . I felt as though I had never left the town and was greeted by tradespeople and churchgoers most cordially. I'd love to go back and spend another year in the same place. I was so pleased to see my former students had grown into lovely young teenagers and proud that so many of them had been admitted into the English Grammar Schools.

In continuing professional relationships established overseas, grantees have not only maintained contact personally, but three-fourths of the Lecturers and Research Scholars and approximately half of the Teachers and Students have consulted with host nationals concerning educational opportunities in the United States. Almost half of the Lecturers and two-fifths of the Research Scholars have actually made arrangements with American institutions for students and colleagues from abroad to come to the United States:

The director of the English Seminar at the University of Hamburg and I have made arrangements to exchange graduate assistants on a university-sponsored basis.

As a result of the friendships that were established, at least three of the people whom I knew in Holland have come to this country--two for study and one for research and lecturing. And some day I hope to bring the man who was my superior because he can make a great contribution to us. . . .

Aside from assistance in direct contacts, former award holders have arranged other means of communication

between individuals abroad and Americans. Teachers have been particularly active in introducing pen-pals among their pupils. The correspondence relationships fostered by over half of the senior grantees, however, have obvious implications for the development of continued professional communication across national boundaries and the dissemination of knowledge.

I have put some of my colleagues in touch with a French professor who has done some unusually perceptive work on Melville, and I think all have profited from their exchange of ideas.

One professional pleasure resulting from my foreign grant is the fact that I have been able to offer assistance of various sorts to scholars in my host university. I arranged for a French member of the Section d'Anglais to contribute regularly to an American scholarly bibliography, and I had the pleasure of finding an American reviewer for the recently published doctoral thesis (Sorbonne) for another colleague. Further, I have been able to arrange a lecture at my present college by a French poet now visiting this country.

Some of the continued professional relationships between American grantees and their hosts have contributed directly to educational institutions and libraries overseas as well as to the individuals and disciplines involved:

As a result of my trip to India, I was invited to Nepal to become educational advisor to His Majesty's Government. . . . Specifically, I have helped: (a) the National Education Planning Commission produce its report, Education in Nepal; (b) establish a teacher training system including ten normal schools, a degree college, a \$100,000 printing press, a demonstration school, etc.; (c) organize and develop a national university; (d) train 37 participants in the U.S.

The Fulbright request was for one year . . . after which the Egyptian Government requested my University . . . to allow me to stay in Egypt as advisor to the Egyptian Government. Request was granted; thereupon I became a member of the Egyptian Council on Health and Social Welfare Services in charge of Dentistry in Education, Public Health, and Public Schools. Result: Dental education is set up along American lines, a new school will be completed in September, 1959, and at the present time there are eight Egyptians doing graduate work in the U.S.A. with the purpose of becoming teachers in the new school.

I have been working on a project dealing with an exchange of library resources. . . . When I got back I went through the History Department and gathered all the old volumes on American history that were not of much use to us but would be extremely helpful there. I got the old files of journals, sent all of my own copies of old journals--I had complete files of at least three journals going back for about twenty years. I sent all this to Amsterdam, and it helped fill in many spots on their shelves. It was particularly important since they would have to buy these works with dollars, and they simply cannot find the dollars to pay for them. . . . I might add that in return for this we have received numerous publications from the Netherlands.

These data attest to the personal and international significance of some of the relationships maintained by grantees and their hosts. Furthermore, the efforts exerted by former award holders in assisting their host institutions, colleagues, students, and other friends abroad give some indication of the commitment of many grantees to the goals of international exchange--and in particular to the advancement of knowledge.

### Sharing Overseas Experiences with Fellow Americans

Let us turn now to the post-award experiences of grantees in disseminating information regarding their overseas experiences to fellow Americans. During the course of interviews conducted in the nine-state survey (see Appendix I), many former award holders and educational administrators commented on the impact of the grantees on their home and university communities. A majority felt that the grantees and their families had accomplished a great deal in creating greater international awareness--and possibly even understanding--among students, colleagues, and others in their communities. As one university administrator commented,

I think the main thing we can say about the impact of the Fulbright and Smith-Mundt programs . . . is that it has turned this small midwestern city into one of the most internationally-minded communities that I know about. For example, we encourage foreign students to come here and have established exchange scholarships to insure our having foreign students on campus. We also invite visiting professors from other countries who are at nearby universities to come here to give talks, to meet with small groups, and to discuss their countries in any other way possible to help us acquire a deeper understanding. All this was stimulated in part by our former grantees who have brought us awareness of things that are going on all over the world.

Of course, communications between grantees and their fellows at home are not always smooth. Those experiencing relatively severe reacculturation shock often cannot help implying to their peers that overseas practices are

superior (cf. Gullahorn & Gullahorn, 1963b):

During my stay in a European university I came to appreciate the amount of time given to faculty members just for reflection. Instead of being harassed by all sorts of committee duties, I was able to concentrate on my research. I think that as a result my work abroad was one of the most significant contributions I have been able to make to my profession. During the first months after my return I wanted very badly to devote myself to more writing concerning my overseas work. But soon all the annoying committee obligations cropped up again. I really resented these intrusions on the little free time I have, and I'm afraid that in that frame of mind I wasn't the most cooperative committee member on campus.

Apparently, however, the resistance to resocialization is a transitional state, as suggested by the fact that three-fifths of the questionnaire respondents indicate they have engaged in extensive informal communication with friends concerning their overseas experiences. With reference to formal presentations, 75% of the former award holders have given approximately 65,000 talks of a somewhat popular appeal--making an average of 16 speeches per grantee reporting such presentations. In coping with problems stemming from a lack of a common reference framework between them and their audiences, some grantees have relied extensively on visual aids for communication, whereas others have sought to highlight personal analogies in their discussions of life overseas:

I have found one approach which is extremely helpful and, I think, quite meaningful to many people. In discussing Germany, I use my landlord as a sort of "case." I trace his family from, oh, 1896. . . . Of course, one can't generalize too much, but I

think that in his life one can find reflected much of the life of Germany. . . . He has been in the past war and was now back in the army as a major. One could see in his life--in the life of the German family of today--the same tensions that are reflected on the broader social and political scene. That is, they are outwardly prosperous, endeavoring to regain their economic position; however, inwardly they are extremely insecure. And I think Americans can understand this sort of presentation--I think it has been quite meaningful to the unsophisticated audiences. Of course, with academicians, one has to use a different approach. One can't indulge in such generalities and generalizations.

Audiences in attendance at formal presentations by grantees total over 2,700,000. On the average, therefore, grantees giving such talks have spoken to groups totalling almost 700, with each affair averaging about 40 persons in attendance.

Aside from appearances at various gatherings of clubs, church and civic groups, approximately one-fifth of the Lecturers, Research Scholars, and Teachers have made radio and TV appearances related to their overseas experiences. Newspaper articles have been another avenue of communication for a majority of former award holders.

In addition to sharing details of their experiences and observations on life abroad in informal ways with friends, in public appearances, and through various mass media, over 90% of the grantees in all categories have used their knowledge in advising others about opportunities for study and research abroad. Furthermore, about four-fifths of the senior grantees and over three-fifths of

the Teachers and Students have devoted extra time in helping Americans complete their applications for overseas grants. While most of the assistance former grantees provide to students and colleagues applying for overseas awards is done on a relatively informal basis, 16% of the Lecturers and 13% of the Research Scholars have served in an official capacity as Fulbright Advisers in their colleges or universities.

Having presented an overview of the data concerning grantees' post-award international communication experiences, let us now consider findings from the Guttman, factor, and cluster analyses.

#### Analyses Dimensionalizing Subsequent International Communication

##### Guttman Scaling

Continued Interaction with Host Nationals. Table IV-1 presents the Guttman scale patterns for each group of grantees with reference to questionnaire items pertaining to continued foreign interaction. As in the Interaction Abroad Guttman scale, different patternings of items appear for the various groups; furthermore, in the present instance the four groups differ with respect to the number of items included in their scales--seven items scale for Lecturers, eight for Research Scholars, and six for both Teachers and Students.



Table IV-1. Continued foreign interaction: Guttman scale analysis.

Lecturers			Research Scholars			Teachers			Students		
Item <sup>1</sup>	Margin- al <sup>2</sup>	Cut- off <sup>3</sup>	Error <sup>4</sup>	Item	Margin- al	Cut- off	Error	Item	Margin- al	Cut- off	Error
12	87%	2	6.4%	12	90%	2	4.1%	12	83%	2	7.4%
18	85	2	7.3	22	82	2	7.7	22	78	2	6.7
25	77	2	8.1	18	76	2	7.9	18	57	2	10.7
24	66	2	11.7	17	62	2	11.9	29	51	2	12.5
17	52	2	10.4	24	56	2	14.6	20	36	2	10.6
20	41	2	9.4	20	42	2	10.7	19	15	2	4.6
27	19	2	4.3	19	39	2	11.5				
				27	18	2	7.9				
Reproducibility: 91.7%				Reproducibility: 90.4%				Reproducibility: 91.2%			
				Reproducibility: 91.5%							

<sup>1</sup>The general content of the items is given below. For full wording see the questionnaire in Appendix II.

<sup>2</sup>The marginals indicate the percentage of subjects responding positively to the items.

<sup>3</sup>All the items in these scales are dichotomous and have been reflected; therefore, a cutoff score of "2" indicates a positive response.

<sup>4</sup>Item reproducibilities may be calculated by subtracting the given error percentages from 100%.

#### GENERAL CONTENT OF ITEMS:

Since your return have you done any of the following?

- II-12. Referred Americans going abroad to foreign colleagues or friends.
- II-17. Arranged correspondence between students or colleagues in this country with others abroad.
- II-18. Consulted with students, colleagues, or friends from abroad regarding their applications to come to the United States for educational activities.
- II-19. Made direct arrangements for foreign students or others to come to the United States.
- II-20. Assisted foreign citizens in visiting the United States for other purposes.
- II-22. Entertained in your home foreign citizens you met abroad or who were referred to you by others overseas.

Have you maintained contact with any of the following?

- II-24. With your host institution abroad.
- II-25. With individuals abroad on a professional basis.
- II-27. With clubs or organizations abroad.
- II-29. Have you donated or made arrangements for others to give books, periodicals, etc. to foreign libraries?

For all groups, the minimum level of continued communication with host nationals involves encouraging further interaction between fellow Americans going abroad and individuals overseas (Item 12). For three of the groups, reciprocating the hospitality enjoyed abroad scales as the second item (Item 22), followed by consulting with host nationals regarding educational opportunities available in the United States (Item 18). In general, therefore, person-to-person types of contacts characterize the minimum levels of the Guttman scales. In general, the maximum interaction levels involve relations with social institutions, sometimes on behalf of individuals. That is, among the Lecturers and Research Scholars, those who have maintained contact with overseas professional societies or other organizations (Item 27) tend to report all the other continued interaction experiences included in their scales. For Teachers and Students, the maximum level of continued interaction with foreigners involves making direct arrangements with schools, universities, or other agencies for host nationals to sojourn in the United States (Item 19).

Table IV-2 summarizes the distribution of respondents among the scale types within each group. For purposes of comparison, let us consider the percentages of grantees in each category with scale scores of 4 or higher. In contrast to the distribution of respondents in the Interaction Abroad Guttman scale, Lecturers and Research Scholars are

**Table IV-2. Continued foreign interaction: distribution of respondents among the Guttman scale types.**

Lecturers		Research Scholars		Teachers		Students	
Score	Frequency Percent	Score	Frequency Percent	Score	Frequency Percent	Score	Frequency Percent
0	57	0	46	0	137	0	517
1	35	1	50	1	111	1	564
2	64	2	65	2	186	2	437
3	102	3	86	3	160	3	364
4	129	4	90	4	195	4	313
5	128	5	109	5	195	5	318
6	157	6	83	6	98	6	146
7	113	7	143				
		8	72				
	7%		6%		13%		19%
	5		7		10		21
	8		9		17		17
	13		11		15		14
	17		12		18		12
	16		15		18		12
	20		11		9		5
	14		19				
			10				

both characterized by a two-thirds majority in the high score range of the Continued Foreign Interaction dimension. Thus, while the particular focus of their roles overseas tends to differentiate Lecturers and Research Scholars in terms of the extent of their interaction with host nationals, the overall similarity of their statuses as professors in American colleges and universities does not appear to exert differential pressures that would be reflected in maintenance of established relationships.

In comparison with their distribution on the Interaction Abroad Guttman scale, the Teachers have a slightly lower percentage--45%--in the high score range of the continued foreign interaction dimension. Students, too, show a decrease in comparison with the previous scale--only 27% have scores of 4 or higher in the present instance. The concentration of Student grantees in the lower scale categories is not surprising since relatively few graduate students or fledgling Ph.D.'s have opportunity to influence organizational decisions about foreign candidates. Corresponding with friends abroad regarding educational opportunities, however, appears to be a frequent mode of continued contact and service, as is the arranging of introductions between subsequent grantees and friends overseas.

#### Sharing Overseas Experiences with Fellow Americans.

Data concerning another aspect of the grantees' subsequent international communication are summarized in the Guttman

scales concerning Internationally-Oriented Communication with Americans in Table IV-3. The number of items scaling for this dimension is the same for all groups; furthermore, there is rather close correspondence in the patterning of items in the scales for the Lecturers, Research Scholars, and Students.

As was the case with the scale concerning continued foreign interaction, the minimum interaction level for all groups in the present scale involves encouraging further interaction between Americans venturing abroad and host nationals (Item 12). For three groups the second scale level item involves possibly more active interpersonal assistance in international communication in the form of helping fellow Americans complete applications for overseas grants (Item 14). The maximum interaction represented on the scales for three of the groups involves presenting talks to American audiences concerning sojourn experiences or observations regarding overseas affairs (Item 7). It is interesting to note that the cutoff points on this item are highest for the teaching grantees, suggesting a possibly greater personal interest in mass communication among those who select roles focusing on interaction with groups of students. Thus, as the Guttman scale data indicate, Teachers who have made over 50 presentations and Lecturers who have made over 25 such public appearances tend to report all the other interaction experiences included in the scales. For Research Scholars, on the other hand, the

Table IV-3. Internationally-oriented communication with Americans: Guttman scale analysis.

Lecturers			Research Scholars			Teachers			Students		
Item <sup>1</sup>	Margin- al <sup>2</sup>	Cut- off <sup>3</sup>	Error <sup>4</sup>	Item	Margin- al	Cut- off	Error	Item	Margin- al	Cut- off	Error
12	87%	2	5.6%	12	90%	2	4.9%	12	83%	2	7.8%
14	80	2	8.4	14	84	2	5.7	17	74	2	12.1
11	64	2	11.3	23	55	2	14.3	14	65	2	11.8
23	57	3	13.5	11	52	2	8.6	9	54	4	14.5
9	43	4	9.4	9	30	4	7.9	23	34	4	12.9
10	24	2	9.4	10	22	2	7.7	10	21	2	7.3
7	18	5	4.5	7	17	4	5.6	7	11	6	4.9
Reproducibility: 91.1%			Reproducibility: 92.1%			Reproducibility: 89.7%			Reproducibility: 89.9%		

<sup>1</sup>The general content of the items is given below. For full wording see the questionnaire in Appendix II.

<sup>2</sup>The marginals indicate the percentage of subjects responding positively to the items.

<sup>3</sup>A respondent is considered to accept the item if he checks a response category at or beyond the designated cutoff level. Items 10, 11, 12, 14, and 17 are dichotomous and have been reflected so that a cutoff score of "2" indicates a positive response.

<sup>4</sup>Item reproducibilities may be calculated by subtracting the given error percentages from 100%.

# GENERAL CONTENT OF ITEMS:

- II-7. Number of talks concerning overseas experiences presented to American audiences.
- II-9. Range in types of groups addressed. Score 1 = None; 2 = One type checked; 3 = Two types; 4 = Three or more types.
- II-10. Radio or TV appearances related to overseas experiences.
- II-11. Newspaper reports concerning experiences abroad.
- II-12. Since return have referred Americans going abroad to foreign colleagues or friends.
- II-14. Since return have helped Americans apply for grants to go abroad.
- II-17. Since return have arranged correspondence between Americans and foreigners.
- II-23. Activity since return in internationally-oriented organizations (response categories reflected for this analysis).



cutoff point for this maximum interaction item occurs at the level of 15 public presentations. Among the Students this item at the cutoff level representing over five American public appearances is second highest on their scale. Their maximum American interaction experience among the scaled items involves radio or TV appearances related to their sojourns abroad.

Table IV-4 presents the distribution of respondents among the scale types within each group. As was the case in the overseas interaction Guttman scale, Lecturers tend to have a higher percentage of respondents in the high score range (4 and above) than do Research Scholars. Vis-a-vis continued foreign interaction, however, the two faculty groups had much the same distribution of respondents among the scale types. These group differences in distributions on the scales may be accounted for in terms of the focus of the items concerning interaction experiences. That is, items on the continued foreign interaction scale mainly concern interpersonal interaction, including efforts to continue established work relationships. Both the overseas interaction and the American interaction scales, on the other hand, include items relating to public appearances.

As noted previously, the item regarding non-professional talks to foreign audiences scaled for Lecturers but not for Research Scholars on the interaction abroad dimension. Furthermore, on the American interaction scale

Table IV-4. Internationally-oriented communication with Americans: distribution of respondents among the Guttman scale types.

Lecturers		Research Scholars		Teachers		Students	
Score	Frequency Percent	Score	Frequency Percent	Score	Frequency Percent	Score	Frequency Percent
0	66	0	45	0	117	0	385
1	53	1	52	1	103	1	329
2	143	2	167	2	144	2	388
3	89	3	115	3	172	3	512
4	133	4	141	4	235	4	421
5	134	5	85	5	162	5	166
6	68	6	57	6	86	6	320
7	99	7	82	7	63	7	138
	8%		6%		11%		15%
	7		7		10		12
	18		22		13		15
	12		16		16		19
	17		19		21		16
	17		11		15		6
	8		8		8		12
	13		11		6		5

the cutoff level for the maximum interaction was considerably higher for Lecturers than for Research Scholars--involving over 25 talks to American audiences as opposed to 15 or more. Thus it appears that Lecturers tend to be called upon--or tend to accept or even solicit--such public appearances more than Research Scholars. It seemed plausible to explain group differences in overseas interaction in terms of differential pressures and expectations in the two statuses. We could similarly suggest that following their award experiences Research Scholars tend to devote their free time to further data analysis or publication of results emanating from their work abroad; hence they are not so readily available for talks to university, community, and other groups as are their colleagues among the Lecturers. Moreover, to the extent that Research Scholars focused their overseas studies on relatively esoteric topics, they might have less to report to community audiences than would the Lecturers who spent more time observing their host communities. Vis-a-vis general talks to professional societies, as well, the Lecturers who spent more time interacting with a range of professionals overseas would have more to report concerning current developments in their disciplines abroad than would Research Scholars who had focused on rather restricted topics.

Aside from these considerations, a further possibility suggested by the data concerning group experience in

different interaction behaviors is that on the whole Lecturers and Research Scholars are recruited from different types of academicians, with those seeking or accepting lectureship opportunities oriented more toward mass communication in contrast to the possibly more data-oriented researchers. In future studies it would be interesting to explore whether the two groups do actually differ in occupational orientation and commitment.

On all the dimensions considered thus far, Teachers exhibit a fairly even distribution between low and high scorers--indeed, in the present case involving internationally-oriented communication with fellow Americans there is a 50%-50% split. While Students still tend to be low on this dimension, with only 39% in the high score range of 4 or above, this percentage is higher than those observed in the other two scales. It is not surprising that on the whole the Students' home environments offer more opportunities for public talks--or even radio or TV appearances--before community or university groups and provide newspaper publicity concerning their sojourn experiences.

### Factor Analysis

In the exploration of the grantees' overseas experiences we found that the Guttman scale and the factor dimension relating to interaction experiences showed a reasonably close correspondence in terms of item content. In the present instance regarding subsequent international communication, interesting differences in emphases appear in the

factor dimensions. Tables IV-5 and IV-6 present the orthogonal loadings on the two relevant factors.

In testing items for Guttman scalability we made a logical distinction between statements referring to post-award interaction with foreigners as contrasted with internationally-oriented interaction with fellow Americans. As Tables IV-5 and IV-6 indicate, a different configuration appears in the factor analysis. On one factor high loading items pertain to interpersonal international communication with both foreigners and Americans (Table IV-5). In contrast to this factor involving personal assistance to individuals interested in cross-cultural educational exchange, the other factor involving post-award communication has more of a mass public relations focus, with high loading items relating to appearances before different types of audiences as well as publicity emanating from other communication media (Table IV-6). Perhaps the differences in orientation in these two dimensions may best be illustrated by comments from two grantees. One Teacher thus summarized the assistance she had given foreign and American colleagues.

Since my Fulbright Teacher's grant . . . I have:

Helped guide the in-coming group around New York three different years;

Served on the interviewing committee to appraise American teacher applicants one year;

Helped three American teachers and two English teachers obtain Fulbright or British grants since;

Had reunions with Dr. Edith Ford (British Isles Fulbright administrator) on four different visits to Washington and New York;

Table IV-5. Interpersonal international communication: factor loadings.<sup>1</sup>

Factor Number: General Content of Items <sup>2</sup>	Varimax Rotation					Quartimax Rotation				
	IV Lec- turers	IV Research Scholars	I Tea- chers	IV Stu- dents		V Lec- turers	V Research Scholars	IV Tea- chers	VI Stu- dents	
II-12. Referred Americans to friends abroad.	.49	.48	.41	.38		.43	.43	.34	.31	
II-14. Helped Americans apply for grants.	.49	.41	.36	.33		.41	.40	.31	.28	
II-15. Served on selection committees.	.29	---	.18	.27		.25	---	.13	.26	
II-17. Arranged correspondence.	.46	.52	.33	.43		.42	.45	.27	.35	
II-18. Consulted foreigners re US education.	.51	.46	.46	.48		.48	.41	.41	.41	
II-19. Made arrangements with univ. for foreigners.	.42	.37	---	.36		.46	.34	---	.32	
II-20. Assisted foreigners in other type visits.	---	---	.37	.39		---	---	.31	.32	
II-22. Entertained foreigners in own home.	.44	.42	.46	.44		.42	.36	.38	.37	
II-23. Activity in internationally-oriented clubs.	---	---	.27	---		---	---	.22	---	
II-24. Maintained contact with host institution.	---	---	.38	---		---	---	.34	---	

II-25. Maintained contact with professionals abroad.	.36	---	.44	---	.39	---	.41	---
II-29. Donations to foreign libraries.	---	---	.39	.28	---	---	.35	.21
I-38. New professional relationships abroad.	.31	.26	.43	---	.34	.26	.44	---
SUM OF SQUARES:	2.21	1.88	2.57	1.82	1.84	1.44	1.78	1.04

<sup>1</sup>Factor loadings are given only for the items which make their maximum contribution to the factor according to the quartimax solution.

<sup>2</sup>For full wording of the items see the questionnaire in Appendix II.

Table IV-6. International public relations: factor loadings.<sup>1</sup>

Factor Number: General Content of Items <sup>2</sup>	Varimax Rotation					Quartimax Rotation				
	III Lec- turers	III Research Scholars	V Tea- chers	VI Stu- dents		III Lec- turers	III Research Scholars	V Tea- chers	III Stu- dents	
II-6. Informal talks re over- seas experiences.	.37	.26	.38	---		.36	.25	.36	---	
II-7. # formal talks to Americans re award year.	.75	.75	.67	.75		.74	.75	.69	.77	
II-9. Range in types of gps. addressed in US. <sup>3</sup>	.57	.61	.46	.67		.56	.62	.48	.70	
II-10. US radio or TV appearances.	.48	.43	.36	.30		.47	.41	.35	.30	
II-11. US newspaper reports of award experiences.	.57	.55	.39	.39		.56	.54	.41	.39	
II-23. Activity in internationally- oriented clubs.	.34	.29	---	.19		.33	.29	---	.23	
II-29. Donations foreign libraries.	.32	.25	---	---		.31	.27	---	---	
SUM OF SQUARES:	2.28	2.13	1.48	1.69		2.12	2.15	1.59	1.91	

151

<sup>1</sup>Factor loadings are given only for the items which make their maximum contribution to the factor according to the quartimax solution.

<sup>2</sup>For full wording of the items see the questionnaire in Appendix II.

<sup>3</sup>See Table IV-3 for scoring of responses to this item.



Entertained personally in my home for several days each, at least six incoming English teachers and five American teachers going to Britain to teach;

Established more than five hundred pen friend contacts between English and American school children; in fact, I am still arranging at least 30 at the present time;

Entertained three times this year an English exchange teacher of art. . . .

An educational administrator, on the other hand, gave this description of his post-award communication experiences:

While I was in Turkey I took many photographs. Indeed, I had more than 6,000 Kodachrome slides. I felt that I owed a great debt to the Fulbright people and to the teaching profession and to the people of Turkey and indeed to the world, and that I was under obligation to share my trip with others. Out of personal funds I purchased a fine projector and two screens--good visual equipment--and during the twelve months that followed my return I addressed more than ninety meetings or groups. Seventy-five of these I addressed at my own expense, paying my own transportation, providing my own equipment, etc. . . . Where real distance was involved I accepted a fee. . . . I deliberately, systematically put in a rugged, strenuous year, sharing my fine experience with interested people. The brother of one of the teachers I knew in Turkey is now studying here. . . . I've taken him around to many of the meetings at which I've spoken, and at the end of my talks I've always asked him, "Have I presented your country correctly?" And he would always agree that I had done a very sympathetic job in this. As a result of my taking him around, people began asking him to talk, and he often asked me to go along to his talks to make sure that he had represented his views of American life or his interpretations of it correctly. We developed a very close friendship, and I think a lot of people were influenced by our talks.

The results of the analyses presented thus far seem to undermine Guttman's contention that from a scale analysis it can be known what a factor analysis will show.

Clearly, no one-to-one correspondence appears between the unidimensional Guttman scales and the orthogonal factors. Logical considerations guiding the choice of items to input into the Guttman model produced one type of cumulative principle for classifying items and grantees in terms of their post-award interaction with foreigners on the one hand, and with Americans on the other. The mathematical factor analysis model, operating on the observed intercorrelations of the items rather than on the investigator's preconceptions, revealed a different summary principle for classifying the measures and respondents. In terms of the present research, both analyses produced meaningful dimensions--and rather than suggest that one analysis is "better" than the other, we would contend that doing both types of analyses is worthwhile. This is not saying that the analyses should be relied on to salvage the results of poorly conceptualized research. In such instances cumulative scales will probably not be found, and the output of the factor analysis may "resemble sausage meat that has failed to pass the pure food and health inspection"--a not uncommon outcome of indiscriminate application of factor analysis (Allport, 1958, p. 251).

Let us turn to a more detailed comparison of the dimensions revealed by the two types of analyses. As noted previously, the Guttman Continued Foreign Interaction Scales consist primarily of items relating to interpersonal

assistance to friends and colleagues abroad. Thus it is not surprising that correlations between scores on this dimension and those on the factor relating to interpersonal international communication range from  $r = .72$  for Lecturers and Teachers to  $r = .86$  for Students. These figures contrast with the correlations between scores on the Guttman Continued Foreign Interaction Scales and those on the International Public Relations factor, which average around  $r = .27$ .

The Guttman Internationally-Oriented Communication with Americans dimension includes items concerning interpersonal assistance to Americans interested in cross-cultural educational exchange as well as items relating to mass communication. However, it is interesting to note that these two types of items are not intermingled--the assistance items cluster at the bottom of the scales followed by the mass communication items (Table IV-3). Thus the Guttman patterning gives us an insight into the data not provided by the factor analysis. Individuals who make public appearances and use mass media to communicate with fellow Americans also tend to offer individual assistance. The converse, however, is not true--only a small proportion of those engaging in interpersonal interaction regarding international exchange report the mass communication activity. While the correlations between scores on this Guttman dimension and those on the factor concerning international public relations are higher, averaging around  $r = .72$ ,

there is still a non-trivial association between the scale and the factor relating to interpersonal international communication, with correlations averaging around  $r = .45$ .

As to the interrelationships of the dimensions within each mode of analysis, correlations between scores on the Guttman Continued Foreign Interaction and the American Interaction scales range from  $r = .32$  for Lecturers to  $r = .39$  for Teachers. On the two related factors, the correlation (from scores computed for an oblique solution) between the Interpersonal International Communication and the Public Relations factors range from  $r = .24$  for Lecturers to  $r = .38$  for Teachers.

#### Cluster Analysis

As Table IV-7 indicates, there is a close correspondence between the cluster relating to international public relations and the comparable factor. In both analyses the high loading items pertain to formal talks to a variety of groups as well as to other communication media. The mass communication emphasis of this dimension is further underscored in the oblique cluster for Research Scholars, where an item relating to non-professional talks overseas is also included in the cluster space.

In this Tryon Cluster Analysis involving dependent items, a dimension comparable to the interpersonal international communication factor appears only for the Students. The rank ordering of loadings on the cluster items is

Table IV-7. International public relations: cluster loadings.

Cluster Number: General Content of Items <sup>1</sup>	Initial Clustering				Oblique Rotation			
	II Lec- turers	VI Research Scholars	IV Tea- chers	I Stu- dents	II Lec- turers	VI Research Scholars	IV Tea- chers	I Stu- dents
II-6. Informal talks re overseas experiences.	.46	---	---	---	.47	---	---	---
II-7. # formal talks to Americans re award year.	.80	.75	.74	.81	.81	.81	.76	.81
II-9. Range in types of gps. addressed in US.	---	.65	.62	.80	.57	.76	.64	.80
II-10. US radio or TV appearances.	---	---	---	---	.47	.44	---	---
II-11. US newspaper reports of award experiences.	.63	.43	.42	.39	.65	.48	.42	---
II-23. Activity in internationally-oriented clubs.	.40	---	---	---	.42	---	---	---
B-2. Non-professional lectures since return.	---	.49	.53	.58	.50	.62	.59	.58
I-28. Non-professional talks overseas.	---	---	---	---	---	.34	---	---

<sup>1</sup>For full wording of items see the questionnaire in Appendix II.

<sup>2</sup>Frequencies from items relating to publications, concerts, exhibits, lectures, and other works were included with the other dependent items in this cluster analysis. This particular item from the bibliographic data sheet (see Appendix II) actually is somewhat redundant since questionnaire item II-7 covers talks to American audiences--however, II-7 includes professional lectures as well.

similar to that for the related factor. It is not obvious why the cluster analysis did not include this dimension for the other three groups. The summary of cluster loadings indicates that for these groups the items pertaining to interpersonal international communication have their highest loadings on the overseas interaction cluster. As we shall note in Chapter VIII, in another cluster analysis involving the full matrix of background and dependent items, the interpersonal international communication cluster is isolated in the Research Scholars' analysis, as well as in the Students' clustering; furthermore, this dimension appears as part of a composite cluster extracted in the Teachers' analysis. For Lecturers, however, the dimension does not appear as a separate cluster in any analysis.

#### Relation of Background Variables to Post-award Communication Dimensions

In exploring the relationship between certain characteristics of grantees and their subsequent international communication experiences, we shall consider data from three sources: multiple regression analyses involving background items and the two Guttman scales as well as the two factors just discussed; analyses concerning the relative loadings of background items on dependent cluster dimensions; and cross-tabular analyses involving background items and scores on the Guttman scales.

The multiple regression analyses concerning post-award experiences include items regarding subsequent changes in residence and in academic degrees, in addition to the information regarding characteristics of grantees antecedent to their sojourns abroad. As in the analysis concerning overseas interaction, information regarding academic degrees is omitted for the senior scholars (inasmuch as the item concerning degree change is essentially a zero-variance variable for Lecturers and Research Scholars); however, the item concerning post-award changes in academic degree is included in the Teachers' and Students' analyses. Similarly, information regarding present occupation is absent in the senior scholars' analyses (since most were college faculty members), but it appears for Teachers and Students. As in the case of the multiple regression analysis of overseas interaction, the three dummy variables concerning field of work abroad are not included in the Teachers' analysis, and the item regarding geographic region of host country is omitted in the Students' analysis.

Since the overseas interaction dimension is antecedent to the post-award dimensions, the multiple regression analyses of subsequent communication experiences include scores from the interaction abroad factor along with other items concerning antecedent or concurrent characteristics of grantees. Thus, in addition to the overseas interaction scores, thirteen of the sixteen variables

described in Appendix III were input in the analysis for Lecturers and Research Scholars (items 69, 72, and 72 x 73 were omitted); twelve independent variables were included in the Teachers' analysis (item 72 and the three representations of item 66 were omitted); and fourteen were involved in the Students' analysis (items 55 and 72 were excluded).

Tables IV-8 through IV-11 summarize the results of the multiple regression analyses involving the background items just described and each of the four dimensions pertaining to the grantees' post-award communication experiences. As indicated in Chapter I, the tables present the best least squares values for the weighting coefficients for variables making significant contributions in the regression equations.

For all categories of award holders, scores on the Interaction Abroad factor dimension are significantly associated with scores on all four of the subsequent interaction indices. Before considering other associations among independent variables and dependent dimensions, let us also present data concerning the relative loadings of the same background items on the cluster relating to interpersonal international communication (Table IV-12) as well as on the cluster pertaining to international public relations (Table IV-13). As we shall note in the following discussion of some of the major findings of these analyses, there is relatively close agreement among the multiple regression, cluster loading, and Guttman cross-tabular data in the identification of associations among



Table IV-8. Guttman continued foreign interaction scales: multiple regression analyses.

Lecturers				
Coefficient of Multiple Determination = .35, $p < .0005$				
Standard Error of Dependent Guttman Scale, $y = 1.66$				
Intercept Constant = -1.17				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.12	.01	19.64	.57
Humanities + Arts	-.66	.14	-4.52	-.14
Social Sciences	-.45	.15	-2.98	-.09
City size then	-.11	.04	-2.67	-.08
Europe + Oceania	.32	.12	2.59	.08
Application requested	.25	.13	1.96	.06
-----				
Research Scholars				
Coefficient of Multiple Determination = .39, $p < .0005$				
Standard Error of Dependent Guttman Scale, $y = 1.86$				
Intercept Constant = 11.56				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.13	.01	19.19	.57
Period of award	-.12	.03	-3.77	-.11
Took family abroad	.53	.16	3.24	.10
Application requested	.62	.22	2.82	.08
Humanities + Arts	-.33	.15	-2.16	-.06

# Teachers

Coefficient of Multiple Determination = .17,  $p < .0005$   
 Standard Error of Dependent Guttman Scale,  $y = 1.70$   
 Intercept Constant = .11

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.06	.01	11.62	.33
Age	.14	.03	4.98	.14
Period of award	-.09	.02	-4.07	-.12
Teacher now	-.34	.11	-3.04	-.09
State then	.31	.11	2.82	.08
British Isles	-.25	.11	-2.19	-.06

# Students

Coefficient of Multiple Determination = .21,  $p < .0005$   
 Standard Error of Dependent Guttman Scale,  $y = 1.64$   
 Intercept Constant = -1.19

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.08	.003	24.62	.43
Period of award	-.09	.02	-5.63	-.10
City size then	-.09	.02	-4.02	-.07
Degree change	.13	.04	3.66	.06
Age	.12	.04	2.70	.05

Table IV-9. Guttman internationally-oriented communication with Americans scales: multiple regression analyses.

Lecturers				
Coefficient of Multiple Determination = .25, $p < .0005$				
Standard Error of Dependent Guttman Scale, $y = 1.81$				
Intercept Constant = .14				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.08	.01	12.47	.39
Europe + Oceania	-.94	.13	-7.11	-.22
Natural Sciences	-.83	.19	-4.45	-.14
Humanities + Arts	-.39	.15	-2.51	-.08
City size then	.11	.04	2.48	.08
-----				
Research Scholars				
Coefficient of Multiple Determination = .16, $p < .0005$				
Standard Error of Dependent Guttman Scale, $y = 1.81$				
Intercept Constant = 7.49				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.06	.01	9.79	.33
Natural Sciences	-.66	.16	-4.18	-.14
Europe + Oceania	-.51	.18	-2.80	-.10
Took family abroad	.44	.16	2.75	.09
Period of award	-.08	.03	-2.56	-.09
-----				

# Teachers

Coefficient of Multiple Determination = .15,  $p < .0005$   
 Standard Error of Dependent Guttman Scale,  $y = 1.81$   
 Intercept constant = -.67

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.06	.01	11.04	.32
Age	.13	.03	4.35	.12
Period of award	-.07	.02	-2.95	-.08
Language competence	.18	.06	2.85	.08
Home state then	.33	.12	2.71	.08

# Students

Coefficient of Multiple Determination = .13,  $p < .0005$   
 Standard Error of Dependent Guttman Scale,  $y = 1.93$   
 Intercept Constant = .20

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.06	.004	15.18	.28
Age	.34	.05	6.42	.12
Natural Sciences	-.59	.12	-4.96	-.09
City size then	.11	.02	4.48	.08
Period of award	-.07	.02	-3.84	-.07
Professor now	.28	.08	3.37	.06
Initiated application	-.26	.08	-3.12	-.06
Home state then	-.21	.08	-2.76	-.05
Male	-.19	.08	-2.34	-.04

Table IV-10. Interpersonal international communication factors: multiple regression analyses.

Lecturers				
Coefficient of Multiple Determination = .29, $p < .0005$				
Standard Error of Dependent Factor, $y = 8.54$				
Intercept Constant = 24.03				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.51	.03	16.61	.51
Europe + Oceania	2.15	.63	3.40	.10
Natural Sciences	2.92	.88	3.31	.10
Size of city then	-.52	.22	-2.43	-.07
Application requested	1.56	.66	2.38	.07
Humanities + Arts	-1.72	.74	-2.34	-.07
-----				
Research Scholars				
Coefficient of Multiple Determination = .28, $p < .0005$				
Standard Error of Dependent Factor, $y = 8.49$				
Intercept Constant = 72.62				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.50	.03	15.92	.50
Took family abroad	3.26	.83	3.93	.14
Period of award	-.52	.14	-3.69	-.12
Male	2.49	1.20	2.08	.07
-----				

# Teachers

Coefficient of Multiple Determination = .28,  $p < .0005$   
 Standard Error of Dependent Factor,  $y = 8.55$   
 Intercept Constant = 22.63

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.47	.03	17.75	.47
Age	1.01	.14	7.24	.19
Home state then	1.26	.55	2.27	.06
Initiated application	-1.42	.65	-2.19	-.06
British Isles	-1.16	.55	-2.12	-.05

# Students

Coefficient of Multiple Determination = .27,  $p < .0005$   
 Standard Error of Dependent Factor,  $y = 8.64$   
 Intercept Constant = 27.26

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.46	.02	27.05	.45
Period of award	-.66	.08	-7.98	-.14
Age	1.33	.23	5.65	.10
Size of city then	-.41	.11	-3.70	-.06
Degree change	.62	.21	2.98	.06
Language competence	.51	.21	2.47	.04
Natural Sciences	-1.29	.53	-2.44	-.04
Professor now	.87	.39	2.24	.04

Table IV-11. International public relations factors: multiple regression analyses.

