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PERSONALITY AND SOCIAL STRUCTURAL
INFLUENCES ON ATTITUDES AND SOCIAL
RELATIONS OF JAPANESE SCHOLARS IN
AMERICA AND JAPAN

FUMIE KUMAGAI

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PERSONALITY AND SOCIAL STRUCTURAL INFLUENCES
ON ATTITUDES AND SOCIAL RELATIONS
OF JAPANESE SCHOLARS IN AMERICA AND JAPAN

by

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B.A., Keio University, Tokyo, Japan, 1969

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A DISSERTATION

Submitted to the University of New Hampshire

In Partial Fulfillment of

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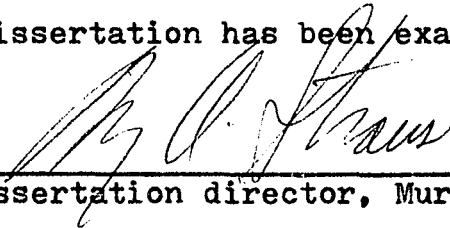
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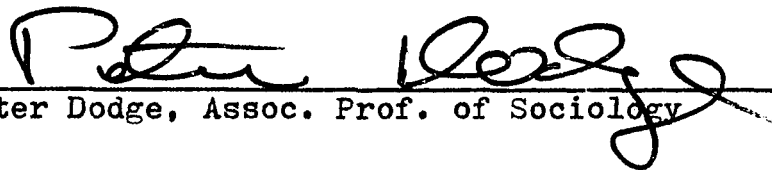
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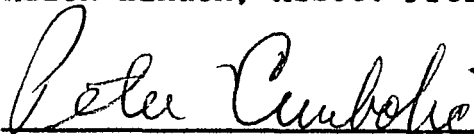
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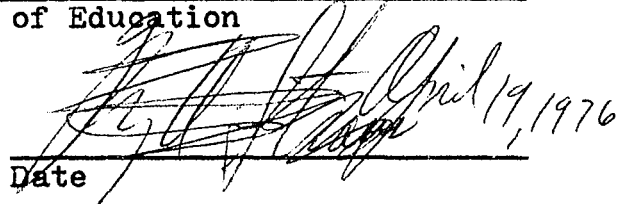


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ABSTRACT

This study examined evidence bearing on the social and psychological adjustment of Japanese students in the United States and upon their return to Japan. It also compared two schools of thought concerning the sources of behavior, the one psychological, the other sociological. The first attempts to explain behavior with reference to intra-individual characteristics such as linguistic ability and personality factors; the other emphasizes social structural factors such as the pattern of interrelated statuses and roles found in a society or other group at a particular time and constituting a relatively stable set of social relations. However, the hypothesis of the research is that behavior cannot be fully understood from a single perspective. The appropriate unit of analysis is neither the individual nor the social structure, but the field within which both of these analytic foci meet.

A longitudinal design was used to study these issues, with questionnaires administered in Japanese to a sample of 104 Japanese male graduate students on four occasions: shortly before departure; early in their experience; after one academic year in America; and after their return to Japan. The measures of adjustment used as the major dependent variables were: "Favorability toward America(FTA)," "Favorability toward Japan(FTJ)," and "Interaction with Americans(IWA)."

Multiple regression technique of path analysis, with a multiplicative term for interaction, revealed a significant pattern of interaction between intra-individual characteristics and social structure to account for Japanese scholars' attitudes and social relations. Multivariate analysis of variance for both multivariate and univariate dependent variables also resulted in significant interaction effects for size-prestige of the U.S. educational institution by participation in an orientation program by English ability, on the Japanese sojourners' attitudes and behavior.

Developmental trends of attitudes and social relations of the scholars were also observed. The steady increase in favorability toward America and in interaction with Americans may be interpreted as evidence of their personal and social adjustment. Before their departure, the students preferred Japanese patterns, but upon their return to Japan, the trend was reversed. The students showed significantly higher favorability toward American egalitarian culture than Japanese hierarchical culture only after the exposure to the American life-ways.

Measurement of same personality traits before and after the sojourn abroad revealed that the experience had no significant measured impact on Japanese students' personalities. This is taken as evidence in support of a definition of personality which emphasizes the enduring characteristics of an individual's orientation to a varying environment, reflecting the structure and processes of the person's own society

and culture.

Characteristic patterns of Japanese social and cultural norms which may account for the distinctive cross-cultural experiences of Japanese sojourners include: "vertical social structure" with its concern for status, the pattern of interpersonal communication with its "mind-to-mind" consensus along with behavioral reserve, three major characteristics of the Japanese language (honorific form, syntax, and writing system), and an educational system characterized as the "entrance examination hell."

This study found a negative effect of ability in English on the attitudes toward American culture of Japanese sojourners, except in the case of scholars who studied at large prestigious American institutions without attending an orientation program prior to their formal academic studies in America. This finding may have come about because ability in English could reflect some or all of the following: extrinsic-professional-objective vs. intrinsic-humanistic-subjective orientation to the sojourn; command of English as facilitating the critical understanding of American social patterns; and the orientation program as encouraging objectivity in the evaluation of cultures.

The most important finding of the research is that the independent variables taken one at a time failed to account for a significant proportion of the variance in the adjustment of the Japanese students who were studied; whereas, when used in combination, the three-way interaction effects were

highly significant. This is taken as evidence in support of "field theory" approach and specifically the fundamental assertion of this approach that human behavior must be understood as a product of the interacting effects of both intra-individual factors and social structural factors.

CHAPTER I

THEORETICAL FRAMEWORK: PERSONALITY AND SOCIAL STRUCTURE--FIELD THEORY OF HUMAN BEHAVIOR

1. Introduction

In general human behavior is extremely complicated, and it cannot be fully understood from a single perspective. According to Theodorson and Theodorson (1967:27) behavior is:

Any response or reaction of an individual, including not only bodily reactions and movements, but also verbal statements and subjective experiences. . . in the most widely accepted usage behavior is a broader term that applies to anything an individual does, says, thinks, or feels, regardless of whether it is purposive and meaningful to the individual.

Behavior is both covert and overt; the former which includes attitudes, feelings, and thoughts, is not directly observable by other people, the latter is readily observable by others.

The appropriate unit of analysis in human behavior is neither the individual nor the social structure, but the field within which both of these analytic foci meet. There are multiple possibilities in each unit of analysis, and the outcome of human behavior is determined by their mutual multiplicative influences.

In view of the ceaseless change of contemporary society, and the complicated characteristics of human behavior, the lines distinguishing separate sciences of human behavior have come less clear. There have been continuous efforts to integrate various perspectives of social sciences. Yinger stated as follows (1965:18):

In formal statements there is general agreement that the science of human behavior must be carried forward on four levels--biological, individual, cultural, and social. These can be identified, roughly, with the four sciences of biology, psychology, anthropology, and sociology.

There are many social scientists who recognized the necessity to combine the different analytic foci, and employed the interdisciplinary view for the understanding of human behavior (Mead, 1934; Fromm, 1941; Kluckhorn and Murray, 1948; Durkheim, 1951; Lewin, 1951; Parsons and Shils, 1951; Gerth and Mills, 1953; Inkeles, 1959; Smelser and Smelser, 1970).

Most interdisciplinary studies today, however, take the position of the adding together separate points of view rather than of the synthesizing a new and more complex unity. Yinger (1965:7) referred to the field perspective, in which he asked, "What various processes are operative in some segment of the world and what is the consequence of their interaction?" Therefore, the combined results of two or more influences are a product of their multiplicative interaction, and not a sum of each of the influences. In the field-oriented perspective, the final concern is not with the isolation of independent relationships within the various sciences of human behavior, but rather with the understanding and predicting of behavior as such.

Yinger summarized the field theory of behavior as follows (1965:10):

In explaining behavior, the researcher does better to add the influence of two factors than to leave one out; yet the final aim must be, not to add

influences from two systems, but to bring them into one logically coherent system in order to measure their mutual influence.

Yinger used the term "field" in the sense originally developed by Lewin: "the totality of coexisting facts which are conceived as mutually interdependent." (1951:240).

2. Psychological Reductionism and Sociological Reductionism

Even though Yinger's suggestion of interpreting human behavior on the basis of four disciplines--biology, psychology, anthropology, and sociology--seems reasonable, it was decided to focus on only two levels in this study, i.e., the one individual, the other social.

There exist two important reductionist schools of thought concerning the sources of human behavior, the one psychological, the other sociological. Each of these positions attempts to explain behavior with reference to one level of variables only, i.e., either by psychological or sociological variables.

Psychological reductionism assumes that individual psychological factors, which make up individual personality, exhaust the independent causes of human behavior. Personality is the relatively enduring set of individual traits or elements and of their interrelation, which characterizes each person. Thus, the unit of analysis of personality is the person.

Psychological reductionism has a long history in nineteenth- and early twentieth-century social thought, and is little upheld by social scientists today, as is

indicated by Allport's review (1968). One of the major schools of psychological reductionism is that stemming from Sigmund Freud. Freud's contribution to the general theory of personality is that of his structural differentiation of the personality into three dimensions, i.e., id, ego, and superego (1927). Freud was mainly concerned with the organization of the personality as a system, and the relation of the individual to his social environments in relation to the process of personality development. Freud took the position that this personality system of the individual accounts for his social behavior. Generally, Freud's view of human behavior is regarded as the biologicistic and individualistic interpretation. Freud emphasized the biological organism of an individual together with his enduring characteristic personality. (Parsons, however, proposed an opposite interpretation to the Freudian approach for the explanation of human behavior. Parsons argued (1958) that Freud presented human behavior from the medical-biological and psychological standpoints, but his implication was the incorporation of psychological and social explanations to account for behavior. Parsons gave as an example that environmental conditions (social structure) and genetic constitution both enter into the make up of the functioning personality.

Another major school of thought on human behavior, i.e., sociological reductionism, emphasizes the impact of social structural factors in the situation. Social structure is the pattern of interrelated statuses and roles found in

a society or other group at a particular time and constituting a relatively stable set of social relations. Thus, the unit of analysis of social structure is a certain aspect of interaction among persons, but not the person himself, as in personality reductionism.

In accounting for nonconformist conduct, Merton (1938) gave primary emphasis to social structure. He said (1938:672) that some social structures exert a definite pressure upon certain persons in the society to engage in nonconformist rather than conformist conduct. Merton introduced five logically possible alternative modes of adjustment by individuals within the culture-bearing society or group in the light of individuals' relationship to culture goals and institutionalized means. These alternatives are: conformity, innovation, ritualism, retreatism, and rebellion (Merton, 1938:676).

Durkheim (1951) looked exclusively to social structural factors to account for differential tendencies toward suicide. Durkheim found that the rate of suicide, particularly egoistic suicide, was determined by the degree of integration of a particular social structure. He said (1951:357):

Anomie, in fact, begets a state of exasperation and irritated weariness which may turn against the person himself, or another, according to the circumstances; in the first case, we have suicide, in the second, homicide.

In general, psychologists tend to employ psychological reductionism emphasizing the personality properties of individuals in order to explain human behavior. Sociologists,

on the other hand, tend to account for human behavior in terms of social structural factors.

3. Personality and Social Structure as Levels of Analysis

It is the position of the author that neither psychological nor sociological factors are sufficient in themselves to account for human behavior. Each individual carries many distinct and unique tendencies within himself, only some of which, however, may be expressed in any given situation. Therefore, his behavior in a certain situation cannot be explained with reference to his internal personal properties alone, nor may the same individual traits explain his behavior upon all other occasions. Two different analytical levels of human behavior, one psychological, the other sociological, must come together in order fully to explain behavior. As Inkeles (1959:273) has stressed:

What is required, therefore, is an integration or coordination of two basic sets of data in a larger explanatory scheme--not a reduction of either mode of analysis to the allegedly more fundamental level of the other.

Thus, the integration and coordination of both psychological and sociological factors in a larger explanatory scheme enables us to explain why a given state of society leads to a certain type of behavior at some times but not at others, or why the same person under different circumstances acts differently. Both personality and social structural factors must be treated as important independent but interacting variables influencing the flow of the social process.

This, however, does not mean that these frames of reference, i.e., sociological and psychological, can be simply fused. Analytically, they should be kept distinctly apart. Smelser and Smelser expressed their position in this context as follows (1970:2):

A description of a social system cannot be reduced to the psychological states of the persons in that system; a social system must be described in terms of roles, organizations, norms, etc. Similarly, a description of a personality system cannot be reduced to the social involvements of the person; it must be described in terms of distinctive psychological units. Each system has distinctive properties, in short, and this requires that the two system be conceptualized independently.

Even though many theorists recognize the significant contribution of both personality and social structural variables in explaining behavior, there still exists a tendency to view one set of factors as fundamental or having prior influences, and the other as mediating or intervening factors which do not have much influences on the final outcome of human behavior. There are only a few scholars who have investigated situational and personality determinants of behavior simultaneously. Empirical studies in which the social and psychological levels are combined to expand the explanation of human behavior are rare. Research of that nature based on increasingly complex relations among variables poses extremely difficult problems of design.

In their study in social mobility in industrial society, Lipset and Bendix (1959) expressed the necessity to take both subjective and objective factors to account

for the rise or the fall of certain positions. The objective conditions for mobility are such factors as technological or structural factors in mobility, whereas the subjective factors are the individual psychological factors. Combining these factors will offer the answer to the question, "why given the same structural conditions, are some individuals mobile while others who originated in the same stratum are not?" or we can ask, "if there is room at the top of the social hierarchy for people below to move into, who among them is most likely to do so?" Without introducing subjective factors which characterize each individuals these questions cannot be fully understood.

A series of recent empirical studies in the field of educational and occupational status attainment offer the evidence for the necessity to take both psychological and social structural factors into consideration for the study of the outcome of human behavior. (Sewell et al.: 1969, 1970). Their study developed a "status attainment model" using path analytic technique. They gave attitude variables a more positive role in their path model for the process of educational and occupational attainment. Aspirations were still regarded, however, as transmitting the influence of the prior variables, such as family socioeconomic status, significant others' influence, mental ability and academic performance, on the dependent variables, i.e., education and occupational attainment. The findings of the study showed strong evidence that two types of independent variables, i.e.,

subjective individual factors, and objective facilitating factors, are considered necessary to account for subsequent states of behavior. The dependent variables, the behavioral outcomes in which we are interested, describe the differences in levels of attainment of persons with respect to these hierarchies. Knowledge of attainment behavior was examined by the relationships among aspiration variables (i.e., attitudinal, psychological, or subjective individual variables), facilitating (or background) variables, and attainment behavior (i.e., status attainment of education and occupation). Their studies report that attitudes and facilitators tend to be positively correlated, and each independent variable (i.e., attitudes or facilitators) and dependent variable are positively correlated; there is multiplicative interaction between attitudes and facilitators to account for the behavioral outcomes.

These two studies are specific examples of the fact that for the full understanding of human behavior it is essential to employ a mode of analysis which gives simultaneous attention to the properties of individuals and to the structure of the situation. It is out of the interaction of variables involving both psychological and sociological levels that a particular behavior is produced. Yinger (1965:45) has explicitly stated this point:

In short, a person has many tendencies to behave . . . which one will be acted upon cannot be predicted by knowledge of the individual alone because each requires a facilitating environment. Behavior is never in an environmental vacuum. The principle of multiple possibilities applies equally to situations. Their meaning for behavior cannot be defined independently of the individuals who experience them, for the same cue of the same force will affect persons with different tendencies differently.

Personality and social structural factors acting simultaneously are interactive, not simply additive.

4. The Field View of Adjustment

Human adjustment is a form of human behavior.

Students of human relations frequently study some sort of human conflict or maladjustment, whether societal or individual. Theodorson and Theodorson defined the term "adjustment" as follows (1969:6):

A relatively harmonious relationship within and between individuals and groups. The term is not used by sociologists in any consistent technical sense, and it is usually defined with reference to a stated analytic problem or system of values. Because of the complexity and dynamic nature of human interaction, what appears from one frame of reference to be adjustment often may be perceived as maladjustment from another perspective. Hence, when sociologists use the term they usually apply it operationally for the solution of an immediate analytic problem.

In the present study it was decided to use the term "adjustment" to refer to the following positive or negative outcomes of attitudes and social relations: 1. satisfaction--satisfaction with one's situation; 2. favorability--favorable feeling toward the situation; 3. difficulty--difficulty in functioning in the situation; and 4. interaction--level of

social interaction in the situation.

In attempting to understand the pattern of human adjustment in the situation, the present study focuses on interaction effects across sociological and psychological analytic levels to suggest new ways to combine variables, and thus to learn whether this avenue will improve scientific understanding of human adjustment. There may be many ways in which these two analytically distinct levels are related to one another. This study attempts in particular to clarify the ways in which variables from both levels combine and interact to account for an explanation of human adjustment.

5. Analytical Models for Adjustment

There are several analytical models which suggest ways to combine variables in the study of human adjustment. Two important examples of these are the additive and the interaction models.

Gasson et al. summarized these two models as follows (1972:5-11):

Additive model: What form of function will best explain how attitudinal and facilitating variables determine behavioral outcomes? Multiple linear regression analysis, on which path models are based, assumes an additive combination. . . The additive model does not allow for interaction in the statistical sense between the attitude and facilitator prior to the act but treats each as making an independent contribution to the predicted behavior.

Interaction model: A linear model handling multiplicative interaction. An adequate model of behavior must take into account the intervening forces which alter the contingencies in action

among persons with given attitudes. The relevant behavior should be treated as the outcome of the interaction of the sociological and psychological variables. "Combined effects of personality and structural variables may produce effects far more massive than might be suggested by a simple additive approach to the two 'independent' variables." (Inkeles, 1959:263-264). In the interaction model, one variable modifies the relationship between the others and the dependent behavior, this relationship being specific to each category of the first. A low value of one variable depresses the relationship while a high value enhances the effect of the other. . . . The additive model suggested that a high level on one variable could compensate for a low value on the other. Here, instead, a low value on one detracts from the effect of the other. . . . A limitation of the linear interaction model is the assumption that when one variable is controlled, equal increments of the other will elicit a constant response in the dependent variable.

CHAPTER II

STATEMENT OF THE PROBLEM

1. Studying Abroad--Students as Culture Carriers

No one ever doubted that visitors in foreign lands are the agents of cultural contact and transmission. We can easily imagine a world of completely isolated nations where no one has any image of any other, i.e., every nation is culturally self-sufficient as if it were a world in and by itself. In our world, however, images of other countries do exist. How do they come about? How do people in one nation acquire any idea about the other nation? We can think of five general answers to this question.

First, there is an informal image of people of foreign countries called "stereotype," which might be true, or untrue. A stereotype is usually a set of exaggerated and simplistic generalizations not based on any scientific evidence about a group of people.

Second, there is usually some scattered information about other nations in the general cultural knowledge acquired through the formal education. The images derived from the information, however, are usually out of date, since they are incorporated in fixed curricula that are highly resistant to efforts to modify them in order to bring them up to date.

Third, there are mass media of communication with their constant input of news items, broadcasts, books, newspapers, films, etc. This input is certainly significant in acquiring information of other nations; nevertheless, it does not allow any form of human interaction, i.e., there is no way of asking for more information and to add it in order to complete the image.

Fourth, images are transmitted in the form of goods and things. International trade provides a constant flow of goods in most directions in the world. With the goods, images of one nation are likely to be developed among the people of different countries by means of international trade. This, however, does not include any form of direct cultural exchange between people of different countries.

Fifth, there is the form of direct transfer of national culture from one country to another in the form of persons, whether they represent their own nation abroad, are in a host nation seeking some value, knowledge, skill, or trade, or have come as members of international organizations. These persons are seen as live models of the culture they come from, and they permit human interaction and exchange. Students experiencing cross-cultural education belong here. As recipients and interpreters of a host culture, such students can contribute to international understanding in two ways.

One way is that they will bring back to their countries the knowledge, skills and techniques which they have acquired and which they can contribute to their own

society by letting their country make use of them. With these they will also bring some new attitudes and values which they have absorbed as a result of their experience. It is certainly true that a period of studying abroad brings some change to most students.

On the other hand, students with the experience of cross-cultural education should be able to communicate to their fellow-citizens understanding and appreciation of other aspects of the foreign culture which they have not adopted, judging them unsuitable to import either because they would not fit their situation or because they consider that the ways of their own people are better.

Breitenbach (1970:83) summarized succinctly the definition of the functions of studying abroad as follows:

Study abroad is a cross-cultural learning process, which includes both institutionalized formal education (technical learning) and all the informal learning processes which lead to changes in the culturally determined variables of personality (cultural learning). The success of this learning process cannot only be measured by the aims which are achieved during the stay abroad; it is determined above all by the use which the student makes after his return home of the experiences he gathered abroad. Another distinction must be made here between the utilization of academic knowledge and technical know-how, and the role of the returnee student as an agent of social change.

2. Research in the Field of Cross-Cultural Education

Study abroad and cross-cultural education have a long history. Study abroad is one of the most important media in the history of mankind for the spread of new knowledge and ideas and the rapprochement of the various cultures. It may be right to say that cross-cultural

education can be regarded as one of the decisive historical conditions for the development of modern learning and culture and one of the most significant factors in the future development of mankind.

In contrast to the significance of cross-cultural education, it is amazing that it took so long for scholars to start taking an interest and to initiate researches in the field of cross-cultural education. Up until 1950 practically no research in social sciences dealing with the problems of study abroad had been conducted. During the 1950's numerous reports in this area abruptly emerged, as the rapid expansion of international exchanges of persons, particularly by the United States, gave rise to a mass of administrative and personnel problems which required an intensive analysis and evaluation of the exchange programs.

The major contributions to the research in this area are included in a series of investigations sponsored by the Social Science Research Council of the United States, or stimulated by initiative taken by the Council. The Committee on Cross-Cultural Education founded by the Social Science Research Council in 1952, and headed first by Wendell C. Bennett and then, after his death, by Ralph L. Beals, has had great influence on developments in social science research into the international exchange of persons. Between 1952 and 1963 the committee received support from the Carnegie Corporation, the Ford Foundation, and the Rockefeller Foundation enabling it to sponsor numerous studies of the problems of cross-cultural education. In

several cases the publications in this series have concerned themselves not only with the sojourn in the United States, but also with a follow-up of the careers and experiences of these students after they returned home. Examples of such studies are those by Lambert and Bressler (1956) on Indian students in America; by Scott (1956) on Swedish returnees; by Beals and Humphrey (1957) on Mexican returnees; by Bennett, Passin, and McKnight (1958) on Japanese returnees; by Coelho (1958) on Indian students in the United States, by Morris (1960) on problems of national status in foreign students' adjustment; by Sewell and Davidsen (1961) on Scandinavian students in the United States, and by Selltitz, Christ, Havel, and Cook (1963) on attitudes and social relations of foreign students in the United States. All of these studies deal with the process of informal cultural or attitudinal learning and the resulting alterations in culturally determined variables of personality. Mention should also be made in this context of the issue of the Annals of the American Academy of Political and Social Science for September 1954, and to the Journal of Social Issues for 1956, No. 1, 1962, No. 1, and 1963, No. 3. In addition, the proposals for research and action by Kelman (1962) and Jacobson (1963) were found particularly useful.

The methods used in these studies consist principally of scales, intensive interviews, psychological tests, participant observation, and the analysis of life histories. The reliability of many of these studies is open to criticism on methodological grounds and because the researchers sometimes

made unjustified generalizations. Viewed as a whole, however, these studies have established some extraordinarily important bases for an understanding of cross-cultural learning processes, and would seem to justify the luxury of further basic studies of this type, as was discussed in Klineberg's article (1970). It would be a serious misfortune if the bases established here for more intensive research into the basic processes of cross-cultural learning could not be developed further.

Kurt Lewin, known as a father of field theory, once said, 'There is nothing so practical as a good theory.' In the field of cross-cultural education studies, we can find many theoretical points but hardly a clear theoretical framework. It has been strongly suggested that the need to conceptualize the field is now more urgent than attempts to contribute short answers to particular questions. To resolve this need is not by any means an easy task. Study of changes in the individual require the approach of psychology, psychiatry, and social psychology; changes in ideas involve the areas of communication theory, economics, education; changes in institutions include sociology and political science. It is indeed difficult to conceptualize in an interdisciplinary way at this level of complexity. However, it is strongly needed and also worth trying.

3. The Course of the Experience--States of Adjustment and Readjustment

Any individual carrying the elements of his native culture with him cannot avoid culture shock when he is suddenly transplanted to another cultural setting. Characteristics of "culture shock" was discussed in an article by Oberg (1954). Culture shock is a severe psychological and social maladjustment situation which individuals experience when they visit or live in a society different from their own. Culture shock involves bewilderment due to new customs, unknown expectations, a feeling of being conspicuous, foreign and different, and a foreign language that makes communication difficult.

DuBois described the stages of adjustment of foreign students in the United States as follows (1956:66): "If you live in a country three months, you love it; if you live in it for a year, you hate it; if you live in it two years, you are used to it." Coelho (1958:xiii) adds that after about three years, individuals become sufficiently detached to be able to criticize their own culture and to understand their hosts' culture clearly, but their values are not shaken. These students seemed primarily to exhibit objectivity, not conversion.

This trend of adjustment of sojourners in the United States has been reported in various studies of this issue. One of the most dramatic and striking research findings is that the experiences of the students frequently follow a pattern which has been characterized as a U-curve. This developmental trend of adjustment of U-curve was reported

by several studies (Lysgaard:1955, DuBois:1956, Morris:1960).

Various reports on the issue of U-shape curve raise a number of important research problems. To the extent that it is an accurate representation of what occurs, it seems clear that any evaluation of the success of the sojourn in improving attitudes to the host country will in part be determined by the particular point in the curve at which the attitudes are measured.

4. Problems of Japanese Sojourners

When a Japanese scholar is a sojourner in the United States, what kind of adjustment problem will he encounter? Japanese culture and American culture are quite apart each other. When a Japanese sojourner, carrying all the elements of Japanese culture with him, is suddenly transplanted to America, he cannot be free/the problem of culture shock./from

In order to overcome culture shock, it is necessary to learn the nature of the culture which one is in, and its relationship to the individual. An individual is not born with culture, but only with the capacity to learn and use it. Overcoming culture shock is somewhat similar to the child socialization process, where each child has to learn the way of life. Culture is a historical product, and one has to learn it so that he can adjust to the social environment and to the people with whom he interacts. It is true that understanding the ways of a people is essential for the adjustment to a foreign culture. However, this does not mean that a sojourner has to give up his own culture.

He can be a bi-cultural person developing two patterns of behavior. A Japanese sojourner in America with a bi-cultural mind will be able to see attractive and unattractive aspects of both Japanese and American cultures, and then will be able to use his own views which he establishes after being exposed to those two contrasting cultures.

Japanese students in the United States may be so overwhelmed by "culture shock" and "national defensiveness" that the influence of other factors on the outcomes of their sojourn may be obscured. The individual who moves from one culture to another brings with him a set of more or less well-established skills, characteristics, expectations, aspirations, habits, norms, and values. Culture shock arises from the anxiety that results from losing all the familiar signs and symbols of social intercourse. It may be expected that the nature of one's original cultural background will have an important effect on the pattern of his adjustment to a new cultural environment, and also to his readjustment to his original society upon his return.

5. The Patterns of Japanese Social and Cultural Norms

The problem of adjustment to a different culture differs according to the age of a person's initial exposure to the foreign culture. The younger the person is, the easier it is for him in general to adjust and to understand the foreign culture. As one gains age, his mental flexibility decreases, which makes it quite difficult to adjust to a foreign culture and to cope with culture shock. The Japanese

sojourners who intend to pursue graduate studies in America are adults with already formed personalities and value orientations, and it may not be easy for them to adjust to the American social patterns.

As was mentioned at the beginning of this chapter, visitors in foreign lands have always been agents of cultural contact and transmission. However, their interpretation of new cultural surroundings is primarily based on their own cultural and psychological backgrounds. These factors have a great influence on the foreign student, and must be taken into consideration in understanding their behavior.

Problems in adjustment that Japanese sojourners encounter are unique, and these may be personal, social, and academic. They cannot be fully understood without consideration of the characteristic features of Japanese social and cultural norms. These characteristic factors will cause what is called the "typical" behavior of shy, embarrassed Japanese sojourners in America.

What are some characteristic features of Japanese culture which will have great impact on the adjustment problems of Japanese sojourners? The study of Japanese social norms by Benedict (1946) revealed the following general features: explicitness and rigidity of the norms; strong tendencies toward a face-to-face, or "primary group" type of intimacy; an emphasis upon hierarchical status positions; concern for the importance of status; relative permanence of status once established; and "behavioral reserve" or discipline. Benedict assumed that Japanese

behavior cannot be understood in terms of Western cultural patterning. It is necessary to try to understand Japanese habits of thought and emotion in their own terms and with respect to the "patterns" into which these habits fall. Only after the patterns of Japanese culture and social norms are known is it possible to predict the typical action and reaction of Japanese under specific circumstances.

From various writings on recent Japan the following Japanese characteristics are extracted by Norbeck and DeVos (1972:25), most of which were discussed in Benedict's work (1946):

1. A sense of the group or communality as being of central importance.
2. A strong sense of obligation and gratitude.
3. A sense of sympathy and compassion (ninjō) for others.
4. A strong sense of "we" versus "they."
5. An underlying emotionality and excitability which is controlled by a somewhat compulsive attention to details, plans, and rules.
6. A willingness to work hard, and to persevere toward long-range goals.
7. Devotion to parents, and an especially strong and long-enduring tie to the mother persisting in almost its childhood form.
8. An emphasis on self-effacement and a tendency to avoid taking responsibility for the actions of oneself or others.
9. A tendency toward understatement and an emphasis on nonverbal communication.
10. A great pleasure in the simple things of life, such as being in beautiful surroundings, playing with children, bathing, drinking, eating, and sex.

In the former study of Japanese sojourners, Bennett et al. (1958:227) discussed the similarities and the differences of the patterns of interpersonal relations in contemporary Japanese and American societies even a generation ago:

We recognize that as representatives of the class of modern industrial nations, these two countries have cultures very similar in many respects. The Japanese are, in fact, often called the "Americans of the Orient," a phrase referring to their industrious orientation toward life and nature; their interest in mass-cultural pursuits like baseball; and their success with capitalist enterprise in a collectivist world. Similarities in all these areas are a fact--but it is equally apparent that some significant differences have existed in other aspects of social life in the two countries. Among these differences the norms and patterns of interpersonal behavior are probably the greatest. Thus, while a Japanese and an American may share an interest in baseball which brings them closer together than either one might be to a member of some other nation, the two may differ so widely in their habits of behavior in social situations that communication between them may be seriously impeded.

Today, Japanese are open to ideas--they see the world in a less parochial fashion and are up on the latest ideological perspectives.

It may be right to say that there exists four distinctive features of Japanese social and cultural norms which will become causal factors for the adjustment of Japanese sojourners in America. These four factors are:

1. the Japanese vertical social structure with its concern for status;
2. the Japanese pattern of interpersonal communication;
3. the Japanese language;
- and 4. the Japanese educational system.

These will be discussed briefly in order.

The Japanese Vertical Social Structure with its Concern for Status:

In describing both Japanese and American cultures in a word, it may be appropriate to say the "traditional Japanese culture" and the "egalitarian American culture." The traditional Japanese culture does not mean the old

fashioned, but on the contrary it means the contemporary and modern culture with a long history behind it, since any culture is a product of generations. Its emphasis is placed on the vertical and hierarchical relationships obtaining among interacting individuals even within the same social class. The egalitarian American culture, however, connotes the equal horizontal relationship among interacting individuals. Within American society, cultures differ according to the class; however, each class possesses more or less distinctive life style and culture, and people tend to maintain the egalitarian horizontal relationships within the same class.

Nakane (1967, 1970, 1972) highlighted the "vertical principle" in the Japanese society in her structural analysis. Nakane called the unique structure of Japanese society "vertical society." (1970:x):

. . . the most characteristic feature of Japanese social organization arises from the single bond in social relationships: an individual or a group has always one single distinctive relation to the other. The working of this kind of relationship meets the unique structure of Japanese society as a whole, which contrasts to that of caste or class societies.

The vertical social structure of Japanese society has a long history of influence on the development of the Japanese people, and it has become one of the most distinctive characteristics of Japanese culture. The core of the vertical structural principle is found in the basic social relationship between two individuals of a hierarchically organized primary group where there exists explicit gradation of status and ranking relationship from superior to inferior.

This superior-inferior relationship represents the characteristic feature of social structure in the formation of various institutions in Japan, such as business firms, government bureaus, families and kinship relationships, universities and schools, political parties, and so forth.

The hierarchically organized vertical relationships between members of a group leads to unequal and different relationships among individuals. This unequal relationship creates a ranking system among interacting individuals, and they in turn become aware of the social status differences. It is essential that every Japanese be aware of his own status in the interaction situation, since it is in status that each Japanese finds the cues for reciprocal behavior. Bennett et al. (1958:229-230) expressed this phenomenon of the concern for status which exists in the interaction situation among Japanese individuals in sociological terms in the light of the close relationship between status and role:

. . . there exists a very close tie between status and role: the role behavior expected of one in a given status position is clearly defined and there are relatively few permitted alternatives of variations from the pattern (when alternatives are present, they, too, are often very clearly defined). Thus the behavior of a person of a given status in a social relationship can constitute familiar and unmistakable cues for the appropriate behavior of a person of another status.

Once the superior-inferior status relationship is established, individuals participating in this relationship hold these statuses for a long period and in many situations. The status relationship entails life-time commitment.

The Japanese Pattern of Interpersonal Communication:

Two characteristic features of the pattern of interpersonal communication among the Japanese people may be pointed out. The first is the national characteristic of not expressing feelings explicitly. Japan is a homogeneous country composed of a single ethnic group sharing the same language and the culture. Because of the geographical isolation from the other nations, Japanese historically did not have frequent interaction with peoples of other nations. The Japanese developed a tendency to form a close and stable interpersonal relationship within their own groups. It would be understandable that Japanese who had grown up in the culture of an isolated island country did not encounter any particular difficulties in communicating with each other without expressing explicitly their feelings. The Japanese developed a tact to understand others and to communicate their feelings to one another without explicitly saying anything. Japanese people can read the atmosphere and possess the characteristic of immediate communication from mind to mind. This distinctive pattern of Japanese interpersonal communication characterized by the "mind-to-mind" consensus communication makes it more difficult and serious problem for Japanese to communicate with different peoples who do not share this characteristic.

The other characteristic feature of the interpersonal communication of the Japanese people is their behavioral reserve and discipline. A strictly codified system of interpersonal relationships based on the vertical and

hierarchical social structure as well as on the concern for status has resulted in behavior governed by norms, in conformity to the social structure and public expectations. This is a clear contrast to behavioral patterns of Americans, i.e., free expression and idiosyncratic response to a given situation. However, when Japanese are in a situation where proper behavior is not clearly indicated because of the complications and ambiguity of the situation and the status relationships, they have to exhibit their defense mechanisms in order to maintain their proper favorable self-images and to avoid embarrassment and criticism from others. The Japanese have developed a response of enryo (may be translated as "hesitance" or "reserve") for the purpose of adjustive behavior in the situation. Bennett et al. (1958:231) discussed the characteristic concept of enryo of the Japanese people as follows:

The original meaning of enryo pertained to the behavior of the subordinate in hierarchical status relations. The subordinate was expected to show compliant obsequiousness toward the superior; he should hold his temper, check any aggressive response to frustration . . . This pattern of behavior may be manifested by Japanese when they interact with persons of their own or any society whom they regard as superior in status. Whenever the presumption is that a superior person occupies the "alter" status, enryo is likely to be observed by "ego."

The behavioral reserve characterized by enryo became a defense mechanism for Japanese when a certain interpersonal relationship lacked the clear recognition of status relationship of ego and alter.

When Japanese are sojourners in America they

demonstrate the same defense mechanism of the behavioral reserve of enryo to cope with ambiguous and uncertain situations. This enryo behavior of Japanese students on the American campuses signifies what is called "typical" behavior of the shy, embarrassed Japanese sojourners. The characteristic enryo behavior of the Japanese sojourners was discussed in a prior study of this area (Bennett et al., 1958:231):

. . . when the Japanese is overseas . . . his behavior is frequently characterized by enryo-- often concealing confusion and embarrassment over his ignorance of the social rules of the foreign society. Thus the "shyness" or reserved behavior often found in Japanese on the American campus can be due either to the fact that the Japanese views Americans, or certain Americans, as superior people; or to the fact that he is simply not sure how to behave in American social situations, regardless of status. The rule goes, when status is unclear, it is safest to retreat into enryo.

The Japanese Language:

Three characteristics of the Japanese language which differs drastically from the English cause difficulty in Japanese students in America. These three characteristics of the Japanese language are: 1. the use of honorific form, 2. the nature of the syntax, and 3. the nature of the writing system. Any language can be interpreted as a verbal reflection of that specific culture where that language is used. Language has a significant role in its inseparable relationship to personality, social structure, and culture. Therefore, the Japanese language reflects verbally some non-verbal aspects of Japanese social and cultural norms.