Lecturers				
Coefficient of Multiple Determination = .36, $p < .0005$				
Standard Error of Dependent Factor, $y = 8.02$				
Intercept Constant = 34.62				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.38	.03	13.07	.38
Europe + Oceania	-7.44	.59	-12.55	-.37
Natural Sciences	-4.11	.83	-4.95	-.15
City size then	.79	.20	3.89	.11
Humanities + Arts	-2.37	.69	-3.43	-.10
Application requested	-1.53	.62	-2.48	-.07
-----				
Research Scholars				
Coefficient of Multiple Determination = .20, $p < .0005$				
Standard Error of Dependent Factor, $y = 9.01$				
Intercept Constant = 73.91				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.37	.03	11.11	.37
Europe + Oceania	-4.97	.90	-5.51	-.18
Natural Sciences	-1.88	.77	-2.43	-.08
Post-award mobility	-1.11	.49	-2.29	-.08
-----				

## Teachers

Coefficient of Multiple Determination = .21,  $p < .0005$   
 Standard Error of Dependent Factor,  $y = 8.90$   
 Intercept Constant = 74.22

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.33	.03	11.93	.33
Age	1.06	.15	7.30	.20
City size then	.79	.19	4.13	.11
Period of award	-.40	.12	-3.31	-.09
Home state then	1.87	.60	3.12	.09
Language competence	.88	.32	2.79	.08
Male	-1.54	.57	-2.72	-.07

## Students

Coefficient of Multiple Determination = .15,  $p < .0005$   
 Standard Error of Dependent Factor,  $y = 9.32$   
 Intercept Constant = 64.63

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.27	.02	15.03	.27
Age	2.56	.25	10.31	.19
City size then	.93	.12	7.67	.14
Initiated application	-2.30	.40	-5.76	-.10
Period of award	-.34	.09	-3.98	-.07
Natural Sciences	-2.05	.63	-3.33	-.06
	-1.16	.39	-3.00	-.06
	-.86	.40	-2.16	-.04

*Male*  
*Humanities + Arts*



Table IV-12. Loadings of background variables on the interpersonal international communication cluster dimension.

	Research Scholars <sup>1</sup>	Teachers <sup>1</sup>	Students
<u>Background Item:<sup>2</sup></u>			
55. Host country	.09	-.57	---
58. Sex: male	.07	.28	.01
59. Age at award time	-.01	.30	.09
60. Period of award	-.13	-.05	-.18
61. Home state at award time	.01	-.03	.06
63. Post-award mobility	-.10	.13	.02
64. Size of home city then	-.02	-.12	-.08
66. Natural Sciences	-.08	---	-.04
66. Social Sciences	.08	---	.04
66. Humanities + Arts	-.05	---	-.06
69. Present occupation	---	-.38	.03
70. Language competence	.03	-.31	.13
71. Reason for application	.05	-.20	-.05
72 x 73. Degree change	---	-.01	.08
II-44. Took family abroad	.10	.21	.05

<sup>1</sup>The loadings for Research Scholars and Teachers are from the cluster analysis of the full set of background and dependent items (see Chapter VII), inasmuch as this dimension appears only for Students in the cluster analysis of dependent variables. The dimension was not isolated in any of the analyses for Lecturers.

<sup>2</sup>See Appendix III for coding of background items.

Table IV-13. Loadings of background variables on the international public relations cluster dimension.

Background Items: <sup>1</sup>	Lecturers	Research Scholars	Teachers	Students
55. Host country	-.43	-.24	-.15	---
58. Sex: male	-.17	-.08	-.09	-.05
59. Age at award time	.09	.16	.25	.19
60. Period of award	-.01	.01	-.06	-.09
61. Home state at award time	-.10	.06	.16	-.04
63. Post-award mobility	-.004	-.08	-.07	-.02
64. Size of home city then	.15	.08	.13	.15
66. Natural Sciences	-.13	-.06	---	-.08
66. Social Sciences	.04	.08	---	.02
66. Humanities + Arts	-.16	-.05	---	-.02
69. Present occupation	---	---	.09	.06
70. Language competence	-.08	.07	.23	.08
71. Reason for appli- cation	-.18	.04	-.03	-.12
72 x 73. Degree change	---	---	-.04	.05
II-44. Took family abroad	-.10	.10	-.01	.03

<sup>1</sup>See Appendix III for coding of background items.

background variables and dependent communication dimensions.

With reference to the grantees' host countries, interesting differences appear in relation to the post-award interaction indices. While Lecturers who sojourned in Europe and Oceania tend to be the high scorers for their group on the Guttman continued foreign interaction scale and on the interpersonal international communication factor (see the multiple regression data in Tables IV-8 and IV-10), the converse is true on the Guttman American interaction dimension and on the factor as well as the cluster dimensions concerning international public relations (Tables IV-9, IV-11, and IV-13). Indeed, cross-tabulations involving the host country item and Guttman scale data indicate that among the Lecturers, approximately four-fifths of these sojourning in Europe or in Oceania scored high on the continued foreign interaction dimension, in contrast to 57% who scored high on the Guttman American interaction index. On the latter dimension, 73% of the Lecturers who sojourned in the Far East and in the Near and Middle East were among the high scorers.

Much the same pattern appears for Research Scholars. As the multiple regression and cluster loading data indicate, host country makes an important difference in post-award communication with fellow Americans (Tables IV-9, IV-11, and IV-13). According to cross-tabulations involving host country and the Guttman American interaction scale, Research Scholars who sojourned in Europe and Oceania have fewer high scorers

than do those whose awards took them to the Far East (50% vs. 60%). With reference to continued foreign interaction and interpersonal international communication, the differences between Research Scholars who sojourned in Europe or Oceania and those in other regions is not identified as significant in the multiple regression analyses; however, the positive loading for host country on the interpersonal international communication cluster (Table IV-12) suggests the same trend in relationship as observed for the Lecturers. This general trend is also supported by the cross-tabular data, which indicates that Research Scholars sojourning in Europe and Oceania score slightly higher on the Guttman continued foreign interaction scale than do their colleagues in the Far East (75% vs. 71% among the high scorers).

As was true of the senior scholars, Teachers sojourning in Far Eastern countries also tend to have more high scorers on the Guttman American interaction scale than do those in Europe and Oceania (61% vs. 55%). This relative concentration of Far Eastern grantees among the high scorers on the American interaction scale probably reflects a greater interest by American audiences in learning more about less familiar countries.

For Teachers and Students a consistent linear relationship appears between age and scores on all four communication dimensions. The findings of the multiple regression and cluster loading analyses (Tables IV-8 through IV-13) are confirmed by the cross-tabular data which indicate

that high scorers on the Guttman continued foreign interaction scale include 61% of the Teachers over 51 but only 28% of those under 30, and high scorers on the Guttman American interaction scale comprise 56% of the Teachers over 51 in contrast to 40% of those under 30. Similarly for Students, the Guttman continued foreign interaction scale includes 46% of those over 30 and 41% of those under 25 in the high score range, and high scorers on the Students' Guttman American interaction scale comprise 51% of those over 30 as opposed to 37% of those under 25.

Irregularities appear in the relationship between age and subsequent interaction for Lecturers and Research Scholars. For these groups a middle age category tends to have higher scores, particularly with reference to the dimensions concerning communication with fellow Americans. That is, on the Guttman American interaction scale a higher proportion of Lecturers and Research Scholars in the 40 to 50 age range are among the high scorers (60% and 56%, respectively) than is true of their peers under 30 (48% and 37%, respectively, among the high scorers) or of their colleagues over 51 (55% and 48%, respectively, in the high range).

With reference to the sex attribute, interesting differences appear in the grantees' post-award communication patterns. While the attribute "male" is identified as significant only for Research Scholars in the multiple regression analysis concerning interpersonal international

communications (Table IV-10), the cluster loading data suggest a similar association for Teachers (Table IV-12), and high scorers on the Students' Guttman continued foreign interaction scale also include slightly more males than females (44% vs. 40%). The pattern is reversed on the Guttman continued foreign interaction scale for Lecturers, however, with 76% of the females as contrasted to 66% of the males among the high scorers.

As to the dimensions concerning internationally-oriented communication with fellow Americans, females tend to be the high scorers among all categories of grantees. While this relationship is identified as significant in multiple regression analyses only for Teachers (Table IV-11) and Students (Tables IV-9 and IV-11), the negative loadings of the sex attribute on the public relations cluster suggest a similar trend for Lecturers and Research Scholars, as well (Table IV-13). These findings are confirmed in the distributions of respondents on the Guttman American interaction scales, where females consistently have higher proportions among the high scorers--64% vs. 54% for Lecturers; 57% vs. 48% for Research Scholars; 54% vs. 44% for Teachers; and 44% vs. 37% for Students.

Another background variable showing significant association with some of the subsequent communication indices concerns the reason for the grantees' applications (Tables IV-8 through IV-11). Among Lecturers, Research Scholars, and Teachers high scorers on the dimensions concerning

continued foreign interaction and interpersonal international communication tend to come from those whose applications were requested--and in particular requested by an overseas university, school, or agency (see also the cluster loading data in Table IV-12). On the Guttman continued foreign interaction scale, high scorers include 70% of the Lecturers, 88% of the Research Scholars, and 78% of the Teachers whose applications were requested by institutions abroad. Since this subsample of grantees presumably was selected to consult or collaborate on relatively specific topics of importance to their host institutions, it is not surprising that the consultancy and collaboration has continued even after the grantees' return.

According to the cluster loading data (Table IV-13) and to the multiple regression analysis for Research Scholars (Table IV-11), post-award mobility tends to have a negative effect on internationally-oriented public relations. In general, grantees who have moved to a different census region since their sojourns report fewer communication experiences--probably because they are less well known in their new environments and possibly less available for public appearances because of other pressures involved in resettling. On the Guttman American interaction scales the following differences appear in the distribution of high scorers among those residing in the same state as they had before their awards as contrasted to those who have moved to a new census division: 58% vs. 48% for Lecturers; 51% vs.

48% for Lecturers; 51% vs. 39% for Research Scholars; 57% vs. 45% for Teachers; and 40% vs. 36% for Students.

Another post-award variable affecting the opportunities for Students to share their experiences with fellow Americans involves their subsequent occupational choices (see Tables IV-9 and IV-13). In general, those who are currently involved in educational roles report more communication experiences than do their peers following other pursuits. On the Guttman American interaction scale, for example, high scorers include 43% of the Students who are now college professors, 56% who are now Teachers, and 72% who are educational administrators, in contrast to 35% of the group now in business, and 28% of the professional practitioners (physicians, engineers, architects, etc.).

Much of the post-award internationally-related interaction considered in this chapter has involved communication relevant to the grantees' professional roles. In the next chapter we shall concentrate specifically on the impact of the sojourn experiences on the grantees' professional development and advancement.



## CHAPTER V

### PROFESSIONAL CONSEQUENCES

Among the most significant outcomes of international educational exchange of persons are those related to the grantees' professional contributions. While few former award holders have dramatic discoveries to report, still the cumulative amassing of new knowledge and the insights shared with colleagues and students both at home and overseas are of tremendous significance. Indication of the impact of some of the research collaboration made possible by the exchange program for the betterment of human welfare is given by the following observations from one researcher:

I feel that the Fulbright Commission, the American Cancer Society, the cause of cancer research, and I myself have been more than adequately served by my years abroad. There is no way to measure its value, but I feel that this grant may materially shorten the world's wait for cancer control. It has given me a perspective which, through journals I write for and personal contacts with many hundreds of scientists, I have been able to pass along.

In this chapter we shall consider the grantees' reports concerning the contributions of their award experiences to their professional development, advancement, and achievements.

## Analyses Dimensionalizing Professional Consequences

## Guttman Scaling

Almost all of the respondents concurred that a new perspective on their work was one of the major professional benefits derived from their overseas experiences. As the Guttman scales summarized in Table V-1 indicate, items pertaining to new insights and materials for courses and related professional work appear in the most popular score categories for all groups. Among those commenting on the significance of such professional assets were the following:

If it had not been for the Fulbright award about one-fifth of my volumes would not be here. Many of them are rare books that I could have found nowhere except in Italy; they are not available even in good American libraries. Then these file drawers contain original manuscripts and notes on Florentine art, plus the hundreds of photographs of original paintings that the grant made it possible for me to take. These data are absolutely essential for the monographs I am preparing, but it will take several years. Of equal importance are the new ideas and insights that come from intensive study of the original works in their settings; nothing can replace that.

Learning to apply our advanced knowledge and skills in a culture where modern equipment and drugs are not available has given me deeper insight into the essential aspects of therapy. This sort of perspective is necessary for training general practitioners for rural areas in our country, and it is certainly a prerequisite for providing adequate training for students from underdeveloped countries who will return to practice medicine in their homelands. When we train people in our schools, we should have men on the faculty who have had actual experience in the countries from which the students come. Otherwise we will train them in skills that will be impossible for them to apply when they go home.

Table V-1. Professional consequences: Guttman scale analysis.

Lecturers			Research Scholars			Teachers			Students		
Item <sup>1</sup>	Margin- al	Cut- off	Error <sup>4</sup>	Item	Margin- al	Cut- off	Error	Item	Margin- al	Cut- off	Error
30	90%	2	4.9%	40	92%	2	3.6%	36	88%	2	4.9%
40	86	2	5.9	36	85	2	6.5	34	72	2	13.8
36	82	2	6.7	42	83	2	7.9	44	70	2	5.1
44	63	2	5.6	44	68	2	8.1	43	57	2	4.4
43	48	2	3.0	39	53	2	11.8	32	22	2	4.8
32	27	2	3.5	32	40	2	10.3	31	21	2	7.2
31	8	2	1.5	31	16	2	5.6				
Reproducibility: 95.5%			Reproducibility: 92.2%			Reproducibility: 93.2%			Reproducibility: 89.9%		

<sup>1</sup>The general content of the items is given below. For full wording see the questionnaire in Appendix II.

<sup>2</sup>The marginals indicate the percentage of subjects responding positively to the items.

<sup>3</sup>All the items in these scales are dichotomous and have been reflected; therefore, a cutoff score of "2" indicates a positive response.

<sup>4</sup>Item reproducibilities may be calculated by subtracting the given error percentages from 100%.

# GENERAL CONTENT OF ITEMS:

- I-30. Believe receiving the award professionally beneficial.
- I-31. Award helped in getting a new position, fellowship, etc.
- I-32. Award contributed toward promotion, salary increase.
- I-34. Experience afforded me new skills which I now use.
- I-36. Provided new material and interpretations for courses or work.
- I-38. Experience provided new professional relations abroad.
- I-39. Experience made possible new professional relations in the US.
- I-40. Experience gave new perspective on field of work.
- I-41. Provided material for a thesis.
- I-42. Furnished data or ideas for subsequent research, compositions, works of art, etc.
- I-43. Award resulted in more recognition from administrative superiors.
- I-44. Award resulted in more recognition from professional colleagues.

As this comment indicates, many former award holders are strongly committed to using their new insights in serving their professions and advancing knowledge both at home and overseas. In the previous chapter we discussed some aspects of the continued interaction between American grantees and host nationals. The following description from a natural scientist provides further evidence of the extensive communication networks sometimes developed to continue collaboration on research initiated during a grantee's sojourn:

The programs of study of "fundamental particles" utilizing photographic emulsion techniques which were undertaken at Padova, Italy have continued since my departure. There has been a close collaboration between the emulsion groups at Wisconsin and Padova for the past one and a half years. Photographic emulsions have been exposed to the atomic accelerator . . . at Berkeley, processed at Wisconsin, and one half of the processed stock has always been sent to Padova. The results have been combined with those from Wisconsin and published together. The collaboration has been a very successful one in terms of results and new ideas. It has been particularly helpful for Padova since the only large accelerator that is accessible (there is one in Russia) is the accelerator at Berkeley. If exposures were not made by someone in the United States, the group at Padova could not work on these problems. . . . It is expected that the collaboration with Padova will continue. . . .

In addition to acquiring knowledge and skills contributing to their professional development--and to their professions, as well--some grantees report actual professional advancement accruing from their overseas experiences and subsequent publications. Indeed, items pertaining to professional prestige and tangible evidence of recognition

such as promotions, new opportunities, etc. scale at the maximum end of the Guttman dimensions for all groups. Thus, respondents reporting such recognition also indicate that the awards contributed to their professional development. One Teacher enumerated some of the benefits included in this dimension as follows:

Professional advantages and contributions resulting from the award: (1) An understanding and appreciation of the methods of teaching a foreign language in the French schools resulting in a desire to improve our foreign language teaching in the United States, in particular in my community where I had been teaching; (2) Recognition on the part of school administrators of the value of my experience and a chance provided to introduce a French program in the elementary schools; (3) Development of a FLES program, grades 3-12, in our community under my direction . . .; (4) Offer to be an instructor in charge of a summer session workshop on the teaching of foreign languages in elementary schools at a state university--position gladly accepted!; (5) Numerous appointments on professional committees as a result of the above work which grew largely out of my experience and knowledge gained as an exchange teacher.

While invitations to give professional papers and serve on certain types of committees provide former grantees with some criteria by which to judge the possible increment in professional prestige resulting from their work abroad, assessing reactions from administrators often proves more difficult. It is interesting to note that the item pertaining to administrative recognition scales only for Lecturers and Teachers. Interviews with educational administrators indicate that while the awards have a secondary reinforcement value for some faculty members, inasmuch as the grants provide an outside source of confirmation

regarding the competence of the personnel the administrators selected, in general the main effect of the awards is to make the grantees more visible in their home settings so that evaluations of their subsequent publications become more salient--a factor having obvious implications for professional advancement.

Table V-2 presents the distribution of grantees among the Guttman scale types for the professional consequences dimension. As might be expected, Research Scholars have the highest proportions in the high score categories, with 68% scoring 4 or above. Lecturers are not far behind, with 63% in this range; Teachers, however, are again close to an even split among low and high scorers. In contrast to the distribution of respondents on the interaction and communication dimensions, Students have a larger proportion in the high range of the Guttman professional consequences scale, with 58% scoring 5 or higher.

### Factor Analysis

As already indicated, the Guttman professional consequences scales include items concerning two related aspects of professional outcomes of the awards--the contributions to the grantees' insight into their field, as well as the recognition accorded them as a result of their work abroad. In the factor analysis of dependent variables, however, items pertaining to each of these two consequences load on separate factors (Tables V-3 and V-4). As in the

**Table V-2. Professional consequences: distribution of respondents among the Guttman scale types.**

Lecturers	Research Scholars	Teachers	Students
Score Frequency Percent	Score Frequency Percent	Score Frequency Percent	Score Frequency Percent
0 47 1 38 2 33 3 175 4 132 5 154 6 150 7 56	0 41 1 33 2 41 3 121 4 117 5 143 6 174 7 74	0 99 1 95 2 172 3 148 4 337 5 91 6 140	0 146 1 119 2 255 3 355 4 234 5 365 6 395 7 335 8 455
6% 5 4 22 17 20 19 7	6% 4 6 16 16 19 23 10	9% 9 16 14 31 8 13	6% 4 10 13 9 14 15 12 17



Table V-3. Professional development: factor loadings.<sup>1</sup>

Factor Number: General Content of Items: <sup>2</sup>	Varimax Rotation					Quartimax Rotation				
	VI Lec- turers	VI Research Scholars	VI Tea- chers	V Stu- dents		VI Lec- turers	VI Research Scholars	VII Tea- chers	VII Stu- dents	
I-30. Believe award professionally beneficial.	.43	.39	.42	.49		.40	.36	.40	.40	
I-34. Experience afforded me new skills I now use.	.38	.30	.36	.32		.39	.30	.35	.27	
I-36. Provided new material for courses and work.	.63	.50	.60	.57		.62	.48	.60	.49	
I-40. Experience gave new perspective on field.	.56	.54	.50	.53		.55	.51	.49	.46	
I-42. Furnished data or ideas for subsequent works.	.42	.45	--	--		.45	.46	--	--	
SUM OF SQUARES:	1.75	1.56	1.37	1.71		1.68	1.40	1.27	.95	

<sup>1</sup>Factor loadings are given only for the items which make their maximum contribution to the factor according to the quartimax solution.

<sup>2</sup>For full wording of the items see the questionnaire in Appendix II.

Table V-4. Professional prestige: factor loadings.<sup>1</sup>

Factor Number: General Content of Items: <sup>2</sup>	Varimax Rotation				Quartimax Rotation			
	V Lec- turers	V Research Scholars	IV Tea- chers	VII Stu- dents	IV Lec- turers	IV Research Scholars	III Tea- chers	IV Stu- dents
I-31. Award helped get new position, fellowship.	.33	.19	--	.39	.32	.21	--	.41
I-32. Contributed toward promotion, raise.	.58	.48	.26	.47	.58	.49	.35	.48
I-39. Resulted in new US professional relationships.	.27	.29	.30	--	.30	.31	.32	--
I-43. More recognition from administrators.	.69	.66	.64	.61	.70	.67	.68	.63
I-44. More recognition from colleagues	.52	.56	.62	.54	.56	.58	.65	.58
I-45. Prestige of awards has had little effect on professional status (reflected item).	.50	.53	.49	.44	.52	.53	.52	.42
SUM OF SQUARES:	1.88	1.67	1.52	1.67	2.06	1.77	1.88	1.88

185

<sup>1</sup>Factor loadings are given only for the items which make their maximum contribution to the factor according to the quartimax solution.

<sup>2</sup>For full wording of the items see the questionnaire in Appendix II.

divergence between the Guttman scaling and the factor dimensions concerning subsequent international communication, the differences observed here are rather easily reconciled.

Inspection of the patterning of items in the Guttman scales in Table V-1 reveals that on the whole the Guttman scaling preserves the integrity of the item clusters. As indicated earlier, items concerning professional development occur at the low end of the scales, followed by those pertaining to prestige and recognition. For Students, however, the pattern is not so clear as it is for the other grantees since only one item pertaining directly to professional advancement (item 32) appears in their dimension, followed by the maximum item on their scale--concerning provision of dissertation material (item 41).

According to the factor analysis, the professional development factor is not an important contributor in accounting for the Teachers' and Students' dependent item intercorrelations. That is, for these two groups the eigenvalues for the professional development factors (the seventh factor in each analysis in terms of the rank ordering for the total variance accounted for by the factors) fall below the Kaiser criterion described in Chapter I. That is, the seventh eigenvalue is .79 for Teachers and .74 for Students. Indeed, for Teachers only five factors meet the Kaiser criterion, since the sixth eigenvalue is only .88. The sixth factor for Teachers consists of a triplet of items

involving a denial of negative assessments concerning the professional value of experience abroad (items I-52, I-53, and II-41 in the questionnaire in Appendix II).

For the Students, however, six factors meet the Kaiser criterion. We have already discussed four of these factors, and another will be described in the next chapter concerning general evaluations of the award experiences. The remaining dimension is a unique one to the Student group, so far as the factor analyses are concerned. This factor is highly loaded with items concerning professional relations Students established overseas and have maintained since their return (Table V-5). The instrumental, task-orientation involved in this factor is suggested by the items concerning collaborating with host nationals on research abroad, collecting data for subsequent professional work and for dissertations in particular, and even presenting professional lectures or exhibits while overseas. This professional goal emphasis is further underlined by the lack of relationship between the factor and the item concerning the number of foreign students contacted on an extracurricular basis overseas (Item I-24, loading  $-.06$ ).

### Cluster Analysis

As Tables V-6 and V-7 indicate, the cluster analysis of dependent variables agrees with the factor analysis in extracting essentially the same groupings of items relating

Table V-5. Enduring professional relations: factor loadings.

General Content of Items <sup>1</sup>	Students	Varimax Rotation	Quartimax Rotation
	Factor Number:		
	III		I
I-22. Collaboration with foreigners on research abroad.		.37	.39
I-26. # of professional lectures, concerts, exhibits presented overseas.		.28	.29
I-38. Experience made possible new professional relationships abroad.		.60	.68
I-39. It made possible new professional relationships in the US.		.34	.41
I-41. Furnished material for a thesis.		.17	.28
I-42. Furnished data or ideas used in subsequent work since return.		.31	.43
II-24. Have maintained contact with host institution abroad.		.34	.36
II-25. Have maintained contact with professionals overseas.		.61	.67

<sup>1</sup>For full wording of items see the questionnaire in Appendix II.

Table V-6. Professional development: cluster loadings.

Cluster Number: General Content of Items: <sup>1</sup>	Initial Clustering					Oblique Rotation				
	V Lec- turers	IX Research Scholars	VIII Tea- chers	XI Stu- dents		V Lec- turers	IX Research Scholars	VIII Tea- chers	XI Stu- dents	
I-30. Believe award professionally beneficial.	.36	.32	.37	.32		.49	--	.46	.53	
I-34. Experience afforded me new skills I now use.	.38	--	--	--		.46	--	.41	--	
I-36. Provided new materials for courses and work.	.66	.39	.66	.48		.71	.49	.68	.65	
I-40. Experience gave new perspective on field.	.58	.76	.50	.55		.63	.80	.56	.63	
I-42. Furnished data or ideas for subsequent works.	--	--	--	--		.46	.41	--	.42	

<sup>1</sup>For full wording of items see the questionnaire in Appendix II.

Table V-7. Professional prestige: cluster loadings.

Cluster Number: General Content of Items <sup>1</sup>	Initial Clustering				Oblique Rotation			
	III Lec- turers	VII Research Scholars	VI Tea- chers	IV Stu- dents	III Lec- turers	VII Research Scholars	VI Tea- chers	IV Stu- dents
I-31. Award helped get new position, fellowship.	--	--	--	.39	--	--	--	--
I-32. Contributed toward promotion, raise.	.55	.43	--	.49	.55	.50	--	.54
I-39. Resulted in new US professional relationships.	--	--	--	--	.37	.38	--	--
I-43. More recognition from administrators.	.78	.72	.66	.70	.82	.80	.75	.74
I-44. More recognition from colleagues.	.56	.54	.66	.51	.64	.64	.73	.59
I-45. Prestige of awards has had little effect on professional status (reflected item).	.51	.48	.48	--	.56	.55	.56	.45

<sup>1</sup>For full wording of items see the questionnaire in Appendix II.

to professional development and prestige. In addition, in the Students' analysis one of the clusters isolated corresponds to the enduring professional relations dimension in terms of item content. It is interesting to note that the cluster analysis for Lecturers also identifies a dimension pertaining to maintained professional relations. This cluster consists of a doublet of items concerning establishment of professional relationships abroad and maintenance of these contacts (items I-38 and II-25, Appendix II). In the factor analysis these particular items load as part of the interpersonal international communication dimension for Lecturers--a dimension absent in the cluster analyses for this group (see Chapter IV). In terms of relative loadings, these two items concerning professional relationships are not the most important definers of the interpersonal international communication factor; therefore, we cannot consider this doublet a representation of that dimension--in fact, loadings of other items differ on the two clusters. Actually, in terms of relative rankings of cluster coefficients, the Lecturers' doublet concerning maintained professional relations comes closest to the Students' enduring professional relations cluster--although for the senior group the item concerning material for a thesis is not relevant and receives an essentially zero loading.

Table V-8 summarizes data pertaining to the professional relations clusters for Students and Lecturers,



Table V-8. Other professional outcome clusters: loadings from oblique rotation.

General Content of Items <sup>1</sup>	Research			
	Lecturers	Scholars	Teachers	Students
<u>Professional Relations:</u>				
I-22. Collaboration abroad on research.	--			.41
I-26. # prof. talks, concerts abroad.	--			.33
I-38. New prof. relations abroad.	.60			.67
I-39. New prof. relations in U.S.	--			.44
II-24. Maintained contact with host inst.	--			.44
II-25. Maintained contact with profs. abroad.	.69			.82
-----				
<u>Deny low prof. value of experience abroad:</u> <sup>2</sup>				
I-52. Exp. not highly regarded in my field.	.64	.75	.60	.63
I-53. Exp. not highly regarded where I work.	.65	.73	.91	.68
-----				
<u>Denial of career interference:</u> <sup>2</sup>				
I-48. Going abroad interfered with research.				.47
I-50. Award delayed professional advancement.				.50
-----				
<u>New position, promotion:</u>				
I-31. Award helped me get a new position.			.64	
I-32. Helped me secure a promotion, raise.			.59	
-----				
<u>Professional publications:</u>				
B-1. Professional papers.	.69	.49	--	.51
B-4. Completed books or monographs.	--	--	--	.46
B-5. Completed articles, reviews.	.59	.69	.54	.71
B-11. Books in process.	--	--	.52	--
B-12. Articles in process.	.49	--	.90	--
-----				

Artistic accomplishments:

B-8. Completed art works, compositions.	.68	.52	.85
B-9. Concerts, recitals, exhibits.	.82	.46	.53
B-13. Art works, compositions in process.	.77	.54	.48
B-6. Newspaper articles.	--	.34	--

New courses:

I-37. Exp. enabled me to introduce new course.	.72	.66
B-7. New courses resulting from exp. abroad.	.58	.69

Theses:

I-41. Exp. abroad furnished thesis material.	.31
B-3. Thesis resulting from overseas work.	.85
B-12. Articles in process.	.57

<sup>1</sup>For full wording of items see the questionnaire in Appendix II. Items identified with a "B" are from the bibliographic data sheet included in Appendix II.

<sup>2</sup>These items were reflected in this analysis; therefore, a positive loading indicates a denial of the statement.

along with other clusters relating to professional outcomes. Among the dimensions extracted in the cluster analysis of dependent items, a doublet involving denial of low professional evaluations of overseas experience appears for all groups. Another doublet defined in the Student clustering concerns a denial of career interference resulting from the sojourn. For Teachers two items relating to prestige effects of the awards (securing a new position, promotion, or salary increase) are isolated in a separate cluster. In the analysis of dependent variables including the frequency data from the bibliographic data sheet concerning professional accomplishments grantees attribute to their award experiences, several dimensions concerning publications, artistic achievements, new courses, and theses also are extracted from the correlation matrix. Data from these clusters are included in Table V-8.

#### Summated Achievement Scale

In addition to the cluster analyses incorporating information regarding the grantees' professional achievements, an index was developed to provide a summary measure for the enumerations of publications and other accomplishments compiled in five volumes of bibliographic data (Gullahorn and Gullahorn, 1958b and 1960b). Later in this chapter we shall present additional information concerning these data. Further discussion of the grantees' professional achievements in relation to the other dimensions regarding professional

outcomes of the sojourn experiences appear in Chapters VII and VIII. Let us now consider the relationship between background variables and the professional achievement index as well as the other major dimensions concerning professional consequences of the grantees' award experiences.

#### Relation of Background Variables to Professional Outcome Dimensions

As in the analyses of associations between grantees' characteristics and the communication dimensions, our discussion here will include data from multiple regression analyses, analyses concerning the relative loadings of background items on dependent clusters, and cross-tabular information involving Guttman scale scores. The same background items used in the multiple regression analyses involving post-award international communication (see Chapter IV) were input in the present analyses. That is, the multiple regression analyses pertaining to dependent professional outcome dimensions include the interaction abroad factor along with thirteen of the sixteen independent variables listed in Appendix III for Lecturers and Research Scholars (items 69, 72, and 72 x 73 were omitted); twelve additional items for Teachers (item 72 and the three representations of item 66 were excluded); and fourteen other independent variables for Students (items 55 and 72 were omitted).

Tables V-9 through V-12 summarize the results of the multiple regression analyses for all groups with reference to

Table V-9. Guttman professional consequences scales: multiple regression analyses.

Lecturers				
Coefficient of Multiple Determination = .10, $p < .0005$				
Standard Error of Dependent Guttman Scale, $y = 1.75$				
Intercept Constant = 3.90				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Age			-6.37	-.22
Interaction abroad	-.24	.04	5.01	.17
Natural Sciences	.03	.01	-3.63	-.12
Home state then	-.64	.18	-2.04	-.07
	-.26	.13		
-----				
Research Scholars				
Coefficient of Multiple Determination = .10, $p < .0005$				
Standard Error of Dependent Guttman Scale, $y = 1.80$				
Intercept Constant = 6.11				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Age			-4.13	-.15
Interaction abroad	-.15	.04	3.85	.14
Application requested	.03	.01	-3.81	-.14
Home state then	-.82	.21	-3.65	-.14
Natural Sciences	-.56	.15	-3.57	-.13
Language competence	-.56	.16	2.48	.09
	.20	.08		
-----				

## Teachers

Coefficient of Multiple Determination = .04,  $p < .0005$   
 Standard Error of Dependent Guttman Scale,  $y = 1.73$   
 Intercept Constant = 2.60

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Age	-.10	.03	-3.36	-.10
Degree change	.35	.13	2.81	.09
Interaction abroad	.01	.01	2.61	.08
British Isles	-.26	.11	-2.32	-.07
Male	.24	.11	2.13	.06

## Students

Coefficient of Multiple Determination = .17,  $p < .0005$   
 Standard Error of Dependent Guttman Scale,  $y = 2.18$   
 Intercept Constant = 1.04

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.05	.004	11.48	.20
Professor now	.76	.10	7.53	.15
Age	.44	.06	7.21	.14
Degree change	.32	.05	6.11	.11
Took family abroad	.53	.11	4.89	.09
Male	.43	.10	4.51	.09
Natural Sciences	-.60	.14	-4.16	-.08
City size then	-.10	.03	-3.46	-.06
Humanities + Arts	.23	.09	2.48	.05
Home state then	-.22	.09	-2.46	-.04
Initiated application	-.20	.09	-2.07	-.04

Table V-10. Professional development factors: multiple regression analyses.

Lecturers				
Coefficient of Multiple Determination = .14, $p < .0005$				
Standard Error of Dependent Factor, $y = 9.36$				
Intercept Constant = 37.94				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.29	.03	8.50	.29
Age	-.92	.20	-4.63	-.15
Natural Sciences	-3.19	.97	-3.29	-.11
Social Sciences	2.15	.83	2.59	.09
Male	2.17	.98	2.22	.08
-----				
Research Scholars				
Coefficient of Multiple Determination = .10, $p < .0005$				
Standard Error of Dependent Factor, $y = 9.57$				
Intercept Constant = 60.85				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Application requested	-5.69	1.13	-5.02	-.18
Natural Sciences	-3.42	.83	-4.13	-.15
Interaction abroad	.13	.03	3.54	.13
Post-award mobility	-1.78	.52	-3.42	-.12
Home state then	-1.86	.76	-2.45	-.09

# Teachers

Coefficient of Multiple Determination = .04,  $p < .0005$   
 Standard Error of Dependent Factor,  $y = 9.72$   
 Intercept Constant = 39.50

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Teacher now	3.33	.64	5.18	.16
Interaction abroad	.11	.03	3.77	.11
Male	1.31	.64	2.05	.06
Degree change	1.41	.70	2.02	.06

# Students

Coefficient of Multiple Determination = .13,  $p < .0005$   
 Standard Error of Dependent Factor,  $y = 9.42$   
 Intercept Constant = 35.53

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Professor now	3.88	.42	9.14	.18
Age	2.05	.26	8.01	.15
Interaction abroad	.12	.02	6.80	.12
Natural Sciences	-3.85	.62	-6.20	-.12
Humanities + Arts	2.29	.40	5.76	.11
Degree change	.87	.22	3.98	.08
Period of award	.19	.09	2.14	.04



Table V-11. Professional prestige factors: multiple regression analyses.

Lecturers				
Coefficient of Multiple Determination = .08, p < .0005				
Standard Error of Dependent Factor, y = 9.57				
Intercept Constant = 50.78				
Variable	Coefficient	Standard Error of Coefficient	Student t	Beta Coefficient
Age	-1.25	.20	-6.12	-.21
Interaction abroad	.16	.03	4.60	.16
Natural Sciences	-2.55	.96	-2.65	-.09
Language competence	-.95	.37	-2.58	-.09
-----				
Research Scholars				
Coefficient of Multiple Determination = .07, p < .0005				
Standard Error of Dependent Factor, y = 9.74				
Intercept Constant = 40.69				
Variable	Coefficient	Standard Error of Coefficient	Student t	Beta Coefficient
Age	-.93	.20	-4.63	-.17
Interaction abroad	.13	.04	3.59	.13
Home state then	-2.24	.82	-2.72	-.10
Application requested	-3.04	1.15	-2.64	-.10
Language competence	.90	.45	2.01	.08

### Teachers

Coefficient of Multiple Determination = .04,  $p < .0005$   
 Standard Error of Dependent Factor,  $y = 9.94$   
 Intercept Constant = 45.53

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.08	.03	2.67	.08
Age	-.43	.17	-2.56	-.08
Teacher now	-1.50	.67	-2.25	-.07
Post-award mobility	1.22	.59	2.07	.06
Degree change	1.52	.74	2.05	.06
British Isles	-1.24	.65	-1.91	-.06

### Students

Coefficient of Multiple Determination = .06,  $p < .0005$   
 Standard Error of Dependent Factor,  $y = 9.76$   
 Intercept Constant = 57.60

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.13	.02	6.81	.13
Professor now	2.18	.45	4.90	.10
Home state then	-1.68	.40	-4.20	-.08
Natural Sciences	-2.29	.62	-3.72	-.07
Degree change	.84	.23	3.61	.07
Initiated application	-1.23	.42	-2.93	-.06
Age	.76	.27	2.84	.06
Male	1.08	.41	2.61	.05
Social Sciences	1.01	.49	2.08	.04

Table V-12. Professional achievement summated index: multiple regression analyses.

Lecturers				
Coefficient of Multiple Determination = .15, $p < .0005$				
Standard Error of Dependent Summated Index, $y = 1.25$				
Intercept Constant = $-.03$				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.03	.004	6.77	.23
Home state then	.53	.10	5.56	.19
Language competence	.26	.05	5.14	.18
Humanities + Arts	.25	.10	2.39	.08
Europe + Oceania	-.21	.09	-2.20	-.08
Age	-.05	.03	-1.95	-.06
-----				
Research Scholars				
Coefficient of Multiple Determination = .23, $p < .0005$				
Standard Error of Dependent Summated Index, $y = 1.30$				
Intercept Constant = $.97$				
Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Home state then	.84	.11	7.65	.27
Language competence	.40	.06	6.63	.23
Humanities + Arts	.62	.11	5.41	.19
Europe + Oceania	-.58	.13	-4.37	-.14
Social Sciences	.43	.12	3.63	.13
Took family abroad	.31	.11	2.68	.09
-----				

## Teachers

Coefficient of Multiple Determination = .09,  $p < .0005$   
 Standard Error of Dependent Summated Index,  $y = .95$   
 Intercept Constant = .41

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Interaction abroad	.01	.003	4.41	.13
Language competence	.18	.04	4.29	.16
British Isles	-.32	.07	-4.23	-.15
Initiated application	-.26	.07	-3.52	-.11
Home state then	.22	.06	3.45	.11
Took family abroad	.18	.06	2.85	.08
Age	.04	.02	2.67	.08
Teacher now	-.15	.06	-2.32	-.07

## Students

Coefficient of Multiple Determination = .26,  $p < .0005$   
 Standard Error of Dependent Summated Index,  $y = 4.98$   
 Intercept Constant = -.93

Variable	Coefficient	Standard Error of Coefficient	Student $t$	Beta Coefficient
Degree change	.29	.03	10.44	.20
Professor now	.44	.05	8.53	.16
Language competence	.22	.03	7.44	.14
Age	.23	.03	7.29	.13
Humanities + Arts	.38	.05	7.15	.14
Interaction abroad	.01	.002	6.42	.11
Took family abroad	.26	.06	4.59	.08
Home state then	.22	.05	4.54	.08
Post-award mobility	.11	.02	4.26	.08
Male	.20	.05	4.14	.07
Social Sciences	.24	.06	3.75	.07
City size then	-.04	.01	-2.68	-.04
Initiated application	-.11	.05	-2.23	-.04

the Guttman professional consequences scales, the professional development and professional prestige factors, and the professional achievement summated index. Table V-13 presents the multiple regression of background items on the Students' factor concerning enduring professional relations. As indicated in Chapter I, the tables present the best least squares values for the weighting coefficients for variables making significant contributions in the regression equations.