Of these three characteristics of the Japanese language,

the use of the honorific form has a close relationship to the Japanese vertical social structure with the concern for the status relationship. The Japanese language has various forms to express the degree of politeness, levels of formality and respect, and superior and inferior relationship. This aspect of the Japanese language characterizes the status differences of the Japanese individuals communicating with each other with the use of honorific suffixes, special verb endings, differing pronouns, and so forth. The proper usage of these forms is based on the relative status of the individuals and on the particular situation in which the communication in the form of conversation or interaction takes place. In English, there is nothing like this, and interacting individuals communicate properly using similar grammar in all their speech. This concern for the status with regard to the usage of the proper form of the language makes it difficult for Japanese to interact and communicate freely and to express openly their feelings on American campuses.

Another characteristic aspect of Japanese language which differs significantly from English is the point of syntax. Basic sentence structure of the Japanese language is S + O + V, where S is a subject, O is an object, and V is a verb similar to the/sentence structure of German,/general whereas the basic syntax of English is S + V + O (or C, meaning complement). (The Chinese language falls into the latter form of syntax.) Language and thought patterns interact on each other. Therefore, the differences in syntax in languages

create differences in ways of thinking. Ultimately, the syntactical difference in a language has an impact on the personalities of its users.

It is commonly said that among Asian nations, peoples from Japan and Korea have the most difficulty in acquiring the English language. Chinese, however, are well-equipped to acquire a foreign language.

Benedict pointed out the difference between Japanese and Chinese students in their adjustment to American life (Benedict, 1946:225). The Chinese students had "self-composure" and "sociableness" quite absent in most Japanese students. The fearlessness and superb self-composure of the Chinese students made a great contrast to the timidity and oversensitivity of the Japanese students. Why does this difference between Japanese and Chinese students exist? This difference may be attributed to some extent to the nature of syntactical differences between the Japanese and Chinese languages, which ultimately affect the thinking of their users. Because of similarities in language structure the Chinese students understand and are understood fairly easily in the American social atmosphere. The language and cultural differences of the Japanese from those of Americans would enforce a reserved behavior, and minimized opportunities for social interaction of Japanese sojourners with Americans.

The third major characteristic difference between the Japanese and English languages is the fact that they differ dramatically in their writing systems. The Japanese writing system had been influenced to a great extent by

the Chinese language. The Chinese language had enormous influence on the Japanese language in terms of loan words and phrases, and phonology in historic times.

There are two distinctively different groups of societies with respect to their writing systems: one with an alphabet, the other with character. Japan falls into the latter group. The problem inherent in the Japanese writing system is very complex because of the usages of character borrowed from Chinese characters, coupled with the use of a kana syllabary which must be learned in two styles. Chinese characters were originally created in China about 5,000 years ago, and the total number of them amounts to some 50,000. The actual number of Chinese characters now in use is about 5,000. Chinese characters were imported to Japan about 1,700 years ago via Korea. In present day Japan, the Japanese Ministry of Education established a law requiring students to learn the basic 1,850 characters considered most essential for common use and everyday communication. The ability to read Japanese newspapers and magazines, however, requires the knowledge of no fewer than 4,000 characters. A student usually takes about three years to study the Japanese writing system with its heavy legacy of Chinese characters together with two styles of kana syllabaries.

The drastic difference in the writing systems of the Japanese and English languages creates a serious problem of academic adjustment for Japanese sojourners. Graduate studies in American education usually entail voluminous

readings of professional materials in one's own area as well as paper writings. It usually takes a long time for most of the Japanese students to get used to the alphabet writing system after having grown up with the character writing system. During the sojourn experiences in America for a couple of years it is rare for most of the Japanese to completely overcome the difficulties in English reading and writing.

The Japanese Educational System:

Another source of adjustment problems for most of the Japanese sojourners in America is coping with the differences in Japanese and American educational systems. There exists two opposing ideologies concerning the schooling system: the one the aristocratic (traditional) system, the other the democratic (popular) system. The aristocratic educational system is mainly designed to maintain the upper-class, to teach the classics, and it is assumed that all those who are in the system possess uniformly high ability. On the other hand, in the democratic system, education in general is programmed for the education of the masses who come from different social classes with different degrees of academic ability. In the mass education system, the primary emphasis has to be placed on screening students and this results in the high competitive feelings among peer groups. The Japanese higher educational system still maintains its aristocratic nature. However, American higher education has the characteristics of the democratic system, and the change from one to the other implies problems

of academic adjustment and special efforts to adapt to the differences.

Most of the Japanese sojourners in American graduate schools are regarded as members of the elite in Japanese society. In Japan, education, particularly admission to a prestigious high ranking university through the success in its open and free competition via entrance examination, is a crucially important channel for elite status and for upward mobility. Admission to the highest rank university in Japan is regarded as a union card, and places an individual in a somewhat caste-like, closed, in-group system. Among the students of the highest rank universities, there may be individuals from various social backgrounds with parents ranging from doctors, professors, wealthy businessmen, to farmers, and lower working class people. However, once they have successfully passed the severe entrance examination of the prestigious university, they stand on a completely equal footing simply because they gained the privilege by their own ability. A graduate of the prestigious high ranking institution becomes a members of the social clique composed only of graduates of that institution. The rank of the university from which he graduated very much determines the range of an individual's activities, i.e., the accessibility to a level of status as well as the degree of success he may expect for the rest of his life. Therefore, a Japanese individual's opportunities for upward mobility are determined to a great extent by the time he enters a university for undergraduate studies. This fact accentuates the severe

competition of the entrance examination for the top prestigious universities in Japan. If one wants to be a member of the elite in Japanese society, one has to have a college degree from a prestigious higher educational institution, and in order to pass the severe entrance examinations one has to endure a torture of "examination hell." For success in entering a prestigious university, preparation for the entrance examination during high school days is crucial, thus access to a prestigious high school, and even down to the work in primary school is all important. Schooling in Japan, therefore, involves more intensely severe competition than in other countries. Sometimes those who fail the entrance examinations commit suicide. This phenomenon explains to a great extent the remarkably high suicide rate among the Japanese youth as compared to the youth in any of the other nations.

This somewhat ridiculous game of taking examinations for the entrance to schools begins even as early as kindergarten age. Education-minded Japanese mothers are desperate for the education of their children in order to place them in a better situation for the entrance to elite status in the future. Once one is successful in the "hell" of the severe examinations for the university, he is guaranteed the passport to elite status in the real society. He does not need to worry about examinations and grades so much during his college education, and in many situations he can enjoy the high quality aristocratic education. The most difficult aspect of the Japanese higher

educational system is to "get in" as opposed to "get out" in that of the American system.

Therefore, it is quite evident that Japanese in American graduate schools will encounter problems of academic adjustment to the American democratic educational system and contest mobility in education. For those who have been used to the aristocratic and sponsored educational system of Japanese higher education, these problems are not easy to overcome.

For most of the Japanese students in America, a significant fact is that they have been selected by the Japanese government or by business corporations rather than for their degree of academic achievement in American institutions. The additional professional training, knowledge and the experiences in American higher educational institutions give an individual a great advantage and much prestige, but it is much more important for him to be well set on the royal road of the Japanese hierarchical vertical social structure.

6. The Japanese Students and Intercultural Experience

The Japanese studying in America will be considered here as a problem for the study of "intercultural experience," which can be defined as a process of movement by an educated person across the boundaries of national cultures, with some degree of awareness on his part of what this movement may imply for him as a person and as an actor in the social scene.

Balancing membership and loyalties is a task imposed on him by the fact he has two homes--Japan, to which he is committed to return, and the American setting in which he finds himself. He lives at once in two situations--the world of "back home" which he inescapably carries with him, and that of "here and now." How he balances these simultaneous memberships is a matter of considerable moment, especially when they impose upon him conflicting prescriptions about how he ought to act. This problem of balancing between two conflicting situations is directly related both to his learning while here, and, more important, to what he does with this learning upon his return.

Brewster Smith has remarked (1969:263):

Contrasting or conflicting values are the most important and the least tractable task for foreign students in America. Each culture is organized around widely shared assumptions, fundamental preferences, and standards of judgment. On the other hand, each person's values serve as a filter or lens, out of the much richer range of possibilities with which life confronts him.

There may well be some characteristic national differences in the way foreign students react in the process of adjustment during their stay in America. Japanese seem especially prone to withdraw themselves from potentially corrective processes of communication that would entail swallowing their resentment. The tendency may perhaps be a consequence of their cultural background and the traditional Japanese way of life which involves the etiquette of a hierarchical society organized around delicately balanced obligations.

Sometime during the first weeks or months of their sojourn most Japanese students begin to struggle seriously with the tasks of cross-cultural adjustment. If their sojourn is long enough, they eventually work out some sort of a stable "modus vivendi" in American culture. As the time of return looms near, a final phase may be distinguished in which preoccupation with problems of readjustment is likely to come to the fore.

Even though her analysis was carried out some years ago, Benedict's description of the struggle of Japanese students to adjust to American society still adequately portrays the essence of the experience (Benedict, 1946:225):

Individual Japanese who come to the United States for study . . . have often felt deeply the "failure" of their careful education when they tried to live in a less rigidly charted world. Their virtues, they felt, did not export well. The point they try to make is not the universal one that it is hard for any man to change cultures. They try to say something more and they sometimes contrast the difficulties of their own adjustment to American life with the lesser difficulties of Chinese or Siamese they have known. The specific Japanese problem, as they see it, is that they have been brought up to trust in a security which depends on others' recognition of the nuances of their observance of a code. When foreigners observe of all these properties, the Japanese are at a loss. They cast about to find similar meticulous properties according to which Westerners live and when they do not find them, some speak of the anger they feel and some of how frightened they are.

Benedict further described this situation through the eyes of a Japanese student (1946:225-227):

My pride in perfect mannerdness, a universal characteristic of the Japanese, was bitterly wounded. I was angry at myself for not knowing how to behave properly here and also at the surroundings which seemed to mock at my

past training. Except for this vague but deep-rooted feeling of anger there was no emotion left in me. I felt myself a being fallen from some other planet with senses and feelings that have no use in this other world. My Japanese training, requiring every physical movement to be elegant and every word uttered to be according to etiquette, made me extremely sensitive and self-conscious in this environment, where I was completely blind, socially speaking. It was two or three years before I realized and began to accept the kindness offered me. Americans, I decided, live with what I call "refined familiarity." But "familiarity" had been killed in me as sauciness when I was three.

Benedict pointed out the difference of acculturation between the Chinese and Japanese students. The Chinese had "self composure" and "sociableness" quite absent in most Japanese. Their fearlessness and superb self-composure made a great contrast with the timidity and oversensitivity of the Japanese students, showing some fundamental difference in social background. The expertise of the Japanese just did not count. They felt that what they had learned did not carry over into the new environment. The discipline to which they had submitted was useless. Americans got along without it. Why the difference between Japanese and Chinese students? Clearly this relates to the comparison of languages, social structures, political and religious beliefs, and cannot be answered succinctly. /personality

It is evident by this time that intercultural experience may be seen as a process of discovery of inconsistency in one's own behavior, or as a continual revelation of unexpected contrasts and incongruences between behavior and environment.

Benedict sums up this process of discovering inconsistency in Japanese students' behavior in referring to it as the dilemma of virtue (1946:227):

Once Japanese have accepted to however small a degree, the less codified rules that govern behavior in the United States, they find it difficult to imagine their being able to manage again the restrictions of their old life in Japan. Sometimes they refer to it as a lost paradise, sometimes as a "harness," sometimes as a "prison," sometimes as a "little pot" that holds a dwarfed tree. As long as the roots of the miniature pine were kept to the confines of the flower pot, the result was a work of art that graced a charming garden. But once planted out in open soil, the dwarfed pine could never be put back again. They feel that they themselves are no longer possible ornaments in that Japanese garden. They could not again meet the requirements. They have experienced in its most acute form the Japanese dilemma of virtue.

7. Research Application

This study attempts to clarify the theoretical controversy on the issue of the causal explanation of the individuals' adjustment, i.e., whether personality causation or social structural causation has more impact on ones' adjustment in the situation; or what kind of interaction effects on adjustment exist between personality variables and social structural variables.

Examining evidence which bears on the social and psychological adjustment of the Japanese sojourners in the United States and on their return to Japan will give us an opportunity to work on the following problem: For the adjustment of Japanese students in America, and subsequently in Japan, which factors have more effect, intra-individual characteristics of the students, or the social structure

of the situation in which students are located; and what kind of combination of variables between these different levels results in the interaction effects which have impact on students' adjustment?

The term "intra-individual" is roughly synonymous with "individual," "psychological," and "personal" but more general than each of these rough synonyms. In this study, it was decided to use the term "intra-individual characteristics" to represent the personality and other relatively enduring characteristics of the students who were studied.

In this research, it is intended to obtain information about the psychological, academic, and social behavior of Japanese students in the United States; to learn about their attitudes and experiences during their stay in the United States; to find out how a different social structure affects students' personality traits; to examine the relationship of the students' background to these attitudes and experiences during their sojourn; and their readjustment to Japanese culture upon their return to their original society. And then, it is hoped that the information obtained from this research will enable us to derive some conclusions about the theoretical issue we have stipulated in this study, i.e., the issue of the causal explanation of the individual's behavior in the situation.

CHAPTER III

RESEARCH DESIGN: METHODS AND PROCEDURES

This study utilized a longitudinal design with questionnaires administered in Japanese to a sample of Japanese male graduate students on four occasions: shortly before their departure for the United States while they were still in Japan (summer 1972), early in their transition experience in the United States (December 1972), after one academic year in America (May 1973), and after their return to Japan (January and December 1974).

1. Sample

It was decided to select only male Japanese graduate students who had obtained undergraduate degrees in Japan for two reasons. First, there are not enough female Japanese students who intend to pursue graduate studies in the United States. Secondly, Japanese sojourners who plan to enroll in graduate programs in the United States are mature enough in general to possess their own value orientations, and are expected to have already formed their adult personalities and attitudes on which we can base the analysis of change.

One hundred and four (104) male students answered the first questionnaire administered in Japanese in Japan during the summer (June-August) 1972 immediately before

Table 1. Frequency and Percentage Distributions of Sample at T1

Sample	Questionnaire Sent	Questionnaire Returned	% Return
U.S. Government Support Fulbright Exchange Program	24	16	66.67%
Japanese Government Support: National Personnel Authority	18	8	44.44
Japanese Government Support: Science & Technology Agency	21	20	95.24
Japanese Corporation Support		15	} 60 32.97
U.S. University/College Financial Aids	182	16	
Self/Family Support		29	
Total	N=245	n=104	42.45%

their departure for the United States. Subjects were divided into six (6) different groups according to their type of original financial support for studies in America, since it was assumed that there might be some significant differences across these groups. The breakdown of each sample is shown in Table 1. The Table 1 tells that the reason for the total percentage return rate of 42.45% was mainly caused by the relatively low return rate of the second group (44.44%) and the fourth group (32.97%). Questionnaires to these groups were sent only several days before their departure for America. I arrived in Japan on June 8, 1972, and most of the subjects in the second group left Japan on June 15, 1972. As for the subjects in the fourth group, their names were available through the U.S. Embassy in Tokyo only after they obtained the visa to the United States one week before their departure. The questionnaire return rate of the third group was almost perfect (95.24%), and also the subjects in the first group who returned the questionnaire (66.67%) would well represent that group.

Since this is a longitudinal study, one of the most important tasks in the research is to follow-up the initial sample as much as possible to the final stage, but is not mainly concerned about the rate of the initial questionnaire return at T1.

The composition of these groups are as follows:

Group 1: U.S. Government Support - Fulbright Exchange

Program (16 Ss): The competition is open to all Japanese persons under the age of 32 for graduate study in the fields of social sciences and humanities who intend to specialize in the study of the United States in their own fields.

Selection is made primarily on the basis of academic performance and promise of future achievement. The screening process is highly competitive and a grantee has to demonstrate a good command of English besides high academic standards and professional experience in the fields. Every year about twenty students are selected as grantees by the U.S. Educational Commission. Grantees are predominantly male students with a few exceptions.

All the grantees are privileged to attend the orientation program held at several of the Fulbright Orientation Centers in the United States for 3-6 weeks in the summer.

The major purpose of the orientation program is to offer students opportunities to get acquainted with American higher educational system and campus life, to know American life-ways, and to improve conversational English.

Group 2: Japanese Government Support--National Personnel

Authority (8 Ss): Every year each Ministry of the Japanese Government selects several promising young officials from among its staff for higher education abroad. The locations

of the institutions they attend are not restricted to the United States. They can also study in those countries considered to be highly advanced in higher education such as England, France, and Germany, even though each country employs different educational systems. Only male officials receiving administrative staff training can apply. All the expenses for study and living are born by the Japanese Government. Grantees going to America attend summer schools of their choice in America in order to get used to American ways of life and to English conversation.

Group 3: Japanese Government Support--Science & Technology Agency (20 Ss):

The scholars who belong under this category are the research staff of science and technology of various Ministries of Japanese Government who are sent to various higher educational and research institutions in their respective areas for advanced training and research.

Again grantees are restricted to males. All the expenses for study and living are covered by the Japanese Government. Grantees do not usually attend any kind of orientation program in the United States before they begin their actual formal academic studies there.

Group 4: Japanese Corporation Support (15 Ss): These days many leading Japanese corporations send some of their promising employees to the United States for one to two years of graduate studies. Those selected by each corporation for study in America are viewed as likely to take initiative within the organization in the future. Being selected

as a grantee is generally considered one of the key qualifications for recruitment to the "power elite" of the organization. Grantees are exclusively males and most of them attend summer school in the United States with their company's support.

Group 5: U.S. University/College Financial Aids (16 Ss):

Students under this category receive financial aid for their study from the U.S. institutions they attend. They themselves have to pay for the traveling expenses from Japan to the U.S. institution. Most of them do not attend any kind of formal orientation program in the United States before the initiation of their academic studies.

Group 6: Self/Family Support (29 Ss):

This final group includes those who study in the U.S. higher educational institutions without the assistance of public financial support from institutions or organizations. They must, therefore, rely entirely on private funding. Most of them do not attend summer programs in the United States before the academic year in the fall.

2. Collection of the Data

The data collection was performed by administering questionnaires in Japanese on four occasions, i.e., T1, T2, T3, and T4.

T1 (Summer 1972 in Japan: 104 Ss):

It was desirable to administer the first questionnaires before the students' arrival in the United States in order to have a true baseline from which to measure change.

Crucial to both the theoretical and the practical aspects of cross-cultural education are the analysis of change over time, and the data on which such an analysis is to be based should be obtained at or near the time the experience occurs rather than reconstructed on the basis of recall. Thus, the first questionnaire was administered in Japanese in Japan during the summer 1972 while students were still in the home country of Japan, i.e., before they were exposed to a new culture. The entire Japanese version of the California Psychological Inventory (CPI), originally developed by Harrison Gough (1957) to assess the personality of normal persons, was administered along with the Japanese questionnaire schedule.

T2 (December 1972: 93 Ss):

The second questionnaire in Japanese was administered by mail in the United States in December 1972. The CPI was not included. The purpose of this early second administration of the questionnaire to the students was to try to discover whether the orientation program had short-range effects, and also to find out the state of students' adjustment in a different culture at an early stage of transition. I was especially interested at this time in comparing the early adjustment to their academic surroundings of students who attended orientation programs and those who did not. Lacking the random assignment of the students to the orientation program, which was beyond our control, this design can be called

as a quasi-experimental design with the experimental group of orientation students and the control group of non-orientation students. Out of 104 initial subjects, 93 students sent back the completed second questionnaire. It was discovered that six (6) students who did not respond to the second questionnaire had already returned to Japan by this time.

T3 (May 1973: 80 Ss):

The third questionnaire in Japanese was administered by mail to the 93 subjects who answered the second questionnaire, and 80 students responded. The questionnaire was administered close to the end of the first academic year in order to determine the degree to which students' attitude had changed, and to measure the degree of their adjustment after one academic year in the United States. In order to allow a reasonable period during which personal interaction might develop and change in attitude occur, the third questionnaire was administered as late as possible in the academic year. The CPI was not administered at this stage.

T4A (January 1974 in Japan: 26 Ss); and
T4B (January 1975 in Japan: 26 Ss):

The fourth questionnaire, which intends to assess the degree of students' readjustment in their home country of Japan, must be administered at some point after the students' return to Japan. In this study, it was decided to administer the fourth questionnaire several months after students' return to their own cultural surroundings

after their sojourn experiences and after they had settled down in Japan, in order to measure the degree of their readjustment and to find out the true effect of the sojourn experiences. The fourth questionnaire was administered in Japanese, and at this time, the Japanese version of the CPI was included as was done at T1, in order to measure the personality change. The problem of reactivity by respondents to the same CPI questionnaire schedule, i.e., the re-administration of the entire Japanese version of the CPI to the same sample, was disregarded for two reasons: first, the total number of items (480) is far too large for accurate recall, and secondly, the time interval (one or two years between administrations) safely permits us to disregard the question of reactivity. The problem of reactivity is thoroughly discussed in relation to the obtrusive measurements (Webb, et al, 1966). The questionnaire was administered in two groups: Group A were those who returned to Japan after one year of study in the United States. Thirty-seven (37) subjects were interviewed in Japan in January 1974. However, only 26 subjects completed questionnaires. Group B were those who stayed a second year in the United States. Sixteen (16) subjects out of 43 who studied in America for a full two academic years were continuing their studies in the United States beyond two academic years. Thus, the administration of the questionnaire in Japan in January 1975 was possible only for 27 subjects who returned to Japan after the summer 1974.

Twenty-six (26) subjects in this group complied to the request for the interview and completed the fourth questionnaire. Therefore, a total of 52 cases were available as the T4 active data.

3. Research Problem

As was discussed earlier in trying to untangle the nature of human behavior, the simultaneous study of personality and social structure have made it clear that the dynamics of human behaviors constantly involve the interlocking and interplay of multifaceted levels of analysis.

Among many possible areas of interest, our choice of study was determined by a theoretical concern in the relationship between factors of personality and social structure which influence the individual's attitudes and social relations in the situation.

We are interested in the question of whether personality causation or social structural causation has more impact on one's attitudes and social relations in a situation; or in what kind of unique combination of the both levels of variables leads to interaction effects on human behavior.

Examining evidence which bears on the social and psychological adjustment of the Japanese graduate students in the United States and on their return to Japan will give us an opportunity to work on the following problem: For the Japanese students' attitudes and social relations in the United States, and subsequently in Japan upon their

return, which factors have more effect, intra-individual characteristics of the students, or the social structure of the situation in which students are located; and what combination of variables between these different levels causes the interaction effects that have significant impact on students' attitudes and social relations?

4. Variables Used in the Study

In order to give a grasp of the scope of the present research, the number of variables included in the entire questionnaires are shown as follows:

T1 Questionnaire: 212 variables

T2 Questionnaire: 137 variables

T3 Questionnaire: 152 variables

T4 Questionnaire: 265 variables

Therefore, the total number of the variables asked about throughout the four time periods was 766. The actual number of variables used for the analysis in the present paper did not include all of these 766 variables. Variables actually used here for the statistical analyses will be discussed in the following sections.

5. Dependent Variables--Creating Indexes

As was discussed earlier in Chapter I, it was decided to use the term "adjustment" in the present study to represent the following four positive or negative outcomes of cross-cultural experiences of Japanese scholars while they are in America and on their subsequent return to Japan:

1. satisfaction--satisfaction with the situation; 2. favorability--

favorable feeling toward the social patterns; 3. difficulty--difficulty in functioning in the situation; and 4. interaction--level of social interaction in the situation. These four behavioral outcomes serve as dependent variables in the study.

Since this study involves two different situation, the one in America, the other in Japan, it is possible to measure two different dependent variables for each behavioral outcome. They are as follows: 1. satisfaction--a. satisfaction with one's situation in the U.S. vs. b. satisfaction with one's situation in Japan; 2. favorability--a. favorability toward America vs. b. favorability toward Japan; 3. difficulty--a. difficulty in the U.S. vs. b. difficulty in Japan; and 4. interaction--a. interaction with Americans vs. b. interaction with Japanese.

In order to examine properly the research problem in this study, operational measures had to be developed for each of the above mentioned concepts of behavioral outcomes. Indexes were created for the purpose of these operational measures. These measures are described below.

The following item analysis procedures were employed in creating indexes in this study. First of all, in order to measure each behavioral outcome of attitudinal and behavioral adjustments a number of Likert-type attitude items were constructed on the basis of plausible theoretical reasons, and all the items within the index were combined; then, the obtained score was divided by the number of items included in the index. This original index included all the items constructed for the index. As the second step in creating

an index, an item analysis to measure internal consistency was conducted. Item selection from the initial pool of items for each index was accomplished by computing a Pearson zero-order correlation between item responses and an initial index score calculated from the summed responses to all of the attitude items in the initial pool of statements. Any item which did not yield an item-to-index correlation that was equal to or greater than .20 was automatically deleted. The total index score was then recomputed on the basis of the remaining items, and a final item-to-index correlation was computed. The final Pearson correlation of the item-to-index showed reasonably large enough coefficients to warrant the inclusion of the final items in the index.

Satisfaction in the U.S. Index:

This index represents the degree of satisfaction of the respondent with his situation in the U.S. This question was asked twice in the research, at T3 and T4. Each statement has four degrees of satisfaction ranging from quite disappointing(1) to very satisfactory(4). The number of items in the initial pool of statements was fifteen. In this index, there were no items which yielded a Pearson correlation coefficient smaller than .20 at both T3 and T4. Therefore, the initial fifteen items were all included in the index. The mean of the index at T3 is 2.322, with a standard deviation of .560, and the mean of the index at T4 is 2.589, with a standard deviation of .592. The higher the index score on this measure, the greater the degree of satisfaction with the U.S. situation. Details of the index are shown in Table 20 in Appendix.

Satisfaction in Japan Index:

This index represents the degree of satisfaction of the respondent with his situation in Japan upon his return at T4. Each statement has five degrees of satisfaction ranging from terrible(1) to excellent(5). The number of items in the initial pool of statements was thirteen. One item which yielded correlation coefficient smaller than .20 was eliminated. Thus the final index contains twelve items. The mean of the index is 3.047, with a standard deviation of .628. The higher the index score on this measure, the greater the degree of satisfaction in the situation in Japan at T4 stage. Details of the index are shown in Table 21 in Appendix.

(Satisfaction" indexes are regarded as representing more or less the degree of the subjective feeling of satisfaction with one's situation, whereas "favorability" indexes represent one's attitudes toward certain objects or situations, and may be regarded as a specific expression of a value or belief.)

Favorability toward America Index(FTA); and
Favorability toward Japan Index(FTJ):

These two indexes will be discussed together here. The 30 items of the attitude questionnaire were adapted from a questionnaire used by the University of Wisconsin Psychiatric Institute in their study of Chinese students in the U.S.A. (Chu et al., 1971:213-4). The authors undertook a factor analysis of the questionnaire, which was comprised of 43 statements, revealing six factors for 30 statements. Of these six factors, three related to Chinese attitudes

and three to American attitudes. In this study, two similar indexes were used, one combining statements connecting with three factors which were considered to be related to American attitudes, and the other combining statements connecting with three factors which were considered to be related to Japanese attitudes. Each statement has six degrees of agreement ranging from completely disagree(1) to completely agree(6). Thus, the higher the score, the greater the degree of agreement. These statements were asked throughout the entire research period, i.e., at T1, T2, T3, and T4.

The favorability toward U.S. index initially pooled fourteen statements out of 30 attitude statements. Item analysis of these 14 statements across four time periods produced the final Likert-type attitudinal scale which contains seven items. The details of this favorability toward U.S. index are shown in Table 22 in Appendix.

The favorability toward Japan index initially contained the remaining sixteen statements out of 30 attitudinal statements. Then, a nine-item Likert scale was constructed to measure the favorability toward Japan. The details of this index are shown in Table 23 in Appendix.

Differential Favorability Index(DF):

Based on the favorability toward America index and favorability toward Japan index, two other indexes were created: the one differential favorability, the other total favorability index, the explanation of which will follow

after the former index.

The differential favorability index is the one which differentiates students' favorability attitude toward America and Japan. Computation formula used to create the index for each subject is as follows:

$$DF = \frac{FTA - \bar{X} \text{ of FTA}}{SD \text{ of FTA}} - \frac{FTJ - \bar{X} \text{ of FTJ}}{SD \text{ of FTJ}}$$

Therefore, the greater the score of this index, the greater the degree of favorability toward America, but the lower the degree of favorability toward Japan. Since the favorability toward America and toward Japan indexes were measured four times continuously throughout the study at T1, T2, T3, and T4, this differential favorability index could also be obtained four times.

Details of these indexes are shown in Table 24 in Appendix, with the intercorrelation matrix of the index between different times.

Total Favorability Index(TF):

The other index, based on the favorability toward America index and favorability toward Japan index, is the total favorability index. Computation formula for this index is:

$$TF = \frac{FTA - \bar{X} \text{ of FTA}}{SD \text{ of FTA}} + \frac{FTJ - \bar{X} \text{ of FTJ}}{SD \text{ of FTJ}}$$

The score of this index indicates that the greater the obtained score of the total favorability index, the greater the degree of favorability toward America and Japan combined.

The lower the index score is, the lower the degree of favorability toward both America and Japan, which means favorability toward some nation other than America and Japan. This index was obtained four times throughout the study.

Details of these indexes are shown in Table 25 in Appendix, with the intercorrelation matrix of the index between different times.

Difficulty in English Index at T2:

This difficulty in English index at T2 primarily contained items concerning the students' English speaking ability to communicate with American people. The degree of difficulty ranges from a great deal of difficulty(1) to no difficulty at all(4). The final Likert scale constructed contains four items. The mean of this index is 2.180, with a standard deviation of .630. The lower the score on this measure, the greater the degree of difficulty in English at T2. The details of this index are shown in Table 26 in Appendix. (When this index was used for the statistical analysis, the degree of difficulty was reversed so that it goes with the increasing order, as is consistent with the other two difficulty indexes which will be explained below.)

Difficulty in U.S. Index at T1, T3, and T4:

A twenty-statement question relating to the degree of the seriousness of the problem in America was asked at T1, T3, and T4. Obviously, difficulty in U.S. index at T1 should be called as the expected difficulty in U.S. index since questions were asked in Japan prior to students' departure

for America. The item analysis for the computed indexes at T1, T3, and T4 was conducted, and it revealed no item yield correlation coefficient smaller than .20. Therefore, all the twenty items were included for the construction of the index. Each statement has four degrees of difficulty which range from never been a problem(1) to has always been a great problem(4). The mean of the index at T1 is 1.805, with a standard deviation of .352, the mean score at T3 is 1.918, with a standard deviation of .497, and the mean of the index at T4 is 1.892, with a standard deviation of .468. The higher the index score on this measure, the greater the degree of difficulty in functioning in the situation in America. Details of these indexes are shown in Table 27 in Appendix.

Difficulty in Japan Index:

A ten-statement question asking if respondents encountered each problem upon their return to Japan was used for the difficulty in Japan index. Statements concerned problems with parents and family, and the degree of difficulty was represented either by yes(1) if one encountered such problems, or by no(0) if one did not have such problems. By conducting the item analysis, a seven-item index was constructed for the difficulty in Japan index. The mean of this index is .089, with a standard deviation of .147. The higher the index score on this measure, the greater the degree of difficulty in Japan at T4 stage. Details are shown in Table 28 in Appendix.

Interaction with Americans Index(IWA):

This interaction with American index was originally contained six items adopted from the questionnaire supplied by Claire Selltiz which she used in her cross-cultural education studies (Selltiz et al., 1963). Items include concerning frequencies of students' social activities with Americans ranging from never(1) to every day(6). These questions were asked three times at T1, T2, and T3. Obviously, at T1 students were still in Japan and the form of the question asked was "how frequently do you expect to do following things with Americans?" Therefore, for the interaction with Americans index at T1, it is appropriate to call it an expected interaction with Americans(EXPD IWA) index. These items were already well-tested in the original study by Selltiz et al.(1963), and it was discovered from the item analysis in the present study that intercorrelation between items were quite high. Therefore, there was no need to eliminate any item from these six original items in order to create an index for the interaction with Americans. The means of these indexes are 2.264, 2.834, 2.986 with standard deviations of .374, .991, 1.031, at T1, T2, T3 respectively. The higher the index score on this measure, the greater the degree of interaction with Americans. The details of these interaction with Americans indexes measured three times in the study are shown in Table 29 in Appendix.

Interaction with Americans can be interpreted as either a dependent or an independent variable. The degree of interpersonal contact may well affect one's attitudes

toward the person with whom he is interacting. However, I have decided to treat this interaction with Americans variable as a dependent variable, since the major objective of this thesis is try to discover the factors influencing Japanese scholars' psychological and sociological adjustment measured in terms of attitudes and social relations in America and Japan. The social relations can be measured by the frequency of contact with Americans. The frequency of Japanese sojourner's contact with Americans signifies the degree of his social relations in America. One aspect of the goals of cross-cultural education is the understanding of American cultural patterns. This objective of cross-cultural education cannot be achieved unless the Japanese sojourners have frequent social interactions with Americans. Therefore, I have used this interaction with Americans variable as a measure of social adjustment of Japanese scholars.

In addition, the index IWA was measured over time, i.e., at T1, T2, and T3, and this fact will allow us to observe the trend of changes over time of this behavioral outcome of the Japanese sojourners.

Interaction with Japanese Index:

Eleven items concerning the problems with friends in Japan were asked at T4 upon students' return to Japan, and students were asked to check either yes(1) or no(0) for each item depending upon their encountering with these problems or not. The item analysis of all these eleven items called for the elimination of five items, which yielded correlation coefficients smaller than .20,

from the original 11-item index. The final index of this interaction with Japanese at T4 contains six items. The mean of the index is .066, with a standard deviation of .132. The higher the index score on this measure, the greater the degree of problems with friends in Japan. Details of this index are shown in Table 30 in Appendix.

6. Independent Variables

Independent variables in this study fall into two categories: intra-individual characteristics and the social structure of the situation. The latter variables have to be divided into two, i.e., the one for the U.S. measuring social structural factors which could influence adjustment in the U.S., the other for Japan, measuring structural variables which could affect readjustment in Japan upon students' return to their original society.

Intra-Individual Characteristics Variables:

These variables represent personal characteristics which were already acquired before entering into a new situation. The following 28 variables were taken from T1 questionnaire to represent intra-individual characteristics:

Age; marital status; present occupation(student vs. employed); father's education; mother's education; prestige of Japanese university graduated; grade at undergraduate; studied at graduate school in Japan; highest academic degree obtained; experience in education in English; reading English ability; writing English ability; speaking English ability; experience in English interpreter; score of English standard test; living with parents at home; length of not living with parents; living away from home more than 3 months; emotional dependence; financial dependence; publication; previous foreign travel; orientation program in Japan; American friends; plan to obtain degree in America; expected length to obtain degree.

Other intra-individual characteristics variables of personality traits were measured in this study by the use of the California Psychological Inventory (CPI) schedule in Japanese. In the two decades since it was introduced, the CPI has become a major personality assessment instrument (Gough, 1957), one which many regard as the best of its kind now available to measure the personality of normal persons as opposed to the Minnesota Multiphasic Personality Inventory (MMPI) which is intended for clinical use. A Japanese edition of the entire CPI is currently available in Japan, and this study used the Japanese version of the CPI at T1 and T4. The CPI is a 480-item true-false inventory scaled from 18 "folk concepts," and these 18 scales are associated with one of four factors (or Classes). The four Classes and 18 "folk concepts" of the CPI are as follows:

Class I: Interpersonal domain--measures of poise, ascendancy, and self-assurance.

1. Do: Dominance
2. Cs: Capacity
3. Sy: Sociability
4. Sp: Social Presence
5. Sa: Self-acceptance
6. Wb: Sense of well-being

Class II: Intra-personal domain--measures of socialization, maturity, and social responsibility.