In all but one of the analyses (Professional Achievement for Research Scholars, Table V-12), scores on the overseas interaction factor are significantly associated with professional outcomes of the grantees' award experiences. For Students this finding is consonant with Sewell and Davidsen's investigation of related variables, in which they noted a significant correlation between the extent of Scandinavian students' participation in American life and their academic adjustment at a midwestern university (1961).

Before considering other associations among independent variables and dependent dimensions, let us also present data concerning the relative loadings of the same background items on the clusters relation to professional development (Table V-14) and professional prestige (Table V-15), as well as on the other professional outcome dimensions extracted in the cluster analysis (Table V-16).

Table V-13. Enduring professional relations factor: multiple regression analysis.

Students			
Coefficient of Multiple Determination = .30, $p < .0005$			
Standard Error of Dependent Factor, $y = 8.41$			
Intercept Constant = 23.10			
Variable	Coefficient	Standard Error of Coefficient	Student $t$ Beta Coefficient
Interaction abroad	.39	.02	23.84      .39
Age	2.52	.23	10.82      .19
Professor now	3.22	.38	8.47      .15
Degree change	1.17	.19	6.02      .10
Took family abroad	2.37	.42	5.70      .10
City size then	-5.16	.11	-4.73      -.08
Male	1.68	.37	4.58      .08
Natural Sciences	1.44	.52	2.78      .05

Table V-14. Loadings of background variables on the professional development cluster dimensions.

Background Items: <sup>1</sup>	Lecturers	Research Scholars	Teachers	Students
55. Host country	.02	.09	.14	--
58. Sex: male	.04	-.01	.001	.07
59. Age at award time	-.18	.01	.02	.26
60. Period of award	.04	.04	.08	-.04
61. Home state at award time	-.09	-.15	-.02	-.03
63. Post-award mobility	.02	-.16	-.06	.002
64. Size of home city then	-.03	.03	.03	-.04
66. Natural Sciences	-.17	-.21	--	-.20
66. Social Sciences	.13	.08	--	-.04
66. Humanities + Arts	.04	.07	--	.17
69. Present occupation	--	--	.17	.30
70. Language competence	.02	-.03	.03	.002
71. Reason for appli- cation	-.04	-.21	.01	-.02
72 x 73. Degree change	--	--	.05	.13
II-44. Took family abroad	.01	.01	-.01	.13

<sup>1</sup>See Appendix III for coding of background items.

Table V-15. Loadings of background variables on the professional prestige cluster dimensions.

Background Items: <sup>1</sup>	Lecturers	Research Scholars	Teachers	Students
55. Host country	-.03	.03	-.06	--
58. Sex: male	-.04	-.04	.05	.10
59. Age at award time	-.19	-.17	-.05	.09
60. Period of award	.08	.03	-.03	-.10
61. Home state at award time	-.08	-.10	-.03	-.09
63. Post-award mobility	.05	-.03	.10	.05
64. Size of home city then	.07	-.01	.03	-.01
66. Natural Sciences	-.09	-.06	00	-.05
66. Social Sciences	.06	-.02	--	-.01
66. Humanities + Arts	.03	.05	--	-.001
69. Present occupation	--	--	-.09	.21
70. Language competence	-.06	.06	-.02	-.01
71. Reason for application	-.05	-.14	-.04	-.06
72 x 73. Degree change	--	--	.08	.13
II-44. Took family abroad	.01	-.03	.04	.10

<sup>1</sup>See Appendix III for coding of background items.



Table V-16. Loadings of background variables on other professional outcome clusters.<sup>1</sup>

Background Items:2	Prof. Relas.		Deny low prof. value of exp. abroad				Prof. Publications				Art Works			Courses		New Job		Ca-reer		Thesis	
	L	S	L	R	T	S	L	R	T	S	R	T	S	L	S	T	S	S	S		
55. Host country	.15	--	.16	-.02	-.02	--	-.10	-.10	-.10	--	-.10	-.06	--	-.05	--	.00	--	--	--	--	
58. Sex: male	.04	.19	.08	-.06	-.02	-.05	.05	.03	.11	.19	.03	.03	.03	.07	.14	-.13	.14	.14	.14	.14	
59. Age at award time	.02	.23	.04	.07	-.04	-.02	-.05	.01	.09	.22	-.02	-.02	.07	-.21	.20	-.33	.02	.11	.11	.11	
60. Period of award	.03	-.06	.02	.05	-.10	-.03	.08	.06	.02	-.18	.08	.11	.01	.02	.09	-.03	-.13	-.01	-.01	-.01	
61. Home state then	.05	.02	.04	.04	.04	.02	.21	.28	.04	.12	.07	.04	.10	-.00	-.01	.05	.03	.05	.05	.05	
63. Post-award mobility	.00	.04	.02	.06	.11	-.01	-.02	-.03	.02	.16	.02	-.02	.02	.03	.05	.26	-.03	.17	.17	.17	
64. City size then	-.14	-.07	.05	.01	.03	-.01	-.03	-.05	-.00	-.06	-.08	-.02	.11	.03	-.04	.04	-.02	-.03	-.03	-.03	
66. Natural Sciences	.12	.16	-.03	-.09	--	-.10	.12	.07	--	-.00	-.06	--	-.11	-.09	-.09	--	-.35	-.03	-.03	-.03	

66. Social Sciences-.04	.01	.07	.03	--	.03	--	.07	-.07	--	-.16	.16	.05	--	.02	.10
66. Humanities + Arts	-.08	-.16	.08	.14	--	.16	-.06	.00	--	-.04	.18	.08	--	.24	-.01
69. Present Occupation	--	.22	--	--	-.10	.05	--	--	-.11	.28	--	.27	-.25	.00	.27
70. Language Competence	.20	.10	-.01	.05	.00	.07	.17	.25	.02	.16	.03	.06	.03	.05	.20
71. Reason for application	.16	.03	.08	-.09	-.08	-.08	.02	-.03	-.08	-.03	-.03	-.06	-.11	-.01	-.09
72 x 73. Degree change	--	.16	--	--	.09	.04	--	--	.00	.30	--	.17	.19	.00	.28
II-44. Took family abroad	.01	.18	.02	-.06	-.04	-.00	.08	.18	.14	.20	.05	.11	.01	-.06	.21

<sup>1</sup>See Table V-8 for item content of these clusters.

<sup>2</sup>See Appendix III for coding of background items.

As we shall note in the following discussion of some of the major findings of these analyses, there is relatively close agreement among the multiple regression, cluster loading, and Guttman cross-tabular data in identification of associations among background variables and dependent professional outcome dimensions.

As might be expected, the award experiences generally are perceived as more beneficial professionally by faculty members and teachers in the earlier states of their careers. The multiple regression analyses identify the age variable (weighted negatively) as a significant predictor of all four dimensions for Lecturers, and of the Guttman and professional prestige dimensions for Research Scholars and Teachers. These findings agree with the negative loading of the age variable for Lecturers on the professional development cluster (Table V-14), and for all three professional groups on the professional prestige cluster (Table V-15). In addition, age is loaded negatively on the Lecturers' cluster relating to new courses and on the Teachers' cluster concerning new job opportunities (Table V-16). On the Guttman professional consequences scales, over 70% of the Lecturers and Research Scholars in the 30-40 age group are in the high score range, in contrast to around 55% among the high scorers from the senior grantees over 50 years of age. Similarly, younger Teachers also are overrepresented

among the high scorers on the Guttman scale, with 59% of those under 30 in the high range as opposed to 49% of those over 50. According to the multiple regression data (Table V-12), unlike the Lecturers, older Teachers tend to report more publications and other achievements resulting from their overseas experiences, a result suggested also by the positive loading of the age variable on the Teachers' cluster concerning professional publications (Table V-16).

In contrast to the professional groups, the Students' multiple regression analyses disclose a consistent significant relationship between relative maturity and all five of this group's major professional outcome dimensions (Tables V-9 through V-19). These findings agree with the positive loadings for the age variable on clusters concerning professional development and prestige (Tables V-14 and V-15) as well as on the clusters pertaining to enduring professional relations, professional publications, new courses, and theses (Table V-16). With reference to the apparent discrepancy between Students and the professional groups, it should be noted that "relative maturity" for Students generally involves being in the 26-35 age range. Thus, the age differentiation in the Students' analyses probably reflects a difference in professional goal orientation among the older graduate students as opposed to the group who have just completed Bachelor's degrees.

Except for the significant association between the attribute, "male," and the professional development factor for Lecturers (Table V-10), for senior scholars the sex attribute does not seem to be an important or consistent predictor of professional outcomes. Among Teachers and Students, however, there is a tendency for men to score higher on a number of dimensions. The multiple regression analyses identify sex as a significant predictor of scores on the Guttman professional consequences scale for Teachers and Students (Table V-9), on the professional development factor for Teachers (Table V-10), and on the professional prestige factor for Students (Table V-11). Among Teachers, the cluster loading data indicate that men also tend to report more professional publications and new job opportunities (Table V-16).

For Students the patterning of associations between the sex attribute and the professional outcome dimensions suggests that in general male students are more seriously professionally goal-oriented than are females. We have already noted the differences on the Guttman professional consequences scale--a finding illustrated by the fact that 64% of the male Students in contrast to only 48% of the females score in the high range of the Guttman scale. The multiple regression data concerning the association between sex and professional prestige is confirmed by the Students' cluster loading data concerning prestige (Table V-15).

In addition, male Students score higher than females on the professional achievement index (Table V-12), on the enduring professional relations factor and cluster (Table V-13 and V-16), as well as on clusters relating to professional publications, new courses and theses (Table V-16). Female Students, however, are more likely to deny that the sojourn interfered with their careers (Table V-16). It is interesting to note, however, that this particular dimension does not appear to relate to Students engaged in professional pursuits. That is, items concerning present occupation as a professor and post-award change in academic degree receive zero loadings on this career-interference cluster. These data, in addition to those concerning fields of work abroad (with Natural Sciences loaded negatively and Humanities and Arts positively) suggest that this dimension refers in particular to general cultural development resulting from the sojourn experience rather than to specific professional preparation.

Another background characteristic showing variable association with the outcome indices concerns the census division of the grantees' home states. The multiple regression analyses identify this attribute (weighted negatively) as a significant predictor of scores on the Guttman professional consequences scales for Lecturers, Research Scholars, and Students (Table V-9), as well as of factor scores relating to professional development and prestige for Research Scholars (Tables V-10 and V-11 and also cluster

loading data in Tables V-14 and V-15). High scorers on the Guttman professional consequences scales include proportionately more Lecturers and Research Scholars from the south central and mountain regions and Students from the west north central division. It is interesting to note, however, that for all four groups of grantees, the home state dummy variable is weighted positively as a significant predictor of scores on the professional achievement summated index (Table V-12). The census divisions included in the home state dummy variable were selected because they included more of the high-prestige universities than did the others; thus it is interesting that this rather crude variable does in fact have predictive value with reference to professional productivity.

According to the multiple regression data, grantees in the Natural Sciences tend to score lower than those in other fields on the Guttman professional consequences scales and on the factors related to professional development and prestige (Tables V-9 through V-11). These findings are confirmed by the cluster loading data in Tables V-14 and V-15. On the Guttman professional consequences scales Lecturers and Research Scholars in social science, creative arts, and professional social service have much higher proportions (around 70%) among high scorers than do their peers in the natural sciences. In general the senior award holders in various fields of Humanities also score higher than their colleagues in natural science.

Much the same pattern appears also for Students, with creative artists and those in philosophy having about a 70% representation among the top scorers of the Guttman scale--a result confirmed by the significant association between the combined variable of Humanities and Arts and the professional development factor and cluster (Tables V-10 and V-14) as well as the professional achievement index (Table V-12). In contrast to these findings, the dimensions pertaining to maintained professional relations for Students and Lecturers indicate that natural scientists score higher than their peers in other disciplines (Tables V-13 and V-16). Thus, while natural scientists do not perceive their awards to be so professionally gratifying in terms of development and prestige as do their colleagues in other fields, it appears that after their return they do maintain contact and, in some cases, continue collaborating with colleagues overseas.

In concluding our discussion of associations between background characteristics and professional outcomes, let us concentrate in particular on the Students' dimensions. For this group, a rather consistent relationship appears between the professional outcome dimensions--i.e., between the Guttman professional consequences scale, the factors and clusters pertaining to professional development and prestige as well as enduring professional relations, the professional achievement index, and the clusters concerning professional publications, new courses, and theses--and the



following independent variables: male, age, language competence, took family abroad, present occupation as a professor, and post-award degree change. In addition, scores on the overseas interaction factor are significantly associated with a number of the outcome dimensions. Thus among Students, older men with family responsibilities, who had sufficient language proficiency to be active in interacting with their hosts overseas, possibly collaborating on research, and who earned higher degrees upon their return and are now professors or researchers in American colleges and universities comprise the group evidencing the greatest gains in terms of professional development, advancement, and productivity.

#### Professional Achievements

In closing our discussion of professional outcomes of the grantees' award experiences, let us give more consideration to the achievements comprising the summated index as well as some of the clusters pertaining to professional productivity. In contrast to most of the information summarized in the Guttman scales as well as in the factors and clusters relating to professional consequences of the awards, the publications, art works, and other accomplishments resulting from the grantees' overseas work provide relatively tangible evidence of the benefits accruing to individuals, educational institutions, and various fields of learning. Five volumes totalling 1,186 pages were

necessary to list the achievements grantees attributed to their sojourn experiences. Following is a brief summary enumerating the publications and other accomplishments which have professional relevance:

- I. 470 grantees reported the titles of 750 books or monographs which they have published as a result of their award experiences. Adding the 63 books and one documentary film reported in the pilot survey brings the total to 814 major publications.
- II. 1,207 grantees submitted the titles of 3,300 articles and book reviews emanating from the work abroad and already published or accepted for publication. The 593 such published works plus the four filmstrips reported in the nine-state study brings the total for these shorter publications to 1,804.
- III. 214 grantees gave the names or descriptions of 831 paintings, sculptures, musical compositions, or other completed works of art which were influenced by their award experiences. Adding the 243 such art works reported in the initial survey brings the total for major artistic creations to 1,074.
- IV. Actual titles of theses completed for academic degrees were submitted by 506 grantees. Of these 25 gathered materials or completed research during their award years which enabled them to write theses for two academic degrees. Including the 89 theses and dissertations reported in the first survey brings the thesis total to 595.
- V. 350 grantees sent the names of 478 academic courses (introduced at levels ranging from elementary school through graduate programs in universities) which they were able to introduce as a result of knowledge gained during their sojourns overseas. With the 54 new courses listed in the nine-state survey the total for new courses is 404.
- VI. 951 grantees presented 2,181 papers to professional societies as a consequence of their work abroad. Including the 437 professional papers reported in the initial survey brings the total for professional papers to 2,618.

- VII. 424 grantees reported writing 673 newspaper articles concerning their experiences abroad. The total for this type of communication, including the 155 news articles listed by grantees in the earlier study, is 828.
- VIII. Information was furnished by 337 grantees describing 1,161 concerts, recitals, or exhibits they have participated in since their return and which they feel were significantly influenced by their award experiences. Including the 441 such performances listed by respondents in the nine-state survey brings the total for such artistic performances to 1,602.
- IX. In addition to the completed items just listed grantees reported the following works in process: 846 books and monographs; 841 articles and book reviews; 256 works of art; 404 theses or dissertations for academic degrees. All of these were considered to have been influenced by the educational experiences abroad.

Such an impressive amount of scholarly or artistic achievement emanating in some way from the Fulbright and Smith-Mundt awards gives some indication of the significance of educational exchange for scholarship in America--and, indeed, the world. Reference to some of the major works named in the appendices listing these accomplishments (see Gullahorn and Gullahorn, 1958b and 1960b) will establish that in quality as well as in quantity some of the achievements are so great as to be difficult to evaluate.

In view of the apparently high productivity reported by the grantees, the question remains as to whether the listings exaggerate the impact of the award experiences. Have returned grantees included every publication, for instance, even if there is no relationship between some articles and what happened to them under the grant? In

some instances this may be the case. However, it is unlikely that many academicians would voluntarily include for publication information their colleagues would perceive as inaccurate. For example, one grantee who listed six short stories and poems on the bibliographic data sheet added this observation:

I am a novelist first and a general man of letters second, i.e., poet, essayist, reviewer. All of the work I have done since returning from Wales five years ago was influenced to a more or less extent by my studies there and notions of literature which I acquired there. This influence, then, is reflected in one novel, a critical anthology of essays, some fifty reviews, a dozen poems, several short stories, and several hundred lectures on prose to students from the freshman to graduate level. There is no point in setting down here titles which apparently do not pertain to Wales. However, I would like it plain that my work in general was influenced by Wales, and that I have made this influence apparent to those interested in my work.

Many respondents wrote comparable statements, suggesting that the achievements listed are, in some cases at least, conservative estimates of the professional impact of the award experiences. As might be expected, creative artists reported more difficulty in assessing what works were related directly to a given experience, yet most who commented attested to the importance of their work abroad for their creative development. Representative of their responses was the following:

In architectural practice, it is difficult to trace specific influences. Rather, one's study and experience of foreign buildings and cities become part of the total resources upon which one

draws while designing. Nevertheless, foreign study is unquestionably of great value to the architect for, more than any other form of creative activity, architecture must be experienced to be understood.

Having considered some of the consequences of the award experiences for the grantees' professional roles-- and for their disciplines as well--in the next chapter we shall discuss the influence of the award year on the grantees' personal development and their overall evaluations of their sojourns abroad.

## CHAPTER VI

### OTHER EVALUATIONS OF THE AWARD EXPERIENCES

Evaluating the overall personal significance of overseas experiences is a formidable task. As one grantee commented, "If you attempt to compile a list of things one gains through having a scholarship abroad, you will miss the essential thing--. How can you classify 'l'esprit'?" Fortunately, members of our sample were particularly responsive in adding comments to clarify the personal meaning of their answers to questions regarding general assessments of their award experiences. The following summary statement by a professor of philosophy is representative of the feelings of many former grantees:

I doubt that any other experience of my life has had so much effect on my work, but this influence has been of a general rather than of a specific nature. For me the value of the trip was quite different from what I had expected. I had expected to gather material in European libraries and to profit from discussions with European experts in my field, I did this, but I feel that the real value of the year abroad lies in what it did to me as a person. It illuminated history for me, gave me the ability to think in another language, gave me perspective on the customs of the society in which I live, and gave me a number of interesting friends I would not otherwise have had. I have no doubt that my professional work will be better as a result.

Further comments illustrating the personal significance of their award experiences will be included in the following

discussion of dimensions summarizing grantees' reports concerning personal development and satisfaction.

### Analyses Dimensionalizing Personal Development and Satisfaction

#### Guttman Scaling

In evaluating the overall impact of their sojourn experiences, approximately three-fourths of the senior scholars and over four-fifths of the Teachers and Students strongly agreed that their stay abroad "was one of the most valuable experiences" in their lives. As the data summarized in Table VI-1 indicate, this item (II-33) scored in the more popular scale categories in the Guttman satisfaction dimension for all groups. Included among the grantees' explanations of their responses was the following affirmation from a senior scholar:

I am a professor at Harvard and retire in two years. I think the Fulbright award was a highlight in my professional career.

In summarizing her appraisal of the value of exchange teaching, one Teacher commented:

As I wrote in the English teachers' national magazine-- "To one who has studied and taught England's literature and history for years, a year spent in England is like a dream come true."

One Student grantee now engaged in his life work added the following remark to his questionnaire:

Although my Fulbright year was not productive in terms of research, publications, etc. it was perhaps the most valuable one in my entire life--even my academic life. Perhaps it is precisely because I had a number

Table VI-1. Personal satisfaction: Guttman scale analysis.

Lecturers				Research Scholars				Teachers				Students			
Item <sup>1</sup>	Margin- al <sup>2</sup>	Cut- off <sup>3</sup>	Error <sup>4</sup>	Item	al	Cut- off	Error	Item	al	Cut- off	Error	Item	al	Cut- off	Error
42	87%	AS	5.6%	42	91%	AS	3.6%	33	91%	AS	3.9%	33	87%	AS	5.3%
33	74	AS	7.0	38	82	DS	8.7	31	82	AS	7.3	31	78	AS	7.9
30	71	AS	10.3	33	74	AS	7.6	37	75	AS	10.7	30	72	AS	10.7
37	66	AS	11.7	30	67	AS	9.8	36	74	AS	10.0	36	68	AS	11.0
36	54	AS	7.2	37	58	AS	9.1	34	69	AS	10.5	37	60	AS	11.7
34	53	AS	12.9	36	52	AS	10.8	40	27	DS	6.8	34	53	AS	11.6
41	31	DS	12.6	41	39	DS	12.9	41	22	DS	8.7	41	33	DS	11.3
Reproducibility: 90.3%				Reproducibility: 91.0%				Reproducibility: 91.6%				Reproducibility: 90.0%			

<sup>1</sup>The general content of the items is given below. For full wording see the questionnaire in Appendix II.

<sup>2</sup>The marginals indicate the percentage of subjects responding positively to the items.

<sup>3</sup>In this scale cutoffs were at the extreme response categories: AS refers to the "Agree Strongly" option; DS refers to the "Disagree Strongly" response option.

<sup>4</sup>Item reproducibilities may be calculated by subtracting the given error percentages from 100%.



General Content of Items:

- II-30. Living abroad increased my interest in international affairs.
- II-31. Found the experience of "living as a foreigner" maturing.
- II-33. Stay abroad was one of the most valuable experiences of my life.
- II-34. Was able to correct some erroneous stereotypes held by some foreigners regarding American culture.
- II-36. Gained considerable perspective on the United States.
- II-37. Now have more sympathy toward my host country.
- II-38. A year at an American university would have been more valuable than my time abroad.
- II-40. Host country did not make maximum use of my experiences and abilities.
- II-41. My own university has not taken full advantage of my potential contributions from the work abroad.
- II-42. Would like another grant to go abroad for educational activities.

foreign friendships which were fruitful . . . in ideas, new outlooks, greater understanding, etc., and because I genuinely tried to live a French life. . . . All this is equally true of my wife, now teaching French also. We feel that our year has paid off (in the altruistic sense) in what our American students get from us in class.

Another questionnaire item pertaining to general personal development stimulated by the sojourn experiences (Item II-31) drew strong agreement from two-thirds of the senior scholars and about four-fifths of the Teachers and Students. This item specifying the "maturing" effect of "living as a foreigner" scaled reliably only for Teachers and Students, however. Perhaps the wording of the item was such as to deter strong affirmation from some of the more sophisticated senior scholars. Then, too, their higher median age might have made some hesitant about such an evaluation. As one Lecturer nearing retirement remarked, "It may be presumptuous to feel that one has ever reached complete maturity; however, if this has not occurred by the age at which I held my grant, then it probably never will."

Among the specific effects of their sojourn experiences over two-thirds of the grantees reported an increased interest in international affairs, an item which scaled for Lecturers, Research Scholars, and Students (Item II-30). A related item, which appears in the Guttman dimensions for all groups, concerns an increase in sympathy for their host countries (II-37). While most of the grantees who commented on their responses indicated a greater appreciation of their

host countries based on an already favorable predisposition, for some the overseas experience provided a marked reorientation in attitudes:

Very frankly and simply, before I went to Egypt I thought the Middle East was pestiferous, decadent, and very much of an international nuisance. I certainly changed my mind as a result of the reading I did in its history, cultures, problems, and importance in preparation for my assignment, before I went to Egypt. The additional briefing and instruction we got as Fulbrighters in Egypt before assuming our tasks further enlightened me. Contact with the native professional people I met, with the students I lectured to, with the generous and hospitable people in city, village, and countryside completed my education and brought about a new and appreciative understanding of Egypt and the Middle East. I am forever indebted to the Fulbright assignment and its opportunity for this complete re-orientation of my understanding and appreciation of Egypt and the Middle East.

Unfortunately our questionnaire data do not include information which would enable us to differentiate among grantees with different degrees of favorable preconceptions regarding their host countries.

Another aspect of the increased international awareness reported by many grantees pertains to the perspective on the United States provided by the sojourn overseas, an item which appears on the Guttman scales for all groups (II-36). As the response marginals indicate, Teachers and Students tended to agree with this item more strongly than did the senior scholars (Table VI-1). Some of the comments grantees added concerning this effect of their awards expressed rather chauvinistic platitudes;

. . . this experience made me a much more loyal and satisfied American citizen. I have tried to stress in talks and conversations what a wonderful standard of living we have merely because our country is bigger and has more resources than the European nations. We should realize how fortunate we are, be grateful, and do whatever we can to preserve our way of life.

Others, however, presented more thoughtful evaluations:

The greatest benefit I received from my experience overseas was a fuller realization that people are basically alike the world over--without doubt school children are. A public school system must of necessity be an outgrowth of the total culture and history of a people. A system which is best for one country is not necessarily best for another; however, we could learn much from one another. A year spent abroad helps one to view his own school system. Some of the methods which he accepted as more or less infallible before, he now questions. He learns that there is more than one way to achieve the same goal.

In developing greater perspective regarding their homelands and host countries, some grantees also sought to correct erroneous stereotypes concerning the United States. While most stressed the importance of their daily behavior in showing their hosts "what Americans are really like," as indicated in Chapter III, many presented lectures to large audiences and engaged in extensive informal discussions concerning American life with neighbors and others whom they met in the course of daily living. Among the questionnaire respondents, about half of the senior scholars and Students and three-fifths of the Teachers reported that they had been able to correct some erroneous stereotypes held by foreign citizens regarding American culture (Item II-34). As the data in Table VI-1 indicate,

this item scaled reliably for only three of the groups and was not included in the Guttman satisfaction dimension for Research Scholars. Again, this divergence probably reflects differences in the focus of the Research Scholars' roles--their primary purpose was to conduct research rather than communicate with others, particularly with an intent to modify their attitudes. As indicated in Chapter III, fewer Research Scholars than Lecturers presented general talks concerning American culture to foreign audiences; furthermore, the questionnaire item pertaining to such public appearances did not scale in the Research Scholars' overseas interaction Guttman dimension.

As the data summarized in Table VI-1 indicate, the item concerning correcting stereotypes scales near the maximum end of the Guttman dimensions for the relevant groups. For all categories of grantees, the maximum level of overall satisfaction with the results of their sojourn experiences involves a strong denial that their home universities or present employers are not taking advantage of potential contributions resulting from their work abroad (Item II-41). Thus, those who are able to integrate their overseas experiences in their current roles tend to have the most favorable perceptions of the overall personal development stimulated by their sojourns abroad.

On the whole, the statements concerning general evaluations of the award experiences elicited more consistently favorable responses than any others included in

the survey questionnaire. Indeed, according to the distribution of respondents among the Guttman scale types, about two-thirds of the grantees in all categories score in the high range of the satisfaction dimensions (i.e., score 4 or above, Table VI-2).

### Factor Analysis

As was true with reference to the dimensions concerning overseas interaction, there is relatively close agreement in the item descriptions of the Guttman and factor representations of the satisfaction dimension (Table VI-3). On both orthogonally rotated factors, high loading items pertain to personal development and perspective regarding the grantees' host countries and homeland. It is interesting to note that communicating informally with fellow Americans concerning the sojourn experiences is also associated with the satisfaction dimension for Students. Among Teachers items involving a denial of negative evaluations of the award benefits also load on the satisfaction factor. We shall discuss these items further in the next section concerning the cluster representation of the personal development and satisfaction dimension.

### Cluster Analysis

Like the dimensions extracted in the factor analysis, the clusters pertaining to satisfaction for all groups of grantees are heavily loaded with items concerning personal

Table VI-2. Personal satisfaction: distribution of respondents among the Guttman scale types.

Lecturers			Research Scholars			Teachers			Students		
Score	Frequency	Percent	Score	Frequency	Percent	Score	Frequency	Percent	Score	Frequency	Percent
0	106	14%	0	80	11%	0	94	9%	0	447	17%
1	80	10	1	47	6	1	62	6	1	171	6
2	49	6	2	62	8	2	66	6	2	145	6
3	51	6	3	73	10	3	76	7	3	195	7
4	92	12	4	72	10	4	125	12	4	258	10
5	97	12	5	70	9	5	411	37	5	350	13
6	188	24	6	164	22	6	125	12	6	617	23
7	122	16	7	176	24	7	123	11	7	476	18

Table VI-3. Personal development and satisfaction: factor loadings.<sup>1</sup>

Factor Number: General Content of Items <sup>2</sup>	Varimax Rotation					Quartimax Rotation				
	II Lec- turers	II Research Scholars	II Tea- chers	II Stu- dents		II Lec- turers	II Research Scholars	II Tea- chers	II Stu- dents	
II-30. interest in inter- national affairs in- creased	.63	.67	.56	.55		.62	.67	.55	.54	
II-31. found experience to be maturing	.65	.69	.57	.59		.66	.70	.58	.59	
II-33. stay one of most valuable life experiences	.55	.58	.53	.49		.58	.60	.55	.49	
II-34. corrected stereotypes U.S.	.34	.46	.35	.41		.35	.45	.33	.39	
II-36. gained perspective on U.S.	.62	.58	.51	.50		.63	.60	.50	.48	
II-37. more sympathy for host country now	.55	.59	.53	.47		.55	.59	.53	.47	
II-38. yr. in U.S. university preferable (reflected item)	--	--	.35	--		--	--	.36	--	
II-39. economic hardship involved in grant (reflected)	--	--	.19	--		--	--	.20	--	
II-42. would go abroad on a grant again	.21	.23	.27	.20		.24	.24	.28	.20	
II-6. since return have present- ed informal talks re over- seas experiences	--	--	--	.24		--	--	--	.22	

<sup>1</sup>Factor loadings are given only for the items which make their maximum contribution to the factor according to the quartimax solution.

<sup>2</sup>For full wording of the items see the questionnaire in Appendix II.



development and international perspective (Table VI-4). In addition to the personal satisfaction cluster, two other dimensions composed of items denying negative evaluations of the award experiences were isolated in the clustering of dependent variables for certain groups (Table VI-5). These clusters are highly interrelated ( $r = .38$  for Lecturers and  $r = .33$  for Students); however, they are differentially related to the personal development and satisfaction cluster. That is, while the dimension involving denial of other negative evaluations is substantially correlated with the satisfaction cluster ( $r = .26$  in the analyses for both Lecturers and Students), the other cluster concerning denial of a lack of institutional support is more highly associated with the overseas interaction cluster (correlations average  $r = .30$  for senior scholars and  $r = .20$  for Students) than it is with the satisfaction dimension (correlations average  $.16$  for all relevant groups).

Actually, the factor analysis also identified the dimension concerning denial of a lack of institutional support for all groups of grantees. In addition, the dimension pertaining to denial of other negative evaluations was extracted for Lecturers. (For Students the items defining this cluster loaded on the institutional support factor.) These factors, however, account for a negligible amount of variance, and the eigenvalues for these factors fall considerably below the Kaiser criterion (see Chapter I). We shall, however, include some further information regarding the cluster representations of these dimensions.

Table VI-4. Personal development and satisfaction: cluster loadings.

Cluster Number: General Content of Items <sup>1</sup>	Initial Clustering				Oblique Rotation			
	VI Lec- turers	III Research scholars	VII Tea- chers	VII Stu- dents	VI Lec- turers	III Research scholars	VII Tea- chers	VII Stu- dents
II-30. Interest in inter- national affairs in- creased	.60	.74	.58	.61	.67	.72	.62	.61
II-31. found experience to be maturing	.55	.72	.55	.58	.71	.74	.62	.62
II-33. stay one of most valuable life experiences	--	--	.46	--	.61	.58	.51	.47
II-34. corrected stereotypes re U.S.	--	--	--	--	--	.45	--	.44
II-36. gained perspective on U.S.	.53	.61	--	.52	.69	.61	.52	.53
II-37. more sympathy for host country now	.42	.60	.52	.45	.54	.61	.57	.47

233

<sup>1</sup>For full wording of items see the questionnaire in Appendix II.

Table VI-5. Other general evaluation clusters:  
loadings from oblique rotation.

General Content of Items <sup>1</sup>		Lecturers	Research scholars	Students
<u>Denial of lack of institutional support:</u>				
II-32.	Host institution uncooperative	.69	.74	.82
II-40.	Hosts did not utilize abilities fully.	.67	.54	.97
II-41.	Home university or employer not maxi- mizing potential contribution.	.32	--	.81
-----				
<u>Denial of other negative evaluations:</u>				
II-35.	Low standard of living unpleasant.	.47		.42
II-38.	Yr. in U.S. university preferable.	.48		--
II-39.	Economic hardship of award.	.58		.52

<sup>1</sup>For full wording of items see the questionnaire in Appendix II. Responses to all of these items have been reflected; therefore, a positive loading indicates a denial of the statement.

### Summated Scaling

As noted in Chapter I, before we had access to an appropriate computer and library of programs for Guttman scaling and factor analysis, we developed a summated scale for the satisfaction dimension. This index comprises questionnaire items II-30 through II-42 (see Appendix II). All items were weighted equally, and response options within items were scored from one through four. In Chapter VIII we

shall present additional data comparing scores on this summated index with those on the Guttman satisfaction scale and the satisfaction factor. For the present let us note that the summated index is highly correlated with both of the other types of dimensions, with Pearson  $r$ 's ranging from .59 to .66

#### Relation of Background Variables to Satisfaction Dimensions

As in the analyses of associations between grantees' characteristics and the communication and professional outcome dimensions, our discussion of the satisfaction dimensions will include data from multiple regression analyses, analyses concerning the relative loadings of background items on dependent clusters, and cross-tabular information involving Guttman scale scores. The same background items used in the multiple regression analyses discussed in Chapters IV and V were input in the present analyses. That is, the multiple regression analyses pertaining to the dependent satisfaction dimensions include the interaction abroad factor along with thirteen of the sixteen independent variables listed in Appendix III for the senior scholars (items 69, 72, and 72 x 73 were omitted); twelve additional items for Teachers (item 72 and the three representations of item 66 were excluded); and fourteen other independent variables for Students (items 55 and 72 were omitted).

Tables VI-6 and VI-7 summarize data concerning the multiple regression of independent variables on the dependent Guttman satisfaction scale scores and on the dependent satisfaction factor scores for all groups of grantees. As indicated in Chapter I, the tables present the best least square values for the weighting coefficients for variables making significant contributions in the regression equations.

For all groups, scores on the overseas interaction factor are significantly related to scores on the Guttman and factor representations of the satisfaction dimension. For Students this finding agrees with data from Morris' investigation of related variables, in which he found that the volume, range, and depth of contact between foreign students at UCLA and Americans was significantly correlated with the students' satisfaction with their stay in the United States (1960). Similarly, Sewell and Davidsen noted a significant correlation between the extent of Scandinavian students' participation in American life and their satisfaction with their sojourns (1961).

Before considering other associations among independent variables and the satisfaction dimensions, let us also present data concerning the relative loadings of the same background items on the cluster relating to personal development and satisfaction (Table VI-8) as well as on the clusters concerning other general evaluations of the award experiences (Table VI-9). As we shall note in the following



Table VI-6. Guttman satisfaction scales: multiple regression analyses.

Lecturers				
Coefficient of Multiple Determination = .06, $p < .0005$				
Standard Error of Dependent Guttman Scale, $y = 2.35$				
Intercept Constant = 2.96				
Variable	Coefficient	Standard error of coefficient	Student $t$	Beta coefficient
Interaction abroad	.05	.01	5.79	.20
Male	-.63	.24	-2.61	-.09
Age	-.12	.05	-2.42	-.08
Europe + Oceania	-.41	.17	-2.37	-.08
-----				
Research Scholars				
Coefficient of Multiple Determination = .05, $p < .0005$				
Standard Error of Dependent Guttman Scale, $y = 2.34$				
Intercept Constant = 7.77				
Variable	Coefficient	Standard error of coefficient	Student $t$	Beta coefficient
Interaction abroad	.04	.01	4.09	.15
Age	-.16	.05	-3.24	-.12
Humanities + Arts	.58	.19	3.02	.11
Male	-.65	.30	-2.20	-.08
-----				

## Teachers

Coefficient of Multiple Determination = .09,  $p < .0005$   
 Standard Error of Dependent Guttman Scale,  $y = 1.92$   
 Intercept Constant = 2.02

Variable	Coefficient	Standard error of coefficient	Student $t$	Beta coefficient
Interaction abroad	.05	.01	8.16	.24
Male	-.47	.15	-3.01	-.11
Home state then	-.33	.12	-2.63	-.08
British Isles	.32	.12	2.54	.08
Took family abroad	.32	.16	1.99	.07

## Students

Coefficient of Multiple Determination = .06,  $p < .0005$   
 Standard Error of Dependent Guttman Scale,  $y = 2.43$   
 Intercept Constant = 2.31

Variable	Coefficient	Standard error of coefficient	Student $t$	Beta coefficient
Interaction abroad	.05	.01	9.88	.19
Social Sciences	-.44	.12	-3.75	-.07
Male	-.36	.10	-3.54	-.07
Professor now	.34	.10	3.29	.06
Initiated application	-.29	.10	-2.81	-.05
City size then	.08	.03	2.60	.05
Home state then	-.22	.10	-2.28	-.04
Age	-.13	.06	-2.01	-.04



Table VI-7. Personal development and satisfaction factors: multiple regression analyses.

Lecturers				
Coefficient of Multiple Determination = .15, $p < .0005$				
Standard Error of Dependent Factor, $y = 9.17$				
Intercept Constant = 48.25				
Variable	Coefficient	Standard error of coefficient	Student $t$	Beta coefficient
Interaction abroad	.25	.03	7.67	.26
Europe + Oceania	-3.31	.68	-4.84	-.16
Age	-.67	.20	-3.44	-.12
Male	-3.27	.96	-3.41	-.12
Home state then	-1.71	.70	-2.45	-.08
Social Sciences	-1.62	.80	-2.03	-.07
Research Scholars				
Coefficient of Multiple Determination = .12, $p < .0005$				
Standard Error of Dependent Factor, $y = 9.41$				
Intercept Constant = 31.83				
Variable	Coefficient	Standard error of coefficient	Student $t$	Beta coefficient
Interaction abroad	.19	.04	5.50	.19
Age	-.73	.19	-3.78	-.13
Home state then	-2.81	.79	-3.54	-.13
Male	-3.92	1.20	-3.27	-.12
Social Sciences	-2.54	.80	-3.17	-.11
Language competence	-1.08	.44	-2.45	-.09
Period of award	3.86	.16	2.44	.09
Europe + Oceania	2.23	.97	2.30	.08

## Teachers

Coefficient of Multiple Determination = .08,  $p < .0005$   
 Standard Error of Dependent Factor,  $y = 9.12$   
 Intercept Constant = 39.18

Variable	Coefficient	Standard error of coefficient	Student $t$	Beta coefficient
Interaction abroad	.20	.03	7.25	.22
Male	-2.59	.76	-3.42	-.13
Teacher now	1.59	.64	2.46	.08
Took family abroad	1.84	.77	2.40	.08
Initiated application	1.39	.71	1.95	.06

## Students

Coefficient of Multiple Determination = .10,  $p < .0005$   
 Standard Error of Dependent Factor,  $y = 9.45$   
 Intercept Constant = 39.63

Variable	Coefficient	Standard error of coefficient	Student $t$	Beta coefficient
Interaction abroad	.25	.02	13.63	.25
Male	-2.67	.39	-6.82	-.13
Age	-.87	.25	-3.50	-.06
Home state then	-1.32	.38	-3.48	-.06
Humanities + Arts	1.30	.44	2.97	.06
City size then	.32	.12	2.63	.05
Social Sciences	-1.09	.53	-2.05	-.04

Table VI-8. Loadings of background variables on the personal development and satisfaction cluster dimensions.