7. Re: Responsibility
8. So: Socialization
9. Sc: Self-control
10. To: Tolerance
11. Gi: Good impression
12. Cm: Communality

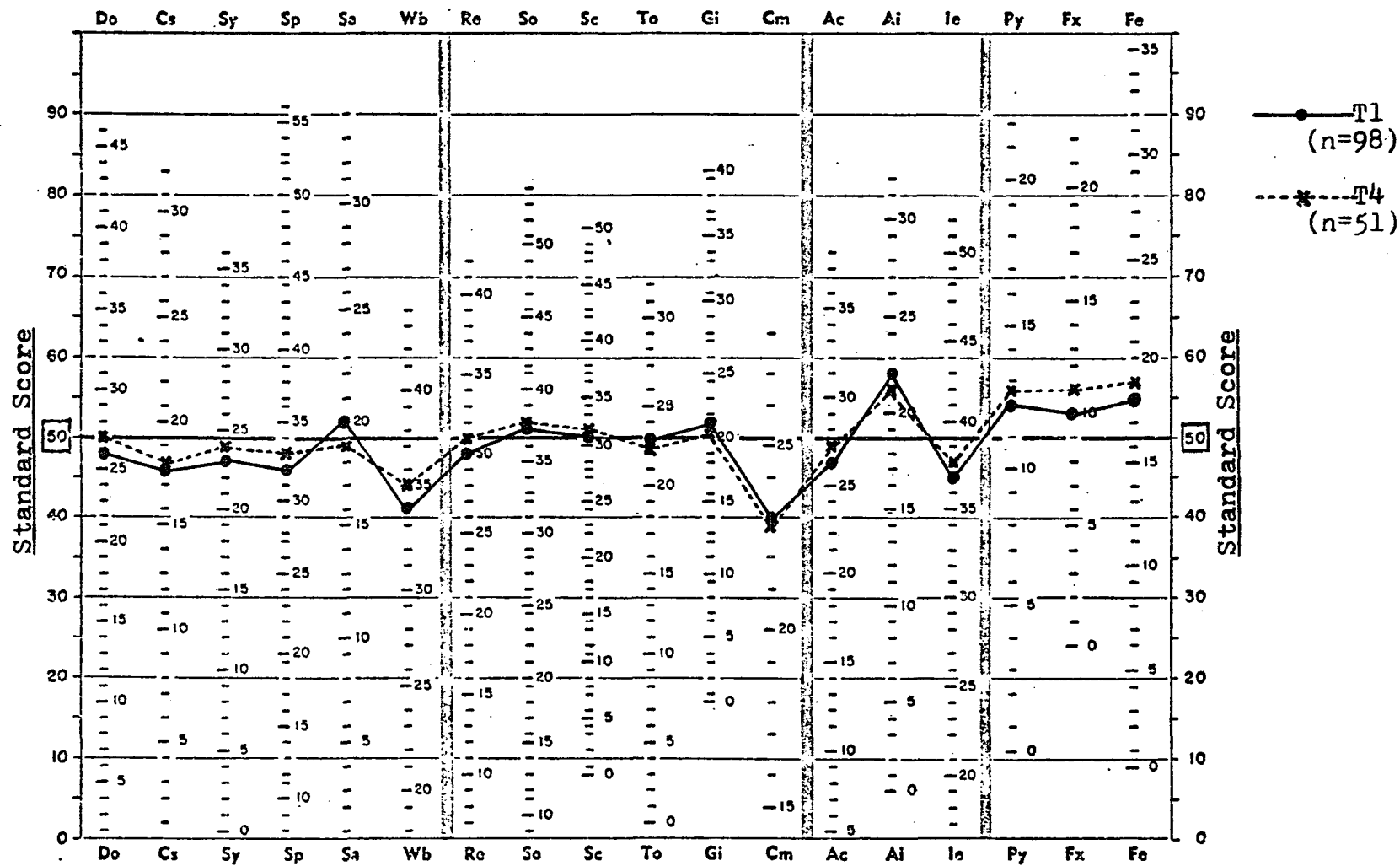


Figure 1. Mean Scores for 18 Scales of California Psychological Inventory at T1 and T4.

Class III: Achievement and academic domain--
 measures of achievement potential
 and intellectual efficiency.
 13. Ac: Achievement via conformance
 14. Ai: Achievement via independence
 15. Ie: Intellectual efficiency

Class IV: Dispositional domain--measures of
 personal orientation and attitudes
 toward life.
 16. Py: Psychological-mindedness
 17. Fx: Flexibility
 18. Fe: Femininity

The scores of these four factors and 18 folk concepts of the CPI Japanese schedule were computed and used as intra-individual characteristics variables in the study.

The mean scores of these 18 scales of the CPI at T1 (when students were still in Japan) and T4 (upon their return to Japan) were observed. As is seen from the Figure 1 no significant personality changes from T1 to T4 in any of these 18 traits was observed. The Pearson correlation coefficients for these 18 scales at T1 and T4 are quite high ranging from the highest of "sense of well-being" ($r=.76$) to the lowest of "achievement via conformance" ($r=.45$). Since the subjects who answered the CPI questionnaire at T4 ($n=51$) were fewer than those who answered at T1 ($n=98$), it was thought that these statistics comparing the mean scores at T1 ($n=98$) with those at T4 ($n=51$) were spurious due to the differential attrition. Then, in order to clarify this question the mean scores for the 18 scales at T1 of the same subjects who answered at T4 ($n=51$) were computed. It was found that the differences in the mean scores for these 18 scales at T1 for $n=98$ and $n=51$ were very minimal. Therefore, it is appropriate to discuss the change scores of personality

traits taking the subjects at T1 (n=98) and at T4 (n=51).

The Figure 1 tells us that there is no significant change in personality traits from T1 to T4 for the Japanese students studied. Sojourn experiences had no significant effect on their personalities. This is taken as evidence in support of a definition of personality which states that ". . . the relatively enduring pattern of recurrent interpersonal situations [events] which characterize a human life," (Sullivan, 1953:111) as well as the position which emphasizes that ". . . individual personalities reflect the structure and processes of the person's [own] society and culture." (Theodorson and Theodorson, 1969:296). Personalities of Japanese sojourners were already formed in Japan before they came to the United States, and these were not influenced to any significant degree by the exposure to the American life-ways and sojourn experiences. Their personality traits showed very minimal changes when measured again in Japan subsequent to their sojourn in America. Therefore, it may be right to say that the adult personalities are stable, reflecting the structure and processes of the person's own society and culture.

Social Structural Variable in Japan at T1:

It was decided to use the variable, "present place of living (Tokyo vs. others) as a social structural variable at T1 while students were still in Japan before their departure for the United States.

Social Structural Variables in the U.S.:

These are the variables which attach directly to the situation in the U.S. In this study, it was decided to use the data obtained at both T2 and T3. For the statistical analysis, 13 variables were used under this category.

They are as follows:

Participation in an orientation program in the U.S.; number of Japanese students on campus; number of Japanese on campus including family; region of the institution; size of the city; size of the institution; housing arrangement in the U.S.; frequency of visiting Americans at home; American families feel close; easiness of social life in America; ease to make American friends; everyday relationship with Americans; dates with American girls.

Social Structural Variables in Japan at T4:

These are the variables associated with the students' situation upon their return to Japan with sojourn experiences.

These variables are listed below:

Living place (Tokyo vs. others); continuing contact with Americans; publication since sojourn; U.S. journals subscribing.

Interaction Index of "Size X Orientation X English (SOE)":

In order to test the significance of multiplicative interaction effect in an additive model of multiple regression of path analysis, an interaction index was created based on three originally separate variables which were used as independent variables to test the main effects for each independent variable on a single dependent variable. This interaction index is composed of size of the institution that student attended (X_1), participation in an orientation program in America (X_2), and the score of the standard English test (Test of English as a Foreign Language: TOEFL) (X_3).

The formula to create this index is as follows:

$$SOE = (X_1 - \bar{X}_1)(X_2 - \bar{X}_2)(X_3 - \bar{X}_3)$$

This index allows us to see the significance of a multiplicative interaction effect of size by orientation by English on each dependent variable..

Selection of these three variables to create an interaction index was based on the theoretical framework of combining both intra-individual characteristics variable (here, English score) and social structural variables (here, size of the institution, and participation in an orientation program) to see the multiplicative interaction effect on human behavior.

Results of the computation of this index show the minimum value of -53.624, maximum value of 47.969, mean value of 0.552, and standard deviation of 17.008. This index indicates that the greater the number of the SOE score, the greater the positive score of size of institution X participation in an orientation program X English scores.

7. Selection of the Variables for the Analysis

The question to be solved in this study is what effects do personality and social structural influences have on attitudes and social relations of Japanese sojourners in America and Japan, i.e., what are the effect of intra-individual characteristics and social structural variables of the sample on their attitudes and social relations? To say it in another words, for the dependent variables of attitudes and social relations which independent variables have more effect: 1. the intra-individual characteristics

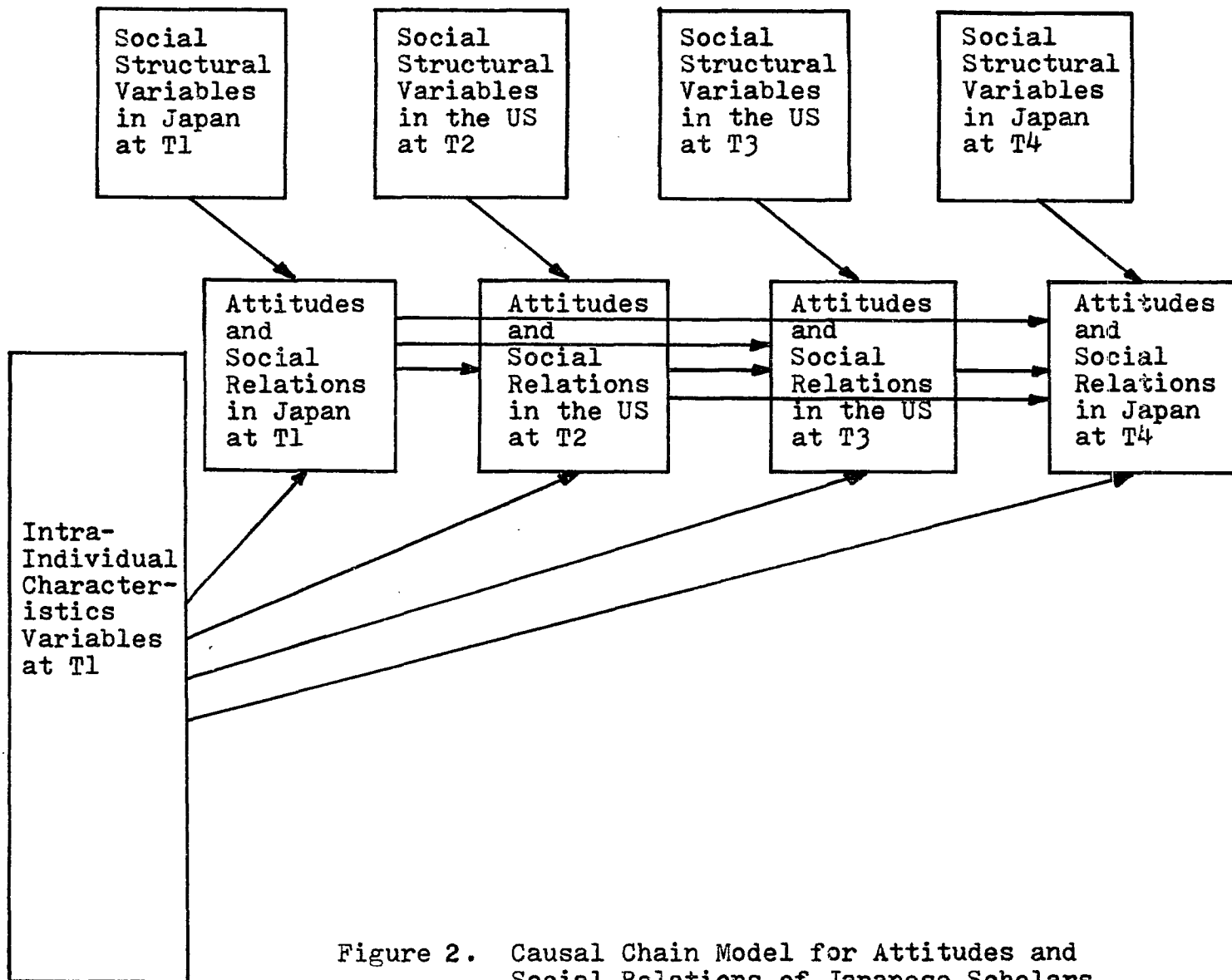


Figure 2. Causal Chain Model for Attitudes and Social Relations of Japanese Scholars at T1, T2, T3, and T4.

of the individuals; or 2. the structural variables, i.e., social structure of the situation?

In about 90 percent of the research conducted in sociological studies, the data are usually based on a cross-sectional one time period study, mainly because of the time and cost factors. In any cross-sectional study, establishing a causal relationship is one of the critical factors which has to be performed before proceeding to any of the statistical analysis. Criteria of causality are discussed in Hirschi and Selvin (1967) quite extensively, and explicit discussions for constructing causal models in the social science researches are found in Blalock's writings (1964; 1971). This study, however, utilized a longitudinal design, measuring variables at four consecutive times. Therefore, causal ordering is quite explicit, and there is no need to perform statistical tests for the causal ordering.

The overall causal linkages throughout the study are shown in the diagram in Figure 2.

Using all the dependent and independent variables described earlier in the chapter, an initial diagram was constructed. Pearson zero-order correlation coefficients of all these variables (134) were computed. In addition, all the stepwise multiple regression equations of the dependent variables at T1 (7), T2 (6), and T3 (7) regressing each dependent variable on all the antecedent variables were computed. The total number of variables up to T3 stage was 89. On the basis of the Pearson zero-order correlation

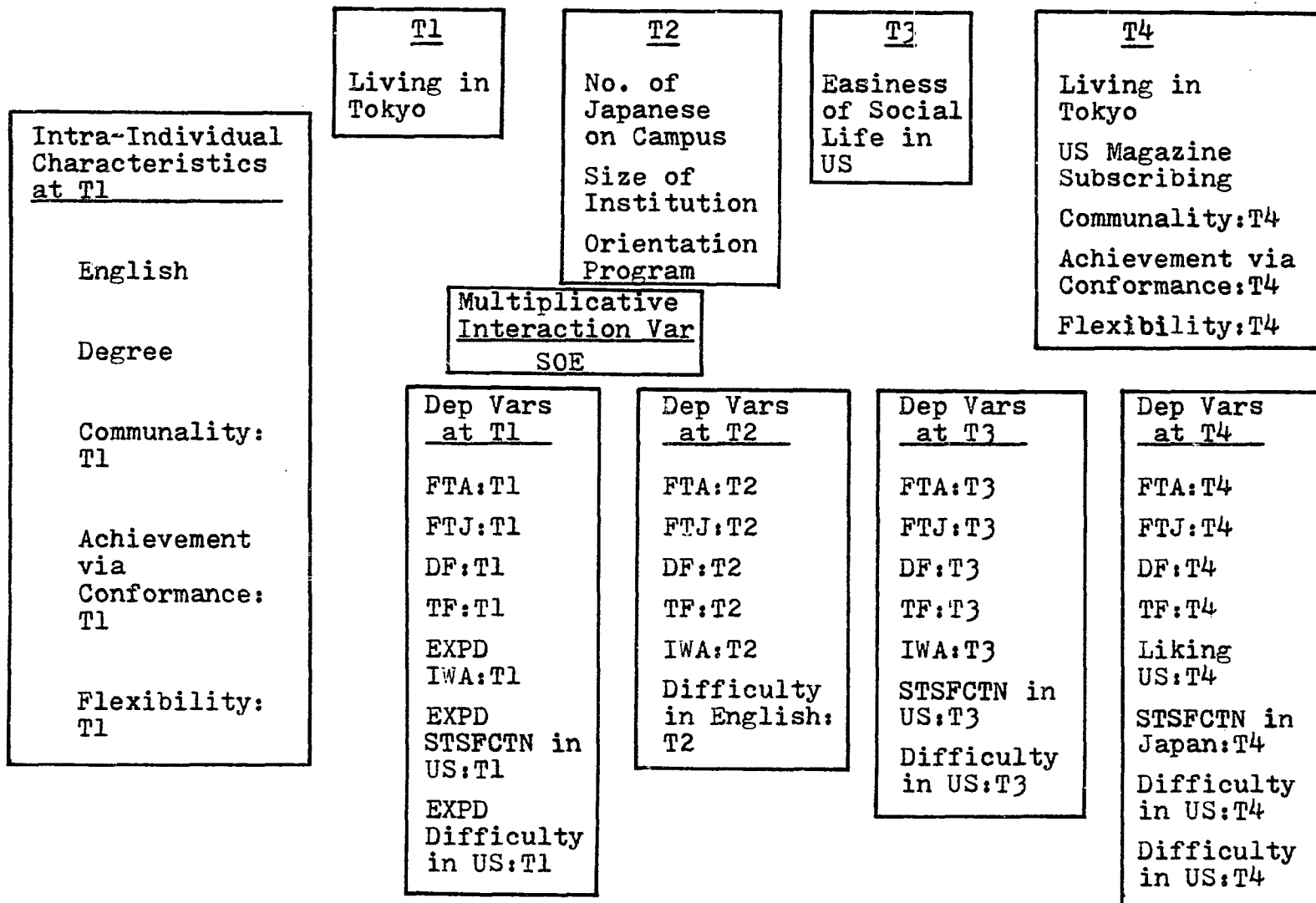


Figure 3. Variables in the Causal Chain Model for Attitudes and Social Relations of Japanese Scholars at T1, T2, T3, and T4.

coefficients, and the standardized beta coefficients obtained in the multiple regression equations, as well as the content of the variables from the theoretical point of view, variables in the diagram were reduced into forty-four (44). These 44 variables are shown in Figure 3.

The criteria used to select these 44 variables were as follows: For dependent variables we have to keep in mind that we are primarily interested in measuring Japanese sojourners' attitudes and social relations over time in America and Japan. We have created indexes for these purposes as discussed earlier (Section 5, Chapter III). The order of the occurrence of these dependent variables is quite explicit since these indexes were created on the basis of the questions asked at each different time, i.e., T1, T2, T3, and T4. In order to measure the Japanese sojourners' attitudinal changes and social relations over time, it was most desirable to use the same variables over time. In the selection of independent variables, we were careful to avoid the situation wherein independent variables are highly correlated with each other. If we select independent variables highly correlated with each other, these variables may simply measuring the same phenomenon under different labels. We have tried to limit the selection of independent variables whose zero-order correlation coefficient with any one of the dependent variables is at least .4, in order that r^2 become greater than .16. Three personality traits measured at T1 which had high ($r > .5$) correlation with some dependent variables were selected from the CPI 18 scales

discussed earlier (Section 6, Chapter III), and these three are: "communality"(Class II: Intra-personal domain--measures of socialization, maturity, and social responsibility), "achievement via conformance"(Class III: Achievement and academic domain--measures of achievement potential and intellectual efficiency), and "flexibility"(Class IV: Dispositional domain--measures of personal orientation and attitudes toward life).

These three personality traits were defined by Gough(1968):

Communality(Cm): Subjects scoring high on Cm will be in tune with their peers and surroundings, will perceive as their peers perceive, and will form impressions that are sound, stable, and sensible. Subjects scoring low on Cm will be more individual, less stereotypic, and more likely to personalize their experiences and to move in new and original directions.