Background Items: <sup>1</sup>	Lecturers	Research Scholars	Teachers	Students
55. Host country	-.24	.06	-.01	---
58. Sex: male	-.17	-.12	-.10	-.14
59. Age at award time	-.09	-.11	.05	-.10
60. Period of award	-.01	.03	-.04	-.02
61. Home state at award time	-.13	-.19	-.10	-.08
63. Post-award mobility	.07	-.01	.01	-.05
64. Size of home city then	.04	-.01	.05	.07
66. Natural Sciences	-.03	.02	---	-.01
66. Social Sciences	-.09	-.12	---	-.09
66. Humanities + Arts	-.06	-.001	---	.06
69. Present occupation	---	---	.06	-.08
70. Language competence	-.13	-.15	-.07	-.03
71. Reason for appli- cation	-.10	-.04	.07	-.07
72 x 73. Degree change	---	---	-.02	-.07
II-44. Took family abroad	-.08	-.12	.01	-.11

<sup>1</sup>See Appendix III for coding of background items.

Table VI-9. Loadings of background variables on other general evaluation clusters.<sup>1</sup>

Background Items: <sup>2</sup>	Denial of Lack of Institutional Support		Support Students	Denial of Other Negative Evaluations	
	Lecturers	Research Scholars		Lecturers	Students
55. Host country	.06	-.04	---	.02	---
58. Sex: male	-.03	-.03	.02	-.20	-.15
59. Age at award time	.08	.10	-.01	.03	-.20
60. Period of award	-.14	-.05	-.08	.01	-.06
61. Home state at award time	.000	.11	.04	-.01	.01
63. Post-award mobility	.04	-.07	.01	.03	-.06
64. Size of home city then	-.05	.02	.04	-.06	.01
66. Natural Sciences	.11	.14	.08	-.04	.003
66. Social Sciences	-.06	-.08	.04	-.04	.03
66. Humanities + Arts	-.12	-.09	-.05	-.08	-.04
69. Present occupation	---	---	.05	---	-.10
70. Language competence	.16	.08	.12	.09	.03
71. Reason for application	.17	.12	-.01	-.06	-.05
72 x 73. Degree change	---	---	.11	---	-.0001
II-44. Took family abroad	-.08	.04	.001	-.14	-.28

<sup>1</sup>See Table VI-5 for item content of these clusters.<sup>2</sup>See Appendix III for coding of background items.

discussion of some of the major findings of these analyses, there is relatively close agreement among the results of the different analyses.

According to the multiple regression analyses, females in all groups tend to score higher than males on both the Guttman and factor representations of the satisfaction dimension (Tables VI-6 and VI-7). These findings agree with the negative loadings for the sex attribute on the satisfaction cluster dimension (Table VI-8). High scorers on the Guttman satisfaction scale show the following concentrations among males and females: 61% vs. 78% for Lecturers; 63% vs. 77% for Research Scholars; 69% vs. 75% for Teachers; and 62% vs. 68% for Students. In addition to this sex difference on the satisfaction dimension, females tend to score higher than males on the cluster concerning denial of other negative evaluations regarding their award experiences (Table VI-9).

Another background variable showing rather a consistent relationship with the Guttman and factor satisfaction dimensions for three of the groups concerns the grantees' age at award time. According to the multiple regression and cluster loading data, younger Lecturers, Research Scholars, and Students tend to report greater overall satisfaction with their sojourn experiences (Tables VI-6 through VI-8). This finding is further illustrated by cross-tabular data which show over 70% of the senior scholars under 30 years of age in the high score range of the Guttman

satisfaction scale, in contrast to around 60% of those over 50 years of age. High scorers on this dimension for Students include 67% of those under 25 as opposed to around 60% of those 26 and older. In contrast to the other groups, Teachers in the 40-50 age range tend to score higher than their younger or older colleagues.

As the multiple regression and cluster loading data indicate (Tables VI-6 through VI-8), the geographic region of their host countries has a differential impact on the satisfaction dimensions for Lecturers as opposed to Research Scholars. These differences are further illustrated by the cross-tabular data involving the Guttman satisfaction scales, which show over 70% of the Lecturers sojourning in the Far East and the Near and Middle East in the high score range, in contrast to approximately 60% of those whose awards took them to Europe and 50% of those sojourning in Oceania. For Research Scholars this pattern is reversed, with only 54% of those sojourning in the Far East scoring in the high range, as opposed to 70% of the researchers in Europe as well as in Oceania. In Chapter VIII we shall present some tentative suggestions regarding these differences.

Another sojourn variable associated with the grantees' general evaluations of their award experiences involves their fields of work overseas. According to the multiple regression and cluster loading data, senior scholars and Students in the social sciences tend to score lower on the factor and cluster representations of the satisfaction dimension

than do their peers in other fields (Table VI-6 and VI-8). The Guttman satisfaction scale also indicates that relative to their colleagues in the arts, professional social service, agriculture, and other technical or professional specialties, the social scientists among the senior scholars and Students have smaller representations among the high scorers. Only for Students, however, was this Guttman scale difference identified as significant in the multiple regression analysis (Table VI-7). These data suggest that grantees in the arts or in roles involving service to host nationals feel greater gratification with reference to the personal development accruing to them as a consequence of their sojourn experiences. It is also possible that the more sophisticated grantees in the social sciences are more reluctant to indicate strong agreement with some of the questionnaire statements included in the satisfaction dimensions.

As the relatively high position loadings for the Natural Sciences item suggest, field of work abroad is also associated with the cluster concerning denial of a lack of institutional support (Table VI-9). This finding, in conjunction with the data concerning the loadings of other background items on this dimension, provides some insight into the different emphasis of this cluster as contrasted with the satisfaction dimension. We have already noted the relatively low association between these clusters. Let us now summarize the patterning of loadings on the two dimensions. In general, high scorers on the satisfaction dimension are typically younger single females, who come from states not

included in the category comprising the high prestige universities, whose applications for awards are initiated independently or upon the encouragement of colleagues, whose language proficiency is not fluent, and whose fields of work generally involve concentration in the arts or professional social service (Table VI-8). There is a suggestion in this patterning that sojourning abroad has a greater impact on grantees with relatively lower background status characteristics. In contrast to this patterning, the loadings on the cluster concerning denial of a lack of institutional support indicate that the older faculty members in the natural sciences, who are sufficiently established in their fields that their applications are requested by American or foreign institutions, and who have good command of their host countries' languages seem to be more easily integrated into professional roles at their host institutions (Table VI-9).

Further discussion of the patterning of associations among background characteristics of grantees and outcomes of their sojourn experiences will be included in the following two chapters.



## CHAPTER VII

### RELATIONS AMONG BACKGROUND VARIABLES AND OUTCOME DIMENSIONS

In Chapters III through VI we explored the relationship between grantees' background characteristics (described in Chapter II) and certain outcomes of their award experiences by means of three types of analyses. In a series of multiple regression analyses we assessed the relative importance of background items in predicting scores on outcome dimensions represented by rotated factors and Guttman scales. We also considered the relative loadings of these same antecedent characteristics of grantees on comparable outcome cluster dimensions. Finally, we presented data from cross-tabulations involving individual background items and Guttman scale scores. The next chapter will include a comparison of these methods of analysis. For the present let us turn to still other methods of relating background variables and outcome dimensions. First we shall discuss some results from a series of canonical correlation analyses. Then we shall consider data from a series of cluster analyses involving both background and outcome variables.

### Canonical Correlation of Antecedents and Outcomes

As noted above, thus far in our exploration of the relationship between the grantees' background characteristics and the outcomes of their award experiences, we have considered each outcome dimension separately in its association with the set of background items. In effect, therefore, while our analyses of the separate sets of antecedent and outcome variables have been multivariate, our treatment of the relations among the antecedents and outcomes has been only partially multivariate since we have considered the combination of multiple measures only for the background items and have treated each outcome dimension individually, in a univariate manner so far as the multiple regressions are concerned. Let us now consider the results of analyzing the total set of background variables in relation to the total set of outcome dimensions by means of canonical correlation.

Tables VII-1 through VII-4 present three separate canonical correlations for each group of grantees: one relating the background items with the Guttman scale scores as well as the summated professional achievement index scores; another relating the background items with the dependent factor scores; and finally one relating the factor scores from the analysis of the background items with the factor scores from the analysis of the outcome items. In each instance vectors from only the first canonical variates are presented. The figures listed in the canonical

Table VII-1. Lecturers: canonical correlations of background variables x dependent variables.

Background Items x Guttman Scale Scores And Summated Professional Achievement Index Scores		Background Items x Factor Scores	
Canonical Correlation: .39		Canonical Correlation: .54	
Independent Variables	Canonical Vectors Dependent Variables	Independent Variables	Canonical Vectors Dependent Variables
Natural Sciences	-.55 American Inter-	Application requested	Professional prestige
Home state then	.46 action	Language competence	Interpersonal communication
Period of award	-.30 Continued Foreign interaction	Europe + Oceania	Public relations
City size then	.25 Achievement Index	City size then	Interaction abroad
Took family abroad	-.24 Interaction abroad	Social Sciences	Satisfaction
Language competence	.19 Satisfaction	Period of award	Professional development
Application requested	-.16 Professional consequences	Natural Sciences	
Social Sciences	.10	Home state then	
Humanities + Arts	-.10	Male	
Male	-.09	Took family abroad	
Europe + Oceania	.04	Age	
Age	.02	Humanities + Arts	

# Background Factor Scores x Dependent Factor Scores

Canonical Correlation: .46

## Canonical Vectors

Independent Factors	Dependent Factors	
Age (-), mobility	.16 Professional Prestige	.90
City size then and now	.03 Professional development	-.39
Europe + Oceania, language	Public relations	-.20
competence, Humanities +	Satisfaction	-.16
Arts, application requested	Interaction abroad	-.06
Home state then and now	Interpersonal international	
Male, took family, professor	-.01 communication	-.02

Table VII-2. Research Scholars: canonical correlations of background variables x dependent variables.

Background Items x Guttman Scale Scores And Summated Professional Achievement Index Scores		Background Items x Factor Scores	
Canonical Correlation: .51		Canonical Correlation: .42	
Canonical Vectors		Canonical Vectors	
Independent Variables	Dependent Variables	Independent Variables	Dependent Variables
Home state then	.71 Achievement Index	Period of award	.53 Public relations
Social Sciences	.36 Professional consequences	Europe + Oceania	-.50 Interpersonal international com-
Period of award	.30	Male	-.31 munication
Age	.20 Continued foreign interaction	Home state then	-.31 Interaction abroad
Natural Sciences	.14 Satisfaction	Took family abroad	.28 Professional development
Language competence	.13 American interaction	Natural Sciences	-.16 Satisfaction
City size then	.12 action	Humanities + Arts	.12 Professional prestige.
Took family abroad	.10 abroad	City size then	-.09
Male	.10	Language competence	.08
Europe + Oceania	-.03	Application requested	.07
Application requested	.01	Age	.01
Humanities + Arts	.004	Social Sciences	.001

-----

# Background Factor Scores x Dependent Factor Scores

Canonical Correlation: .39

## Canonical Vectors

### Independent Factors

Application requested,  
Europe + Oceania (-),  
Humanities + Arts (-)  
Mobility, age (-)  
Took family, male,  
professor now  
State then and now,  
language competence  
City size then and now

### Dependent Factors

Interaction abroad  
Professional Prestige  
Professional development  
Satisfaction  
Public relations  
Interpersonal international  
communication

-.77  
-.63  
.55  
.05  
.01  
.002

Table VII-3. Teachers: canonical correlations of background variables x dependent variables.

Background Items x Guttman Scale Scores		Background Items x Factor Scores	
And Summated Professional Achievement Index Scores			
Canonical Correlation: .51		Canonical Correlation: .39	
Canonical Vectors		Canonical Vectors	
Independent Variables	Dependent Variables	Independent Variables	Dependent Variables
Home state then	.64 American Inter-	Period of award	.66 Public relations
Initiated appli-	action	Home state then	.38 Interpersonal inter-
cation	.43 Professional con-	City size then	-.37 national com-
Age	.40 sequences	Initiated appli-	cation
British Isles	.25 Continued foreign	Language com-	-.32 professional
Highest degree	-.20 interaction	petence	prestige
then	Achievement Index	Highest degree	-.27 Professional
Took family	.18 Interaction	then	development
abroad	abroad	Male	.22 Satisfaction
Satisfaction	-.10	Took family	.17 Interaction abroad
Period of award	-.07	abroad	.15
Male	-.05	Age	-.11
Language com-		British Isles	.03
petence	-.01		

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# Background Factor Scores x Dependent Factor Scores

Canonical Correlation: .46

Canonical Vectors		
Independent Factors	Dependent Factors	
Degree then, age	.08 Interaction abroad	-.61
City size then and now	.04 Professional prestige	-.44
Took family, male, initiated application	-.03 Professional development	.34
State then and now, language competence	.004 Satisfaction	.17
Degree change, degree now, professor now, post-award mobility, period of award (-)	Public relations	-.11
	Interpersonal international communication	.10
		-.07

vectors give the weightings for each background and each outcome variable which produce the maximum correlation between the two sets.

In the course of computing a canonical correlation, the elements in each set are transformed to new variables which are mutually orthogonal. Then the correlations between certain members of the two sets are maximized while others are reduced to near zero (cf. Kendall, 1957, ch. 5). For example, the canonical correlation analysis of background factor scores and dependent factor scores for Lecturers (Table VII-1) essentially concerns an association between the most highly weighted background factor pairing items regarding relative youth and post-award mobility and the most highly weighted dependent factor concerning professional prestige derived from the award experiences. Relatively less weighting is given the other factors in each set. It is interesting to note that the weightings and directions of the associations in this example agree with the findings from the multiple regression analysis and the relative loadings of background items on the dependent cluster concerning professional prestige (Chapter V). Interpreting the negative weighting for the professional development factor on the dependent vector poses some problems, however, and we shall return to this analysis later.

Another example of the canonical procedure's maximization of certain associations among the two sets of variables

(in general agreement with the multiple regression and cluster loading data) along with the reduction of other associations (sometimes producing divergences from earlier findings) is provided in the analysis of background items and factor scores for Students (Table VII-4). Let us consider the most highly weighted variables in each vector. In general the weightings and their directions agree with data presented in Chapter V where we noted that high scorers on the Enduring Professional Relations factor tended to be older male Students in natural sciences or in disciplines other than the social sciences or humanities and arts. Furthermore, in conjunction with the data on the background vectors, the negative weighting for the Satisfaction factor on the canonical outcome vector agrees with the previous finding that younger females scored higher, but it diverges from the previous indication that Students in disciplines other than social science scored higher (Chapter VI). The sign of the weighting for city size on the canonical background vector disagrees with the multiple regression and cluster loading findings for both the Enduring Professional Relations and the Satisfaction dependent factors.

The example just discussed illustrates the point that considering the dependent factor or scale scores separately--as in a series of multiple regression analyses--produces different information from that obtained in treating these dependent scores as a set--as in canonical correlation.

The obvious primary reason for divergences, of course, lies in the fact that the canonical correlation procedure weights the whole battery of dependent elements in addition to weighting the predictors, as is done in multiple regression analysis. Furthermore, as noted previously, the elements in each set of data are transformed into mutually independent (orthogonal) variables in the canonical correlation procedure; therefore, while the final weightings tend to maximize certain associations between the sets of transformed elements they are not affected by within set correlations of variables, as are the Beta weights in the multiple regression analysis. With reference to this last point, we should again note that in the multiple regressions for the outcomes occurring subsequent to the grantees' overseas experiences, scores on the interaction abroad factor were considered along with the other antecedents; therefore, the Beta weightings from the post-award multiple regressions were affected by correlations of background items with the overseas interaction factor as well as by the correlations of each antecedent with the particular outcome being analyzed.

Let us turn now to some problems of interpreting the canonical correlation data. In discussing the analysis of background factor scores and dependent factor scores for Lecturers (Table VII-1), we noted previously that while the highest positive weighting was given to scores on the professional prestige factor, a relatively high negative

weighting was given to those on the professional development factor. Such differential weightings--in addition to those for the other dependent factors--resulted in a maximal correlation with the composite of weighted background factors. But is this mathematical representation of these sets of data reasonable or helpful?

From other information we have regarding the association between professional prestige and professional development, an outcome in which prestige is weighted positively and development negatively seems relatively improbable. As we shall see in the next chapter the two factors are highly positively correlated. Furthermore, in Chapter V we noted that items from both factors combined in the Guttman Professional Consequences Scale in such a manner that the items regarding prestige were at the maximum end of the scale, indicating that grantees who answered affirmatively to the prestige items also agreed with the professional development statements. Thus the canonical analysis seems to be isolating an outcome contrary to the earlier findings--an outcome wherein a grantee experiences the prestige effects without reporting the professional development.

An apparent resolution of this dilemma may be accomplished by reflecting the signs of the weightings in both of the canonical vectors--a trivial operation which does not affect the canonical correlation coefficient.

Then the predicted outcome is composed of a high negative weighting on prestige and a positive weighting on development. While this pattern appears to be in a less dissonant relationship with our Guttman information it still seems substantively unsatisfactory. That is, in this situation we might have two individuals with the same professional development experiences but who differed with respect to prestige contributions--one reporting such benefits and the other not. The weightings then would penalize the individual who had received recognition for his development and would give a higher score to the grantee who reported the same amount of development without the prestige effects. It appears that the most predictable composite criterion in this instance is not particularly meaningful--it penalizes for high scores on the prestige factor but assigns some importance to scores on the development, public relations, and satisfaction factors. What seems to be implied is that in this composite new perspectives and personal development are important for the grantee as is his communicating these to others in his home environment--provided he does not receive professional recognition for his development. Overseas interaction experiences and subsequent follow-ups on relationships established abroad are neglected in this particular composite.

Let us take another example--again from the analysis for Lecturers in Table VII-1--to illustrate problems of interpreting the canonical correlation data. The maximum

correlation--.39--between the background items and a set of outcomes comprised of the Guttman scales and the summated professional achievement index is produced primarily by a combination of background characteristics involving not being a natural scientist, coming from the states with many of the more productive universities, and going abroad early in the 1947-1957 period in conjunction with a combination of outcomes involving scoring high on the Guttman scale relating to internationally-oriented communication with fellow Americans, scoring low on the continued foreign interaction dimension, scoring high on the summated achievement index, and scoring high on the Guttman interaction abroad scale.

Is this a meaningful representation of the data? Again our problems of interpretation center on the composite outcome vector. For attribute data of the type included in the antecedent vector different combinations of weightings and signs generally do not pose serious problems of interpretation. But the patternings of the behaviors involved in the scores on the outcome dimensions connote more meaning, and in this instance an overall outcome of the awards involving low scores on continued interaction with foreigners coupled with high scores on interaction overseas and high scores on internationally-oriented communication with fellow Americans does not seem to be a reasonable--or desirable--syndrome. Empirically, such a patterning of



outcomes does not seem highly probable since, as we shall see in the next chapter, among the other Guttman scales the continued foreign interaction dimension has its highest positive correlation with the interaction abroad scale and its second highest positive correlation with the American interaction scale. Of course, as noted before, these within set correlations do not affect the canonical correlation.

What the present canonical correlation suggests is that the best linear association between the given antecedents and outcomes occurs when we weight the variables as indicated so that the important behaviors in the composite award outcome involve a large amount of communication between grantees and significant others in their immediate environment--be it overseas, as reflected in the interaction abroad scale, or at home, as manifested in the American interaction scale--along with relatively little follow-up vis-a-vis the relationships established (as evidenced by the negative weighting for the continued foreign interaction scale). While some critics of the "superficiality" of American friendship patterns might claim that such a syndrome is typical of gregarious Americans who interact a great deal but do not form many deep and enduring relations, the pattern hardly seems to be the type of composite outcome an administrator of exchange programs would wish to foster.

In our examples of problems involved in interpreting the canonical correlation data we have been addressing ourselves

to questions raised by Kendall who notes that theory has outrun practice with this technique; therefore, it is not yet clear for what types of problems the canonical correlation model is most appropriate. As he so cogently concludes, after using this technique we have to face the question "whether our new variables have any obvious interpretation and can be identified with something 'real,' or whether they are to remain artefacts brought out by the mathematics" (1957, p. 81). Our general conclusion is that vis-a-vis the present data the latter is the situation. In the next chapter we shall develop this discussion further.

#### Cluster Analyses Involving Background and Outcome Variables

Combined Variable Cluster Analyses. In discussing the individual outcome dimensions in Chapters III through VI, we incorporated findings from one cluster analysis involving the background as well as the dependent variables. In that particular analysis, however, the background items were temporarily deleted from the correlation matrix during the clustering process so that the dimensions evolved actually accounted for the correlation structure of the dependent items alone. Once the dependent clusters were extracted, then the relative loadings of the background items on these dimensions were calculated.

Let us now consider another application of cluster analysis to the entire matrix of background and dependent items--with no variables suppressed during the clustering process. This analysis includes the thirteen items pertaining to professional achievements along with the other information concerning outcomes of the award experiences. A summary description of the clusters extracted in the combined variable analysis for each group of grantees appears in Table VII-5. In terms of item content and relative loadings, most of the clusters identified in the combined analysis correspond to those extracted in the analyses of separate subsets of background or outcome variables (see the clusters designated by "XX"). In only one instance is there a definitely composite cluster, combining a background and an outcome dimension (see the two clusters identified by "C" in Table VII-5).

In a number of cases in the present analysis, however, clusters similar to those extracted in previous analyses of subsets of items include variables from the previously excluded set (see the clusters identified by a "+" in Table VII-5). For example, in the combined variable analysis for Research Scholars, the dependent item concerning the attainment of a new position loads positively as part of the background cluster relating to age and post-award mobility. In the identification of the major dependent clusters in the combined analysis, the background item

Table VII-5. Dimensions extracted in the combined variable cluster analysis.<sup>1</sup>

	Lecturers	Research Scholars	Teachers	Students
<u>Background Clusters<sup>2</sup></u>				
Home state then and now	XX	XX	XX	XX
Took family abroad, male	XX	XX	XX	O
Home city then and now	X	XX	X	XX
Age, post-award mobility	O	XX+	--	--
Present occupation, degree	--	--	C	--
Language, degree change	--	--	--	Q
<u>Major Dependent Clusters<sup>3</sup></u>				
Interaction Abroad (III)	XX	XX	XX	XX
Interpersonal Internatl. Comm. (IV)	--	X	C	XX
International Public Relations (IV)	XX+	XX	XX	XX
Professional Development (V)	XX	XX	XX	XX+
Professional Prestige (V)	XX	XX	XX	XX
Enduring Professional Relations (V)	--	--	--	XX
Satisfaction (VI)	XX	XX	XX	XX
<u>Other Dependent Clusters<sup>3</sup></u>				
Deny low prof. value of experience (V)	XX	XX	XX	XX
Deny career interference (V)	--	--	--	O
New professional relations (V)	XX	--	--	--
New position, promotion (V)	--	--	XX+	--
New courses (V)	XX	X	--	XX
Professional publications (V)	XX	O	XX	XX+
Papers presented, news articles	--	--	X	--
Theses (V)	--	--	X	XX+
Artistic accomplishments (V)	--	XX+	XX	XX+
Deny lack of institutional support (VI)	XX	XX	--	XX
Deny other negative evaluations (VI)	XX	--	--	O

<sup>1</sup>Symbols used in this table have the following referents:

- XX = a cluster extracted in a previous analysis as well as in the combined variable cluster analysis
- X = a cluster identified in the combined variable analysis but not extracted in a previous analysis
- O = a cluster isolated in a previous analysis but not extracted in the combined variable cluster analysis
- +
- = a cluster similar to a previously extracted dimension, but which includes items from another subset of variables in its definition in the combined variable cluster analysis
- C = a cluster combining a background and a dependent dimension in the combined variable analysis
- = a cluster not appearing in any of the analyses for a particular group of grantees

<sup>2</sup>For a complete description of these clusters see Chapter II.

<sup>3</sup>The numerals in parentheses following each cluster identification refer to the chapter where the cluster is discussed.

concerning host country loads negatively as part of the Lecturers' International Public Relations dimension; and the items pertaining to age at award time and to present occupation as a professor load positively as elements in the Students' Professional Development cluster. In both instances these findings agree with results from the multiple regression analyses as well as with data concerning the relative loadings of background items on dependent clusters (see Chapters IV and V).

Among the other dependent clusters which include background items in the dimensions extracted from the combined variable analysis are the following: In the Research Scholars' and Students' cluster concerning artistic accomplishments, the field of work dummy variable for Humanities and Arts loads positively. In the Students' professional publications cluster the item pertaining to change in academic degree loads positively, as it does in their cluster concerning theses, which also includes the item concerning present occupation as professor. For Teachers the previous doublet of items concerning the attainment of a new position and a promotion is expanded in the present analysis by inclusion of the age variable, loaded negatively. As expected, these data also agree with information from the previous analyses regarding relative loadings of background items on clusters extracted from the matrix of outcome variables alone. These particular dimensions were not used in multiple regression analyses.

As the data in Table VII-5 indicate, in some instances--e.g., the age, mobility background cluster for Lecturers--a cluster identified in a previous analysis does not appear in the combined variable analysis (see the clusters designated by "O"). In the Students' analysis this discrepancy might result from the fact that 15 clusters represent the maximum cutoff in the Tryon program. Thus, since 4 clusters had been extracted in the clustering of the subsets of background variables and 15 had been isolated in the analysis of dependent variables, then--given the cutoff rule--all of the former clusters could not appear in the present clustering of the full set of items.

The converse situation also occurs in the present analysis. That is, in some instances such as the background cluster concerning city size for Lecturers and Teachers, clusters which were not isolated for particular groups in previous analyses appear in the combined variable analysis (see the clusters designated by "X" in Table VII-5). It is particularly interesting to note that in the combined variable analysis the dimension concerning Interpersonal International Communication appears as part of the cluster domain structure for Research Scholars, but it is still absent in the Lecturers' cluster structure.

A cluster including the Interpersonal International Communication dimension also appears for the first time in the combined analysis for Teachers. This cluster represents the single occurrence of a definitely combined dimension,

composed of a previously extracted background dimension (concerning present occupation and academic degree) as well as the currently isolated dependent dimension concerning interpersonal international communication. In this composite cluster the items in the background dimension are reflected so that negative loadings on present occupation as a teacher and on host country and language skill as well as positive loadings on academic degree combine with positive loadings on the dependent items concerning interpersonal international communication. This composite agrees with the multiple regression data discussed in Chapter IV, and suggests that relatively high academic status (as indicated by academic degree) and an administrative position (suggested by the fact that these grantees are not currently teaching in elementary or secondary schools) facilitate interpersonal international communication. The negative loadings on items concerning host country and language skill suggest the following possibilities. With reference to internationally-related interaction with fellow Americans, the Teachers who have sojourned in countries on the Continent or in other areas of the world may be sought out in particular by prospective grantees needing information concerning institutional practices, local conditions, etc. Vis-a-vis continued relationships with host nationals, it may be that Teachers scoring high on the composite dimension receive most communications from foreigners who are competent in English and who hope



these Teachers can exert influence to make possible the foreigners' engaging in educational pursuits in the United States.

With the one exception of the composite dimension just discussed, in general the combined variable cluster analysis does not provide much additional information vis-a-vis the present data. Most of the clusters extracted in the present analysis were identified in previous clusterings of subsets of the variables. Furthermore, data concerning the inclusion of variables from one subset of items along with those defining a dimension composed primarily of items from a different subset agree with findings reported previously from multiple regression analyses and analyses of the relative loadings of background items on clusters extracted from the matrix of outcome variables alone. In a few instances the combined variable analysis detects clusters not isolated previously for certain groups; however, the converse situation also occurs--indeed, the fifteen cluster cutoff in the Tryon program seems to impose an arbitrary restriction on the amount of information elicited. Further discussion of the combined variable analysis is included in the report of findings from additional cluster analyses which we shall now discuss.

Within-Groups Cluster Structure Analysis. In further exploring relations among background and outcome dimensions for each group of grantees, we performed a cluster analysis

of the oblique dimensions extracted from three separate analyses--the cluster analysis of the subset of background items; the cluster analysis of the subset of outcome items; and the analysis just discussed of the full set of items (with none suppressed during the clustering). Tables VII-6 through VII-9 summarize the loadings of the dimensions from previous analyses on the clusters extracted in this analysis for each group of grantees. The tables also present correlation matrices summarizing the associations among the rotated oblique clusters identified for each group in the present analysis.

While some of the clusters extracted in the present analysis merely involve doublets consisting of a dimension identified in an analysis of a subset of items as well as the analogous dimension isolated in the combined variable analysis, other clusters provide more information concerning relationships among several dimensions. Let us consider the cluster structure suggested by the present analysis for each group.

For the Lecturers the Interaction Abroad dimension appears in combination with the dimension consisting of a doublet involving new professional relations established overseas and maintenance of these professional contacts (Cluster Number 7, Table VII-6). The Professional Development dimension combines with other dependent dimensions concerning tangible consequences of the grantees' development

Table VII-6. Lecturers: cluster analysis of dimensions extracted in previous analyses of background, dependent, and combined variables.

Dimensions <sup>1</sup>	Loadings on Rotated Oblique Clusters							
	Cluster Number:	1	2	3	4	5	6	7
C. Deny low prof. value of experience		.99						
D. Deny low prof. value of experience (V)		.99						
C. Deny lack of institutional support			.99					
D. Deny lack of institutional support (VI)			.99					
D. Professional publications (V)				.78				
C. Professional publications				.78				
C. New courses				.75				
D. New courses (V)				.74				
D. Professional Development (V)				.48				
C. Professional Development				.45				
C. Took family abroad, male					.96			
B. Took family abroad, male					.96			
C. Satisfaction						.92		
D. Satisfaction (VI)						.92		
D. International Public Relations (IV)						.53		
C. International Public Relations, host country						.45		
C. Professional Prestige						.47		
D. Professional Prestige (V)						.47		
C. Deny other negative evaluations							.99	
D. Deny other negative evaluations (VI)							.99	
C. New professional relations								.94
D. New professional relations (V)								.94
C. Interaction Abroad								.57
D. Interaction Abroad (III)								.57

B. Home state then and now (II) .88  
 C. Home state then and now .85

Cluster Number:	1	2	3	4	5	6	7	8
1	---	.11	.11	.04	.15	.18	.15	.03
2		---	.15	-.09	.18	.32	.35	.06
3			---	-.01	.27	.12	.48	.13
4				---	-.24	-.22	-.01	.15
5					---	.33	.23	-.19
6						---	.18	-.04
7							---	.10
8								---

---

<sup>1</sup>Dimensions from the analysis of background items are prefixed by a "B"; those from the analysis of dependent items, by a "D"; and those from the analysis of the full set of combined items, by a "C." The numerals in parentheses following some cluster identifications refer to the chapter where the particular dimension is discussed.

Table VII-7. Research Scholars: cluster analysis of dimensions extracted in previous analyses of background, dependent, and combined variables.

Dimensions <sup>1</sup>	Cluster Number:	Loadings on Rotated Oblique Clusters							
		1	2	3	4	5	6	7	8
C. Artistic accomplishments, Humanities + Arts		.99							
D. Artistic accomplishments (V)		.99							
D. Interaction Abroad (III)			.92						
C. Interaction Abroad			.91						
D. International Public Relations (IV)			.65						
C. International Public Relations			.53						
C. Interpersonal International Comm. (IV)			.63						
C. Deny low prof. value of experience				.99					
D. Deny low prof. value of experience (VI)				.99					
C. Home state then and now					.99				
B. Home state then and now (II)					.99				
C. Age, post-award mobility, new position						.69			
B. Age, post-award mobility (II)						.60			
B. Took family abroad, male (II)						-.39			
C. Home city then and now							.95		
B. Home city then and now (II)							.95		
C. Deny lack of institutional support								.99	
D. Deny lack of institutional support (VI)								.99	
C. Satisfaction									.99
D. Satisfaction (VI)									.99
C. Professional Development									.91
D. Professional Development (V)									.91
C. Professional Prestige									.49
D. Professional Prestige (V)									.49

Cluster Number:	1	2	3	4	5	6	7	8	9
1	---	-.01	.02	.07	.07	-.10	-.11	-.00	.00
2		---	.10	-.02	-.12	.05	.34	.31	.35
3			---	.02	.08	-.01	.14	.18	.28
4				---	-.09	-.03	.07	-.19	-.09
5					---	-.07	-.12	.17	.05
6						---	.06	.02	.03
7							---	.19	.11
8								---	.40
9									---

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<sup>1</sup>Dimensions from the analysis of background items are prefixed by a "B"; those from the analysis of dependent items, by a "D"; and those from the analysis of the full set of combined items, by a "C." The numerals in parentheses following some cluster identifications refer to the chapter where the particular dimension is discussed.

[illegible]

Cluster Number:	1	2	3	4	5	6	7	8
1	---	.17	.07	.10	.12	.36	.47	.23
2		---	.15	-.06	.23	.22	.08	.44
3			---	.21	.24	.03	-.01	.01
4				---	.08	-.03	.01	-.06
5					---	.12	.04	.10
6						---	.18	.35
7							---	.16
8								---

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<sup>1</sup>Dimensions from the analysis of background items are prefixed by a "B"; those from the analysis of dependent items, by a "D"; and those from the analysis of the full set of combined items, by a "C." The numerals in parentheses following some cluster identifications refer to the chapter where the particular dimension is discussed.



Table VII-9. Students: Cluster analysis of dimensions extracted in previous analyses of background, dependent, and combined variables.

Dimensions <sup>1</sup>	Cluster Number:	Loadings on Rotated Oblique Clusters					
		1	2	3	4	5	6
D. Interpersonal International Comm. (IV)		.89					
C. Interpersonal International Comm.		.89					
C. Interaction Abroad		.83					
D. Interaction Abroad (III)		.79					
C. Enduring Professional Relations		.64					
D. Enduring Professional Relations (V)		.62					
D. International Public Relations (IV)		.48					
C. International Public Relations		.48					
D. Artistic Accomplishments, Humanities + Arts			.99				
D. Artistic accomplishments (V)			.99				
C. Deny low prof. value of experience				.94			
D. Deny low prof. value of experience (V)				.94			
D. Deny career interference (V)				.37			
B. Home city then and now (II)					.98		
C. Home city then and now					.98		
C. Professional publications, degree change						.90	
D. Professional publications (V)						.90	
D. Theses (V)						.80	
C. Theses, degree change, professor now						.72	
D. New courses (V)						.65	
C. New courses						.65	
B. Took family, degree then, professor now (II)						.65	
D. Professional Development (V)						.50	
C. Professional Development, age, prof. now						.48	
C. Professional Prestige						.44	
D. Professional Prestige (V)						.41	
D. Satisfaction (VI)							.99
C. Satisfaction							.99

Cluster Number:	1	2	3	4	5	6
1	---	.10	.12	-.06	.38	.34
2		---	.17	-.12	.11	.10
3			---	-.02	.17	.16
4				---	-.02	.07
5					---	.01
6						---

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<sup>1</sup>Dimensions from the analysis of background items are prefixed by a "B"; those from the analysis of dependent items, by a "D"; and those from the analysis of the full set of combined items, by a "C." The numerals in parentheses following some cluster identifications refer to the chapter where the particular dimension is discussed.

in terms of publications and introduction of new courses (Cluster Number 3). Another consequence of professional activity--recognition from colleagues and administrators--is not included in this professional development and output cluster but instead loads as part of another cluster concerning the Lecturers' relative satisfaction and perceptions of personal growth resulting from their award experiences, as well as their efforts to disseminate information regarding their overseas experiences to fellow Americans (Cluster Number 5).

This separate cluster involving satisfaction, public relations, and prestige suggests a possible causal linkage. That is, those Lecturers who feel relatively gratified by their experiences overseas may be more inclined to communicate with students, colleagues, and social groups in their universities as well as with groups in their home communities regarding their experiences abroad. This communication, in turn, may tend to increase their visibility at home and thus might result in more recognition from significant others--such as administrators-- particularly if the grantees present other evidence of professional growth, such as publications and plans for new courses, resulting from their experiences. A spiralling effect then might ensue. That is, the prestige accruing to Lecturers may in turn serve to reinforce their feelings of satisfaction with their overseas experiences as well as

their willingness to engage in further communications concerning their experiences abroad. This reinforcement might also stimulate further professional productivity. Thus it is not surprising to find that the cluster relating to satisfaction, internationally-related public relations, and professional prestige is correlated-- $r = .27$ --with that concerning professional development and productivity. We shall discuss the relations among these dimensions further after we have described the cluster structures for all groups.

According to the matrix of correlations in Table VII-6, while the professional development and productivity cluster is associated with that concerning satisfaction, public relations, and prestige, its strongest relationship is with the cluster concerning interaction abroad and maintenance of professional relations-- $r = .48$ . We might interpret this high association between professional outcomes, and overseas interaction as follows. In previous discussions we noted that official teaching requirements at host institutions often provide Lecturers with much free time for other pursuits. Since these grantees are visitors and not actual participants in the host universities' social systems, this free time is not expended on the group maintenance tasks which impinge on faculty members in their home universities; consequently, these grantees may devote their energies to writing and serious thinking about professional endeavors (cf. Gullahorn & Gullahorn, 1960a.) Since such professional pursuits might not be so

focused as is the case for Research Scholars who generally go abroad with specific tasks to accomplish, the Lecturers may use their free time to explore a broader range of possibilities in their new environments. Thus they might collect data for future research and publication as well as for course materials. In addition, the free time facilitates the Lecturers' associating with some regularity with a greater range of colleagues abroad. Accepting invitations to speak at meetings of professional societies abroad also provides opportunity for more contacts. These new professional relations can provide meaningful and continuing stimulation to the Lecturers in their professional endeavors involving subsequent writings and development of new courses.

Aside from its relationship with the professional development and productivity cluster, the Lecturers' cluster concerning interaction abroad and maintenance of professional relations is also positively correlated with their dimension involving a denial of lack of institutional support overseas ( $r = .35$ ) as well as with their satisfaction, public relations, and professional prestige composite cluster ( $r = .23$ ).

Among the other clusters extracted in the present analysis, it is interesting to note that the Lecturers' background dimension concerning taking the family and being a male is essentially unrelated to their professional outcomes cluster ( $r = -.01$ ) and is negatively related to

their satisfaction, public relations, and prestige cluster ( $r = -.24$ ) as well as to their cluster concerning denial of negative evaluations of the award experiences ( $r = -.22$ ). This suggests that family responsibilities may expose grantees to greater deprivations in terms of the economic costs of sojourning and living overseas as well as to greater frustration in living arrangements (finding suitable quarters for a family, evaluating local schools, assisting with foreign language problems, etc.). Such experiences may lead some grantees to question how worthwhile the overseas experience actually was to them, personally.

Let us now consider the cluster structure evolved in the present analysis for Research Scholars (Table VII-7). While conclusions from the data concerning associations among clusters for this group are in general accord with those just discussed for Lecturers, there are interesting differences in the patterning of dimensions in the clusters for Research Scholars. For this group of grantees, a general cluster concerning interaction appears in the combination of the interaction abroad, international public relations, and interpersonal international communication dimensions (Cluster Number 2, Table VII-7). Professional development is combined with professional prestige in another cluster (Cluster Number 9), and the satisfaction dimension appears as a separate cluster (Cluster Number 8).

With reference to the associations among the dimensions, the general interaction cluster is positively correlated with the professional development and prestige cluster ( $r = .35$ ), and with the dimension concerning denial of a lack of institutional support ( $r = .34$ ), as well as with the satisfaction cluster ( $r = .31$ ). The relationship between the general interaction cluster and the professional consequences cluster is consonant with the findings for Lecturers concerning the association between the overseas interaction and maintained professional relations cluster and the professional development and productivity dimension. While this correlation represents the strongest relationship for each of the clusters involved for the Lecturers, the same is not true for Research Scholars. For this group, while the interaction cluster is most strongly associated with the professional consequences cluster; the professional consequences cluster is most highly correlated with the satisfaction cluster ( $r = .40$ ), and its association with the interaction cluster ( $r = .35$ ) ranks second. We shall return to this relationship between satisfaction and professional consequences in a later discussion.

Among the other clusters identified in the present analysis for Research Scholars is a composite involving the background dimension concerning relative youth and post-award mobility along with the background dimension concerning taking the family abroad and being a male, loaded negatively

(Cluster Number 5, Table VII-7). This cluster has its highest association with the satisfaction dimension ( $r = .17$ ), a result in agreement with previous findings concerning the relationship between relative youth and satisfaction (Chapter VI), as well as with the data for Lecturers in which a positive representation of the dimension concerning taking the family correlated negatively with the satisfaction cluster. This composite background cluster is negatively correlated with the Research Scholars' general interaction dimension ( $r = -.12$ ), a result consonant with the previous findings of a positive relation between age and extent of interaction abroad and a negative association between mobility and internationally-oriented communication with fellow Americans.

As in the analysis for Research Scholars, the cluster structure evolved for Teachers also isolates a general cluster relating to interaction experiences, composed of the following dimensions: interaction abroad, public relations, mass communication, and the combined dimension concerning interpersonal international communication and not being a school teacher currently (Cluster Number 2, Table VII-8). Professional development appears as a separate cluster for this group (Cluster Number 6), as does the satisfaction dimension (Cluster Number 9). The prestige dimension is associated with a doublet concerning the attainment of a new position and promotion (Cluster Number 1). As indicated previously, for Lecturers and Research Scholars the



interaction clusters are most strongly associated with clusters pertaining to professional consequences of the award experiences. For Teachers, however, the interaction cluster is most highly correlated with the satisfaction dimension ( $r = .44$ ). Apparently, therefore, the interaction experiences of Teachers are related more to their sense of personal development and satisfaction than to their professional identities. Of course, the interaction cluster is associated with those concerning professional development ( $r = .22$ ) and professional prestige ( $r = .17$ ); however, these relationships are not so strong. Similarly, the satisfaction cluster is positively correlated with professional development ( $r = .35$ ) and professional prestige ( $r = .23$ ), but the strongest association is with the interaction cluster.

With reference to the dimensions concerning professional consequences, the Teachers' professional development cluster is most highly related to their prestige cluster ( $r = .36$ ), and this correlation ranks second among the associations of the prestige cluster with other dimensions, with the correlation between prestige and denial of low evaluations of overseas experience ranking first ( $r = .47$ ). As is true for the senior scholars, the Teachers' dimension concerning taking the family abroad and being a male correlates negatively with the satisfaction cluster ( $r = -.06$ ).

Among the cluster structure analyses for the four groups of grantees, the greatest data reduction occurs in

the clustering of dimensions for Students, where the relations among 34 dimensions are summarized in terms of six clusters.<sup>1</sup> Again in the Students' analysis, a general cluster appears concerning interaction experiences. This cluster combines dimensions pertaining to interpersonal international communication, overseas interaction, international public relations, and enduring professional relations (Cluster Number 1, Table VII-9). Another large composite cluster relates to professional development, professional advancement and prestige, and professional productivity (Cluster Number 5). The satisfaction dimension appears as a separate cluster (Cluster Number 6). As was true for the senior scholars--but not for Teachers--the Students' interaction cluster is most highly associated with their professional consequences cluster ( $r = .38$ ). This relationship is not surprising inasmuch as a strong component in the dimensions combined in the interaction cluster pertain to the establishment and maintenance of professional relationships with host nationals. The Students' interaction cluster also is substantially correlated with their satisfaction dimension ( $r = .34$ ). It is interesting to note, however, that the Students' professional consequences cluster is virtually unrelated to their satisfaction dimension ( $r = .01$ ), a

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<sup>1</sup>In the Lecturers' analysis, relations among 28 dimensions are accounted for by 8 clusters; for Research Scholars, correlations among 27 dimensions are interpreted in terms of 9 clusters; and for Teachers associations among 28 dimensions are accounted for by 8 clusters.

result contrary to the findings for the other three groups of grantees. Let us consider the relationship between professional consequences and satisfaction in more detail.

For Lecturers, Research Scholars, and Teachers substantial correlations appear between clusters pertaining to professional consequences and those involving personal satisfaction. By the very nature of the variables involved in the two dimensions we would expect such a relationship. That is, professional identity is likely to be an important component of the self-definitions of individuals with high investments in their professional statuses; consequently, positive assessments concerning professional development are likely to be reflected also in judgments regarding personal growth and satisfaction. Thus, a professionally beneficial experience is likely to be highly valued, particularly if the self-perceptions of professional and personal development are validated by recognition from significant others. This suggested relationship seems particularly clearcut for Research Scholars, the only group for whom the dimensions under consideration are in a reciprocal relationship, in the sense that this group's professional consequences cluster--which combines professional development and prestige--has its highest correlation with their satisfaction cluster, which in turn has its highest association with the professional consequences cluster ( $r = .40$ ).

As noted previously, the Lecturers' cluster concerning professional development and productivity is most

highly correlated with the dimension involving overseas interaction and continued contact with professionals abroad ( $r = .48$ ). Nevertheless, a composite cluster involving the satisfaction as well as the professional prestige dimensions ranks second in relation to the professional development and productivity cluster ( $r = .27$ ). What these relationships suggest is that since Lecturers generally do not venture abroad with specific research projects to accomplish during their sojourns, their evaluations of professional gain as well as their subsequent productivity are substantially influenced by stimulation from the range of professional contacts facilitated by their statuses abroad. To the extent that the Lecturers become more established in international professional communication networks--through presentation of professional papers during their sojourns and after their return, as well as through their publications--the more probable it is that their increased visibility results in even more professional communication opportunities, which enhance their prestige and, presumably, their self-evaluations as professionals.

Among Teachers, as well, the professional development dimension is substantially related to their cluster involving evaluations of personal growth as well as satisfaction with the sojourn experiences ( $r = .35$ ). The focus of the Teachers' professional roles, however, emphasizes interpersonal relationships rather than professional development, per se; therefore, rewarding interaction experiences

with colleagues, students, the pupils' families, and the school community are likely to contribute to the Teachers' sense of personal fulfillment and satisfaction with their professional identities. Thus we find that the correlation between the Teachers' satisfaction dimension and that concerning professional development ranks second, with the highest association for the satisfaction dimension involving the relationship with the cluster pertaining to interaction experiences ( $r = .44$ ). Again, the relationship among these dimensions is probably of a spiraling nature. That is, while meaningful interaction experiences overseas are likely to contribute to the Teachers' satisfaction with the sojourn, the subsequent opportunity for further communication with significant others in their home communities regarding interpretations and new perspectives developed abroad probably reinforces the Teachers' evaluation of the sojourn's contribution to their personal development as citizens of the world and as Teachers and communicators.

We come now to the almost orthogonal relation between the Students' cluster relating to professional outcomes and their dimension concerning satisfaction. In terms of our previous discussion, it appears that in contrast to the professional groups, the Students generally have fewer investments in a professional status--in fact, over half of this group had just completed their bachelor's degrees. Thus for the Students as a group, professional identity is

probably not an important component of their self-definitions.

Interview data from research concerning American students in France as well as from the nine-state study of former grantees suggest that while Students cite educational and professional advancement as a prime reason for their venturing overseas, in many cases study abroad is not directly related to goals concerning the Students' life work (Gullahorn & Gullahorn, 1956, 1958a, 1958b). To the contrary, many regard the opportunity to remain in the student status as a sort of moratorium vis-a-vis important career and life commitments--a year in which to consider alternative decisions regarding the future and gain greater perspective as a result of living in a foreign culture. Thus, while a sample of American students in France cited such general objectives as availing themselves of educational opportunities, gaining further understanding of French culture, and developing French language proficiency as their three primary reasons for study abroad, only 19% of the questionnaire respondents were sufficiently advanced in their fields and sufficiently goal-oriented that their major purpose in coming to France was to study with particular professors or other experts in their fields, and only 9% considered as a major incentive the opportunity to use libraries and consult source materials not available in the United States (Gullahorn & Gullahorn, 1956, 1958a).

It is possible, therefore, that a majority of the Students did not consider the sojourn experience an integral component of their vocational development; instead, they regarded the overseas experience as a means of developing personal maturity and perspective--a step toward resolving uncertainty and conflict concerning their identity. Insofar as the sojourn experiences did contribute to the Students' personal sense of maturity and provide the perspective they sought, such evaluations would be reflected in their satisfaction dimension; however, these judgments might be--as the data suggest--quite independent of their assessments regarding professional achievement. For those who have not pursued careers in academic life or in the professions, the lack of relationship between evaluations of personal growth and appraisals of professional development and productivity is obvious.

While the data at hand preclude adequate testing of this possibility, interview data as well as comments Students added to their questionnaires suggest that a sort of defensive or compensatory reaction may be involved in the relatively high judgments of satisfaction with the award experience (e.g., the distribution of Student respondents on the Guttman satisfaction scale includes a higher proportion among the high scorers than does any other dimension considered in this study). That is, since a relatively large section of the survey questionnaire focused on professional

consequences of the awards, those Students who were not motivated primarily by professional goals and who did not have such achievements to report might feel it necessary to justify their time abroad in other terms. One Student, for example, added the following observations regarding the contributions of overseas experiences:

The true value of the Fulbright grant is not to be found in the degree earned, nor in the professional advancement--it is to be found in the maturity of the individual. He is, I think, a more thoughtful person, more tolerant, he knows the value of a fluent foreign language, wishes he knew more so that he could converse with other nationalities. He has been able to study the culture of other countries; he has learned to understand and accept national traits which formerly seemed peculiar and unreasonable. Most of all, he has spoken to--and known--people of other nations. It might have come as a shock to learn that we are all very much alike in our ambitions and desires, but it is, after all, a wonderful and welcome knowledge, which can be only beneficial to the individual, to his country, and to the world. Here, in the individual and in his relationships is found the great worth of the Fulbright experience.

Actually, it should be noted that the essentially orthogonal relationship between the cluster concerning interaction experiences and that pertaining to professional development, productivity, and prestige reflects the almost zero-correlation between the satisfaction dimension and the high loading dimensions on the professional consequences cluster--i.e., the dimensions concerning publications, theses, and new courses. In terms of associations of individual dimensions, in the combined variable analysis the Students' satisfaction dimension has a low correlation with the other professional outcome dimensions:  $r = .19$



with the professional prestige dimension, and  $r = .14$  with the professional development cluster. These correlations, however, are much lower than those observed for the professional groups.

We have already suggested that professional identity does not appear to be a salient component of the self-definitions of Students as a group; consequently, their evaluations of personal growth may be relatively independent of academic achievement. There is also the possibility that even for the goal-oriented Students who are more advanced in their fields and whose studies abroad have direct relevance to their careers, the sojourn experience still may not be so integrated in their lives as is characteristic for the professional groups. Insofar as the Students have not yet achieved a professional identity (a fifth of the group was still in the Student status at the time of the survey), their appraisal of the academic consequences of the sojourn may be more restricted--their immediate focus is more instrumental and goal-directed. Furthermore, the Students who spent most of their waking hours gathering dissertation material overseas probably had relatively little opportunity to attend to the incidental learning involved in coping with an alien social system. Consequently, while the experience may have been professionally gratifying, such satisfaction may be more isolated than is typical for senior scholars, who generally work under different pressures and whose professional statuses provide greater entree



into academic and social life abroad so that different facets of the sojourn experience can be integrated in the patterns of their professional and personal lives. The difference between the Students and the other groups with reference to the association among dimensions pertaining to satisfaction and professional consequences is further exemplified in clusterings described in the following section.

Across-Groups Cluster Classifications. Let us now consider other data regarding the classification of clusters with reference to all four groups of grantees. Table VII-10 presents the cluster structure of the oblique dimensions obtained in the previous analyses of background items for Lecturers, Research Scholars, Teachers, and Students. These data indicate that the same overall cluster space is occupied by the dimensions composed of similar background items extracted in the previous analyses for each of the four groups of grantees. Furthermore, the correlations among the clusters defined in the present analysis agree with findings presented in Chapter II.

Table VII-11 summarizes the clustering of oblique dimensions isolated in the four analyses of outcome items, and Table VII-12 presents comparable data from the four cluster analyses of combined background and dependent variables. As the data in Tables VII-11 and VII-12 indicate, there is relatively close correspondence in the two analyses with respect to clusterings of dependent dimensions for the four

Table VII-10. Across-groups cluster analysis of background dimensions.

Dimensions <sup>1</sup>	Cluster Number:	Loadings on Rotated Oblique Clusters			
		1	2	3	4
R. Home state then and now		.88			
L. Home state then and now		.84			
S. Home state then and now		.78			
T. Home state then and now		.76			
L. Took family abroad, male			.86		
R. Took family abroad, male			.84		
T. Took family abroad, male			.61		
S. Took family, degree then, prof. now			.55		
S. Home city then and now				.89	
R. Home city then and now				.87	
R. Age, post-award mobility					.78
L. Age, post-award mobility					.76
S. Language, degree change					.39

Cluster Number:	1	2	3	4
1	---	.09	-.16	.17
2		---	.13	-.44
3			---	-.10
4				---

<sup>1</sup>These background dimensions for Lecturers (L), Research Scholars (R), Teachers (T), and Students (S) are described in Chapter II.

Table VII-11. Across-groups cluster analysis of dependent dimensions.

Dimensions <sup>1</sup>	Cluster Number:	Loadings on Rotated Oblique Clusters				
		1	2	3	4	5
S. Interaction Abroad (III)		.89				
T. Interaction Abroad (III)		.87				
R. Interaction Abroad (III)		.86				
L. Interaction Abroad (III)		.84				
S. Interpersonal Internatl. Communication (IV)		.69				
L. New professional relations (V)		.57				
S. Enduring Professional Relations (V)		.54				
T. International Public Relations (IV)		.47				
S. International Public Relations (IV)		.42				
R. International Public Relations (IV)		.41				
S. Deny low prof. value of experience (V)			.85			
R. Deny low prof. value of experience (V)			.84			
L. Deny low prof. value of experience (V)			.81			
T. Deny low prof. value of experience (V)			.78			
T. Professional Prestige (V)			.44			
S. Professional Prestige (V)			.34			
S. Satisfaction (VI)				.86		
R. Satisfaction (VI)				.84		
L. Satisfaction (VI)				.84		
T. Satisfaction (VI)				.84		
L. International Public Relations (IV)				.51		
L. Professional Prestige (V)				.46		
L. Professional Development (V)				.46		
R. Professional Development (V)				.45		
R. Professional Prestige (V)				.43		
T. Professional Development (V)				.41		



Table VII-12. Across-groups cluster analysis of dimensions from combined background and dependent variable analyses.

Dimensions <sup>1</sup>	Cluster Number:	Loadings on Rotated Oblique Clusters						
		1	2	3	4	5	6	7
S. Interaction Abroad		.87						
L. Interaction Abroad		.85						
T. Interaction Abroad		.84						
R. Interaction Abroad		.82						
S. Interpersonal International Communication		.70						
R. Interpersonal International Communication		.63						
S. Enduring Professional Relations		.59						
L. New professional relations		.57						
T. International Public Relations		.53						
R. International Public Relations		.46						
S. International Public Relations		.43						
L. International Public Relations, host ct.		.41						
L. Home state then and now			.88					
R. Home state then and now			.81					
T. Home state then and now			.80					
S. Home state then and now			.80					
S. Deny low prof. value of experience				.84				
R. Deny low prof. value of experience				.83				
L. Deny low prof. value of experience				.80				
T. Deny low prof. value of experience				.74				
T. Professional Prestige				.46				
T. Home city then and now					.84			
L. Home city then and now					.83			
R. Home city then and now					.80			
S. Home city then and now					.77			

S. New courses .86  
 L. New courses .82  
 R. New courses .76  
 S. Theses, degree change, professor now .60  
 S. Professional publications, degree change .60  
 L. Professional publications .58  
 S. Professional Prestige .47  
 S. Professional Development, age, prof. now .46  
 T. Papers presented, news articles .46  
 T. Professional publications .43

.84  
 .83  
 .83  
 .82  
 .46  
 .43  
 .42  
 .41  
 .39

S. Artistic accomplishments, Humanities + Arts .76  
 R. Artistic accomplishments, Humanities + Arts .75  
 T. Artistic accomplishments .72

		Correlation between Clusters						
Cluster Number:		1	2	3	4	5	6	7
1	---	---	-.03	.11	.03	.36	.39	.15
2			---	.02	-.16	.09	-.19	.11
3				---	.04	.20	.23	.09
4					---	.00	.10	-.08
5						---	.20	.24
6							---	.11
7								---

<sup>1</sup>The dimensions from the combined variable analysis for Lecturers (L), Research Scholars (R), Teachers (T), and Students (S), are discussed in the present chapter.



groups of grantees. These analyses provide further illustration of the difference between the Students and the three professional groups with reference to the relationship between the satisfaction and the professional consequences dimensions.

In the analysis involving dimensions from the four clusterings of dependent items as well as in that pertaining to clusters from the four previous analyses of combined variables, one of the clusters extracted consists of the satisfaction dimension for all four groups along with the professional development dimension for the three professional groups and the professional prestige dimension for Lecturers and Research Scholars (Cluster Number 3, Table VII-11 and Cluster Number 6, Table VII-12). Professional outcome dimensions for Students are not included in this particular composite of satisfaction and professional consequences; instead, in both analyses the Students' professional development dimension loads as part of a cluster concerning professional productivity (Cluster Number 4, Table VII-11 and Cluster Number 5, Table VII-12). In the analysis of clusters from the four combined variable analyses, the Students' professional prestige dimension is also included in the professional productivity cluster; however, in the analysis of dimensions from the four dependent variable cluster analyses, professional prestige loads as part of another cluster pertaining to denial of negative evaluations

of the professional value of overseas experience (Cluster Number 2, Table VII-11).

These findings lend further support to our previous suggestion that for individuals with high investments in professional statuses evaluations of professional development are likely to be important components of judgments concerning personal fulfillment. While the Students' self-appraisals concerning personal growth and satisfaction with the sojourn experiences apparently have a similar structure to those reported by the professional groups (that is, the satisfaction dimensions of all four groups load together in one cluster), their assessments are not bound up with self-ratings concerning professional development as is the case for the other three groups. Indeed, in each analysis the composite satisfaction and professional consequences cluster is not highly correlated with the professional productivity cluster, which is composed mainly of dimensions from the Student analyses.

With reference to the composite cluster concerning satisfaction and professional consequences for the three professional groups, it is interesting to note that in both analyses this cluster is in a reciprocal relationship with the composite general interaction cluster (Cluster Number 1 in both Table VII-11 and VII-12). That is, these two dimensions have their highest correlation with each other ( $r = .40$  in the clustering of dimensions from the analyses

of dependent items, and  $r = .39$  in the comparable clustering of dimensions extracted in the four analyses of combined variables). In both analyses the association between the general interaction cluster and that pertaining to professional productivity ranks second, whereas this correlation ranks first among the cluster associations of the professional productivity dimension ( $r = .39$  in the clustering of dimensions from the analysis of dependent variables, and  $r = .36$  in the clustering of dimensions isolated in the four analyses of combined items). These relations suggest that interaction experiences are substantially related to evaluations of personal development and satisfaction for all groups as well as to appraisals of professional development and productivity. In the next chapter we shall consider the components of these associations in more detail, in terms of correlations between interaction and satisfaction dimensions as well as the associations between interaction and professional consequences clusters. Indeed, in Chapter VIII further discussion of all the analyses described in the present chapter will be incorporated in comparisons of methods of analysis and conclusions regarding the dimensions assessed in this study.

## CHAPTER VIII

### SUBSTANTIVE AND METHODOLOGICAL CONCLUSIONS

In Chapters III through VI we examined individually the major dimensions explored in this research relating to Fulbright and Smith-Mundt grantees' interactions with their hosts, both abroad and subsequent to their return to the United States; their internationally-oriented communication with fellow Americans; their professional development, achievement, and advancement resulting from award experiences; and their personal satisfaction with their sojourns. We described the patterning of acts defining each dimension in terms of Guttman scales, rotated factors, and Tryon clusters. In relating the Guttman and factor dimensions to background information concerning the grantees (summarized in Chapter II), we used multiple regression analyses (Chapters III-VI) and canonical correlation analyses (Chapter VII). With reference to the Tryon data, we computed the relative loadings of the background variables on each of the independently-defined outcome cluster dimensions (Chapters III-VI). Relations among background and dependent dimensions were further assessed in cluster analyses involving the full matrix of background and dependent variables, as well as in a series of cluster analyses following the logic of a within-groups

and across-groups investigation of dimensions extracted in previous clusterings of different sets of questionnaire variables (Chapter VII).

In comparing results from the different modes of analysis, in this chapter we shall explore further the relationships between the dependent dimensions and grantees' background characteristics as well as the associations among various representations of the outcome dimensions. Finally, we shall present an overview of the major findings of the present investigation--both with respect to the substantive information regarding Fulbright and Smith-Mundt Lecturers, Research Scholars, Teachers, and Students, and also with reference to the methodological comparison of different modes of analyzing survey data of the type considered here.

#### Comparisons of Results of Different Modes of Analysis

With reference to each of the major areas explored in this research, we shall compare the different representations of the dimensions concerning interaction and communication experiences, professional outcomes, and satisfaction with the sojourn experiences. Direct comparisons of methods of dimensionalizing these data will involve correlations among Guttman scale scores and oblique factor scores on all of the major dimensions, as well as summated index scores on two dimensions. Since cluster scores were not included in the output of the Tryon analyses, a

direct comparison with the other methods is not possible at present; however, through examination of analogous associations we shall make indirect comparisons between the cluster and factor data.

In examining the relationship between grantees' background characteristics and these outcome dimensions, we shall summarize the data from the multiple regression and cluster loading analyses and also present correlations among factor scores from the separate analyses of background and dependent variables. Information from other cluster analyses will also be included.

Further comparisons of the different representations of the major dependent dimensions will involve associations between the communication measures and both the professional outcome and the satisfaction dimensions, as well as correlations between the professional outcome and satisfaction dimensions.

#### Description of Dimensions and Associations with Background Data

##### (1) Interaction Abroad and Post-Award Communication:

Interrelations Among Interaction and Communication Measures. Table VIII-1 summarizes the correlations among the overseas interaction and post-award international communication dimensions. As the data indicate, there is very high agreement between the Guttman and the factor representations of the dimensions dealing with grantees' experiences

Table VIII-1. Correlations among overseas interaction and post-award communication dimensions.

	Lecturers	Research Scholars	Teachers	Students
<u>Overseas Interaction:</u>				
Guttman Interaction Abroad Scale				
x Interaction Abroad Factor	.84	.77	.83	.81
<u>Post-Award International Communication:</u>				
Guttman Continued Foreign Interaction Scale				
x Guttman American Interaction Scale	.32	.34	.39	.36
x Interpersonal Internatl. Communication Factor	.72	.78	.72	.86
x International Public Relations Factor	.25	.28	.28	.26
Guttman American Interaction Scale				
x Interpersonal Internatl. Communication Factor	.41	.41	.57	.43
x International Public Relations Factor	.79	.79	.60	.72
Interpersonal International Communication Factor				
x International Public Relations Factor	.24	.28	.38	.30
Interpersonal International Communication Cluster <sup>1</sup>				
x International Public Relations Cluster	---	.33	---	.38
<u>Overseas Interaction X Post-Award Communication:</u>				
Guttman Interaction Abroad Scale				
x Guttman Continued Foreign Interaction Scale	.39	.37	.25	.34
x Guttman American Interaction Scale	.37	.23	.25	.22
x Interpersonal Internatl. Communication Factor	.38	.33	.37	.36
x International Public Relations Factor	.37	.28	.29	.22

Interaction Abroad Factor			
x	Guttman Continued Foreign Interaction Scale	.56	.60
x	Guttman American Interaction Scale	.42	.34
x	Interpersonal Internatl. Communication Factor	.50	.33
x	International Public Relations Factor	.41	.48
			.36
			.43
			.28
			.46
			.28
Interaction Abroad Cluster			
x	Interpersonal Internatl. Communication Cluster <sup>1</sup>	---	.64
x	International Public Relations Cluster	.37	.46
			.31

<sup>1</sup>The Interpersonal International Communication dimension was not isolated as a separate cluster in any of the analyses for Lecturers. For Teachers the one representation of this dimension was a composite cluster involving a background dimension having variable association with the other dependent clusters.



in establishing friendships abroad and interacting with host nationals (see Chapter III).

Relations between the Guttman and factor dimensions dealing with post-award communication experiences are also high, although there are differences in emphasis in the two representations. That is, in developing the Guttman scales we made a logical distinction between grantees' continued interaction with foreign nationals as contrasted to their internationally-oriented communication with fellow Americans (see Chapter IV). The factor analysis, however, made a different distinction in accounting for observed correlations. One of the factors extracted concerned grantees' efforts to assist foreigners as well as Americans interested in international communication; the other dimension emphasized grantees' use of mass communication to disseminate information to Americans regarding their sojourn experiences. As the data in Table VIII-1 indicate, the Guttman continued foreign interaction scale, which deals with interpersonal assistance to foreign citizens, is most highly related to the interpersonal international communication factor; whereas the Guttman American interaction scale, pertaining both to assistance given fellow Americans interested in overseas opportunities and also to mass communication, is related to both factors. Since high ranking items on the Guttman American interaction scale deal with the mass communication experiences, however, the scale is



more highly correlated with the international public relations factor.

While the different representations of the overseas interaction measures are associated with all of the post-award communication dimensions, in general the data in Table VIII-1 indicate that interaction abroad measures are more highly correlated with those relating to continued foreign interaction or interpersonal international communication than they are with the American interaction scales or the public relations dimensions.

Associations with Background Characteristics. Having briefly considered the general content of the communication measures as well as the interrelations among them, let us now describe the characteristics of grantees who tend to score high on these dimensions. Table VIII-2 summarizes the patterning of associations between grantees' background characteristics and their communication experiences. The data include the direction of relationships for variables which the multiple regression analyses identified as significant predictors of the dependent criteria (indicated by a -M or M in the table); as well as for variables with relatively high loadings on clusters comparable to the factor dimensions (indicated by a -C or C). With respect to the communication dimensions, in no cases do the multiple regression and the cluster loading data differ in direction of association for variables identified as important in either analysis (thus a -MC or MC indicates the sign applies to both).

Table VII-2. Summary of multiple regression and cluster loading data regarding associations between grantees' characteristics and dimensions concerning their interaction and communication experiences.

Background Items (Coding in Appendix III):	Lecturers				Research Scholars				Teachers				Students			
	Int. Abroad. Factor	Int. Comm. Factor	Gut. Ct. For. Int.	Pub. Rel. Factor	Gut. U.S. Int.	Int. Abroad. Factor	Int. Comm. Factor	Gut. Ct. For. Int.	Pub. Rel. Factor	Gut. U.S. Int.	Int. Abroad. Factor	Int. Comm. Factor	Gut. Ct. For. Int.	Pub. Rel. Factor	Gut. U.S. Int.	
55. Host country	-M	MC	M	-MC	-M	-MC	C	-M	-MC	-M	MC	-MC	-M	-C	-M	
58. Sex: male	-MC			-C		-MC	MC		-MC		-MC	C		-MC	-M	
59. Age at award time	MC			C		MC	MC		MC	M	MC	MC	M	MC	M	
60. Period of award							-MC	-M		-M	-C		-M	-MC	-M	
61. Home state then				-C						M	-MC			-MC	-M	
63. Post-award mobility	--					--	-C		-MC		--	C		--		
64. City size then	-MC	-MC	-M	MC	M		-C		C		--	--	--	-MC	M	
66. Natural Sciences		MC		-MC	-M				MC	M	--	--	--	-MC	-M	
66. Social Sciences	C		-M				C		C		--	--	--	C		
66. Humanities + Arts	-C		-M	-MC	-M	-MC		-M		--	--	--	--	-MC		
69. Present occupation	--		--	--	--	--		--		--	--	-C	-M	MC	M	
70. Language competence	MC								C		-C	-C		MC		
71. Reason for application		MC	M	-C	-M	MC	C	M			C	-MC		-C	-M	
72 x 73. Degree change	--	--	--	--	--	--	--	--			--		M	MC	M	
II-44. Took family abroad	-MC			-C			MC	M	C	M	-C	C		-C		

Further information concerning the relationship between measures of background characteristics and of communication experiences appear in Table VIII-3, which summarizes the correlations between background factor scores and communication factor scores. As inspection of Tables VIII-2 and VIII-3 will verify, in general there is relatively close agreement among the multiple regression, cluster loading, and factor score correlation analyses in the identification of relationships. As the data in Table VIII-2 indicate, the multiple regression and cluster loading data suggest that being a male, having family responsibilities during one's sojourn, and being relatively young are characteristics that are negatively associated with overseas interaction. These findings are confirmed by data in Table VIII-3 which indicate that background factors composed of these items have relatively high negative associations with the overseas interaction dimension.

Details concerning the content of relationships between background measures and interaction and communication dimensions appear in Chapters III and IV. Let us therefore merely summarize the general patterning of associations.

Among Lecturers and Research Scholars, high scorers on the different communication dimensions tend to be faculty members with some stature in their professions--as indicated by their relative maturity and by the fact that their applications were requested by American agencies or foreign institutions. For Teachers, too, relative maturity appears

Table VIII-3. Correlations between background factor scores and communication factor scores.

Lecturers	Research Scholars			Int. Abrd.	Int. Comm.	Pub. Rel.
	Int. Abrd.	Int. Comm.	Pub. Rel.			
Home state then and now	-.04	.06	.01	-.02	.05	.04
City size then and now	.04	-.08	.16	.01	-.02	.05
Male, took family, professor	-.09	.05	-.09	-.11	.14	-.01
Europe + Oceania, language competence,						
Humanities + Arts, application requested	.04	.09	-.32	.23	.01	.14
Relative youth, mobility	-.07	-.02	-.05	-.04	-.14	-.15
Teachers	Students			Int. Abrd.	Int. Comm.	Pub. Rel.
	Int. Abrd.	Int. Comm.	Pub. Rel.			
Home state then and now	-.03	.04	.07			
Degree then and now, Teacher now (-), Initiated application (-)	-.08	.06	-.04	.06	.12	-.004
Degree change, youth, mobility	.001	-.06	-.10	-.11	.01	.11
Male, took family, British Isles (-), Period of award	-.06	-.02	-.12	-.02	.02	-.06
City size then and now	.04	-.05	.17	-.02	.07	-.001
				-.03	-.06	.14

important with reference to their communication opportunities both overseas and at home; for Students, however, relative youth and freedom from academic requirements such as those involved in advanced dissertation research facilitate extensive interaction abroad.

While senior scholars who venture to the Far East generally have more interaction opportunities than their colleagues sojourning in Europe, the latter group tends to continue relationships with host nationals more than the grantees in Far Eastern countries. In addition, in all groups grantees from relatively small towns appear to establish the kind of relationships which prove more enduring than those established by the urban dwellers. This apparent difference in style of interpersonal relationships is further indicated by the fact that the grantees in large urban centers tend to receive (or accept) more invitations for public appearances related to their overseas experiences.

This difference in interaction patterns of urbanites as opposed to small town dwellers further suggests the operation of a sort of Gresham's law concerning social interaction. That is, just as programmed activity tends to drive out unscheduled policy decision making in large organizations (Simon, 1960), so in the lives of the former grantees, the immediate pressures involved in assisting fellow colleagues and in disseminating information concerning

overseas experiences may tend to drive out the less immediate and unscheduled pressures for maintaining relationships with individuals abroad. Expectations for communicating with fellow countrymen may place greater pressure on faculty members in large metropolitan universities than on those in small town, liberal arts teaching colleges. Unfortunately we do not have information concerning the relative size and source of support of the senior scholars' home universities, but it is possible that the urban vs. small town differences observed in our data are crude reflections of differences we might expect among grantees in different types of institutional settings. Thus, in terms of Homans' social economics (1961), we would expect that as the relative cost of assisting host nationals increases--vis-a-vis the immediate potential profit from interacting with fellow countrymen--then the frequency of correspondence with foreign nationals is likely to decrease. Of course, as we shall note further, recruitment to different types of institutional settings and choice of general living environments, which would tend to affect the relative costs of continued interaction, may be a function of individual differences in preferred modes of social interaction. Perhaps those predisposed to more superficial, immediate, and extensive contacts involving relatively low costs in emotional involvement prefer large metropolitan institutional settings.

With specific reference to the dimensions involving extensive interaction and mass communication (the overseas





interaction measures, the Guttman American interaction scale, and the public relations dimensions), high scorers in all groups tend to be represented by females, by grantees who are unencumbered by family responsibilities, and by individuals whose occupational choices suggest they are favorably predisposed toward social communication. That is, Lecturers and Teachers tend to have more high scorers than Research Scholars on the overseas interaction dimension--and to some extent on the American interaction scale as well. In addition, within the different groups those who have selected fields involving social interaction--such as professional social service or some areas of the social sciences--generally engage in more extensive interaction than do their peers who have selected fields involving more solitary research pursuits--such as is characteristic in the humanities or natural sciences.

This suggested predisposition toward social communication among certain grantees has implications with reference to the data regarding the positive association between grantees' subjective estimates of language competence and the extensiveness of their interaction. Let us examine this relationship in some detail.

In accord with the general terminology for regression analysis we have tended to refer to background factors as predictors of the dependent variables. In terms of most of the background attributes--age, sex, field of work,

highest earned degree at award time, etc.--this interpretation does not seem unreasonable since these qualities were antecedent to the grantees' overseas interaction experiences. In the case of the language report, however, it is important to note that the subjective estimates were made at the same time as the grantees' reports of their interaction experiences--at some time following their sojourns. We cannot conclude, therefore, that the observed correlation implies a causal relationship in which language skill leads to increased interaction. Plausible as this conclusion is, our data nevertheless could be interpreted to imply a different causal relationship in which higher interaction with nationals of a host country leads to increased language proficiency.

These possibilities are not, of course, mutually exclusive. Indeed, they may be reciprocal in the sense that individuals with a passable level of proficiency may be able to communicate with some effectiveness with host nationals, and over time such interaction experiences lead to greater fluency. Possibly this reciprocal relationship occurs, however, because both the language measure and the interaction dimension are related to grantees' predispositions regarding social communication. That is, we have suggested that the patterning of associations between background and communication measures reflects personal life style preferences for social response among those who engage in extensive interaction. Expending more effort in developing

language skill might also reflect a greater interest in communicating with others. In line with this suggestion let us note that the language variable also tends to be related to dimensions concerning public relations and American interaction (Table VIII-2). Apparently grantees whose language skills were sufficient to facilitate extensive interaction abroad have more to report to American audiences. Our interpretation of these data, however, goes beyond this--we suggest that the observed relationships between language proficiency and interaction both overseas and at home occurs because all of these measures are associated with more general predispositions toward and higher evaluations of social communication. Unfortunately we lack data to test this interpretation.

Some indirect support of our general interpretation, however, appears in findings reported by Selltiz and associates who suggest that social relations between foreign students and Americans are influenced more by the students' confidence in their language ability than by their actual proficiency, as judged by an American interviewer (1963). Actually, our subjective measure of language competence would seem to embody this self-confidence component. Moreover, on the basis of our previous discussion, we suggest that confidence in language ability may be a special instance of a more general confidence in one's ability to interact with others in a rewarding manner.

In certain cultural contexts--such as the United States--we would expect this general predisposition toward social response and confidence in communication ability to set in motion the spiraling association suggested previously between interaction and fluency, even when the initial level of language proficiency is relatively low. That is, relative to a country like France, foreign students in the United States are more likely to find a permissive and encouraging audience who will in general reinforce their attempts to speak the host country's language. Therefore, in the United States it seems more probable that high confidence in language ability will be confirmed and low confidence bolstered.

In France, however, the opposite situation may be encountered. According to American students interviewed abroad (Gullahorn & Gullahorn, 1956), the French are relatively intolerant of misuse of their language, regarding mispronunciation and improper usage as an affront to their cultural grandeur. Since some of the j.n.d.'s in proper pronunciation appear subliminal to many Americans, one might conclude that non-veridical perceptions of language competence will not be rewarded in France. Thus, in such a cultural context, an individual who is predisposed toward interacting with others may encounter considerable frustration if his minimum level of language proficiency is unacceptable to his hosts.

Research evidence concerning the interpretations suggested here would require a panel study involving

pre-departure measures of interaction propensities and confidence in language skill, objective assessments of language proficiency, as well as subsequent follow-ups investigating social interaction with host nationals and levels of language skill during the sojourn period, and post-return measures of communication with fellow countrymen. We have suggested that the cultural context of the foreign interaction may have an important influence on the observed relationships; it should also be noted that the general receptivity of fellow countrymen at home is also important (cf. Beals & Humphrey, 1957; Bennett, et. al., 1958; Scott, 1956, Useem & Useem, 1955, and Watson & Lippitt, 1955). According to our data, in general returned grantees find their fellow Americans interested in their sojourn experiences; therefore, those who are predisposed toward extensive communication are likely to be gratified by many invitations for public appearances.

## (2) Professional Outcomes of the Award Experiences:

### Interrelations Among Professional Outcome Measures.

Table VIII-4 summarizes the correlations among dimensions pertaining to the impact of the grantees' award experiences on their professional roles. As noted in Chapter V, the Guttman scales dimensionalizing professional consequences include grantees' appraisals of the contributions of their sojourn experiences to their professional development, as well as their estimates of the prestige accruing to them as

Table VIII-4. Correlations among professional outcome dimensions.

	Lecturers	Research Scholars	Teachers	Students
Summated Professional Achievement Index				
x Guttman Professional Consequences Scale	.18	.14	.11	.34
x Professional Development Factor	.29	.14	.10	.24
x Professional Prestige Factor	.13	.12	.14	.13
x Enduring Professional Relations Factor	---	---	---	.40
Guttman Professional Consequences Scale				
x Professional Development Factor	.61	.62	.45	.63
x Professional Prestige Factor	.81	.69	.81	.47
x Enduring Professional Relations Factor	---	---	---	.69
Professional Development Factor				
x Professional Prestige Factor	.34	.31	.26	.36
x Enduring Professional Relations Factor	---	---	---	.39
Professional Prestige Factor				
x Enduring Professional Relations Factor	---	---	---	.29
Professional Publications Cluster				
x Professional Development Cluster	.19	.18	-.02	.20
x Professional Prestige Cluster	.15	.20	-.04	.24
x Enduring Professional Relations Cluster	---	---	---	.37
Professional Development Cluster				
x Professional Prestige Cluster	.46	.39	.32	.54
x Enduring Professional Relations Cluster	---	---	---	.44
Professional Prestige Cluster				
x Enduring Professional Relations Cluster	---	---	---	.47

a result of their awards. These two types of consequences appear as distinct dimensions in the factor and cluster analyses, and as the data in Table VIII-4 indicate, both factors are related to the Guttman scale. However, since the prestige items are ranked at the maximum end of the Guttman scales for the three professional groups, the scales for Lecturers, Research Scholars, and Teachers are more highly associated with these groups' professional prestige factors than with their professional development dimensions. As we shall note in later discussions, these relationships between the Guttman and factor dimensions appear consistently in associations with measures concerning other aspects of the grantees' award experiences.