Achievement via Conformance(Ac): The basic theme of the measure was one of a strong need for achievement coupled with a deeply internalized appreciation of structure and organization. The term "conformance" was chosen to reflect this channeling of the need for achievement, as "conformity" would be too strong and would also connote a kind of unproductive stereotype that is in fact not strongly embodied in the scale.

Flexibility(Fx): The purpose of the scale is to identify people of flexible, adaptable, even changeable temperament.

In addition, these three personality traits were selected on the basis of relatively low intercorrelation between the traits. The definition of these three personality traits suggests that the intercorrelation between "communality" and "flexibility" as well as that of "achievement via conformance" and "flexibility" are incompatible within the

same person, whereas the relationship between "communality" and "achievement via conformance" is quite compatible. These theoretical implications were supported by the examination of the Pearson correlation coefficients of these three personality traits in the present study. ("Communality" and "Flexibility": $r=-.19$; "Achievement via conformance" and "Flexibility": $r=-.06$; and "Communality" and "Achievement via conformance": $r=.41$.)

Even though the zero-order correlations of these three personality traits at T1 and T4 were quite high, i.e., communality: .59, achievement via conformance: .69, and flexibility: .75, it was decided to include these three traits measured at T4 in the diagram mainly because of the interest in observing the pattern of the effects of these same variables measured at different times. One of the original social structural variables, living place in Tokyo or not at T1, had very high correlation with the social structural variable, living place Tokyo or not measured at T4 ($r=.84$). We have included both of these living place variables in the diagram to see which of these variables, i.e., T1 or T4, has more impact on any of the dependent variables at T4, which measure the students' degree of readjustment in Japan.

The last criterion used for the selection of independent variables was the size of the path coefficients for each dependent variables. Even though all the stepwise multiple regression equations were computed regressing each dependent variable at T1, T2, and T3 on all the antecedent

variables, it was decided to select independent variables whose beta weights (or path coefficients) were greater than .10 for any of the dependent variables at T₃, but not at T₁ or T₂. This was because the target of this study was to measure the degree of Japanese students' adjustment in America as late as possible during their sojourn experiences, but not at an early stage of their transition in America.

8. Statistical Procedure--Analysis of the Data

In order to test the interaction effects on the adjustment of Japanese sojourners, it was decided to employ two analytical models in the present study: the linear additive model and the linear interaction model.

a. Testing Additive Model: Path Analysis of Multiple Regression Technique

In order to test the additive model, it was decided to utilize path analysis of multiple regression technique. Path analysis is used to measure the explanation and prediction to the extent to which two variables, i.e., independent and dependent variables, are correlated. Path analysis uses standardized multiple regression equations to examine theoretical models.

As is discussed in Loether and McTavish (1974: 306-340), the main objective of path analysis is to compare a model of the direct and indirect relationships that are presumed to hold among several variables to the observed data in a study, in order to examine the fit of the model to the data. If the fit is close, the model is retained

and used. If the fit is not close, a new model may be devised, or the old model may be modified to better fit the data and then be subject to further tests on new data.

Path analysis was originally developed by a biologist Sewall Wright (1921) as a method for studying the direct and indirect effects of variables taken as causes on variables taken as effects. In the past decade this statistical technique has been popularized by Duncan (1966) in the social sciences. Path analysis is not a method for discovering causes, but a method applied to a causal model formulated by the researcher on the basis of knowledge and theoretical considerations. It is primarily a method of decomposing and interpreting linear relationships among a set of variables by assuming that a causal order among these variables is known. Path analysis is not a procedure for demonstrating causality. It is useful in testing theory rather than in generating it.

In order to apply path analysis to empirical research, it is necessary to make explicit the theoretical framework within which a researcher operates. Since the present research is a longitudinal study with questionnaires administered four times over three-year period, causal ordering among variables is quite explicit.

In the causal model, a distinction is made between exogenous and endogenous variables. As Kerlinger and Pedhazur (1973:308) explained, "an exogenous variable is a variable whose variability is assumed to be determined by causes outside the causal model." Consequently, the

determination of an exogenous variable is not under consideration in the model. In other words, no attempt is made to explain the variability of an exogenous variable or its relations with other exogenous variables. "An endogenous variable, on the other hand, is one whose variation is explained by exogenous or endogenous variables in the system." (Kerlinger and Pedhazur, 1973:308)

Kerlinger and Pedhazur (1973:309) summarized the assumptions which underlie the application of path analysis:

1. The relations among the variables in the model are linear, additive, and causal. Consequently, curvilinear, multiplicative, or interaction relations are excluded.
2. The residuals are not correlated among themselves, nor are they correlated with the variables in the system. The implication of this assumption is that all relevant variables are included in the system. Endogenous variables are conceived as linear combinations of exogenous or other endogenous variables in the system and a residual. Exogenous variables are treated as "givens." Moreover, when exogenous variables are correlated among themselves, these correlations are treated as "given" and remain unanalyzed.
3. There is a one-way causal flow in the system. That is, reciprocal causation between variables is ruled out. (Stated differently, it means that the causal flow in the model is unidirectional, i.e., at a given point in time a variable cannot be both a cause and an effect of another variable.)
4. The variables are measured on an interval scale.

Computer programs become exceedingly useful in handling the clerical complexity of multiple regression mathematics. This study used SPSS (Statistical Package for the Social Sciences) computer program for the analysis of the data. The SPSS manual (Nie et al., 1975:383-397) gives concise explanation for the use of path analysis in

testing an additive model.

b. Testing Interaction Model

Until recently, most research thinking has focused on one dependent variable. However, statistical and research workers now extended their thinking to more than one dependent variable. In the area of multiple regression, path analysis technique solved this problem of more than one dependent variable, which was briefly reviewed in the former section in this study (Section 8.a. Testing Additive Model, Chapter III). Now, this problem of more than one dependent variable in analysis of variance is also solved, although the statistical technique is far more complex than analysis of variance with only one dependent variable. Kerlinger and Pedhazur defined (1973:351): "the analysis of variance with any number of independent variables and any number of dependent variables as the multivariate analysis of variance." To learn the concept of multivariate analysis of variance is quite sophisticated statistically, and it is not the main purpose here. Like univariate analysis of variance with any number of independent variables (n-way), multivariate analysis of variance was designed primarily for multivariate experimental data in which at least one of the independent variables has been manipulated. Also like univariate analysis of variance, its purpose is basically to test statistical hypotheses about experimental group means of more than one dependent variable. Therefore, most of the writings of multivariate

analysis of variance appears in experimental psychology books (Bock, 1963, 1966; Bock and Haggard, 1968; Rao, 1973; Winer, 1971).

The most elementary parametric statistical test is the t test of two groups. If t is statistically significant, then the means are said to be significantly different. The next step up in statistical sophistication is the F test applied to three or more groups, or to two groups, in which case, $t = \sqrt{F}$ (or $t^2 = F$). The next extension is to the F test in the factorial analysis of variance where n number of independent variables exist, and it is called n -way analysis of variance. Univariate analysis of variance can be extended to complex factorial, and it is called multivariate analysis of variance as was mentioned earlier in this section.

When there is more than one dependent variable the ordinary t and F tests are not applicable in the usual way. They can naturally be used with each dependent variable separately, i.e., as a univariate test, but as Bock and Haggard (1968:102) point out, because the dependent variable measures have been obtained from the same subjects and thus are correlated in some unknown way, the F tests are not independent. No exact probability that at least one of them will exceed some critical level on the null hypothesis can be calculated. Multivariate methods take the correlations among the dependent variables into account. Moreover, a researcher may be interested in the overall statistical significance of the differences among the

dependent variables as a set.

In order to analyze two or more dependent variables there are several tests of the statistical significance of mean differences such as Hotelling's T^2 , Mahalanobis' D^2 , Wilks' Λ (lambda). A sophisticated computer program of the OSIRIS (Organized Set of Integrated Routines for Investigations with Statistics) for multivariate analysis of variance is available, and it is called MANOVA2. The program uses Wilks' Λ and the accompanying F test, i.e., the F-approximation to the percentage points of the null distribution of Λ . Extensive discussion about the distribution of Λ is found in Rao (1973:555). The OSIRIS program uses the following formulas for F-ratio and degrees of freedom for multivariate analysis of variance test: (OSIRIS III, vol.5:104)

F-ratio for likelihood ratio criterion:

$$F = \frac{1 - 1/k}{\Lambda^{1/k}} \times \frac{k(2df_e + df_h - p - 1) - p(df_h) + 2}{2p(df_h)}$$

Degrees of freedom for the F-ratio:

$$p(df_h) \text{ and } 1/2(k(2df_e + df_h - p - 1) - p(df_h) + 2),$$

where

df_h = the degrees of freedom for the hypothesis
(i.e., deviation from hypothesis)
if levels of each factors are A, B, and C
in 3 factorial test, $df_h = (A-1)(B-1)(C-1)$

df_e = the degrees of freedom for error
(i.e., residual) which is equal to
N-cell size

p = the number of dependent variables
(i.e., variates)

$$k = \sqrt{(p^2(df_h)^2 - 4/(p^2 + (df_h)^2 - 5))}$$

The OSIRIS MANOVA2 program offers us an F-ratio for multivariate test as well as an F-ratio for univariate test of the analysis of variance. Therefore, we can test whether or not the interaction effect of any number of factors (independent variables) is statistically significant in multivariate test as well as univariate test.

9. Developmental Trend of Attitudes and Social Relations

What changes in the attitudes of Japanese scholars, along with changes in the degree of interaction with Americans can be observed throughout this research period? As was briefly discussed in Section 3 in Chapter II, the "U-shape curve" of the developmental trends among foreign students in the United States seems to be a characteristic phenomenon. In the study of Scandinavian students' impressions of the United States during their stay, Sewell and Davidsen (1961:52-54) reported a significant change in the students' impressions. These changes followed a developmental trend characterized by the U-shape curve. In almost every instance, the students perceived their own impressions toward America as being very favorable during the early stages of their stay, less favorable for a time, and then increasingly favorable toward the end of their sojourns.

In the present study the U-shape curve cannot be tested. The four time points of this study used to measure attitudes instead of the three mentioned above are not suited to test the idea of U-shape curve. The report

Mean Scores

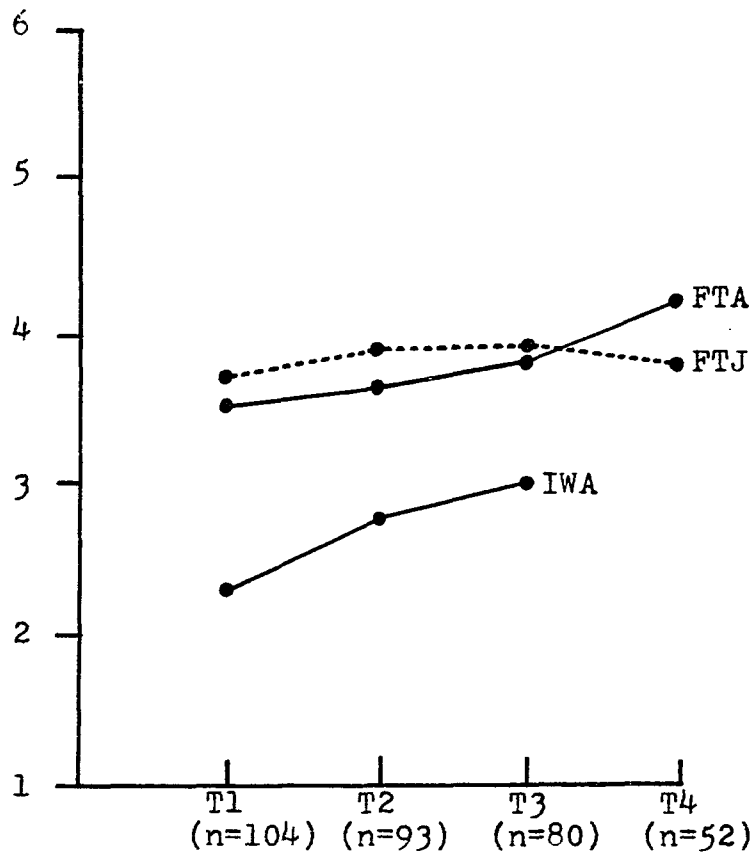


Figure 4.a.

Mean Scores

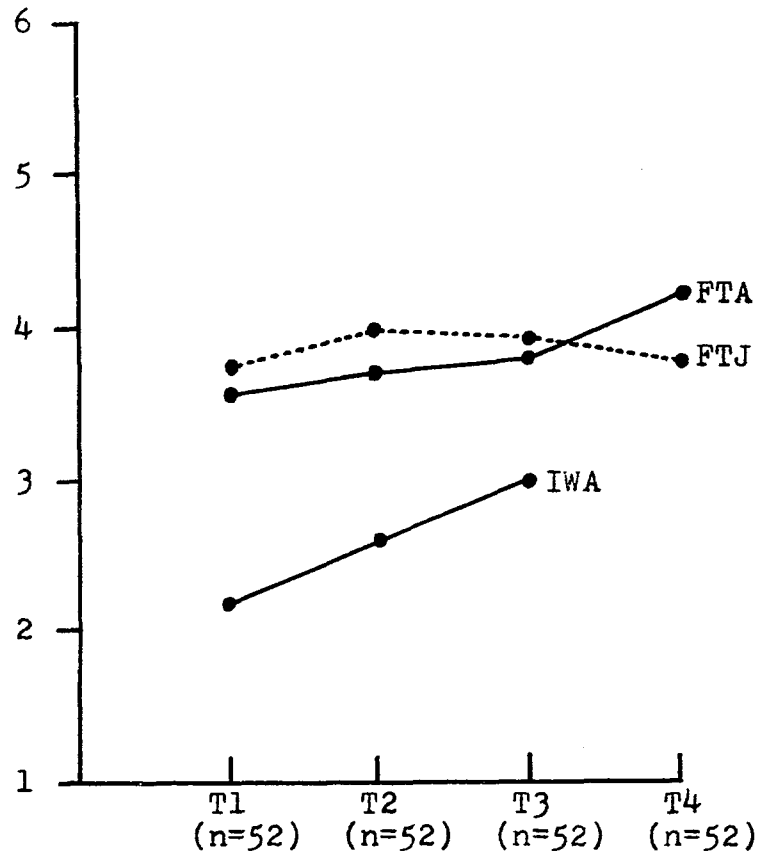


Figure 4.b.

Figure 4. Developmental Trend of Mean Scores for FTA(Favorability toward America); FTJ(Favorability toward Japan); and IWA(Interaction with Americans): a. for subjects who answered at each stage; b. for subjects who answered four times consistently.

of the U-shape curve was based on the three time points all of which occurred while students were studying in America, i.e., at an early stage of their stay, mid-way in the stay, and late in the stay. The time points of the present study, however, were: in Japan shortly before departure; in America after several months of their stay; in America after one academic year; and finally in Japan six months after their return. Our discussion must be based on the trends of the four-point scores.

Favorability toward America (FTA) and favorability toward Japan (FTJ) were measured at T1, T2, T3, and T4 during the study, and these scores ranged from the lowest of completely disagree(1) to the highest of completely agree(6). Interaction with Americans (IWA) was measured three times at T1, T2, and T3, and the score ranged from never(1) to every day(6). The developmental trends of these scores are shown in Figure 4, which represents the changes of the mean scores of FTA, FTJ, and IWA.

It was thought that changes in mean scores for FTA, FTJ, and IWA might be spurious due to the differential attrition in sample size over time. Therefore, the developmental trends of mean scores for these attitudinal and social relations variable were observed for two groups: a. subjects who answered at each stage: T1(n=104), T2(n=93), T3(n=80), and T4(n=52); and b. the same subjects who responded to the questionnaire at T4(n=52). The changes in mean scores for FTA(T1-T2-T3-T4), FTJ(T1-T2-T3-T4), and IWA(T1-T2-T3) for the groups a. and b. are as follows

(scores for b. group are in the parentheses):

FTA: 3.51(3.58) - 3.61(3.68) - 3.77(3.83) - 4.17(4.17);

FTJ: 3.72(3.74) - 3.88(3.96) - 3.88(3.94) - 3.84(3.84); and

IWA: 2.26(2.20) - 2.83(2.65) - 2.99(2.80).

As is seen from the Figures 4.a. and 4.b., the developmental trends of mean scores for FTA, FTJ, and IWA for both group a. and group b. are very similar and the differences in mean scores between these groups over time are very minimal.

Therefore, it is appropriate to discuss the developmental trends of mean scores based on the statistics obtained from the subjects who answered the questionnaires at each time (Figure 4.a.).

(Even though the indexes of differential favorability (DF) and total favorability (TF) were obtained four times based on FTA and FTJ, these are z-scores; therefore, the mean scores have the values of zero all the time. Thus, it is impossible to observe the changes of the mean scores for these indexes.) We can discuss the developmental trends of these three dependent variables, i.e., FTA, FTJ, and IWA.

Findings of the FTA showed an ascending trend. At the times measured T1-T2-T3-T4, the mean scores were 3.51 - 3.61 - 3.77 - 4.17. At T1 Japanese students, while they were still in Japan, exhibited a low favorability toward American culture. But at T2, T3, and T4 favorability had risen at each stage, which is taken as evidence of a continuously higher appreciation of the American culture as the time progresses from T2, T3, and T4. Japanese sojourners showed the highest favorable attitudes toward American culture

after their return to Japanese culture. The returning Japanese students possessed more favorable attitudes toward American culture than they had been before departure. Findings of the favorability attitudes of the sojourners toward America showed significant increase at T₄ as compared to the original T₁ score ($t=5.502$, $H_0: \overline{FTA}_{T_1} = \overline{FTA}_{T_4}$ can be rejected at $p < .001$ significance level). After their exposure to American culture the students showed greater appreciation of American social patterns, and they discovered this fact only when they were back in their own society. The sojourn in the United States brought about positive effects on the Japanese sojourners' attitudes toward America. Therefore, it may be right to say that the cross-cultural education is significant for Japanese youth in enlarging their understanding and appreciation of American culture.

The degree of interaction with Americans by the Japanese sojourners revealed a continuous ascending trend from 2.26 - 2.83 - 2.99 at T₁, T₂, and T₃ respectively. While these students were still in Japan, their expected interaction with Americans was very low; after several months in America they showed a remarkable increase in the frequency of contact with Americans; and after one academic year they were involved in even more social interaction with Americans. Findings of the mean scores for the IWA showed significant increase at T₄ as compared to the original expected IWA(T₁) ($t=6.160$, $H_0: \overline{IWA}_{T_1} = \overline{IWA}_{T_3}$ can be rejected at $p < .001$ significance level). This trend of increasing frequency of

contact with Americans may be interpreted as evidence of the Japanese sojourners' social adjustment to American life ways.