With reference to more tangible professional achievements resulting from the sojourn experiences, the data in Table VIII-4 indicate that in general correlations are relatively low between the summated index and the other dimensions as well as between the professional publications cluster and the clusters pertaining to development and prestige. In describing characteristics of grantees who score high on these dimensions we shall discuss possible interpretations of these findings.

#### Associations with Background Characteristics.

Table VIII-5 presents the patterning of associations between grantees' background characteristics and the measures relating to professional outcomes of their award experiences.



Table VIII-5. Summary of multiple regression and cluster loading data regarding associations between grantees' characteristics and dimensions concerning professional outcomes of their award experiences.

Background Items (Coding in Appendix III):	Lecturers				Research Scholars				Teachers				Students			
	Development Factor	Prestige Factor	Gut. Prof. Con.	Summated Prof. Ach.	Prof. Pub. Cluster	Development Factor	Prestige Factor	Gut. Prof. Con.	Summated Prof. Ach.	Prof. Pub. Cluster	Enduring Rel. Fac.	Development Factor	Prestige Factor	Gut. Prof. Con.	Summated Prof. Ach.	Prof. Pub. Cluster
55. Host country				-M	-C	C			-M	-C	-MC	C	-MC	-M	-M	-
58. Sex: male	MC			-M									MC	M	M	C
59. Age at award time	-MC	-MC	-M	-M			-MC	-M					MC	M	M	C
60. Period of award	C	C		-M									MC	M	M	C
61. Home state then	-C	-C	-M	M	C	-MC	-MC	-M	M			+M-C	-MC	-M	M	C
63. Post-award mobility		C				-MC							C		M	C
64. City size then		C												-M	-M	
66. Natural Sciences	-MC	-MC	-M		C	-MC	-C	-M			-MC	-MC	-MC	-M	M	
66. Social Sciences	C	C		C		C							+M-C		M	C
66. Humanities + Arts	C			M		C	C				-C	MC		M	M	
69. Present occupation												MC	MC	M	M	C
70. Language competence		-MC		M	C		MC	M	M	-C	C	MC	MC	M	M	
71. Reason for application	-C	-C				-MC	-MC	-M	-M	-C						
72 x 73. Degree change											MC	MC	-MC	-M	-M	C
II-44. Took family abroad											MC	MC	MC	M	M	
											MC	C	C	M	M	C

The data include the direction of relationships for variables which the multiple regression analyses identified as significant predictors of the dependent criteria (indicated by a -M or M in the table), as well as for variables with relatively high loadings on the professional publications cluster and other clusters comparable to the factor dimensions (identified by a -C or C). Except in the two instances underlined in Table VIII-5, the direction of association is the same for variables identified as important in either the multiple regression or the cluster loading analyses (therefore a -MC or MC indicates the sign applies to both).

Additional information regarding relationships between measures of background characteristics and of professional outcomes appears in Table VIII-6, which summarizes the correlations between background factor scores and the dependent professional outcome factor scores. As inspection of Tables VIII-5 and VIII-6 will verify, in general the multiple regression, cluster loading, and factor score correlation analyses show relatively close agreement in the identification of relationships.

In a few instances, however, the composition of the background factors could be misleading in terms of identification of associations between individual characteristics and outcome dimensions. For example, the multiple regression and cluster loading analyses indicate that for Teachers the occupation variable involving not being

Table VIII-6. Correlations between background factor scores and professional outcome factor scores.

Lecturers	Prof. Dev.	Prof. Prestige	Research Scholars	Prof. Dev.	Prof. Prestige
Home state then and now	-.07	-.07	Home state then and now, lang	-.04	-.03
City size then and now	-.004	.06	City size then and now	.02	.003
Male, took family, professor	.11	-.03	Male, took family, professor	.06	.03
Europe + Oceania, language competence, Humanities + Arts, application requested	.16	-.02	Application requested, Europe + Oceania (-), Humanities + Arts (-)	-.25	-.11
Relative youth, mobility	.05	.20	Relative youth, mobility	-.07	.11
Teachers	Prof. Dev.	Prof. Prestige	Students	Prof. Dev.	Prof. Prestige
Home state then and now	.04	-.06	Degree change, degree now, professor now, post-award mobility, period of award (-)	.16	.11
Degree then and now, Teacher now (-), Initiated application (-)	-.01	-.02	Degree then, age	.18	.05
Degree change, youth, mobility	-.000	.08	Home state then and now, lang.	-.03	-.08
Male, took family, British Isles (-), Period of award	-.01	.05	Male, took family, initiated application	.11	.04
City size then and now	.02	.03	City size then and now	.03	.03
					.09
					.22
					.03
					.25
					-.04

currently employed as an elementary or secondary school teacher is highly associated with professional prestige (Table VIII-5). Contrary to this finding, the data in Table VIII-6 indicate that the background factor which involves a negative loading of the Teachers' occupation attribute correlates negatively with the professional prestige factor. True, the correlation is of very small magnitude; however, were we to base our conclusions about associations between background and dependent variables on these data alone, we would miss an apparently important relationship. Thus, while the factor score correlation data may be useful in initial identification of relationships, with data of the type presented here--where correlations among background variables are generally not of great magnitude--it appears that more information is gained from the analyses involving the original background items instead of those using the reduced factor data for the background items.

Details concerning the associations between grantees' background characteristics and the impact of their award experiences on their professional roles appear in Chapter V; therefore we shall merely summarize the overall patterning of relationships.

While the older, more established senior scholars tend to receive greater communication opportunities overseas, the younger, less well-known faculty members (whose applications were not requested by American or foreign agencies) tend to experience greater gains in terms of

professional development and prestige. Furthermore, the professional capital of the award experiences appears to be greater for those senior scholars whose home states are not among those included in the grouping representing areas with the more prestigious universities. It may be that the effects of inflation resulting from the expansion of overseas educational opportunities are greatest in the more prestigious institutions, where securing a grant is not a mark of particular prestige--rather, not having such experience may make one professionally suspect. The same type of relative evaluation may apply to a faculty member's field of specialization as well as to his home institutional setting. That is, the professional capital of overseas experience is relatively high for American grantees in the humanities, arts, and social sciences; however, it is low for the natural scientists. This finding is consonant also with the general image of the superiority of American science and technology held by foreign scholars. That is, according to data from investigations regarding those who have sojourned in the United States, study in America is highly valued for those in the natural sciences and technology as well as in certain areas of social science; however, it is not generally considered worthwhile in the humanities, where European experience seems most highly prized (cf. Beals & Humprhey, 1957; Lambert & Bressler, 1956; Scott, 1956).

It is interesting to note that high scorers on the professional publications cluster differ with respect to the last two background characteristics. That is, it is the senior scholars from states with the higher-ranking universities and those in the natural sciences who exhibit greater productivity in terms of professional publications (Table VIII-5). These findings suggest that the relatively low correlations between the productivity dimension and those relating to other professional consequences may occur because high productivity may be a pattern of life for grantees in the sciences as well as for those in more competitive universities; therefore while their sojourn experiences apparently provide material for professional publication, the overseas experiences are not unique in stimulating professional development. As one natural scientist observed,

From the professional point of view, I should emphasize that theoretical physics is enough of a unity that an experience in Japan or Russia or wherever is professionally much the same as it would be in California or New York. One would expect it not to interrupt a productive life, but on the other hand to provide no more new insights or skills than any stay with a new set of colleagues might lead to. Thus my feeling is that my visit was highly successful in that I interacted in a mutually useful way with my Japanese colleagues, but nonetheless this was not a unique result.

As the data in Table VIII-5 indicate, while grantees from states with the more prestigious educational institutions also tend to score higher on the summated professional achievement index, it is the senior scholars

in fields other than the natural sciences who score high on this dimension. This result probably reflects the fact that grantees in social sciences or humanities are more likely to be able to introduce new courses as a result of their sojourn experiences--a rare type of event in the relatively more restricted curricula of the natural sciences; furthermore, other types of achievements included in the bibliographic compilation on which the summated index is based pertain in particular to grantees in the humanities and arts (see Chapter V, Table V-16). This finding illustrates some of the difficulties involved in using an arbitrary, non-unidimensional summated index--the assemblage of items may be such as to obscure or even cancel out relationships with other variables; furthermore, interpretations of observed associations may be more equivocal.

As in the professional outcome dimensions for the senior scholars, there are marked differences between the subgroup of Teachers exhibiting high productivity and those reporting the professional development and prestige effects. Indeed, there is an almost orthogonal relationship between the professional publications cluster and the other two professional clusters for Teachers; furthermore, correlations between their summated achievement index and the other dimensions are relatively low (Table VIII-4). Like the faculty group, the highly productive Teachers tend to come from states where the more prestigious educational institutions are concentrated. In addition, these Teachers are

older men who are not currently employed as elementary or secondary school teachers--thus they probably are educational administrators or faculty members in colleges of education (Table VIII-5).

In contrast to the Teachers reporting numerous professional achievements, those reporting less tangible professional development stimulated by their award experiences tend to be men from states outside the areas including the higher ranking universities. While these Teachers have given evidence of professional achievement by earning higher degrees subsequent to their sojourns, they have not relocated geographically; furthermore, while they possibly have advanced in their particular school systems, they still list their occupations as school teachers. In contrast to this patterning of characteristics, the Teachers reporting greater recognition resulting from their award experiences tend to be young men who have earned higher degrees and have relocated both geographically and professionally, and are not currently employed as elementary or secondary school teachers.

As was true for the senior scholars, the overall professional capital of overseas experience appears greater for Students in the humanities, arts, and some areas of social science than it is for those in natural science (Table VIII-5). It is interesting to note, however, that Students in the natural sciences are more likely to establish and maintain collaborative work relationships



with foreign researchers--as indicated by the data concerning the enduring professional relations dimension.

Some differences appear in the characteristics of Students scoring high on the dimensions pertaining to productivity as opposed to those relating to more general professional consequences--for example, like the grantees in the three professional groups, Students from the area including the high prestige universities report greater productivity, whereas those outside these states receive more recognition. In general, however, there is close agreement in the patterning of characteristics of high scorers on all of the Student professional outcome dimensions. Typically, study abroad seems to have the greatest academic impact on the older, married male Students who are already advanced in their graduate studies and who have relatively high proficiency in their host countries' languages, and who apparently incorporate data gathered abroad in dissertations for more advanced degrees which enable them to move into positions as college or university faculty members (see summary of associations in Table VIII-6).

### (3) Personal Development and Satisfaction with the Sojourn Experiences:

Relations Among Satisfaction Measures: Table VIII-7 presents the correlations among Guttman scale scores, factor scores, and summated index scores summarizing grantees' evaluations of the personal development resulting from their



sojourns. While there are some differences in the composition and weighting of items in the three representations of this dimension (see Chapter VI), the data indicate they are all highly associated. The summated satisfaction index, comprising all evaluation items on the questionnaire, was devised according to the equal-weighting procedure outlined in Chapter I. In the Guttman satisfaction scales, the minimum levels for all groups concern personal development and overall satisfaction with the sojourn experiences, whereas higher-ranked items involve various facets of international perspective. For all groups, the maximum item on the Guttman satisfaction scales suggests organizational facilitation of the grantees' efforts to integrate their overseas learning in their current roles. While this particular item is not an important contributor to the satisfaction dimensions developed in the factor analyses, in general the high loading items also relate to personal development and international perspective.

Table VIII-7. Correlations among satisfaction dimensions.

	Lec- turers	Research Scholars	Tea- chers	Stu- dents
Guttman Satisfaction Scale				
x Personal Development and Satisfaction Factor	.74	.69	.64	.67
x Summated Satisfaction Index	.61	.65	.59	.64
Personal Development and Satisfaction Factor				
x Summated Satisfaction Index	.63	.66	.62	.61

Associations with Background Characteristics.

Table VIII-8 summarizes relationships between grantees' background characteristics and the Guttman and factor representations of their evaluations of personal development and satisfaction with their sojourns. The direction of associations is given for variables which the multiple regression analyses identified as significant predictors of the dependent criteria (indicated by a -M or M in the table), as well as for variables with relatively high loadings on the satisfaction cluster comparable to the factor dimension (identified by a -C or C). In all instances in the present analyses, the direction of association is the same for variables identified as important by either the multiple regression or the cluster loading data (therefore a -MC or MC indicates the sign applies to both).

Data regarding relations between grantees' background characteristics and the summated satisfaction index are not presently available; however, since the summated index in this instance involves items from a unidimensional, scalable area, on the basis of Guttman's conclusions and procedural recommendations of Riley and associates (see Chapter I), we would expect the two scale representations to be highly correlated (cf. Table VIII-7) and to exhibit the same patterning of associations with other variables.

Further data concerning relationships between measures of grantees' background characteristics and of their satisfaction

Table VII-8. Summary of multiple regression and cluster loading data regarding associations between grantees' characteristics and dimensions concerning their satisfaction with their sojourn experiences.

Background Items: <sup>1</sup>	Lecturers		Research Scholars		Teachers		Students	
	Sat. Factor	Guttman Scale	Sat. Factor	Guttman Scale	Sat. Factor	Guttman Scale	Sat. Factor	Guttman Scale
55. Host country	-MC	-M	MC			M	--	--
58. Sex: male	-MC	-M	-MC	-M	-MC	-M	-MC	-M
59. Age at award time	-MC	-M	-MC	-M			-MC	-M
60. Period of award			M					
61. Home state then	-MC		-MC		-C	-M	-MC	-M
63. Post-award mobility								
64. City size then							MC	M
66. Natural Sciences					--	--		
66. Social Sciences	-MC		-MC		--	--	-MC	-M
66. Humanities + Arts				M	--	--	MC	
69. Present occupation	--	--	--	--	MC		-C	M
70. Language competence	-C		-MC		-C			
71. Reason for application	-C		-C		MC		-C	-M
72 x 73. Degree change	--	--	--	--			-C	
II-44. Took family abroad	-C		-C		M	M	-C	

<sup>1</sup>See Appendix III for coding of background items.

with their sojourns appear in Table VIII-9, which presents the correlations between background factor scores and the dependent professional outcome factor scores. With respect to these data, the same general identification of relationships appears in the multiple regression, cluster loading, and factor score correlation analyses summarized in Tables VIII-8 and VIII-9. There is, however, one discrepancy in the multiple regression data involving the Students' Guttman scale. According to this analysis, present occupation as a professor is positively associated with the Guttman dimensions. While the occupation item was not a significant predictor of the Students' satisfaction factor, the cluster loading data indicate a negative association (Table VIII-8); furthermore, there is a negative correlation between the satisfaction factor and the background factor in which the occupation item is positively loaded (Table VIII-9). Perhaps the discrepancy with relation to the Guttman scale occurs because the maximum level of the scale, described previously, applies more appropriately to grantees in academic roles.

With this one exception, the different analyses suggest the same general patterning of characteristics for high scorers on the satisfaction dimensions of all groups. Typically, the high scorers are represented by younger grantees within each group, by females, by those without family responsibilities during their sojourns, by those from states outside the areas comprising the high prestige

Table VIII-9. Correlations between background factor scores and satisfaction factor scores.

Lecturers	Satisfaction	Research Scholars	Satisfaction
Home state then and now	-.12	Home state then and now, lang.	-.17
City size then and now	.02	City size then and now	.001
Male, took family, professor	-.15	Male, took family, professor	-.13
Europe + Oceania, language		Application requested, Europe	
competence, Humanities + Arts,		+ Oceania (-), Humanities +	
application requested	-.20	Arts (-)	-.07
Relative youth, mobility	.07	Relative youth, mobility	.07
Teachers	Satisfaction	Students	Satisfaction
Home state then and now	-.06	Degree change, degree now,	-.10
Degree then and now, Teacher		professor now, post-award	-.10
now (-), Initiated applica-		mobility, period of award (-)	-.09
tion (-)	-.11	Degree then, age	-.16
Degree change, youth, mobility	.02	Home state then and now, lang.	.04
Male, took family, British		Male, took family, initiated	
Isles (-), Period of award	-.08	application	
City size then and now	.04	City size then and now	

universities, by those admitting deficiencies in their foreign language skills, by those whose applications were not requested by American or foreign agencies, and by grantees specializing in the arts or in professional social service. As noted in Chapter VI, this patterning suggests that sojourning abroad has a greater impact on grantees with relatively lower background status characteristics.

With reference to this suggestion, let us note in particular the differences in the reports of males and females. As just noted, female grantees tend to score higher than males on measures pertaining to satisfaction with their award experiences. In terms of Homans' social economics (1961), sex may be considered an investment in a social status. Within American culture the female sex has a lower value and hence represents a lower investment in a professional status. Consequently, for females the social profit of obtaining a government grant is greater with respect to this investment than it is for males; thus we would expect the finding observed in our data indicating that female grantees experience greater relative gratification than do their male colleagues.

Let us extend our interpretation by considering the dimensions pertaining to extensive interaction and mass communication--on which females also tend to score higher than males (Table VIII-2). As we shall note in a subsequent discussion, these communication dimensions are



substantially related to the satisfaction measures. If female grantees--particularly those in faculty status positions--feel greater relative gratification as a consequence of receiving their awards, they might express such satisfaction in greater receptivity to host nationals. Such an outcome might be reinforced by still another aspect of the social economics of this situation. As the late Samuel Stouffer noted in unpublished Harvard lectures on social institutions, a sort of Gresham's law seems to apply to social statuses. Allowing incumbents to be recruited from those possessing lower status attributes (females, Negroes, etc.)--or in Homans' terms, from those making lower investments--eventually tends to lower the prestige of the status position so that the accrued social profit will be commensurate with the general investment level. To prevent this devaluation, those representing "the establishment" in various occupations are likely to resist the lowering of recruitment standards. At the same time many of this group may consider the social and professional profits accruing to female grantees to be excessive in terms of their investments--a violation of the norms of distributive justice (Homans, 1961). Under such conditions, female professionals are likely to feel less secure in their formal statuses than do their male colleagues. Therefore, as a means of reducing tension and dissonance, they may seek interaction opportunities in order to gain confirmation of their professional and/or interpersonal competence. To the extent

that engaging in interaction and mass communication does in fact prove ego enhancing, we would expect such reinforcement to result in still further interaction behavior as well as in positive appraisals concerning the personal value of the overseas experiences. The validity of these interpretations, of course, awaits research evidence.

#### Associations Among Major Dependent Dimensions

In summarizing the grantees' communication experiences, professional outcomes, and overall evaluations of their sojourns, we have described these three major classes of dependent dimensions in terms of the general content of measures relating to each class, in terms of interrelations between similar dimensions from different analyses within each class, and in terms of the patterning of characteristics of high scorers on dimensions within each major area investigated. Now, in continuing our comparison of results from the different modes of analysis as well as our exploration of the substantive relationships disclosed, we shall consider associations among the classes of dependent dimensions--that is, between representations of the communication and professional outcome dimensions; between the communication and satisfaction measures; and finally between the professional outcome and satisfaction dimensions.

Relations Between Communication and Professional Outcome Dimensions. According to the cluster data presented

in Chapter VII, grantees' interaction and communication experiences are highly associated with their assessments concerning professional outcomes. Indeed, in the Lecturers' and Students' within-groups analyses, these relations are reciprocal, in the sense that for both groups the association between their composite communication clusters and their composite professional outcome clusters is the highest for each of these clusters. While the Research Scholars' general interaction cluster is also most highly related to their cluster combining the professional development and prestige dimensions, the latter professional composite is more highly associated with this group's satisfaction cluster. The Teachers' within-groups cluster analysis also reveals substantial correlations between interaction experiences and professional outcomes.

Further evidence of the high association between grantees' communication experiences and their subsequent professional development and prestige appears in the across-groups analyses of dependent as well as of combined dimensions, where composite clusters involving each class of dimensions exhibit reciprocally high correlations (Chapter VII, Tables VII-11 and VII-12). The components of the relationships summarized in the various clusterings of dimensions appear in Table VIII-10, which presents correlations between different representations of the communication dimensions and the measures pertaining to professional outcomes.

**Table VIII-10. Correlations between communication and professional outcome dimensions.**

Communication Dimensions:	Summated Achievement Index				Guttman Professional Consequences Scale			
	Lec-turers	Research Scholars	Tea-chers	Stu-dents	Lec-turers	Research Scholars	Tea-chers	Stu-dents
Guttman Interaction Abroad Scale	.16	-.004	.11	.07	.15	.07	.05	.16
Guttman Continued Foreign Interaction Scale	.19	.02	.17	.17	.14	.04	.09	.24
Guttman American Interaction Scale	.21	.16	.17	.13	.24	.23	.18	.26
Interaction Abroad Factor	.24	-.001	.12	.10	.17	.10	.05	.20
Interpersonal Interaction Factor	.21	.10	.22	.20	.18	.11	.14	.28
International Public Relations Factor	.20	.17	.20	.14	.25	.24	.15	.22
	Professional Development Factor				Professional Prestige Factor			
	Lec-turers	Research Scholars	Tea-chers	Stu-dents	Lec-turers	Research Scholars	Tea-chers	Stu-dents
Guttman Interaction Abroad Scale	.24	.05	.10	.09	.13	.08	.05	.11
Guttman Continued Foreign Interaction Scale	.21	.13	.03	.16	.11	.03	.11	.18
Guttman American Interaction Scale	.24	.18	.14	.24	.22	.22	.20	.29
Interaction Abroad Factor	.28	.11	.11	.11	.14	.10	.06	.13
Interpersonal Interaction Factor	.27	.18	.16	.20	.16	.05	.17	.20
International Public Relations Factor	.21	.19	.09	.21	.26	.24	.20	.25

	<u>Professional Development Cluster</u>				<u>Professional Prestige Cluster</u>			
	Lec- turers	Research Scholars	Tea- chers	Stu- dents	Lec- turers	Research Scholars	Tea- chers	Stu- dents
Interaction Abroad Cluster	.30	.08	.10	.16	.18	.10	.03	.23
Interpersonal International Communication Cluster	--	.33	--	.22	--	.05	--	.29
International Public Relations Cluster	.25	.20	.06	.27	.27	.29	.29	.37
	<u>Professional Publications Cluster</u>				<u>Enduring Prof. Relations Cluster</u>			
Interaction Abroad Cluster	.28	.10	.06	.20	--	--	--	.68
Interpersonal International Communication Cluster	--	--	--	.28	--	--	--	.57
International Public Relations Cluster	.37	.38	.12	.22	--	--	--	.27
	<u>Enduring Prof. Relations Factor</u>							
Guttman Interaction Abroad Scale	--	--	--	.31				
Guttman Continued Foreign Interaction Scale	--	--	--	.37				
Guttman American Inter- action Scale	--	--	--	.24				
Interaction Abroad Factor	--	--	--	.39				
Interpersonal International Communication Factor	--	--	--	.41				
International Public Relations Cluster	--	--	--	.21				

In general there is close agreement concerning associations among analogous dimensions identified in the different analyses. For example, relations summarized in Table VIII-10 indicate that for all groups correlations between the communication dimensions and the professional prestige factor are highest for the Guttman American interaction scale and the comparable public relations factor. A similar trend appears for the three professional groups with reference to associations between communication dimensions and their Guttman professional consequences scales (which, according to Table VIII-4, are highly related to their professional prestige factors). This patterning is further confirmed in the cluster data, where, among the communication dimensions for all groups, the public relations cluster shows the highest correlation with the professional prestige cluster. These recurrent findings seem reasonable inasmuch as invitations to make public presentations regarding sojourn experiences give former award holders some indication of others' recognition of their potential contributions; moreover, to the extent that such appearances and publicity increase the grantees' visibility, further communication opportunities and possibly increased prestige are likely to ensue.

As the data in Table VIII-10 indicate, consistent within-groups correlations appear also between various representations of the communication dimensions and other professional outcome measures. There are interesting

differences across groups, however. For example, with reference to the summated professional achievement index, the professional publications cluster, and the professional development factor and cluster dimensions, Lecturers differ from all other groups in terms of the relatively consistent correlations between these measures and all of the communication dimensions. As noted previously, these relationships appear also in the Lecturers' within-groups cluster analysis, where a reciprocally high correlation appears between a composite interaction cluster and a composite cluster involving the professional development dimension as well as other clusters pertaining to professional productivity (Chapter VII, Table VII-6).

For Research Scholars, on the other hand, the data in Table VIII-10 indicate that overseas interaction is unrelated to this group's achievement index--a finding also demonstrated in the multiple regression of background variables on the achievement index, where interaction abroad factor scores were not among the significant predictors for this group (Chapter V, Table V-12). In addition, there is relatively low association between the Research Scholars' overseas interaction measures and their professional publications cluster as well as the factor and cluster representations of their professional development dimension.

These findings again underscore differences in the roles of the two faculty groups abroad--and also possibly

differences in personal work patterns. In Chapter VII we discussed the apparent importance of overseas interaction and maintained professional contacts as contributors to the Lecturers' evaluations of professional development and their subsequent productivity. While Lecturers appear to seek extensive interaction with a range of colleagues as stimulation for their professional endeavors, such interaction experiences appear less relevant for Research Scholars. Instead, this group seems to be more influenced by continued professional communication with a more restricted number of host colleagues as well as by other post-award communication opportunities. Indeed, the data pertaining to Research Scholars' professional outcome dimensions suggest that extensive interaction abroad tends to interfere with their role performance. For this group, subsequent professional productivity is associated in particular with the experience of organizing research materials gathered abroad for presentation at professional meetings.

According to the data in Table VIII-10, Students resemble Research Scholars in the sense that their post-award communication experiences are more highly associated with their evaluations of professional development and their subsequent achievements than are the measures of their overseas interaction. With reference to the factor and cluster representations of the Students' enduring professional relations dimension, which pertains specifically to the



professional relations established abroad and maintained after the Students' return, it is interesting to note that this dimension correlates more highly with measures concerning overseas interaction and interpersonal international communication (or continued foreign interaction) than it does with the other professional outcome dimensions. This finding is demonstrated also in the cluster analyses discussed in Chapter VII, where the Students' enduring professional relations cluster appears in composites with communication dimensions rather than with the other professional outcome dimensions.

Relations Between Communication and Satisfaction Dimensions. According to the cluster data discussed in Chapter VII, communication measures for all groups are substantially correlated with the grantees' evaluations of personal development and satisfaction with their award experiences--although, with one exception which we shall consider later, these associations are not so high as those just discussed between composite interaction clusters and dimensions pertaining to professional outcomes.

Table VIII-11 summarizes individual correlations between various representations of the communication and satisfaction dimensions. Here again, the outputs of the different analyses are in relatively good agreement concerning the structure of associations among dimensions--indeed, for the senior scholars the same rank-ordering of

Table VIII-11. Correlations between communication and satisfaction dimensions.

	Lec- turers	Research Scholars	Tea- chers	Stu- dents
Summated Satisfaction Index				
x Guttman Interaction Abroad Scale	.27	.23	.24	.20
x Guttman Continued Foreign Interaction Scale	.20	.16	.22	.14
x Guttman American Interaction Scale	.21	.16	.23	.16
x Interaction Abroad Factor	.22	.19	.21	.15
x Interpersonal Internatl. Communication Factor	.20	.17	.13	.14
x International Public Relations Factor	.20	.14	.19	.19
Guttman Satisfaction Scale				
x Guttman Interaction Abroad Scale	.19	.11	.22	.14
x Guttman Continued Foreign Interaction Scale	.15	.10	.10	.17
x Guttman American Interaction Scale	.24	.22	.21	.25
x Interaction Abroad Factor	.21	.12	.26	.18
x Interpersonal Internatl. Communication Factor	.19	.08	.21	.16
x International Public Relations Factor	.28	.24	.24	.21
Satisfaction Factor				
x Guttman Interaction Abroad Scale	.24	.16	.17	.21
x Guttman Continued Foreign Interaction Scale	.18	.11	.12	.18
x Guttman American Interaction Scale	.29	.21	.22	.28
x Interaction Abroad Factor	.26	.18	.23	.24
x Interpersonal Internatl. Communication Factor	.16	.10	.21	.19
x International Public Relations Factor	.35	.24	.24	.22
Satisfaction Cluster				
x Interaction Abroad Cluster	.24	.17	.28	.27
x Interpersonal Internatl. Communication Cluster	--	.12	--	.23
x International Public Relations Cluster	.38	.24	.39	.20

correlations between communication and satisfaction measures appears in the Guttman, factor, and cluster data. For these groups the Guttman American interaction scales and the comparable public relations factors and clusters are most highly associated with the Guttman, factor, and cluster representations of the satisfaction dimension; and measures of overseas interaction rank second. In relation to the summated satisfaction scale, however, the order of correlations is reversed, and the Guttman and factor measures of interaction abroad are first for all groups.<sup>1</sup> On all representations of the satisfaction dimensions for all groups, the lowest relationships appear in associations with the Guttman continued foreign interaction scales and with the comparable interpersonal international communication factors and clusters.

While the same patterning of relations appears for Lecturers and Research Scholars, the level of correlations tends to be higher for Lecturers. Indeed, as the data in Table VIII-11 indicate, the magnitude of associations between communication and satisfaction dimensions tends to

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<sup>1</sup>This reversal is probably due to differences in item composition. As noted previously, the summated satisfaction index involved all evaluation items, including a set of items identified in the factor and cluster analyses as a separate dimension pertaining to a denial of lack of institutional support. As noted in Chapter VI, this dimension is more highly correlated with the overseas interaction measure than it is with the satisfaction dimension.

be higher for both Lecturers and Teachers--the grantees who have selected roles typically involving extensive interaction and mass communication. In contrast to the Lecturers, however, overseas interaction experiences appear to be about as important as post-award American interaction or public relations endeavors in contributing toward Teachers' evaluations of personal development and satisfaction with their sojourns. As suggested in Chapter VII, the focus of the Teachers' roles emphasizes interpersonal relationships rather than professional development, per se; consequently, rewarding interaction experiences with colleagues, pupils, and the school community--both overseas and at home--are likely to contribute to the Teachers' sense of personal fulfillment and satisfaction. The importance of the relationship between communication experiences and satisfaction for Teachers is demonstrated in their within-groups cluster analysis where--in contrast to the findings for other grantees--the correlation between the Teachers' interaction and satisfaction clusters is the highest for each of these clusters.

As in the data for Teachers, some variability appears in the Students' rank-ordering of the overseas interaction and public relations or American interaction dimensions in relation to the different satisfaction measures (Table VIII-11). For Students also, overseas interaction experiences appear to be important contributors to their

sense of personal growth and their development of international perspective. According to the within-groups cluster data discussed in Chapter VII, while the Students' composite interaction cluster is most highly associated with their cluster pertaining to professional outcomes, its second highest correlation is with the satisfaction dimension; furthermore, this correlation is the highest for the satisfaction dimension.

The general patterning of associations between communication measures and evaluations of satisfaction just described for all groups suggests the following type of spiraling association among variables. Apparently, interacting with foreigners provides grantees with new perspectives. Particularly for the younger, less experienced sojourners, living in a foreign culture and developing new reference groups may lead to relatively profound changes in outlook and identifications. To the extent that the interpersonal contacts with host nationals have rewarding effects and to the extent that the public appearances some grantees make abroad prove ego enhancing, then we would generally expect such reinforcement to lead to grantees' engaging in even further interaction and mass communication both abroad and subsequent to their returns. Interpreting their experiences to fellow Americans may make grantees more aware of the impact of their sojourns on their general orientations. Indeed, in terms of research evidence

suggesting that persuasive communications are most persuasive to the communicator (cf. Hovland, et al., 1953), we would expect grantees to be possibly even more appreciative of the value of their sojourns after they had returned for a time and had opportunity to integrate their overseas learning in current roles and to organize their interpretations of their sojourn experiences for communication to others (and themselves). A systematic longitudinal study involving measures of different aspects of grantees' evaluations of their sojourn experiences prior to their return and at different points thereafter, as well as measures of their propensities for social interaction and their actual communication experiences would clarify the suggested relations among variables.

Relations Between Professional Outcome and Satisfaction Dimensions. Having considered associations between measures of communication and professional outcomes as well as between communication and satisfaction dimensions, we shall now conclude our discussion of relations among the major classes of dependent measures by considering correlations between different representations of the professional outcome and the satisfaction dimensions.

According to the cluster data reported in Chapter VII, measures of general professional consequences are substantially related to the three professional groups' overall satisfaction

with their sojourn experiences. Indeed, in the across-groups analysis of dependent as well as of combined dimensions (Tables VII-11 and VII-12), the satisfaction dimension for Lecturers, Research Scholars, and Teachers loads in one composite cluster along with the professional development dimensions for all three professional groups as well as the prestige dimensions for Lecturers and Research Scholars.

With reference to the individual components of these associations, the data in Table VIII-12 suggest that for senior scholars the prestige factors and clusters as well as the comparable professional consequences scales are more highly related to all of the representations of the satisfaction dimension than are the measures of professional development. This relationship appears reasonable in terms of the information already discussed concerning the professional dimensions. That is, among the senior scholars the same general patterning of characteristics is associated with high scorers on both the development and prestige dimensions. Furthermore, the Guttman professional consequences scales for senior scholars provide the information that those who report prestige effects of their awards also indicate that the experience contributed to their professional development. Thus, among faculty members with similar background characteristics, we would expect those who have benefited professionally and who have had this increment in professional development recognized by significant others

Table VIII-12. Correlations between professional outcome and satisfaction dimensions.

	Lec- turers	Research Scholars	Tea- chers	Stu- dents
Summated Satisfaction Index				
x Summated Professional Achievement Index	.06	-.03	.02	.03
x Guttman Professional Consequences Scale	.25	.22	.22	.16
x Professional Development Factor	.19	.19	.16	.20
x Professional Prestige Factor	.25	.26	.24	.20
x Enduring Professional Relations Factor	---	---	---	.13
Guttman Satisfaction Scale				
x Summated Professional Achievement Index	.08	.01	.04	.01
x Guttman Professional Consequences Scale	.33	.28	.19	.17
x Professional Development Factor	.29	.23	.24	.20
x Professional Prestige Factor	.30	.30	.20	.25
x Enduring Professional Relations Factor	---	---	---	.11
Satisfaction Factor				
x Summated Professional Achievement Index	.06	-.05	.02	-.02
x Guttman Professional Consequences Scale	.35	.32	.18	.11
x Professional Development Factor	.26	.27	.24	.14
x Professional Prestige Factor	.35	.34	.19	.18
x Enduring Professional Relations Factor	---	---	---	.08
Satisfaction Cluster				
x Professional Publications Cluster	.03	.01	-.02	-.05
x Professional Development Cluster	.34	.31	.35	.14
x Professional Prestige Cluster	.40	.37	.26	.19
x Enduring Professional Relations Cluster	---	---	---	.10



to be even more satisfied with the overall effects of their sojourn experiences than would the grantees who also reported professional development but had not been reinforced by increased recognition.

In contrast to the data for senior scholars, the factor and cluster representations of the Teachers' professional development dimension is more highly related to their Guttman, factor, and cluster measures of satisfaction than are their professional prestige and Guttman professional consequences dimensions. This result seems at variance with conclusions just suggested for senior scholars with reference to the rank-ordering of items on the Guttman scale--since for Teachers, too, the prestige items scale at higher levels than do those pertaining to professional development. However, among Teachers there is not the same degree of overlap in characteristics of high scorers on the two components of the Guttman scale as is true for the senior scholars. That is, while high scorers on both the development and prestige components of the Teachers' scale tend to be males who have earned higher degrees subsequent to their awards (Table VIII-5), there are certain differences between the high scorers on each dimension which might account for the observed rank-ordering of associations with the satisfaction measures.

In general, the patterning of characteristics for Teachers scoring high on the professional development dimension suggests that these individuals are relatively

committed to their teaching roles. That is, though they have earned higher degrees, they apparently have not left their school systems, and they still list their occupation as elementary or secondary school teachers (Table VIII-5). Thus these individuals seem oriented toward development within their chosen roles; consequently, the new facet of role performance involved in teaching abroad would be likely to contribute to this group's professional as well as personal development.

In contrast to this suggested patterning, it appears that the Teachers reporting the prestige effects are less committed to their teaching roles--at least at the level they taught before and during their awards. Perhaps this group of Teachers may have been somewhat alienated from their roles at home and from their school systems; consequently, they may have sought overseas experience as a means of getting away. This possibility is suggested by the fact that this group has tended to relocate geographically after their awards and to accept positions which do not involve teaching at the elementary or secondary school levels (Table VIII-5). For this group, therefore, the overall consequences of their teaching roles abroad may have proved less gratifying. That these upwardly mobile individuals may have been engaging in anticipatory socialization to other positions even during their sojourns is suggested by the finding that the overseas interaction measures show relatively less association with the professional prestige

dimension than they do with the professional development factor and cluster (Table VIII-10).

As the data in Table VIII-12 indicate, the magnitude of associations among professional outcome and satisfaction measures tends to be lower for Students than for the other groups. In Chapter VII we suggested that professional role commitment probably is not an important component of the self definitions of many members of the Student group--indeed, personal development, per se, rather than academic achievement may be the goal of many students sojourning in alien cultures. The information summarized in this chapter concerning the characteristics of high scorers on the major dependent dimensions lends further support to the conclusion that personal development and professional development may be alternative goals for grantees at the student level.

As noted previously, Students whose academic development and achievement are furthered by their sojourn experiences tend to be those who appear committed to professional goals. That is, they are the older men, those who are already more settled in their adult life patterns--i.e., they are married and have family responsibilities, and they are more advanced in their graduate studies--they are relatively proficient in their host countries' languages, and some establish collaborative working relationships with host nationals and maintain these contacts after their return home, where they complete dissertations enabling them to

move into faculty positions in American colleges and universities (Tables VIII-5 and VIII-6).

In contrast to this characterization, the Students who report greater personal development and overall satisfaction with their sojourn experiences tend to be less settled in adult roles and less committed to academic goals. That is, this group is represented by females and by younger unmarried students who have just completed their bachelor's degrees and who do not earn higher degrees subsequent to their sojourns abroad (Tables VIII-8 and VIII-9).

In concluding our discussion of relations among measures concerning professional outcomes of award experiences and those pertaining to assessments of personal development and satisfaction, let us briefly consider the data concerning grantees' professional productivity. As the correlations reported in Table VIII-12 indicate, for all groups the summated professional achievement index and the professional publications cluster are virtually unrelated to the various measures of personal development and satisfaction. As we noted in discussing the relatively low association between the professional productivity and the more general professional outcome dimensions (Table VIII-4), it appears that, especially among the faculty groups, the highly productive grantees include those with appointments in more competitive universities (Table VIII-5); thus for those individuals productivity may be part of a

life pattern and not a unique consequence of overseas experience; hence their overall satisfaction with their awards may not be particularly related to this ongoing professional activity. The relatively low associations between the overseas interaction and productivity measures, especially for Research Scholars (Table VIII-10), further suggests that grantees who focus more on research objectives abroad probably are less exposed to the incidental learning which would provide the personal broadening and international perspective reflected in the satisfaction dimensions.

Summary of Substantive Findings  
Concerning Fulbright and  
Smith-Mundt Grantees

In this study we have explored the impact of overseas experiences on Fulbright and Smith-Mundt grantees' roles as professionals and as cross-cultural communicators. In describing reports of their interaction experiences both overseas and subsequent to their returns, as well as their assessments of the influence of their sojourns on their professional and personal development, we have quantified grantees' questionnaire responses in order to compare different sets of award outcomes and to examine relations among them in a relatively precise way. Not only were we interested in ascertaining the pattern of behaviors describing each class of award experiences for different groups of grantees and the relationships among the different dependent dimensions,

but we also wished to explore the influence of individual background characteristics on these summaries of award outcomes. Because of the absence of comparative data, it was not obvious which types of analyses would prove most fruitful in realizing our objectives. Therefore, as part of our investigation of the survey responses, we undertook a comparison of different methods of analyzing these data. We have already presented a systematic review of results from several approaches in providing a detailed description of the dimensions and their relationships. In the next section of this chapter we shall summarize our conclusions regarding the different methods. For the present let us briefly review some substantive findings concerning the patterning of grantees' experiences.

In describing grantees' overseas experiences we noted that individuals in all award categories apparently established meaningful personal as well as professional relationships with host nationals. In general, the older, more established faculty members and teachers reported more extensive communication with professionals and others overseas. In addition, those reporting extensive communication experiences abroad tended to be individuals whose background characteristics suggested they found social communication an especially rewarding activity. That is, among the grantees in the different award categories, those selecting roles as Lecturers and Teachers generally engaged in more extensive communication and made more public appearances both abroad

and after their return than did the Research Scholars and Students. Furthermore, within the different groups of grantees, those who selected fields of work involving more isolated research pursuits, such as the natural sciences or humanities, reported less extensive association with host nationals and less group communication at home than did individuals in fields involving more interpersonal contacts, such as professional social service and certain areas of the social sciences. Relative predispositions toward social communication were also suggested by the finding that grantees who had developed high language proficiency for communication in their host countries tended to engage in more mass communication both overseas and upon their return. With reference to the three professional groups, we further noted that females and grantees without family responsibilities seemed more oriented toward the social response emanating from public appearances.

The personal and professional relations grantees established abroad were maintained after their returns. In general the more established faculty members whose applications were requested by overseas institutions tended to report more continued contact and collaboration with host nationals. This finding suggests the importance of the structuring of the overseas situation for effective communication between the grantee and his hosts. Some indication of the possibly greater integration of the

grantee in European as opposed to Far Eastern educational institutions was provided by the finding that those who sojourned in Europe reported more continued collaboration. Aside from these relationships, grantees from small towns were more likely to establish enduring relations with host nationals than were urban dwellers. Further evidence of possible differences in styles of interpersonal association between those residing in small towns vs. metropolitan centers was furnished by the finding that the urbanites reported more appearances before American audiences in disseminating information regarding their sojourn experiences.

While the older, more established faculty members tended to receive greater communication opportunities both overseas and at home, it was the younger, less well-known academicians and teachers who reported the greatest professional impact of their awards in terms of professional development and increased recognition. With reference to the professional capital accruing from the awards, the sojourn experiences seemed particularly helpful to faculty members in institutions outside of the high prestige areas where such opportunities are more a matter of course. Furthermore, for both professors and students, the relative prestige of overseas experience varied with their field of work. In the Humanities and Arts, where Europe is generally acknowledged as superior, study and research on the Continent seemed to enhance grantees' professional careers; in the natural sciences, on the other hand, such experiences



appeared less relevant.

Among the male Teachers who had developed professionally and earned advanced degrees, those who had remained in teaching positions in their home school system did not report greater recognition from colleagues and administrative superiors as a result of their award experiences, whereas those who had relocated geographically and professionally tended to report prestige effects of their awards.

With reference to the professional achievements facilitated by grantees' sojourn experiences, for the faculty groups such productivity appeared to be part of a life pattern rather than a unique consequence of the awards; furthermore, the productivity did not appear to be particularly related to these senior scholars' evaluations concerning personal development or satisfaction with their overseas experiences. Rather, at this level, the productivity seemed to be a relatively routine aspect of role performance instead of a contributor toward role fulfillment. For the Students, however, there was more relationship between their evaluations regarding professional development and prestige and their reports of scholarly achievements.

While evaluations of professional development and prestige were closely related to the Lecturers', Research Scholars', and Teachers' appraisals of personal development and overall satisfaction with their award experiences, for Students it appeared that these were alternative outcomes of study abroad. That is, the Students who engaged

in more extensive interaction with host nationals during their sojourns and who reported greater personal development and overall satisfaction with their experiences abroad tended to be those who were less settled in adult roles and less committed to academic goals. As a group they seemed to be in search of adventure and of identity. They were represented in particular by females, by younger unmarried students who had just completed their bachelor's degrees, and by those who did not earn higher degrees subsequent to their studies overseas. In contrast to this group, the goal-directed Students who indicated that their professional development and advancement were furthered by study abroad tended to be more settled in their adult life patterns. They were relatively older, married, more advanced in their graduate studies, relatively proficient in their host countries' languages; yet in general they did not interact extensively with foreign students abroad; however, some established collaborative working relationships with host nationals and maintained these contacts after their return home, where they completed dissertations and moved into faculty positions in American colleges and universities.

Having presented an overview of the types of award experiences explored in this investigation as well as the characteristics of grantees tending to report these outcomes, let us conclude our general summary by considering further the patterning of these experiences. In discussing the relationships between grantees' communication experiences

and their overall satisfaction with their sojourns, we noted a spiraling relationship among variables. To some extent, living abroad and interacting with individuals adhering to different cultural orientations provided grantees with increased perspective regarding their own values and their homelands. As we have noted, certain background characteristics predisposed some groups of grantees and some individuals within each group toward more extensive interaction and exposure to such influences.

In particular, the relative costs of the interaction in terms of the value of forgone alternative activities seems to have had an important effect on the overall interaction frequency as well as on the relative value grantees attributed to such experiences. With reference to the faculty groups, it appears that Lecturers were more oriented toward extensive communication--as indicated in part by their very choice of roles. Not only did extensive interaction seem personally rewarding to them, they also appeared to derive professional stimulation from testing out ideas with others rather than from engaging in more solitary ruminations. In terms of their formal roles overseas, the cost of pursuing this apparently rewarding interaction activity was relatively low for this group. Their teaching requirements were minimal; therefore, not much time was necessary for class preparations and actual lecturing; they were visitors in their host institutions and hence not swamped with committee duties; furthermore, their roles did

not involve research obligations. As a group, Research Scholars, on the other hand, tended to be younger faculty members who were less established in their fields--a smaller percentage had their applications requested by American or foreign agencies; thus in general, they seemed more oriented toward professional development and advancement. While engaging in interaction with foreign colleagues was likely to be stimulating for these individuals as well, the cost of doing so was much higher than it was for Lecturers. That is, engaging in professional bull sessions might have interfered with their gathering necessary data to fulfill their research objectives.

Like the Lecturers, Teachers were in situations involving relatively little time pressure; hence the cost of engaging in extensive interaction was relatively low for them. Furthermore, in terms of their role expectations, we would expect those committed to their roles to find such interpersonal interaction personally rewarding.

Among Students, the cost of interaction varied according to their motivations in seeking the opportunity for study abroad. For the younger sojourners who were less firmly anchored in adult roles and more oriented toward adventure and personal fulfillment, interacting with foreigners was an important means of achieving self-definition and international perspective. Since academic goals were less relevant, and since the organization of foreign universities is such that official requirements

concerning class attendance, recitation, and even appearance at examinations are minimal, the consequences of neglecting studies were not serious. As was true for the Research Scholars, however, the cost of communication was much greater for the goal-oriented students who were studying with particular foreign experts in their fields or who were gathering dissertation material from sources they would not have access to in the United States. Hence, as a group, these students interacted less extensively with foreign nationals and generally did not expose themselves to the types of experiences which would have broadened their personal and international perspectives.

While the frequency of interaction with host nationals varied, almost all grantees reported establishing close friendships abroad, and almost all had maintained personal and professional relations since their return. To the degree, however, that the bonds established were rewarding almost solely because of the warmth of immediate personal interaction, then the frequency of communication with host nationals has tended to decrease--and perhaps eventually to diminish to the point of annual exchange of Christmas messages. Insofar as the interpersonal relations had relevance to ongoing professional pursuits, however, then the additional rewards from maintaining the relationship and sharing professional insights and data offset the costs of such communication. Thus we noted that the faculty groups and the Students who established close working

relationships abroad were more likely to maintain contacts than were the Teachers and the Students who were not involved in collaborative research pursuits.

With reference to post-award communication with fellow Americans, again it appears that the extensiveness of such interaction is a function of personal predispositions--reflected also in the grantees' role involvements which affected the relative cost of such communication. Again, Lecturers tended to engage in such activities more than did Research Scholars. Apparently for all grantees, interpreting their experiences to fellow Americans made them more aware of the personal as well as professional impact of their sojourns. Integrating their overseas learning in current roles and organizing their interpretations of their sojourn experiences for communication to others--and themselves--seemed to make them more appreciative of the value of their time abroad.

#### Conclusions Regarding Different Methods of Analysis

In completing our comparison of the different methods of data analysis employed in the present investigation, we shall first summarize our conclusions regarding the relative merits of the different methods of dimensionalizing the questionnaire information; then we shall focus on the different methods applied in relating these dimensions to variables concerning respondents' background characteristics.

## Analyses of the Organization of Dependent Dimensions

As indicated in Chapter I, our initial decision space regarding methods of dimensionalizing questionnaire data involved four approaches: summated indexing, Guttman scaling, factor analysis, and Tryon cluster analysis. While this investigation focused on a comparison of the last three methods, we have limited information regarding the summated approach. We shall summarize our tentative conclusions regarding this technique first and then proceed to the other approaches.

Summated Indexing. In order to obtain a summary measure of the professional accomplishments grantees attributed to their award experiences, we developed a summated professional achievement index. This index obviously was not unidimensional--indeed, a cluster analysis involving these items isolated several different dimensions pertaining to publications, artistic accomplishments, new courses, etc. (See Chapter V.) As a crude overall index, the scale provided some information of interest; however, because of its multidimensionality, conclusions regarding the meaning of associations between the index and other measures sometimes proved equivocal.

The other summated dimension developed in this study differed from the achievement index in that it more closely approximated a unidimensional scale (Table VIII-7). However,

the summated satisfaction index did include some items which did not scale reliably in the Guttman procedure and which loaded on a separate dimension in the factor and cluster analyses. Therefore, while the summated, Guttman, factor, and cluster representations of the satisfaction dimension generally agreed in rank-ordering relationships with other dimensions, still there were some discrepancies in the findings involving the summated index which might be attributed to the relative contamination of this measure. Thus even our limited application of summated scaling in the present investigation demonstrates the ambiguities arising in the interpretation of observed relationships.

Guttman Scaling and Factoring Methods. In comparison with the measurement by definition involved in constructing summated indices, perhaps the major relative merit of the other methods employed in this investigation is that they produce greater information concerning the organization of items in the dimensions and provide built-in means of weighting items which are not dependent on subjective criteria.

In terms of the present findings, it is difficult to decide between the Guttman and the factoring procedures. Each has somewhat different merits, and our experience indicates that a combination of the two approaches can prove fruitful in clarifying the structure of relationships in one's data.

In two instances in our investigation, the Guttman dimensions differed from the outputs of the factoring



procedures. With reference to grantees' post-award international communication experiences, items pertaining to their personal assistance to others interested in cross-cultural education and items relating to their mass communication regarding overseas experiences loaded on separate factors (Chapter IV). These two types of communication experiences, however, appeared on one Guttman scale. Similarly, with reference to professional consequences of the grantees' award experiences, items pertaining to professional development and those relating to professional prestige loaded on separate factors; however, both types of items appeared in a single Guttman scale.

Reconciling these differences brought about a fuller realization of the implications of the organization of items in the Guttman data. That is, the unique merit of the Guttman scale lies in the reproducibility criterion. From a scale score we know the patterning of acts performed or not performed--in this sense, the Guttman scale gives meaning as well as a numerical rating. While the factor data also provide us with insight into the structure of relations, the procedure is aimed at the reproduction of observed correlation coefficients between the variables, and not at the reproduction of individual item responses themselves. Despite these different emphases and the apparent discrepancies in outputs, actually the two approaches to a parsimonious conceptualization of classes of behavior are not incompatible.

In further examining our Guttman scales we noted that the integrity of the separate clusters of items identified by the factoring procedures was preserved in the Guttman dimensions. For example, on the Guttman American interaction scale the items pertaining to interpersonal assistance appeared together at the lower levels followed by items concerning mass communication. Thus, the Guttman scale provided the additional information that the behaviors involved in one factor dimension actually also imply the behaviors involved in another factor dimension. Had our findings been limited to the factor analysis, we would have missed this additional insight into the structuring of relations.

The same conclusion applies with reference to the professional consequences data. The Guttman scale again preserved the integrity of the separate factor dimensions--the items pertaining to professional development appeared together at the lower scale levels, followed by those relating to prestige effects. With reference to these data, however, we found that different levels of an apparently unidimensional scale may have different associations with other variables. That is, in the Teachers' professional consequences data, the factor and cluster dimension describing professional development was associated with a somewhat different syndrome of background characteristics from that associated with the professional prestige dimension. It appeared that these

differences were not merely differences of degree but actually of kind. Had we used only the Guttman scale scores in our relational analyses we would have missed this finding.

Factor Analysis Vs. Cluster Analysis. Having suggested the utility of applying both Guttman scaling and a factoring procedure for data analysis, we shall focus now on the two factoring methods employed in this study. First, however, let us mention an incidental finding from the factor analyses relating to a comparison between varimax and quartimax rotations. Contrary to reports that the quartimax solution is more likely to extract a large general factor (see Chapter I), we found remarkable agreement in the structuring of dimensions from each orthogonal rotation in terms of item composition and relative magnitudes of loadings.

With reference to a comparison of a rotated principal-components factor analysis and a Tryon cumulative communality cluster analysis, our data indicate that in general there is close agreement between the two methods in terms of composition and relative loadings of items on dimensions extracted from the correlation matrix. However, there appear to be some shortcomings in the Tryon system which make it somewhat less satisfactory than the more conventional factor analysis. In a few instances dimensions isolated in the factor analysis were not identified in the clustering procedures involving the same matrix of items. Furthermore, our data suggest a lack of numerical invariance in some of the

cluster outputs. For example, the dependent cluster pertaining to interpersonal international relations did not appear in the analysis of dependent items for Research Scholars, but it did appear in the clustering of the full matrix of background and dependent items (although no background items were involved in the cluster definition). Conversely, a cluster pertaining to professional publications was extracted in the analysis of dependent items for Research Scholars but did not appear in the clustering of combined background and dependent variables (see Chapter VII, Table VII-5 for further examples). In some instances this last type of discrepancy occurred as a result of an arbitrary fifteen-cluster cutoff in the Tryon program.

In spite of these shortcomings, however, the Tryon system of programs offers many very attractive options for analysis of the structure of dimensions extracted. The system of routines in the Tryon system is so integrated as to facilitate the type of within-groups and across-groups comparisons of dimensions described in Chapter VII. These analyses provided additional information regarding the combination of dimensions into composites and the relationships among these composites. Thus the different cluster outputs allow us to shift levels in analyzing our data and to proceed back and forth in considering information regarding the item composition of clusters and the relations among these dimensions as well as data concerning the

dimensional composition of the macro-clusters and the relations among these composites both within separate groups and across the group categories.

Another particularly useful feature of the Tryon system involves the ease with which we can assess the relative loadings of items on dimensions defined by different sets of variables. We shall discuss these features of the Tryon system further in a later section.

In concluding our present discussion of the factor-ing procedures, we would recommend that a factor analysis system be programmed following the design of the Tryon system--a system actually intended to provide the tools for enacting the decision procedure of a sophisticated factor analyst. Of course, to the extent that the apparent shortcomings of the Tryon system are corrected as the clustering procedure is further refined, this recommendation may prove unnecessary, and satisfactory results will be forthcoming from application of this variant of the factor-ing procedure.

Our general conclusion regarding methods of dimension-alizing data of the type represented in our survey is that applying both a Guttman scaling procedure and a factor analysis to the same variables and going through the intellectual exercise of reconciling divergent findings is a worthwhile means of gaining further insight into one's data. If the outcomes of the two analyses are relatively congruent--as in the case of the overseas interaction and the

satisfaction dimensions developed in the present investigation--still, the sheer redundancy effects of seeing the data organized according to two different methods may prove beneficial. Furthermore, applying both techniques provides an analytical replication which might lend further confidence in conclusions regarding the structuring of relations in the data.

#### Analyses Relating Background Data and Dependent Dimensions

In exploring associations between grantees' background characteristics and different outcomes of their award experiences, we employed a number of different approaches. First we shall discuss the methods of analysis dealing with the total sets of background and dependent data; then we shall consider the methods assessing relations between the set of background items and each individual dependent dimension.

Analyses Involving Total Sets of Data. In examining relations between the total sets of background and dependent variables we followed four different approaches: we factor analyzed each set of data independently and then determined the correlations between factors from each separate analysis; we cluster analyzed the two sets of variables together as though they formed a single battery; we cluster analyzed the cluster dimensions from the separate analyses as though they formed a single battery; and finally we calculated the

canonical correlation between the two sets of variables.

Let us consider the relative merits of each of these approaches in terms of our present investigation.

(1) Correlation of Factors from Separate Analyses. In contrast to the information obtained in the factoring of dependent items, the data reduction achieved by the factor or cluster analyses of the background items generally involved rather trivial associations among variables; furthermore, the item composition of the background factors did not appear to have a particularly coherent structure (see Chapter II). Thus, while the data regarding correlations between background factor scores and dependent factor scores seemed useful in initial identification of gross relationships between the two sets, there were occasions when the item loadings in the background factors could be misleading with reference to associations between individual characteristics and outcome dimensions. Thus, in terms of our present data and our interest in specifying more precisely the relations between background characteristics and dependent dimensions, this analysis does not seem worthwhile.

(2) Cluster Analyses of Combined Items. In general, the analysis of the total matrix of background and dependent items produced essentially the same information as that obtained in the separate analyses involving the subsets of background or of dependent variables. In only one instance did a truly composite cluster composed of a separate background

and a separate dependent dimension appear. Some additional information was provided in the combined analysis by the findings regarding inclusion of variables from one subset of items along with those defining a dimension composed primarily of items from a different subset; however, in general this information could be obtained from the "sleeper" cluster analysis which we shall discuss later. With data of the type represented here, where the background information concerns general attributes of the respondents and does not involve tests designed to predict the dependent dimensions, one might expect the findings observed in the combined variable analysis, indicating that the background and dependent variables do not cohere closely in the same correlation space. In terms of these data, therefore, the combined variable analysis probably is not worthwhile.

(3) Cluster Analyses of Combined Dimensions. In a series of cluster analyses of dimensions extracted in previous clusterings we examined the structuring of dimensions within each group of grantees as well as the variable classifications across subject groups. In each of the four within-groups analyses we cluster analyzed the oblique dimensions extracted in three previous clusterings involving the subset of background items, the subset of dependent items, and the total set of background and dependent items. In one across-groups analysis we cluster analyzed the oblique dimensions extracted in the four previous clusterings for



each group involving the subset of background items; in another across-groups analysis we used the oblique dimensions from the four clusterings of the subset of dependent items; and finally, another across-groups analysis involved dimensions from the four separate analyses of combined background and dependent items.

We have already noted that the background dimensions from the factor and cluster analyses of these data produced relatively meagre information. Thus, while these cluster analyses of dimensions proved particularly useful in describing the structuring of dependent dimensions for each group of grantees and in facilitating comparisons of dependent dimensions across groups, information concerning relationships between background and dependent dimensions was more limited. From our experience, however, we would recommend this clustering procedure involving background and dependent dimensions in data analyses where richer background information (e.g., concerning respondents' personality characteristics) is available.

(4) Canonical Correlation Analysis. In assessing the maximum correlation between background information and dependent dimensions, we performed three separate canonical correlation analyses: one involving background items and the Guttman scale scores; one involving the same background items and the dependent factor scores; and finally one involving background factor scores and dependent factor scores.

The present report has presented only a limited portion of the data from these analyses. That is, in Chapter VII we reported data from only the first canonical variates in each analysis and did not present information regarding the full sets of variates. With reference to each canonical variate the maximized correlations between transformed background and dependent variables tend to agree with the main findings of the multiple regression procedure, which we shall discuss later--indeed, the sum of the squared canonical correlation coefficients should equal the sum of the squared multiple regression coefficients.

As indicated in Chapter VII, interpreting the meaning of the weightings in the vectors often proved difficult. Perhaps this difficulty is an instance of negative transfer--processing information involving two vectors of weightings seems more difficult than interpreting the multiple regression findings where only one set of data is differentially weighted in relation to a single dependent criterion. But the problem does not seem to be just a function of relative information overload. The within-groups and across-groups clusterings of dimensions just discussed involved sets of background and dependent dimensions, yet interpreting the structuring of the composite clusters and the associations among them did not seem particularly difficult. The information gained at this more macro level of data reduction seemed consonant with other empirical findings--as noted in

this chapter, it was closer to the basic correlational structure of the data; thus it provided additional insights, particularly with reference to the dependent dimensions.

Thus the difficulty in interpreting the canonical vectors is not simply a matter of the difficulty of processing a greater amount of information. Perhaps the crux of the relative lack of correspondence between the mathematical model and the empirical correlational structure resides in the maximization procedure of the canonical analysis which sometimes suppresses certain variables while maximizing others in such a way that the weightings do not seem empirically reasonable. For example, we encountered the situation where two variables were highly related (e.g., the professional development and prestige dimensions for senior scholars) and both were substantially associated with certain background characteristics (e.g., relative youth and post-award mobility). In the canonical correlation, however, one variate occurred in which the background dimension received a relatively high positive weighting as did one of the correlated dependent dimensions, but the other dependent dimension was negatively weighted. The lack of correspondence between the vector weightings and the overall correlational structure of the data was also illustrated by the fact that the directions of relatively high weighted dimensions within a vector did not agree with information regarding combinations of clusters in composite dimensions.

Thus in our data it appears that the mathematical model producing the maximum correlation between sets of transformed variables does not agree with the empirical correlational referents.

In concluding our discussion of the canonical procedure, let us present some additional suggestions regarding the apparent inappropriateness of the technique vis-a-vis our data as well as some tentative conclusions regarding types of analyses where the procedure might prove more meaningful. With data of the type involved in our investigation, where our background data consisted mainly of demographic characteristics and were not predictive tests of the dependent data, the canonical procedure does not appear fruitful in assisting us in exploring relations. But perhaps it is not only the nature of the background data which lessens the technique's effectiveness in this investigation. In our dependent dimensions we sought to assess different types of consequences of overseas experience. We wished to gain insight into the organization of the behaviors comprising these dimensions; furthermore, we wished to ascertain the relations among them for different groups as well as their association with available background data. It does not seem very meaningful, however, to consider these dimensions as part of a coherent whole. That is, the combination of dimensions describes a patterning of experiences, but we do not consider them to comprise an additive combination which might denote "success" as a grantee. Thus our data

do not seem amenable to the same sort of interpretive framework which might be appropriate if we had a combination of criterion measures concerning a complex aptitude such as "success" as a pilot (cf. Wrigley, 1952). Therefore, vis-a-vis background and dependent data like ours, a model which involves relating linear combinations of sets of variables appears inappropriate.

Thus, perhaps the canonical procedure is better suited to more traditional psychometric analyses involving reliability studies where one wishes to weight different batteries of tests so that they will be maximally related (cf. Thomson, 1947), or in validity studies where the independent variables are tests designed to predict a criterion behavior which can meaningfully be represented by a vector composed of an additive combination of separate elements (cf. Burt, 1948). Of course, further investigations are necessary to ascertain whether in such situations the problems noted before concerning the suppressive weighting of the maximization procedure will interfere with interpretations.

Analyses Involving Background Items and Individual Dimensions. In comparison with the analyses just described involving the total set of background data along with the total set of dependent dimensions, the two analyses of relations between background items and individual dimensions produced a better specification of relationships. In one

of these analyses we computed the multiple regression of a set of background items on each of the individual dependent Guttman and factor dimensions and obtained an identification of significant background predictors of the dependent scores. In the other analysis, a "sleeper" routine in the Tryon cluster system enabled us to input the background items along with the dependent items in the initial correlation matrix but to delete these background items temporarily until the clustering of the dependent items had been completed, so that the suppressed background variables in no way influenced the clusterings for the outcome dimensions. Once the dependent dimensions had been isolated, the suppressed background variables were reintroduced and their factor coefficients on the dependent dimensions were computed. By examining the relative loadings of the background items on each of the outcome dimensions, we gained information regarding the rank-ordering of relationships. In general, there was a close agreement in the findings from this analysis and the multiple regression analysis--the high loading items tended to be the same as those identified as significant predictors in the multiple regression procedure. Since we were not particularly interested in developing equations for future predictions of grantees' behavior on the basis of the background information available in this instance, but rather wished to determine the relative importance of these items in relation to the dependent dimensions, our purposes were adequately served by the

information provided in the cluster loading data.<sup>1</sup>

In concluding our discussion of the analyses relating background and dependent variables, we should like to draw attention to one difficulty involved in using attribute data of the type represented by much of our background information. In order to use these items in the multivariate analyses we selected, it was necessary to form dummy bivariate variables to represent the presence or absence of some attribute or group of attributes. While some of the coding of items involved rather straightforward dichotomies--e.g., in the case of the sex attribute--in other instances, it proved more difficult to decide what attribute among an array we should select as the definer of a dummy variable. In an effort to maximize information we coded some of the dummy variables in such a manner that several attributes were the definers--e.g., we combined the geographic areas of Europe and Oceania because our interview data had suggested that grantees' experience in the British Isles and Oceania were relatively similar. As it turned out, in some instances this combination of attributes masked differences

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<sup>1</sup>The multiple regression analysis was the only instance in the present investigation in which we employed tests of statistical significance in identifying relationships to be discussed. Actually, in Chapters III through VI, we did not confine our attention solely to the significant predictors. Our decision not to employ tests of significance in ascertaining the probability of rejecting the null hypothesis of no difference between samples was based on our general agreement with Selvin's conclusions regarding the inappropriateness of much application of such tests in survey data analysis (1957). Findings can be statistically significant but empirically meaningless. Indeed, in terms of the size of the samples surveyed in the present study, a difference of only 3% might be statistically significant--but the level of significance is hardly an indicator of substantive importance.

between sojourners in the two areas--differences which were uncovered in straightforward cross-tabulations involving individual attributes. Therefore, we concluded that a preferable practice in coding dummy variables involves using only one attribute as the definer. Of course, the information elicited in the analyses using the dummy variables will be limited. If it turns out that the dummy variable is positively associated with some dimension, then interpretation of the finding is relatively easy. However, if it is negatively weighted, then in the case where the definer is one of an array of possible attributes rather than a category in a dichotomy, we do not know which categories of the array might be associated. For purposes of clarification, therefore, it appears that there is no substitute for the cross-tabular analyses. However, the virtue of the multiple regression or the cluster loading analyses with dummy variables is that they provide an initial identification of important associations, thus reducing the amount of cross-tabulation needed for more detailed illustration of relationships.

In concluding our discussion concerning the relative merits of different approaches used in analyzing our survey data, let us return again to the theme in the introductory chapter concerning the impact of computer technology on social science research. As we noted there, the comparisons undertaken here would have been impracticable even five years ago. We have suggested that subjecting the same data to a number of alternative modes of analysis is a worthwhile



means of gaining further insight into the structuring of relationships; furthermore, to the extent that other researchers follow a similar strategy, such comparative analyses will contribute to a body of empirically-based findings regarding the relative merits of different types of approaches with different types of data.

Actually, this recommendation need not apply only to new research data. Most investigators have files of only partially analyzed data and decks of IBM cards from previous studies. The advantage of using these data for comparative analyses involving different approaches from the methods originally selected is that the investigator already has developed familiarity with the data. Of course, some shifting of sets will be necessary, and not all the transfer of orientations from the previous analyses will be positive for interpreting findings from the new analyses. However, attempting to reconcile divergences between previous and current findings may produce further insights concerning the data and the methods of analysis. We are, of course, suggesting a means of facilitating the serendipity pattern elucidated by Merton (1949).

Lest we appear too sanguine, however, in describing the benefits of comparative analyses facilitated by the availability of computers and libraries of programs, let us mention some possibly unanticipated problems. In preparing data for computer processing a non-trivial amount of time is spent in sheer clerical tasks involving preparation

of format cards and instructions specifying tape units to be employed, etc. To the extent that input requirements of different programs involve inflexibilities--e.g., where identification data are required in different specific column locations in different programs--these incompatibilities will result in further off-line clerical processing involving reproduction of cards, etc. Thus at times the "high-speed" aspect of computer processing may seem illusory. In addition, the amount of time expended in such clerical tasks does not contribute toward understanding the data in the same sense that time spent in running cards through a counter-sorter may suggest hypotheses concerning relationships. That is, in the more traditional IBM sorting operations, one has the concrete experience of handling the data and thus gaining more tangible evidence of the relative size of cells--in addition to the abstract numerical information appearing in the printouts. With the modern electronic computer we bypass this intermediate step--and the jump from the clerical operations for data preparation to the amassing of several reams of printed output may be overwhelming. Apparently Harman feels the same discomfort in relation to his previous experience in personal computation of matrix data. He notes, "If one merely turns over essentially raw data and gets a final product in return, he will never gain the intimate knowledge of the data which he might obtain after spending considerable time on a

desk calculator" (1960, p. 191). Perhaps we are merely calling attention to a situation of relative negative transfer for researchers trained with other procedures. Through further experience it is hoped that we shall develop appropriate heuristics for reducing the feeling of information overload and for effectively proceeding to human information processing of the computer's output.

In concluding our discussion of the contributions of computer technology, let us speculate considerably beyond the bounds of our present investigation. In the physical sciences the impact of instrumentation on empirical and theoretical developments as well as the limitations imposed by "dependence on the instrument"--e.g., in the indeterminacy resulting from the impossibility of simultaneous measurement of the velocity and position of small particles--have been more dramatic than in the social sciences, where verstehen orientations have even opposed the introduction of instrumentation. It would appear, however, that particularly in social psychology, the available instruments have had subtle yet profound influences on the types of investigations undertaken and the analyses and interpretations of the data gathered. That is, the type of multivariate procedures advocated by Lazarsfeld (1955) and his associates (cf. Hyman, 1955) seem to be conditioned by a particular type of tool for analysis: the counter-sorter or the more advanced IBM 101. The Columbia type of approach for examining relations between variables by systematically

holding all other variables constant in attempting to distinguish pure vs. spurious relationships involves operations which are readily translatable into counter-sorter procedures.

In the present investigation, on the other hand, we have shown some predilcction toward formulating hypotheses regarding spiraling relations among variables. It does not seem improbable that this type of speculation has been influenced by experience in computer programming--particularly in developing recursive routines and loops involving conditional branches. Of course, the validity of these hypotheses regarding spiraling relations has yet to be demonstrated--as has the theoretical value of such types of formulations. Actually, another facet of computer technology may prove helpful in such explorations. Not only is the computer a high-speed automaton of the desk calculator--and to some extent of the statistical clerk as well--its more general symbol-manipulating capacities provide a tool for the logical analysis of theoretical propositions (Gullahorn & Gullahorn, 1964). Thus, as a follow-up to the empirical assessment of relations and the inferences regarding further types of associations among variables, it might prove worthwhile to simulate the suggested processes on a digital computer to see whether the expected conclusions actually are evolved and to explore other logical consequences of the hypothesized theoretical processes. This exercise might prove to be a meaningful

intermediate step before going on to further attempts at empirical verification of hypotheses. At the very least, the translation of verbal formulations into routines for computer processing will result in a precise statement of expected interactions among variables.

In concluding our speculative forecasts regarding the potential contributions of the modern digital computer as a tool for methodological comparisons of approaches to data analysis as well as a tool for theory development, let us refer to Robert Merton's comments on the impact of the introduction of new methods for empirical research:

. . . sound theory thrives only on a rich diet of pertinent facts and newly invented procedures help provide the ingredients of this diet. The new, and often previously unavailable, data stimulate fresh hypotheses. Moreover, theorists find that their hypotheses can be put to immediate test in those spheres where appropriate research techniques have been designed. It is no longer necessary for them to wait upon data as they happen to turn up--researches directed to the verification of hypotheses can be instituted at once. The flow of relevant data thus increases the tempo of advance in certain spheres of theory (1949, p. 106).

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## **APPENDICES**

## **APPENDIX I**

### **DESCRIPTION OF THE RESEARCH**

## APPENDIX I

### DESCRIPTION OF THE RESEARCH

The general objective of the present research was to explore the impact of their experiences during their award years on Fulbright and Smith-Mundt grantees' professional roles and on their roles as communicators with fellow Americans and host nationals. These goals were formulated with representatives of the International Educational Exchange Service who sponsored the research.

The research was conducted in two phases. First a pilot interview and questionnaire study was conducted, focussing on a band of nine midwestern states running from the northern border to the fringes of the Deep South; later a full-scale survey of former grantees in all 50 states was undertaken. Let us first discuss the pilot study of former award holders in Arkansas, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, and South Dakota. The reasons for this particular selection of states were threefold: It was necessary to limit the costs of the survey, and the states were easily accessible from Kansas, the researchers' base of operation at that time. Secondly, this area of the United States includes states like Nebraska, identified as particularly isolationist;

consequently the experiences of former grantees in stimulating international awareness in their home communities was of particular interest. Another factor in selection relates more to the nature of the sponsoring agency: that is, South Dakota and Arkansas happen to be the home states of Senators Mundt and Fulbright.

Notification of the Study. In the fall of 1956 letters were sent to all Americans who had received awards sponsored by the International Educational Exchange Service between 1947 and 1955 and who listed their home states as being one of the nine included. This list had been obtained from records provided by the Department of State. In addition letters were sent to 40 former award holders who had moved into the area subsequent to their awards. These names were obtained from correspondence with Fulbright Advisers on the campuses of colleges and universities in the nine states. The letter to the 1,050 grantees outlined the objectives and planned methodology of the research and requested the former award holders to return an enclosed postcard indicating their current addresses. A total of 801 responded--an unusually large proportion. However, we should note that the population surveyed in the present research differed markedly from the populations included in most surveys. The former grantees were more homogeneous with respect to socio-economic status and level of education than is typical. Indeed, they represent a very high level of

education--all are at least college graduates--thus non-response in this instance is not likely to reflect illiteracy as is often the case in other mail surveys (cf. Baur, 1947). Furthermore, "ignorance" concerning the topic of research may also be ruled out since all members of the population had been awarded a grant for educational activities abroad. Of the 801 who responded, 90 were not included in the study for the following reasons: 62 were residing outside of the country (these were mainly individuals now in the Armed Forces); 24 indicated that circumstances had prevented their actually going abroad and hence they had not accepted the awards offered them; four indicated they did not wish to participate in the study. The reasons for refusal among those in the last group varied. One professor was leaving for Europe in two months and asked to be omitted from the study because, "I am far too busy at present to fill out your questionnaire conscientiously and in a way that would be useful for your purpose." One teacher who had retired five years ago felt her experiences would not be relevant to the purpose of the study. A former student grantee penned this message on his postcard:

Drop dead. I wouldn't help you in a thousand years. "Department of Human Relations" reminds me of George Orwell.

(The researchers had used stationery from the Department of Human Relations at the University of Kansas, with which they were affiliated. It had been their expectation that the vaguer title of this branch of social science might



create less initial rejection than would the title, Department of Sociology.) The fourth refusal came from an emeritus professor of history who wrote:

I know you will not pardon me for stating that after more than forty-five years of experience in teaching and historical research I have no interest in a "research program" based on questionnaires and personal interviews. The profits gained from study abroad are too obvious to require a squadron of "experts" to increase the benefits of "cross-cultural education"--whatever that may mean. The key to success of the Fulbright and Smith-Mundt experiments lies in the selection of the recipients of the grants. You don't need an armful of questionnaires and tables of statistics to demonstrate that.

So far we have accounted for 801 of the 1050 letters mailed (of which 711 were considered relevant for the present survey). Notice was received that 9 former grantees were deceased. Despite efforts through correspondence with college alumni offices, Fulbright Advisers, department chairmen, deans, and the Institute of International Education it was impossible to locate 56 of the letters returned marked "No Forwarding Address." That left 184 grantees who ostensibly had received the letter but did not return the enclosed postcard. The latter group were included along with the 711 mentioned above in the group from which the interview sample was drawn; and all 895 were included in the subsequent mail survey.

The Interview Study: Interviews were held with 182 of the former grantees--slightly more than 20% of the effective population of 895. Selection of the sample was guided by an effort to represent all of the states included

in the survey and to represent each of the four types of awards under the Fulbright and Smith-Mundt programs:

Lecturers, Research Scholar, Teacher, and Student.

A completely random sample could not be interviewed because the cost of travel to scattered addresses in the extreme western area of some of the states would have been prohibitive. Consequently, interviews were held in the major locations where former grantees clustered (usually college and university cities) and in as many smaller localities at intermediate points and surrounding the major centers as possible. In all, interviews were conducted in 31 communities. In addition, in order to obtain more objective information concerning professional consequences of the awards and another viewpoint regarding the impact of the grantees on their communities, interviews also were held with 103 administrative superiors of a number of grantees--college presidents, deans, department chairmen, school principals and superintendents, etc.

Before the interviewers visited the home towns of the individuals participating in this phase of the study, letters were sent requesting appointments for the interviews. Grantees and administrators in each city were telephoned upon the interviewers' arrival so that a schedule could be arranged. No individual contacted refused to be interviewed. At the beginning of the meeting with the interviewee the purpose of the study was explained in detail. Then

the grantee was asked how he had heard of the Fulbright or Smith-Mundt program and what factors had influenced his decision to apply for an award. After his goals in seeking a grant had been explored, he was asked to talk about his overseas experiences. Almost without exception those interviewed proved eager to discuss their award experiences at length. Next, attention was focused on the reception the grantee received on his return home and the opportunities he had found to share his experiences and knowledge gained overseas with his fellow Americans. Finally, a series of questions was asked concerning the returnee's assessment of the professional consequences of his having been a recipient of a Fulbright or Smith-Mundt grant.

Most grantees volunteered comments indicating that they were happy to participate in the study and would like to help spread knowledge about the program if ever called on. They enjoyed talking about their experiences abroad, but in addition they felt it was important to take any action possible to let others know how significant the awards had been both personally and professionally. No differences in general attitudes or experiences were observed among the interviewees who had not responded to the initial letter as contrasted to those who had returned their post-cards.

The Questionnaire Study. On the basis of discussion with former grantees and representatives of the International

Educational Exchange Service a questionnaire was constructed after about 100 interviews had been completed. During the remaining interviews the questionnaire was pretested, revised, tested again, and further revised. During these interviews discussion was focused as directly on the questionnaire as possible. Suggestions were sought for clarifying items; grantees were asked for their interpretations of statements in the questionnaire and for the meaning of their responses. The grantees were also urged to mention other areas of importance not covered in the original form of the questionnaire. The instrument finally used in the mail survey was a revision based on criticisms and suggestions from the former award holders, the sponsors of the research, and colleagues professionally interested in questionnaire construction. As one control on response sets, evaluational items were worded so that agreement with some statements indicated favorable reactions whereas agreement with others indicated unfavorable responses. Insofar as possible we designed the questionnaire to conform to three criteria: It should reflect the professional and personal consequences the grantees considered most important; it should be of potential value to program evaluation and development within the educational exchange program; and it should be related to theory in social science, a point we considered essential for the interpretation of the findings.

In the final form of the questionnaire blank pages were provided for the grantees' convenience in writing

additional comments clarifying their responses or elaborating on certain items. About two-thirds of the respondents added comments to their questionnaires. Also enclosed with each questionnaire was a data sheet requesting bibliographical information concerning specific professional accomplishments (books, articles, musical compositions, paintings, etc.) emanating from the grantees' overseas experiences.