The steady increase in trends of favorability toward America (FTA) and interaction with Americans (IWA) can be interpreted as evidence of their psychological attitudinal adjustment and social adjustment of the sojourn in their cross-cultural educational experiences. These findings concerning the changes in attitudes of Japanese students (i.e., the steady ascent in their favorability toward American culture, and the steady ascent in the frequency of the Japanese students' interaction with Americans) are important. The Japanese scholars' favorability toward American social patterns steadily increased from before leaving Japan to the post-return to Japan, and this might have been caused by their continuously increasing interaction with Americans. Thus, Japanese students revealed, by their attitudes toward American culture in relation to their interaction with Americans, that the more they interacted with Americans, the more they appreciated American life-ways. The more frequent contacts with American people resulted for the Japanese sojourners in a greater liking of American social patterns.

When we compared the developmental trends of favorability toward America and the favorability toward Japan, it was noticed that at T1 while the Japanese scholars were still in Japan, their favorability toward Japanese culture exceeded their favorability toward American culture. During the stay in America, the Japanese students showed

greater favorability attitudes toward Japanese social patterns; however, once they went back to their original Japanese culture, they were more appreciative of the American egalitarian culture. The differences of the mean scores between the FTJ and FTA, i.e., mean score of FTJ - mean score of FTA, changed from (.21) - (.27) - (.11) - (-.33). While the Japanese students were still in Japan, they preferred Japanese culture to American social patterns which attitude might reflect their feeling of uncertainty about unfamiliar American culture. At T2, shortly after their exposure to the new American egalitarian culture, quite different from the Japanese hierarchical culture, their liking for Japanese culture was strengthened. This could be due to two factors: the one to culture shock of the new social patterns, the other to homesickness for the original culture. After one academic year in America, at T3 the differences in the Japanese sojourners' favorability attitudes toward American culture and toward Japanese social patterns were minimized. This may have been resulted from the students' gradual acceptance of American life-ways. At T4, about a half year after their return to Japan, when they had resettled in their original social patterns, the Japanese sojourners' favorability toward American egalitarian culture was higher than their favorability toward Japanese hierarchical culture. Their new knowledge of the American culture from the sojourn experiences reversed the trend of favorability from their original preference for Japanese social patterns to a greater preference for American life-ways.

CHAPTER IV

RESULTS: ADDITIVE MODEL - PATH ANALYSIS

1. Multiple Regression as a Descriptive Tool

Multiple regression is a general statistical technique through which one can analyze the relationship between a dependent or criterion variable and a set of independent or predictor variables. Multiple regression may be viewed either as a descriptive tool by which the linear dependence of one variable on others is summarized and decomposed, or as an inferential tool by which the relationships in the population are evaluated from the examination of sample data.

The most important uses of the technique as a descriptive tool are: 1. to find the best linear prediction equation and to evaluate its prediction accuracy; 2. to control for other confounding factors in order to evaluate the contribution of a specific variable or set of variables; and 3. to find structural relations and provide explanations for complex multivariate relationships, such as done in path analysis.

In the third application of multiple regression as a descriptive tool mentioned above, the multiple regression technique is used in conjunction with causal theory. The emphasis in such an application is neither on the overall dependence of one variable on another nor the relationship

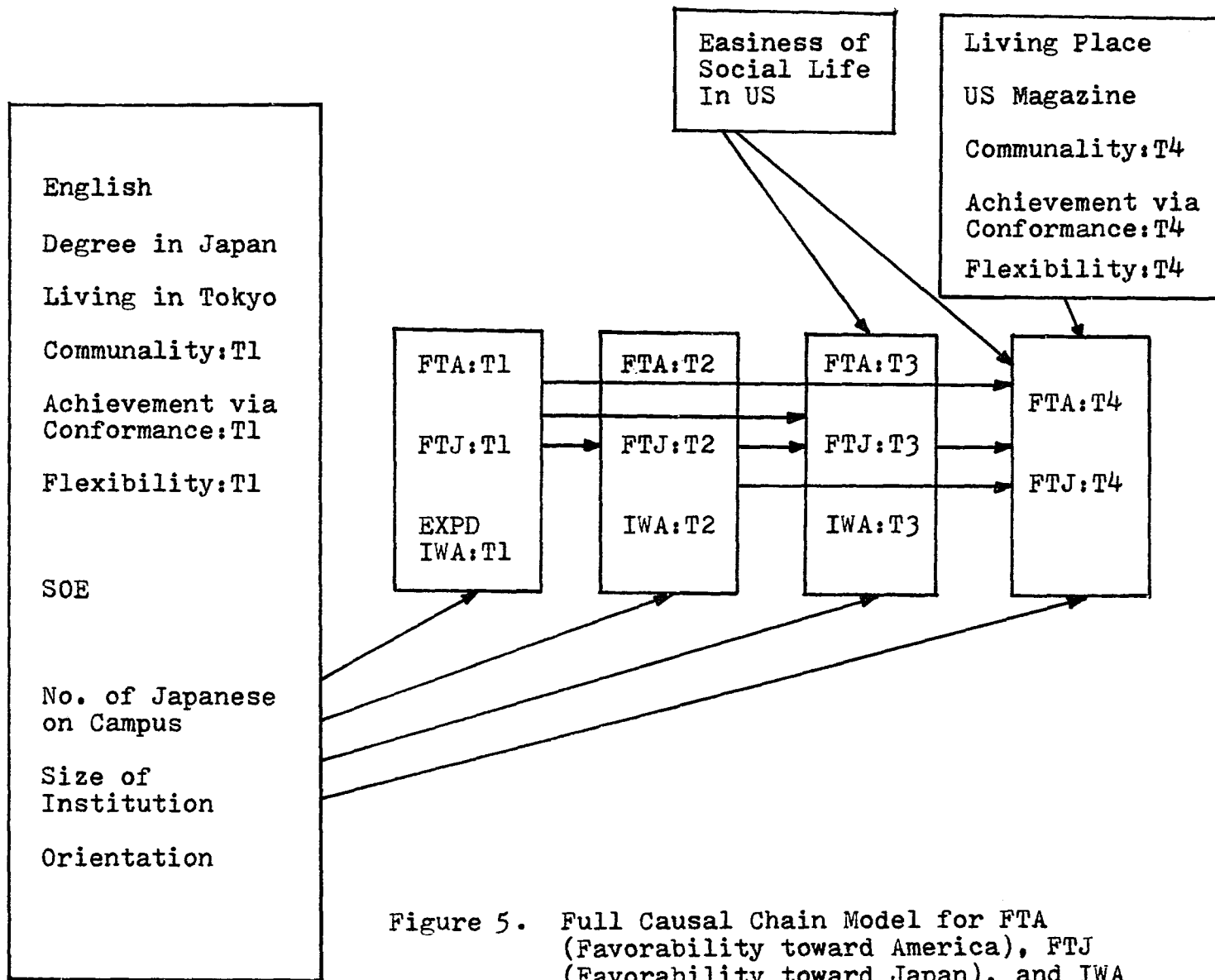


Figure 5. Full Causal Chain Model for FTA (Favorability toward America), FTJ (Favorability toward Japan), and IWA (Interaction with Americans) at T1, T2, T3, and T4.

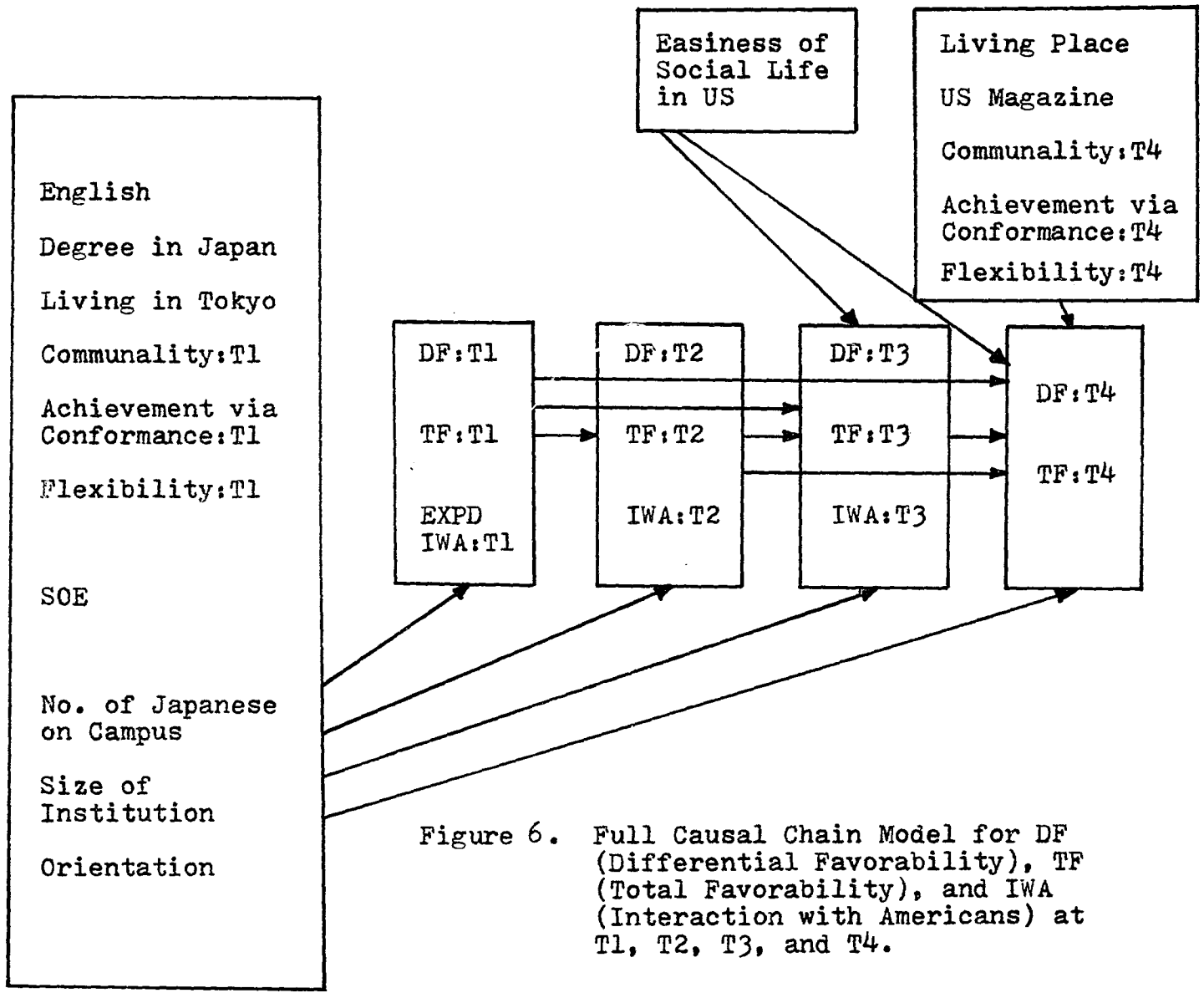


Figure 6. Full Causal Chain Model for DF (Differential Favorability), TF (Total Favorability), and IWA (Interaction with Americans) at T1, T2, T3, and T4.

between any particular pair of variables. Instead, multiple regression is used to describe the entire structure of linkages between independent and dependent variables.

The general form of the unstandardized multiple regression is:

$$Y' = A + B_1X_1 + B_2X_2 + \dots + B_kX_k$$

where Y' represents the estimated value for the dependent variable Y , A is the Y intercept, and B_i are regression coefficients for the independent variables X_1, X_2, \dots, X_k . It is sometimes convenient to work with standardized variables. When standardized variables are used the regression coefficients are called "path" coefficients.

2. Constructing Full Models for Path Analysis

Six full models for use in path analysis were constructed based on the variables selected from the original data which was discussed in Section 7, Chapter III. These six models are shown in Figures 5 and 6.

In selecting variables to be introduced in path diagram, the problem of multicollinearity was taken into consideration (Gordon, 1968). Multicollinearity refers to the situation in which some or all of the independent variables are very highly intercorrelated. When extreme multicollinearity exists there is no acceptable way to perform regression analysis using the given set of independent variables. Two possible solutions for the problem of multicollinearity are suggested: 1. to create a new variable which is a composite scale of the set of highly intercorrelated

variables and to use the new scale variable in the regression equation in place of its components; or 2. to use only one of the variables in the highly correlated set to represent the common underlying dimension. In the present study, for the solution of the first criterion in the problem of multicollinearity, we have created indexes (using item analysis), as discussed earlier. For the second criterion we have selected only one of the variables in the highly correlated set to represent the common underlying dimension so that we are not measuring the same phenomena simply under the different variable labels.

The full model in path analysis is one in which all the possible paths exist in the diagram, i.e., independent variables. The full model is always identified and can always be solved as long as none of the causal variables explicitly included in the model are completely determined by other variables. The estimation of population path coefficients simply requires a series of ordinary least-squares regressions, taking one variable at a time as the dependent variable and all the variables with higher causal order as the independent variables.

Two figures presented in Figures 5 and 6 represent six different full models of path diagram.

1. FTA(favorability toward America) measuring at T1, T2, T3, and T4 with FTJ(T1, T2, T3, and T4), and IWA(T1, T2, and T3).
2. FTJ(favorability toward Japan) measuring at T1, T2, T3, and T4 with FTA(T1, T2, T3, and T4), and IWA(T1, T2, and T3).
3. IWA(interaction with Americans) measuring at T1, T2, T3 with FTA(T1, T2, T3, and T4), and FTJ(T1, T2, T3, and T4).

4. DF(differential favorability) measuring at T1, T2, T3, and T4 with TF(T1, T2, T3, and T4), and IWA(T1, T2, and T3).
5. TF(total favorability) measuring at T1, T2, T3, and T4 with DF(T1, T2, T3, and T4), and IWA(T1, T2, and T3).
6. IWA(interaction with Americans) measuring at T1, T2, and T3 with DF(T1, T2, and T3), and TF(T1, T2, and T3).

Each of the full models was constructed based on the theoretical framework to test the influences of intra-individual characteristics variables, and social structural variables on attitudes of Japanese scholars, and on their social relations.

It was assumed that certain behavioral outcomes at a specific time were primarily determined by the most recent value of the same variable. This assumption was empirically evidenced in the studies of occupational attainment (Blau and Duncan, 1967:Chs.7-11; Kelley, 1973), and the model was called "causal chain model." The opposing idea, which asserts that one's occupational attainment is most strongly determined by the remotest variable of the same type, was presented by Featherman(1971), and he called the model a "historical model." The advantage of including the previous values of the dependent variable in the set of independent variables for each regression equation is that in so doing we control for the inertial stability of the dependent variable. The path coefficient relating the dependent variable to its previous value measures its stability over time, and all other path coefficients measure the change in the dependent variable caused by the independent variables.

3. Constructing Restricted Models for Path Analysis

Based on the multiple regression analysis performed for six full models of path diagram, six restricted models were produced. A restricted model is an overidentified model, where insignificant paths to each dependent variable are eliminated.

In order to construct restricted models, we have utilized stepwise regression procedures. For some types of research problems, it is appropriate to enter independent variables one by one on the basis of some pre-established statistical criteria. This procedure is used when a researcher wishes to isolate a subset of available predictor variables that will yield an optimal prediction equation with as few terms as possible. The stepwise regression procedure examines a larger number of potential predictors, starting with a single independent variable which is the best predictor of the dependent variable. Then, a further variable is added, and this added variable is one which explains as much of the remaining variation in the dependent variable as possible. Then, the next best variable is added, and so forth, each time adding a term to the multiple regression equation. The purpose is to find a small set of independent variables out of the multiple regression equation whenever their addition would produce a significant increase in the coefficient of multiple determination, R^2 .

In order to determine the inclusion and/or elimination of certain variables in a restricted model some tests for specific regression coefficients have to be made. Such

tests may be used in deciding whether certain variables may be deleted from the regression equation or in deciding how much confidence can be placed in the sample regression coefficients.

The most common strategy used in testing the β 's involves a decomposition of the explained sum of squares into components attributable to each independent variable in the equation. We have used one of the standard methods of decomposition. In this method, such variable is treated as if it had been added to the regression equation in a separate step after all other variables had been included. The increment in R^2 due to the addition of a given variable is taken as the component of variation attributable to that variable. The F-ratio for this method is as follows (Nie et al., 1975:336):

$$F = \frac{r^2_{y(i.12,\dots,k)}/1}{(1 - R^2_{y.12\dots i\dots k})/(N - k - 1)}$$

In this study, we have used the criterion for inclusion of variables that the F-ratio for each independent variable be greater than 1.0. Therefore, six restricted model of path diagram were constructed in which all the variables included in each equation had F ratio of greater than 1.0.

4. Goodness of Fit of the Model

We have employed two procedures in order to test for goodness of fit of the model: the one the overall test for goodness of fit of the regression equation by means of

the overall F-test; the other the direct examination of residuals, i.e., examination of the amount of variation in dependent variables which is explained by variables linked as specified in the model.

a. Overall F-Test

Regression procedures per se are categorized as descriptive statistics. However, regression analysis is commonly performed on sample data which the researcher is interested in generalizing to a population, i.e., either to estimating population parameters from sample regression statistics or to testing statistical hypotheses about the population parameters. The overall test for goodness of fit of the regression equation tests the Null Hypothesis that the multiple correlation is zero in the population from which the sample was drawn. The overall Null Hypothesis, $H_0: R=0$, is equivalent to the Null Hypothesis that k regression coefficients are equal to zero in the population, i.e., $H_0: \beta_1 = \beta_2 = \dots = \beta_k = 0$. The alternative hypothesis, stated in terms of population regression coefficients, is $H_1: \beta_i \neq 0$ for one or more β_i . Thus, if the overall null hypothesis is rejected, the researcher may conclude that one or more of the population regression coefficients has an absolute value greater than zero. However, the overall test does not indicate which specific i values are nonzero. Therefore, additional tests for specific regression coefficients are commonly made.