In May, 1957, questionnaires were mailed to 895 former grantees in or from the nine-state area. Sixty-one per cent replied. A follow-up letter and questionnaire were sent in July, 1957, and an additional 18% answered. Finally, a third letter was mailed to non-respondents, and 11% more returned their questionnaires, bringing the total response to 90%. In the final follow-up mailing an incidental study was conducted of the effectiveness of sending requests via special delivery mail (Gullahorn & Gullahorn, 1959a). We concluded that special delivery mailing is worth the additional expense when relatively complete coverage of a population is desired. Significantly more responses ( $p < .001$ , Chi Square test) came from grantees who had received requests special delivery as contrasted to those from grantees whose requests had been sent via regular first-class mail.

Chi square analyses of responses to the questionnaires revealed few significant differences among grantees who replied to the original questionnaire as contrasted to those

responding to either of the follow-ups. In general artists were under-represented in the first wave of respondents. While our finding of few differences among first vs. follow-up respondents is contrary to data reported in many surveys (cf. Goode and Hatt, 1962, ch. 12; Parten, 1950, ch. 11), we should note again that our population was relatively unique in terms of homogeneity. There was not a wide range of differences in education and interest in the topic among those included--variables which generally account for differences in responses among first as contrasted to follow-up respondents. Indeed, the extremely high percentage of response--90%--attests to the former grantees' degree of involvement in the topic of research.

The question still remains as to possible differences between the respondents and the 10% of the grantees who did not return questionnaires. We have tentative data on this topic. We interviewed 20 non-respondents and asked them to complete the questionnaire during the course of the interviews. Their replies did not differ significantly from those of the "voluntary" respondents. Of course, the presence of the interviewer during the completion of the questionnaire could have had a biasing effect. Most of this group indicated they felt somewhat sheepish over not having replied; however, they mentioned other pressing obligations which had precluded their taking time to complete the questionnaires. In view of the tentative data provided by the follow-up interviews and in view of the 90% response

to the questionnaire, the researchers felt reasonably confident that the data obtained were representative of the feelings of the population surveyed.

Data from this midwestern study were incorporated in a report to the International Educational Exchange Service and were published elsewhere (Gullahorn & Gullahorn, 1958b, 1959b, 1960a). The question remained, however, of the extent to which the findings from grantees in this sample of states applied to other Americans who had been abroad under the educational exchange program from home states outside the Midwest. To answer this question another study was undertaken to survey all American grantees under the International Educational Exchange Program between 1947 and 1957.

Some consequences of relying on mail questionnaires for gathering data from the national population should be mentioned. First, this made it possible to request every former grantee whose current address could be obtained to assist in the project. The cost of an interview study would have been prohibitive for coverage of all 50 states and the territories. Second, the use of a questionnaire facilitated the translation of opinions into quantitative information--the simplest way to summarize the reactions of over 5,000 respondents to a large number of items. Having the answers in numerical form also enabled the researchers to construct indices regarding such variables as interaction and satisfaction, and these in turn lend further insight into the data.

The Program Evaluation Staff of the International Educational Exchange Service furnished a complete listing of Americans who had received awards under Department of State auspices during the 1947-1957 period. After the grantees covered in the earlier study had been eliminated as well as those for whom no addresses were available in the listings, a mailing list of 9,717 was compiled. The total number of awards represented is greater than this, however, since all duplications of listings were combined--that is, some grantees received renewals or had two awards. In November, 1958, a letter was sent to each person on the list, explaining the purpose of the study and requesting the grantee to complete and return an enclosed questionnaire (see Appendix II). About 2,500 of the letters were returned as not deliverable. Even after efforts had been made to obtain current addresses for this group (we again corresponded with Fulbright advisers and checked membership listings of professional societies), 2,090 could not be located. In addition, notification was received that 196 of the former grantees were out of the country for the duration of the study, and 61 were deceased. This left the effective population for the study at 7,370.

By the end of March, 1959, approximately 50% (3,689) had returned completed questionnaires. In April, 1959, a follow-up mailing was sent to all who had not responded. Notice was received that an additional 207 grantees were in the categories of those currently residing



outside the country, deceased, or with no forwarding addresses. This follow-up brought an additional 835 responses, bringing the total questionnaire return to 63%. An additional 108 grantees returned bibliographic data sheets only, listing various accomplishments which had emanated from their award experiences. As in the earlier study, comparisons of responses by early respondents as opposed to those answering the follow-up mailing produced essentially negative findings concerning differences.

The questionnaire used in the expanded study was essentially the same as that used in the midwestern survey. Only items concerning background information were added along with a question concerning language competence. Thus it was possible for the final data analysis to include data from the earlier study, giving a total of 5,327 questionnaires. Including the bibliographic section regarding publications, works of art, etc. the response from former grantees totalled 5,435. Thus of the total number of award holders for whom mail addresses were available (8,058), questionnaires or bibliographic data were returned by over 67%. As in the earlier study, grantees were urged to add comments explaining their responses. Almost half--approximately 2,200 grantees--did so. These comments, along with interview data, furnish illustrative material throughout this report.

At this point it seems appropriate again to question the representativeness of the respondents. This was not a

sample survey; the entire population of grantees for whom addresses were available was included. Actually, in preliminary discussion with representatives of the Program Evaluation Staff the researchers had proposed a sample survey methodology, suggesting that a stratified sampling from lists of grantees in the four categories (Lecturer, Research Scholar, Teacher, and Student) would provide more reliable data. As Hyman notes very cogently, however, (1955, ch. 1) the goals and biases of one's sponsoring agency can impose serious constraints on the researcher. The bureaucrats involved in this instance were emotionally opposed to sample surveys and no amount of logical persuasion and reference to professional sources could change this attitude. Actually, in part the State Department's request for full coverage of the population was justified inasmuch as they wanted as full a compilation of bibliographic data from grantees as possible, since these professional achievements provided tangible evidence of some of the benefits of the awards. Frequently the sponsoring agency is in a defensive position in trying to justify to Congress American expenditures for the exchange programs. Of course, as the researchers argued, the bibliographic data questionnaires could be sent to all former grantees whereas the more general questionnaire could be sent only to those included in the stratified samples. It proved impossible, however, to convince the sponsors that sampling error rather than sample size is the criterion for sample adequacy.

Eli Marks' comments on the fetish of sample size seem appropriate here:

Survey research shares with our general culture a belief in the sympathetic magic of "bigness," the feeling that one who is large must also be wise and good and, if we make things large enough, we will achieve the mysterious rewards implicit in great size. . . .

The emphasis on sample size in survey research is traceable in large part to a suspicion on the part of clients about sampling in general. I am somewhat amused, for example, by the clients who have no trouble at all accepting the idea that you can find out what people will buy by asking them what they like but who can't see how studying 200 households can tell you anything about the 60 million households in the United States (1962, pp. 92-93).

Assessing the representativeness of our respondents or the degree of error in our data is not a trivial problem. The situation is not hopeless, however. First, it is possible to check the 63% response from the national sample with the 90% from the earlier study, the findings of which seemed reasonably representative of that population. Responses on questionnaire items by the 4,524 grantees generally differed only slightly from those of the 803 respondents in the midwestern study. Of course, had the differences been marked, interpreting the meaning of the differences would have been more equivocal. That is, the differences could have meant that the midwestern sample was not representative of the entire nation, or it could have meant that there was more bias in the second study resulting from the respondents' being less representative of the

population of grantees, or an interaction of both sources of error could have occurred. The close correspondence in the data from the two surveys gives us some confidence in the present findings--and also legitimizes our combining the data from both surveys in subsequent analyses. Obviously, however, we lack definitive error estimates.

It would have been helpful to have the check on representativeness used in the earlier study. That is, follow-up interviews with a random sample of non-respondents would have provided comparative data. Unfortunately, funds were not available for this purpose.

As another check on the representativeness of the respondents, we can compare some frequency functions to ascertain whether respondents differ from non-respondents on such objective items as the period of their awards (is the present sample over-represented by relatively recent award holders?) and the category of their awards (indeed, preliminary analyses indicate that a smaller proportion of Students responded as contrasted to the three other categories of grantees).

Processing errors in our data appear to be minimal. Almost all of the questionnaire items were pre-coded fixed-alternative statements; thus transfer of data was greatly facilitated. On the few items where coding interpretations were not automatic, explicit directions were furnished the coders and any doubtful cases were referred to the researchers

for decision. Periodic checks were made on the coders' accuracy. A sample of the keypunched cards was verified, and inasmuch as the keypunching errors appeared minimal (less than .001%) we decided to forgo the expense of having all the cards verified.

In concluding our discussion of the general research procedures we should mention an incidental study which was incorporated in our questionnaire survey. Frequently in research reports such as those included in the "Living Research" section of The Public Opinion Quarterly one encounters information concerning factors contributing to increased response in mail questionnaires. We decided to test the efficacy of three such variables: the color of the questionnaire (half were printed on white and half on light green paper; the type of mailing (half were sent via regular first-class mail and half by third-class mail); and the type of return envelope (half were business-reply envelopes and half had postage stamps on them). For this 2 x 2 x 2 factorial design the population of grantees was randomly divided into eight groups. The data on returns indicate that for this population the color of the questionnaire had no significant effect on response ratios; however, first-class mailing produced significantly more returns, as did stamped return envelopes as opposed to business-reply envelopes. None of the interactions among the variables was significant (Gullahorn & Gullahorn, 1963a).

Data from this survey were incorporated in a report to the U.S. Department of State and have been included in other articles (Gullahorn & Gullahorn, 1960b, 1962, 1963a).

## **APPENDIX II**

### **QUESTIONNAIRE**

**MICHIGAN STATE UNIVERSITY  
EAST LANSING**

**Department of Sociology and Anthropology**

**STUDY OF THE INTERNATIONAL EDUCATIONAL EXCHANGE PROGRAM**

The questionnaire referred to in the letter appears on the following pages. To save you time most questions have been arranged so that all you have to do is make a check mark in answering. Please answer every question, selecting the response that comes closest to representing your feelings, even if it does not do so exactly. If you have additional comments or wish to explain or qualify any answers, we hope you will write your remarks on the blank pages provided.

Since the questionnaire is intended for all categories of grantees (Lecturers, Research Scholars, Teachers, and Students) there may be some items which will not apply to you. Answers of "not relevant" and "none" are provided for this situation.

The answers of every former award holder are important. So that the results of this study will be complete and realistic the cooperation of all former grantees is needed.

**What was the source of your award?** 1. \_\_\_\_\_ Fulbright 2. \_\_\_\_\_ Smith-Mundt 3. \_\_\_\_\_ Other

(Please specify: \_\_\_\_\_)

**What type of award did you hold?** 1. \_\_\_\_\_ Lecturer; 2. \_\_\_\_\_ Research Scholar; 3. \_\_\_\_\_ Teacher;

4. \_\_\_\_\_ Student; 5. \_\_\_\_\_ Other (Please specify: \_\_\_\_\_)

\_\_\_\_\_)



Following are some questions about your overseas experiences. We are particularly interested in learning how much contact you had with people abroad.

- I-19. While you were abroad, with how many foreign citizens did you establish friendships you expect to be lasting? (Please check the figure you believe to be correct.)
- |                     |                                   |
|---------------------|-----------------------------------|
| _____1. None        | _____3. Six to Ten                |
| _____2. One to Five | _____4. Over Ten (How many?_____) |
- I-20. Were you entertained in the homes of any foreign citizens while you were abroad?
- |                          |                                   |
|--------------------------|-----------------------------------|
| _____1. No               | _____3. Yes, Six to Ten           |
| _____2. Yes, One to Five | _____4. Over Ten (How many?_____) |
- I-21. While you were abroad, with about how many foreign professional people did you have frequent, face-to-face contact?
- |                        |   |
|------------------------|---|
| _____1. None           | _____4. Sixteen to Twenty-Five                  |
| _____2. One to Five    | _____5. Over Twenty-Five (About how many?_____) |
| _____3. Six to Fifteen |   |
- I-22. Did you collaborate with foreign colleagues and/or students on research?
- |             |            |                                       |
|-------------|------------|---------------------------------------|
| _____1. Yes | _____2. No | _____3. I did not engage in research. |
|-------------|------------|---------------------------------------|
- I-23. About how many foreign students did you teach on a regular basis during your stay abroad? (Please check the figure representing the approximate total from all your classes overseas.)
- |                                   |   |
|-----------------------------------|---|
| _____1. I did not teach           | _____4. Thirty-Six to Fifty             |
| _____2. One to Twenty             | _____5. Fifty-One to One Hundred        |
| _____3. Twenty-One to Thirty-Five | _____6. Over 100 (About how many?_____) |
- I-24. With about how many foreign students did you have frequent personal contact (outside of a classroom or research situation)?
- |                          |  |
|--------------------------|--|
| _____1. None             | _____4. Twenty-One to Thirty           |
| _____2. One to Ten       | _____5. Over 30 (About how many?_____) |
| _____3. Eleven to Twenty |  |
- I-25. Approximately how many other foreign citizens—EXCLUDING people counted in Questions I-19 to I-24—did you get to know fairly well so that you occasionally chatted about local customs, American life, etc.?
- |                          |  |
|--------------------------|--|
| _____1. None             | _____4. Twenty-One to Thirty           |
| _____2. One to Ten       | _____5. Over 30 (About how many?_____) |
| _____3. Eleven to Twenty |  |
- I-26. About how many concerts, art exhibits, PROFESSIONAL lectures (outside of regular classes) etc. did you give while you were abroad?
- |                        |  |
|------------------------|--|
| _____1. None           | _____4. Sixteen to Twenty-Five         |
| _____2. One to Five    | _____5. Twenty-Six to Thirty-Five      |
| _____3. Six to Fifteen | _____6. Over 35 (About how many?_____) |
- I-27. What would you estimate to be the approximate TOTAL attendance AT ALL of these events?
- |                            |   |
|----------------------------|---|
| _____1. I did not give any | _____4. 151 to 300                      |
| _____2. One to Fifty       | _____5. 301 to 500                      |
| _____3. 51 to 150          | _____6. Over 500 (About how many?_____) |
- I-28. Approximately how many talks of a less professional nature—e.g., on general topics about American culture—did you give while you were abroad? (Do not include those counted in Question I-26.)
- |                        |  |
|------------------------|--|
| _____1. None           | _____4. Sixteen to Twenty-Five         |
| _____2. One to Five    | _____5. Twenty-Six to Thirty-Five      |
| _____3. Six to Fifteen | _____6. Over 35 (About how many?_____) |
- I-29. What would you estimate to be the approximate total attendance at all of the events counted in Question I-28?
- |                            |   |
|----------------------------|---|
| _____1. I did not give any | _____4. 151 to 300                      |
| _____2. One to Fifty       | _____5. 301 to 500                      |
| _____3. 51 to 150          | _____6. Over 500 (About how many?_____) |

Following are a number of questions concerning the influence of your foreign educational activities on your current professional role.

PLEASE CHECK ONE RESPONSE FOR EVERY QUESTION	YES	DOES NOT APPLY TO ME	NO
I-30. I believe receiving the award has been beneficial to my professional career.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-31. The award was a factor helping me secure a new position, graduate fellowship, assistantship, etc.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-32. It was (or will be) a contributing factor toward my receiving a promotion and/or salary increase.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-33. It influenced my decision to move to a new location. (If yes, please explain on pages provided.)	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-34. It has afforded me new skills which I now use.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-35. The experience has resulted in a change in the focus, direction, or field of my professional work. (If yes, please explain on pages provided.)	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-36. It has enabled me to add new material in my courses or work, or to present different interpretations than would have been possible without the experience.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-37. It has enabled me to introduce one or more new courses.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-38. The experience has made possible new professional relationships abroad for me.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-39. It has made possible new professional relationships in the United States for me.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-40. I think the experience has given me a new perspective on my field and a deeper insight into certain aspects of it.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-41. It has furnished material for a thesis.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-42. It has furnished data or ideas which I have used in planning research, compositions, works of art, etc. since my return.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-43. As a result of the award I have received more recognition from some of my administrative superiors.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-44. I have received more recognition from professional colleagues as a result of receiving the grant.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No
I-45. The prestige of the grant has had little effect on my professional status.	1. <input type="checkbox"/> Yes	2. <input type="checkbox"/> Not Relevant	3. <input type="checkbox"/> No

If there are other professional contributions you feel followed from your award, we will appreciate your mentioning them on the blank pages provided.

**Some grantees have reported certain adverse effects as consequences of their awards or experiences abroad. Has your award led to any of the following experiences? (Please use the pages provided to explain any results you consider serious.)**

PLEASE CHECK ONE RESPONSE FOR EVERY QUESTION		TRUE	DOES NOT APPLY TO ME	FALSE
1-46.	My having received the award has led to difficulties in my relationships with some colleagues who have not had such opportunities.	1. _____ True	2. _____Not Relevant	3. _____ False
1-47.	Not being able to complete abroad the work I had planned injured me professionally.	1. _____ True	2. _____Not Relevant	3. _____ False
1-48.	Going abroad interfered with my research at home.	1. _____ True	2. _____Not Relevant	3. _____ False
1-49.	Going abroad weakened my professional contacts in the United States.	1. _____ True	2. _____Not Relevant	3. _____ False
1-50.	Accepting the award resulted in a delay in my professional advancement.	1. _____ True	2. _____Not Relevant	3. _____ False
1-51.	Accepting the award has hindered my professional career. (If yes, please explain on pages provided.)	1. _____ True	2. _____Not Relevant	3. _____ False
1-52.	Experience abroad is not regarded highly in my particular field.	1. _____ True	2. _____Not Relevant	3. _____ False
1-53.	Experience abroad is not regarded highly where I work.	1. _____ True	2. _____Not Relevant	3. _____ False
1-54.	My administrative superiors are not in favor of overseas experience.	1. _____ True	2. _____Not Relevant	3. _____ False

**The following questions pertain to the influence your experiences abroad have had on your activities which are less directly related to your professional role.**

- II- 6. Since your return, have you talked informally about your experiences with your friends, shown them pictures, slides, etc.?
- \_\_\_\_\_1. Yes, frequently \_\_\_\_\_3. Yes, but rarely  
\_\_\_\_\_2. Yes, occasionally \_\_\_\_\_4. No
- II- 7. Since your return, about how many talks have you given concerning your overseas experiences and/or observations on life abroad?
- \_\_\_\_\_1. None \_\_\_\_\_4. Sixteen to Twenty-Five  
\_\_\_\_\_2. One to Five \_\_\_\_\_5. Twenty-Six to Fifty  
\_\_\_\_\_3. Six to Fifteen \_\_\_\_\_6. Over 50 (About how many?\_\_\_\_\_)
- II- 8. What would you estimate to be the TOTAL attendance at ALL of these talks?
- \_\_\_\_\_1. I have not given any \_\_\_\_\_4. 101 to 300  
\_\_\_\_\_2. One to Fifty \_\_\_\_\_5. 301 to 500  
\_\_\_\_\_3. Fifty-One to One Hundred \_\_\_\_\_6. Over 500 (About how many?\_\_\_\_\_)
- II- 9. What types of groups have you addressed? (Please check all that apply.)
- \_\_\_\_\_1. Professional societies \_\_\_\_\_5. Clubs and non-professional organizations at school or college (e.g., PTA, Faculty Club, etc.)  
\_\_\_\_\_2. Civic groups \_\_\_\_\_6. Other (Please specify:\_\_\_\_\_)  
\_\_\_\_\_3. Service clubs  
\_\_\_\_\_4. Church groups
- II-10. Since your return, have you made any radio or TV appearances related to your overseas experiences?
1. \_\_\_\_\_Yes 2. \_\_\_\_\_No
- II-11. Have reports about your experiences abroad and/or your observations on international events appeared in local (or school) newspapers?
1. \_\_\_\_\_Yes 2. \_\_\_\_\_No

Since your return have you done any of the following?

PLEASE CHECK ONE RESPONSE FOR EVERY QUESTION	YES	NO
II-12. Referred Americans going abroad to foreign colleagues or friends.	1. ____ Yes	2. ____ No
II-13. Advised students or others wishing to go abroad.	1. ____ Yes	2. ____ No
II-14. Helped Americans apply for grants to go abroad.	1. ____ Yes	2. ____ No
II-15. Served on committees selecting applicants for overseas grants.	1. ____ Yes	2. ____ No
II-16. Served as a Fulbright Adviser.	1. ____ Yes	2. ____ No
II-17. Arranged correspondence between students and/or colleagues in this country with others abroad.	1. ____ Yes	2. ____ No
II-18. Consulted with students, colleagues, or friends from abroad regarding their applications to come to the United States for educational activities.	1. ____ Yes	2. ____ No
II-19. Made direct arrangements (with a university, foundation, etc.) for foreign students or others to come to the United States.	1. ____ Yes	2. ____ No
II-20. Assisted foreign citizens in arranging visits to the United States for other purposes.	1. ____ Yes	2. ____ No
II-21. Served as a Foreign Student Adviser.	1. ____ Yes	2. ____ No
II-22. Entertained in your home foreign citizens you met abroad or who were referred to you by others you met overseas.	1. ____ Yes	2. ____ No

-----

II-23. Since your return, have you been active in any organizations with foreign members, or interested largely in international affairs—e.g., an international club, a foreign language club, a UNESCO committee, etc.

- \_\_\_\_ 1. Yes, this is a new or stronger interest for me.  
 \_\_\_\_ 2. Yes, but I was about as active in such groups before going abroad.  
 \_\_\_\_ 3. Not yet, but I intend to be.  
 \_\_\_\_ 4. No.

Have you maintained contact with any of the following? (Please check all that apply.)

- \_\_\_\_ II-24. With your host institution abroad  
 \_\_\_\_ II-25. With individuals abroad on a professional basis  
 \_\_\_\_ II-26. With individuals abroad on an informal or personal basis  
 \_\_\_\_ II-27. With clubs or organizations abroad  
 \_\_\_\_ II-28. With other Americans you met abroad (other grantees, etc.)

II-29. Have you donated or made arrangements for others to give books, periodicals, etc. to foreign libraries or other institutions?

- \_\_\_\_ 1. Yes
 \_\_\_\_ 2. No

In reflecting on their experiences, American Fulbright and Smith-Mundt grantees have made the following remarks. How well do you agree with the feelings they have expressed? (Please use the page provided to explain any answers about which you feel strongly and, where relevant, to suggest what might be done to improve some situation.)

FOR EACH STATEMENT BELOW, PLEASE CHECK THE RESPONSE THAT INDICATES MOST CLOSELY YOUR OWN FEELINGS:	AGREE STRONGLY	AGREE SOMEWHAT	DISAGREE SOMEWHAT	DISAGREE STRONGLY
II-30. Living abroad increased my interest in international affairs.	1. _____	2. _____	3. _____	4. _____
II-31. I found the experience of "living as a foreigner" to be maturing.	1. _____	2. _____	3. _____	4. _____
II-32. I found people at my host institution to be uncooperative.	1. _____	2. _____	3. _____	4. _____
II-33. My stay abroad was one of the most valuable experiences of my life.	1. _____	2. _____	3. _____	4. _____
II-34. I feel I was able to correct some erroneous stereotypes held by some foreign citizens regarding certain aspects of American culture.	1. _____	2. _____	3. _____	4. _____
II-35. Having to adjust to a lower standard of living made my stay abroad unpleasant.	1. _____	2. _____	3. _____	4. _____
II-36. I think I gained considerable perspective on the United States as a result of my stay abroad.	1. _____	2. _____	3. _____	4. _____
II-37. I now have more sympathy toward my host country.	1. _____	2. _____	3. _____	4. _____
II-38. A year spent at a university in the United States would have been more valuable than my time abroad.	1. _____	2. _____	3. _____	4. _____
II-39. Had I realized the total personal economic cost of the year abroad I would have been reluctant to accept the award.	1. _____	2. _____	3. _____	4. _____
II-40. My host country did not make maximum use of my experiences and abilities.	1. _____	2. _____	3. _____	4. _____
II-41. My own university (or employer) has not taken advantage of the contribution I could make as a result of my overseas experience.	1. _____	2. _____	3. _____	4. _____
II-42. If I had another grant I would like to go abroad again for educational or research activities.	1. _____	2. _____	3. _____	4. _____

## BACKGROUND INFORMATION

55-57. Host Country \_\_\_\_\_

58. Sex: 1. \_\_\_\_\_ Male 2. \_\_\_\_\_ Female

59. Age at time of award:

_____ 1. Under 20	_____ 4. 31 to 35	_____ 7. 46 to 50
_____ 2. 20 to 25	_____ 5. 36 to 40	_____ 8. 51 to 55
_____ 3. 26 to 30	_____ 6. 41 to 45	_____ 9. Over 55

60. What was the period of your award?

_____ 1. 1947-1948	_____ 4. 1950-1951	_____ 8. 1954-1955
_____ 2. 1948-1949	_____ 5. 1951-1952	_____ 9. 1955-1956
_____ 3. 1949-1950	_____ 6. 1952-1953	_____ 0. 1956-1957
	_____ 7. 1953-1954	

61. Home State or Territory at time of award: \_\_\_\_\_

62-63. Present Home State or Territory: \_\_\_\_\_

64. Size of city where you  
lived at time of award.

65. Size of city where  
you now live.

### PLEASE CHECK BOTH SIDES

_____ 1.	One Million and Over
_____ 2.	250,000 to 999,999
_____ 3.	50,000 to 249,999
_____ 4.	10,000 to 49,999
_____ 5.	2,500 to 9,999
_____ 6.	Under 2,500

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

66. Field of Work Abroad

### PLEASE CHECK BOTH SIDES

67. Present Field of Work

_____ 1.	Natural Science or Mathematics
_____ 2.	Social or Political Science
_____ 3.	Language (other than English)
_____ 4.	English or American Studies
_____ 5.	Other Humanities
_____ 6.	Creative Arts (art, painting, music, drama, theater, creative writing, etc.)
_____ 7.	Agriculture
_____ 8.	Professional Social Service (education, social work, public administration, personnel work, etc.)
_____ 9.	Other Technical or Professional (law, medicine, engineering, architecture, etc.)
_____ 0.	Other (Please specify) _____

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
0. _____

68. Occupation at Time of Award

69. Present Occupation

### PLEASE CHECK BOTH SIDES

_____ 1.	Teacher or researcher in college or university (underline proper answer)
_____ 2.	Teacher in elementary or secondary school (underline proper level)
_____ 3.	Student (including teaching or research assistant)
_____ 4.	Professional or technical practitioner (physician, architect, engineer, etc.)
_____ 5.	Agricultural specialist (except teachers)
_____ 6.	Social Service practitioner (except teachers; includes public health, social work, civil servant, etc.)
_____ 7.	Businessman (including business administrator)
_____ 8.	Educational administrator (e.g., school principal, college dean)
_____ 9.	Actor, artist, musician, writer, etc.
_____ 0.	Housewife
_____ X.	Other (Please specify _____)
_____ Y.	Not employed

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
0. _____
X. _____
Y. _____

If you had difficulty selecting the category, please describe your position below.

## BACKGROUND INFORMATION

70. In your opinion was your competence in the language of your host country—(Please check all that apply)
- \_\_\_\_\_1. Adequate to permit ease in social interaction.
  - \_\_\_\_\_2. Inadequate for ease in social interaction.
  - \_\_\_\_\_3. Adequate to facilitate achieving the professional purpose of my award.
  - \_\_\_\_\_4. Inadequate to facilitate achieving the professional purpose of my award.

(Note: If you have any recommendations with regard to the importance of language skill or the degree of skill necessary to benefit fully from an educational exchange award, please comment on the blank pages provided.)

71. What led you to apply for an award as a government-sponsored grantee?
- \_\_\_\_\_1. I initiated the application independently.
  - \_\_\_\_\_2. Colleagues, professors, or administrators in my school or college urged that I apply.
  - \_\_\_\_\_3. My application was requested by an American agency administering the program.
  - \_\_\_\_\_4. My application was requested by a university, school, or agency abroad.
  - \_\_\_\_\_5. Other (Please describe on the blank page provided.)

72. What was your highest earned degree at time of award?

73. What is your highest earned degree at present?

### PLEASE CHECK BOTH SIDES

- |         |  |          |
|---------|--|----------|
| _____1. | Bachelor's (A.B.; B.S.; etc.)              | 1. _____ |
| _____2. | Master's (M.A.; M.Ed.; M.S.; M.B.A.; etc.) | 2. _____ |
| _____3. | Doctor's (Ph.D.; Ed.D.; M.D.; D.D.; etc.)  | 3. _____ |
| _____4. | Other (Please specify—e.g., G.N.; M.E.)    | 4. _____ |

\_\_\_\_\_  
\_\_\_\_\_

74. \_\_\_\_\_

75. \_\_\_\_\_

76. \_\_\_\_\_

## THE FOLLOWING QUESTIONS PERTAIN ONLY TO THOSE WHO WERE MARRIED AT THE TIME OF THEIR AWARDS

- II-43. If you had children at the time, what were their age groups during your award year? (Please check all that apply.)

- |                                |                            |
|--------------------------------|----------------------------|
| _____1. I had no children      | _____5. Junior high school |
| _____2. Under one              | _____6. High school        |
| _____3. Preschool—one and over | _____7. College age        |
| _____4. Elementary school      | _____8. Beyond college age |

- II-44. Did any members of your family accompany you?

- \_\_\_\_\_1. No
- \_\_\_\_\_2. Yes, my wife (or husband)
- \_\_\_\_\_3. Yes, my wife and all of my children
- \_\_\_\_\_4. Yes, my wife and some of my children
- \_\_\_\_\_5. Yes, all of my children
- \_\_\_\_\_6. Yes, some of my children

- II-45. In your opinion, is it advisable for married grantees to take their families with them abroad?

1. \_\_\_\_\_Yes      2. \_\_\_\_\_No.

- II-46. If you had it to do all over again, would your family want to go abroad on such a grant?

1. \_\_\_\_\_Yes      2. \_\_\_\_\_No      3. \_\_\_\_\_Uncertain

**THE FOLLOWING QUESTIONS PERTAIN ONLY TO THOSE WHOSE  
FAMILIES ACCOMPANIED THEM**

**II-47. Did you and your family, as a family group, associate with foreign families on a regular basis?**

- |                               |                                  |
|-------------------------------|----------------------------------|
| _____1. No                    | _____3. Yes, with six to ten     |
| _____2. Yes, with one to five | _____4. Yes, with eleven or more |

**In comparison with your individual professional contacts, were the contacts you and your family established with foreign citizens on the whole characterized by—(Please check one response in each question for Questions II-48 through II-50.)**

**II-48. Frequency of contacts**

- \_\_\_\_\_1. More frequent contacts  
\_\_\_\_\_2. Less frequent contacts  
\_\_\_\_\_3. About the same

**II-49. Degree of intimacy of contacts**

- \_\_\_\_\_1. Stronger feelings of friendship  
\_\_\_\_\_2. Weaker feelings of friendship  
\_\_\_\_\_3. About the same

**II-50. Attempts to maintain relationships**

- \_\_\_\_\_1. Greater effort to maintain contact since our return  
\_\_\_\_\_2. Less effort to maintain contact since our return  
\_\_\_\_\_3. About the same

**II-51. About how many talks did members of your family (excluding you) give on general topics about American culture while you were abroad?**

- |                     |                                   |
|---------------------|-----------------------------------|
| _____1. None        | _____3. Six to Ten                |
| _____2. One to Five | _____4. Over Ten (How many?_____) |

**II-52. What would you estimate to be the approximate TOTAL attendance at ALL of these talks by members of your family?**

- |                               |   |
|-------------------------------|---|
| _____1. They did not give any | _____4. Sixty-One to One Hundred        |
| _____2. One to Twenty-Five    | _____5. Over 100 (About how many?_____) |
| _____3. Twenty-Six to Sixty   |   |

**II-53. Since your return, about how many talks concerning experiences abroad have members of your family (excluding you) given?**

- |                     |  |
|---------------------|--|
| _____1. None        | _____4. Eleven to Twenty               |
| _____2. One to Five | _____5. Over 20 (About how many?_____) |
| _____3. Six to Ten  |  |

**II-54. What would you estimate to be the approximate total attendance at all of the talks included in Question II-53?**

- |                               |   |
|-------------------------------|---|
| _____1. They did not give any | _____4. Sixty-One to One Hundred        |
| _____2. One to Twenty-Five    | _____5. Over 100 (About how many?_____) |
| _____3. Twenty-Six to Sixty   |   |

**Please add any comments you feel are important regarding the influence of your family's presence abroad on your accomplishments there, etc.**



# **PUBLICATIONS, CONCERTS, EXHIBITS, LECTURES, AND OTHER WORKS**

To enable us to prepare a volume listing the accomplishments of former grantees related to their overseas experiences, will you please furnish the information requested below. It will be appreciated if you will follow the forms suggested for entries; for example, listing the full names of journals and articles. Explanations or comments for items that might not be clear for the general reader will be welcomed. Please print or type if possible, and use extra sheets if necessary.

Your Name \_\_\_\_\_

Present Occupation \_\_\_\_\_

Business Address \_\_\_\_\_

\_\_\_\_\_

## **I. COMPLETED WORKS**

1. Titles of papers you have read (or have had accepted for presentation) at professional meetings—papers related to your overseas experiences. Please also list the name of the professional society sponsoring the meetings.

Example: "A Proposed Jomon Classification," Far Eastern Society, December, 1955, Washington, D. C.

2. Titles of lectures and speeches given to other than professional societies.  
(Note: If you have given a great number of speeches, list ten which you consider representative and state the total number.)

Example: "Impressions of Egypt," Women's Club, Boulder, Colorado, 1950.

3. Title of thesis or dissertation resulting from your overseas research. Please indicate degree, department, and university.  
Example: "Early Indian Philosophical Naturalism." Ph.D. thesis, Department of Philosophy, University of Michigan, 1953.
4. Titles of books and monographs—related to your work abroad—already published or accepted for publication.  
Example: EUROPE IN THE MIDDLE AGES. New York: Harcourt, Brace and Company, 1956.
5. Titles of articles, book reviews, etc. already published or accepted for publication. (List only those related to your work abroad.) Please indicate the periodical(s), volume number (year), pages.  
Example: "Quantum-Mechanical Methods in Valence Theory," PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCE, 38 (1952), pp. 547-549 (or "accepted for publication").
6. Newspaper articles.  
Example: "Scenery, Climate and Natives Make Guatemala a Terrestrial Paradise," THE KANSAS CITY STAR, August 27, 1953.
7. Names of new courses resulting from your experiences abroad.  
Example: "Seminar in Contemporary Italian Art," Graduate Course, Department of Art, State University of Iowa, Iowa City, Iowa.

8. Names of new paintings, works of sculpture, musical compositions, etc. influenced—insofar as you can tell—by your work abroad. (Please specify whether they are paintings or other types of creative works.)

Examples: "Roman Landscape." Painting, 1956.

"Self Portrait in Thessaloniki." Intaglio print, 1954.

"Earth, Sweet Earth." Choral work, 1953.

SYMPHONY NUMBER I. 1951.

9. Concerts, recitals, or exhibits you have held since your return, on which your overseas experiences have exerted a significant influence. Include musical programs in which your works have been performed by others. Please indicate the date, the place, and the type of event.

Examples: One-Man Exhibition: Painting, Creative Gallery, New York City, 1953.

Participant: Sculpture: Indiana University Student Show, 1955. Honorable Mention.

Exhibition of Architectural Photographs: University of Cincinnati, 1954.

Full recital on clarinet and saxophone: Waverly, Iowa, 1956.

SYMPHONY NUMBER I. Performed by Seattle Symphony, 1951; New York Philharmonic, 1955.

## **II. WORKS IN PROCESS**

10. Title of thesis or dissertation now in process. Please indicate university, department, and degree.

11. Titles of books or monographs—related to your work abroad—in process or completed, but not yet accepted for publication.

12. Titles of articles, book reviews, etc. now in process or completed, but not yet accepted for publication. (List only those related to your work abroad.)
13. Paintings, musical compositions, and other works of art—influenced by your experiences abroad—which are in process but not yet completed.

### **III. OTHER ACCOMPLISHMENTS**

14. Please list below any accomplishments emanating from your overseas experiences which are not included under the preceding categories.

### APPENDIX III

#### CODING OF BACKGROUND VARIABLES FOR MULTIVARIATE ANALYSES

### APPENDIX III

#### CODING OF BACKGROUND VARIABLES FOR MULTIVARIATE ANALYSES<sup>1</sup>

Item

55. GEOGRAPHIC REGION OF HOST COUNTRY:  
Lecturers, Research Scholars, and Students:  
Score 1 for Europe or Oceania  
Teachers: Score 1 for British Isles
58. SEX: Score 1 for Male
59. AGE AT AWARD TIME (precoded on questionnaire).
60. PERIOD OF AWARD (precoded on questionnaire).
61. GEOGRAPHIC REGION OF HOME STATE AT AWARD TIME:  
Score 1 for New England, Middle Atlantic, East  
North Central, or Pacific.
63. GEOGRAPHIC MOBILITY SINCE AWARD:  
Score 1: Same as previous home state  
Score 2: Moved, but in same census region  
Score 3: Moved to different census region
64. SIZE OF HOME CITY AT AWARD TIME (precoded on questionnaire).
66. FIELD OF WORK ABROAD: Natural Sciences  
Score 1 for Natural Science or Mathematics
66. FIELD OF WORK ABROAD: Social Sciences  
Score 1 for Social or Political Science
66. FIELD OF WORK ABROAD: Humanities + Arts  
Score 1 for Language, English or American Studies,  
Other Humanities, or Creative Arts.
69. PRESENT OCCUPATION:  
Lecturers, Research Scholars, and Students: Score  
1 for Teacher or Researcher in college or university  
Teachers: Score 1 for Teacher in elementary or  
secondary school

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<sup>1</sup>See questionnaire in Appendix II for full wording of items.

Item

## 70. LANGUAGE COMPETENCE

- Score 1: Inadequate for both professional and social interaction
- Score 2: Inadequate professional; inadequate social; inadequate for professional purpose but adequate for social interaction.
- Score 3: Adequate for professional purpose; adequate for social interaction; adequate for professional purpose but inadequate for social interaction.
- Score 4: Adequate for both professional and social interaction.

## 71. REASON FOR APPLICATION

- Lecturers and Research Scholars: Score 1 for application requested by either American or foreign agency
- Teachers and Students: Score 1 for application initiated independently.

## 72. HIGHEST EARNED DEGREE AT AWARD TIME

- Score 1 - Bachelor's
- Score 2 - Master's
- Score 3 - Doctor's

## 72 x 73. DEGREE CHANGE

- Score 1: Same degree level
- Score 2: Bachelor's to Master's or Bachelor's to Other
- Score 3: Master's to Doctor's; Master's to Other; Other to Doctor's
- Score 4: Bachelor's to Doctor's

II-44. TOOK FAMILY ABROAD: Score 1 for Yes

~~APR 22 1969~~

~~MAY 5 1969~~ pd

~~MAY 12 1969~~ 40

~~JUN 24 1969~~

~~JUL 5 1969~~

~~MAY 9 1966~~

~~NOV 19 1968~~ Del

~~MAR 15 1969~~ 29

~~MAR 28 1969~~ 25

~~APR 11 1969~~ R90

~~APR 12 1969~~

~~APR 25 1969~~ Paid P39

~~MAY 10 1969~~ 57

~~MAY 21 1969~~ Rpd 72

~~JUN 18 1969~~ 29

~~APR 24 1969~~ WAP

~~JUL 5 1969~~

~~JUL 13 1969~~ 70

~~MAY 10 1974~~ 12

~~MAY 25 1974~~ R

~~JUL 16 1974~~

~~MAY 27 1974~~ 00

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