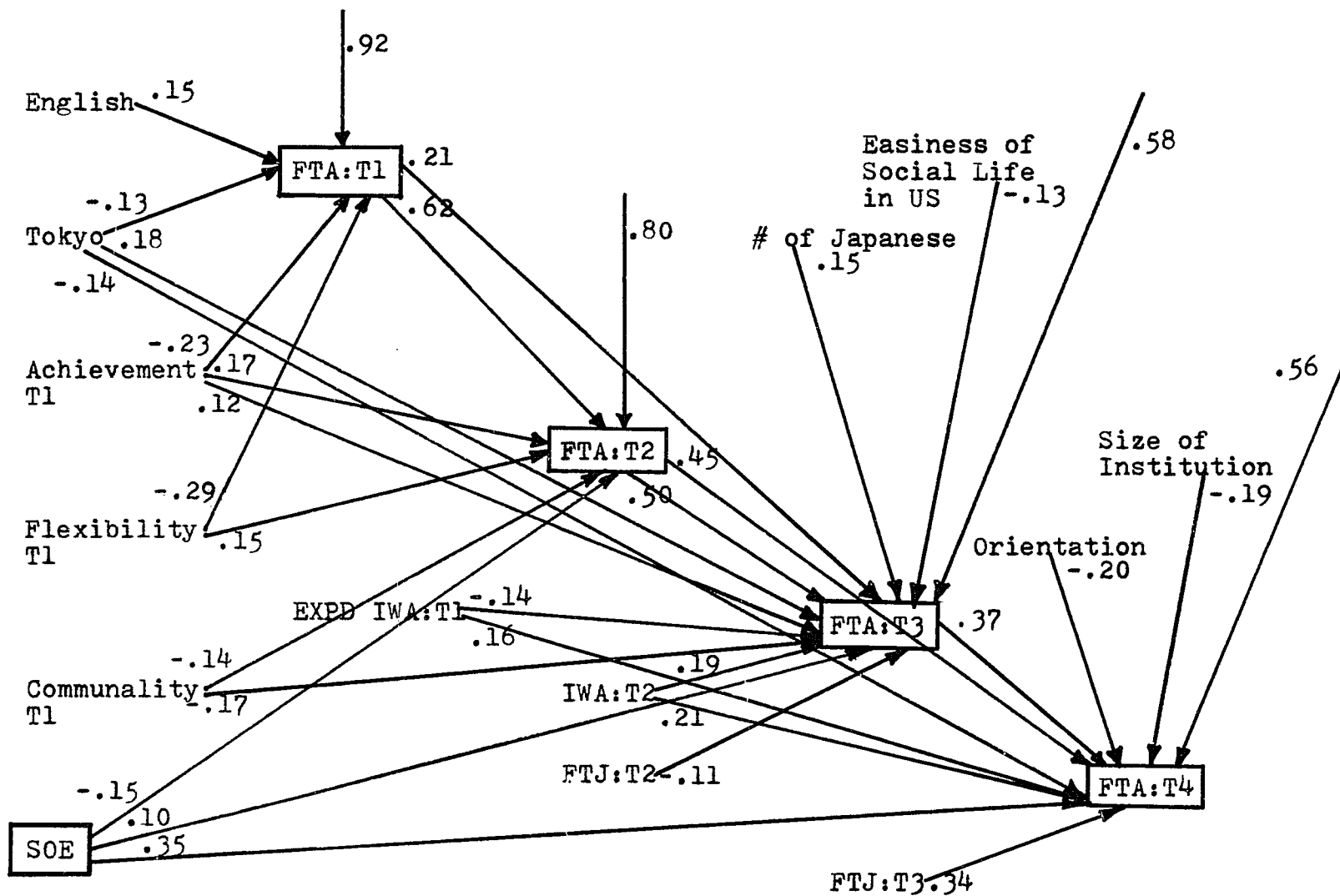


Figure 7. Restricted Causal Chain Model for FTA(Favorability toward America) with FTJ and IWA at T1, T2, T3, and T4.

b. Examination of Residual Variation

A residual is a deviation of an observed Y score from an estimated Y' value. In regression analysis, residuals are conceived as measures of the error component. Examination of residual variation is useful in deciding whether the proportion of explained variation is adequate. Therefore, the "unexplained" variation ($1 - R^2$) is due to variables or measurement error not included in the model, and the square root of this unexplained variance, i.e., $\sqrt{1 - R^2}$, is ascribed to the residual path-coefficient for each dependent variable.

5. Findings and Discussion of 6 Restricted Models

- (1) FTA(favorability toward America) measured at T1, T2, T3, and T4 with FTJ(T1, T2, T3, and T4), and IWA(T1, T2, and T3):

Results of this path analysis are shown in Figure 7. In this path diagram, attitudes of students concerning the degree of favorability toward America were measured at T1, T2, T3, and T4. While students were still in Japan before being exposed to American culture, their attitudes toward America were predominantly determined by intra-individual characteristics variables such as the degree of flexibility, achievement via conformance, and ability in English as well as one structural variable: whether they were living in Tokyo or not. At T2 (during the early transition period of Japanese students' stay in America), this favorability toward America was most effectively determined by FTA(T1) among the independent variables

examined. Intra-individual characteristics variables of achievement via conformance, flexibility, and communality had influences on FTA(T2), but none of the social structural variables had. Nevertheless, the multiplicative interaction index SOE (size of institution X participation in an orientation program X ability in English) had a negative effect on FTA(T2). After one academic year in America(T3), students' attitudes of favorability toward America were significantly determined by FTA(T2), as well as by some significant influences of both of intra-individual characteristics (achievement via conformance, communality, and living place while in Japan), and of social structural variables (number of Japanese on campus, and the degree of ease of social life in America). The interaction index of SOE had a noticeable influence on FTA(T3). Other variables which had influences on FTA(T3) were three endogenous variables, i.e., expected interaction with Americans(T1), interaction with Americans(T2), and favorability toward Japan(T2). This FTA(T3) pattern revealed that favorability toward America after one year of stay in America was influenced by various factors, such as intra-individual characteristics, social structural variables, a multiplicative interaction variable, and endogenous variables of attitudes and social relations in America. When students returned to Japan, the FTA(T4) variable showed patterns similar to those observed at T3. Returnees' attitudes of favorability toward America were greatly determined by their favorability attitudes at T3. Only one intra-individual characteristics

Table 2. Multiple Regression for Restricted Path Model of IWA, FTA, and FTJ at T1, T2, T3, and T4

<u>Dependent Variables</u>	<u>df</u>	<u>F</u>	<u>P</u>	<u>1-R²</u>	<u>$\sqrt{1-R^2}$</u>
EXPD IWA:T1	3/62	2.13	ns	.94	.97
FTA:T1	3/62	3.46	<.05	.82	.92
FTJ:T1	4/61	2.54	<.05	.86	.93
IWA:T2	5/60	2.69	<.05	.82	.91
FTA:T2	5/60	6.88	<.01	.64	.80
FTJ:T2	6/59	13.61	<.01	.41	.64
IWA:T3	6/59	34.63	<.01	.22	.47
FTA:T3	12/53	8.53	<.01	.34	.58
FTJ:T3	8/57	17.31	<.01	.30	.55
FTA:T4	9/35	8.50	<.01	.31	.56
FTJ:T4	7/37	8.28	<.01	.39	.62

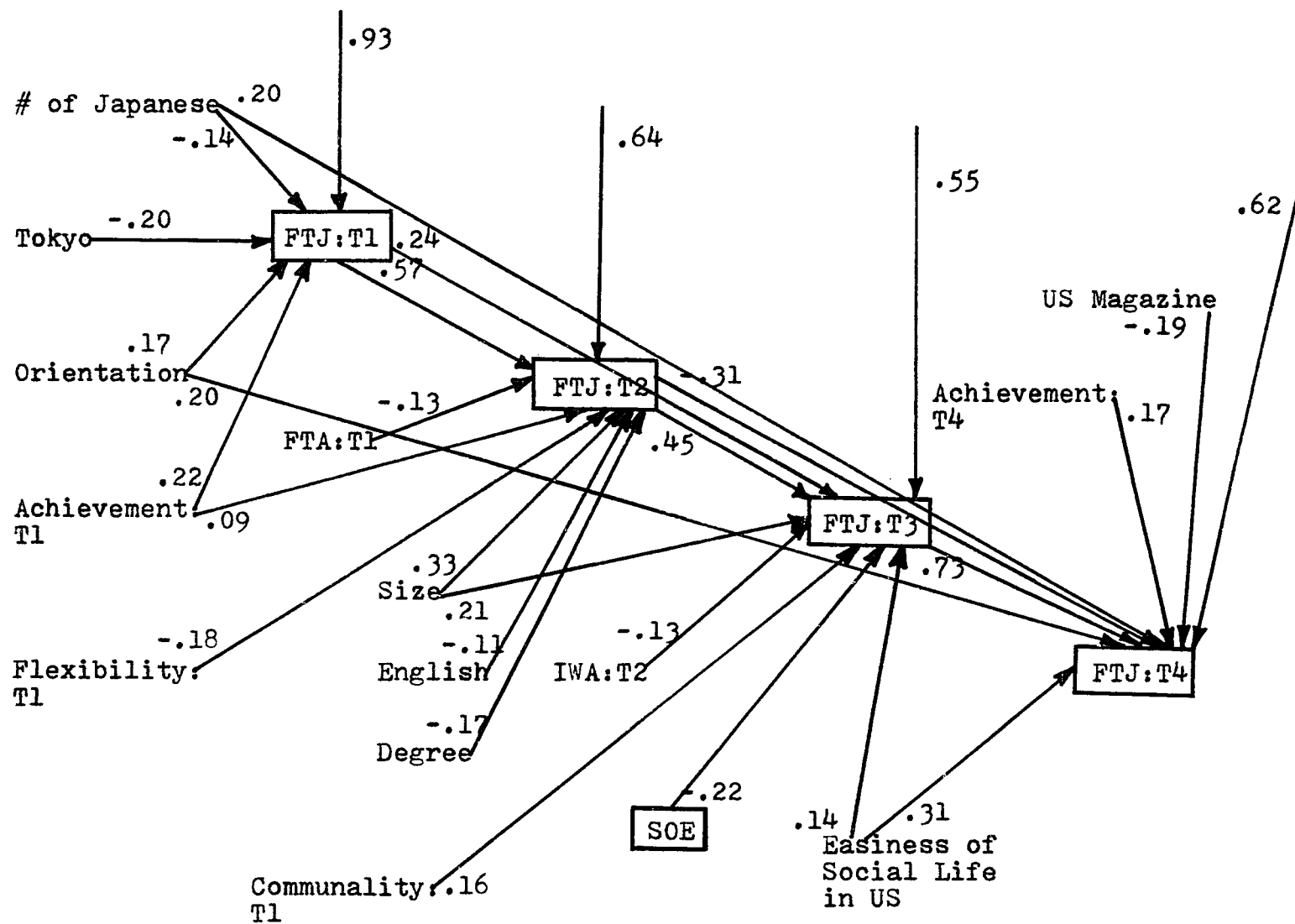


Figure 8. Restricted Causal Chain Model for FTJ(Favorability toward Japan) with FTA and IWA at T1, T2, T3, and T4.

had a significant influence (original living place, i.e., Tokyo or others); however, two social structural variables (size of institution attended in America, and participation in an orientation program in America) appeared to have a significant influence on FTA(T4), and these social structural variables also showed significant influence on the attitudes of favorability toward America for the first time. The interaction index SOE had significantly large positive influences on FTA(T4). Endogenous variables of social relations (expected IWA(T1), and IWA(T2)), and attitudes (FTJ(T3)) also showed significantly large positive effects on students' favorability toward America upon their return to Japan.

In order to test the adequacy of the model both an overall F-ratio and the size of residuals were examined, as shown in Table 2. The overall F-test revealed that FTA(T1), FTA(T2), FTA(T3), and FTA(T4) had large enough F ratios to warrant the significance of each multiple regression equation. Also, the residual path for each dependent variable was quite small.

(2) FTJ(favorability toward Japan) measured at T1, T2, T3, and T4 with FTA(T1, T2, T3, and T4), and IWA(T1, T2, and T3):

Results of the attitudes of Japanese students' favorability toward Japan are found in Figure 8. At T1 while students were still in Japan, their original favorability toward Japan was influenced by both intra-individual characteristics (their personality trait of achievement via conformance), and social structural variable (their original living place

in Japan, number of Japanese students attending the institution, and the plan to participate in an orientation program in America.) (The latter two variables in this category have not yet occurred at T1 stage and these are not social structural variables at T1, however, students knew approximately the number of Japanese students attending the institution which they were going to attend in America, and also their plan whether or not they were going to participate in an orientation program in America. Thus, I have decided to include these two variables under the social structural variables at T1.) At T2 during the early period of their stay in America, students' degree of favorability toward Japan was largely determined by their original favorability toward Japan at T1. In addition this FTJ(T2) was influenced by intra-individual characteristics variables (personality traits of achievement via conformance, and flexibility, ability in English, and the highest degree obtained in Japan), by the social structural variable size of the institution attended in America, and the endogenous variable FTA(T1) had a negative influence on FTJ(T2). Another noticeable finding was that size of the institution and ability in English each had significant direct effects on FTJ(T2), whereas the interaction index SOE (Size X Orientation X English) had no significant effect on FTJ(T2). As time progressed and after one academic year of stay in America, the causal chain of the favorability toward Japan at T3 revealed a somewhat different pattern from that of T2. FTJ(T3) was significantly determined by FTJ(T2), and

also FTJ(T1). Only one intra-individual characteristics variable, the personality trait "communality" which did not appear as a determinant of FTJ(T1) or FTJ(T2), had significantly affected FTJ(T3). Two social structural variables, size of the institution and the degree of easiness of social life in America measured at T3 were found to be influential as the determinants for FTJ(T3). Here, the endogenous variable IWA(T2) had a negative impact on FTJ(T3). The multiplicative interaction effect SOE was found to be negatively related to FTJ(T3), while no direct effects of orientation or ability in English were significant. Upon return to Japanese society (T4), students' degree of favorability toward Japan showed a very different pattern from any of the FTJ causal chains observed. FTJ(T4) was largely determined positively by FTJ(T3), whereas the FTJ(T2) had strong negative direct effect on FTJ(T4). Three social structural variables, i.e., number of Japanese on campus in America, participation in an orientation program in America, and the degree of easiness of social life in America, had positive effects on FTJ(T4). Of the social structural variables measured upon students' return to Japan, subscription to American magazines turned out to have a negative effect on FTJ(T4). The personality trait "achievement via conformance" measured at T4 influenced significantly the students' degree of favorability toward Japan upon their return to Japan, even though the original personality trait measured at T1 did not appear to have significant effect on FTJ(T4). These two personality traits were highly correlated

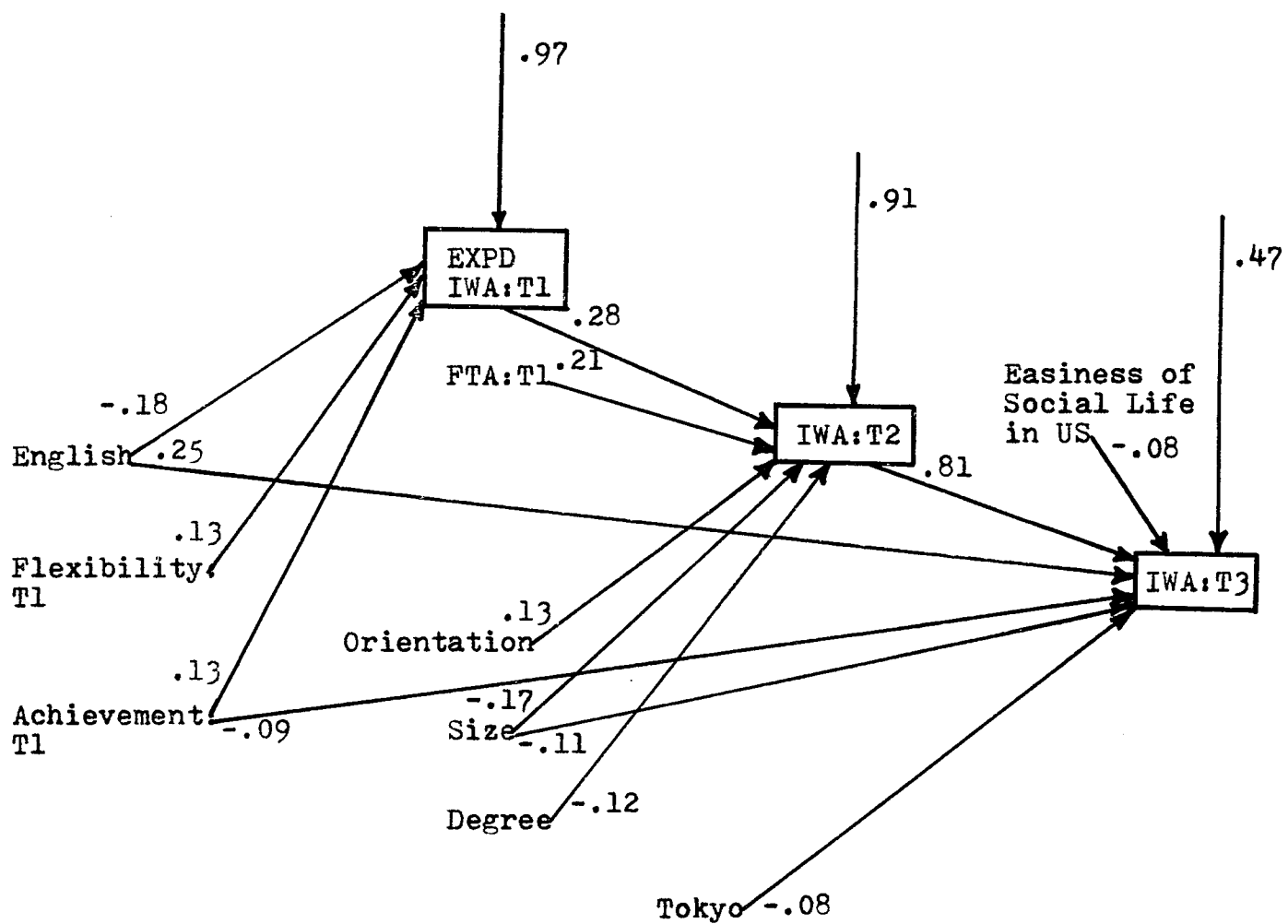


Figure 9. Restricted Causal Chain Model for IWA(Interaction with Americans) with FTA and FTJ at T1, T2, and T3.

each other ($r=.68$).

To the test of the adequacy of the model, the overall F-ratio and the size of residuals were examined, as shown in Table 2. Examination of this table permits us to conclude that the restricted model for the causal chain of favorability toward Japan variable is valid, since the overall F tests for FTJ(T1), FTJ(T2), FTJ(T3), and FTJ(T4) were significant for each multiple regression equation, and residual path for each dependent variable was small.

(3) IWA(interaction with Americans) measured at T1, T2, and T3 with FTA(T1, T2, and T3), and FTJ(T1, T2, and T3):

The causal chain of the pattern of interaction with Americans is shown in Figure 9. Obviously, at T1, this index was students' expected degree of interaction with Americans since this index was measured at T1 while students were still residing in Japan. At T1, the students' degree of expected interaction with Americans was determined primarily by three intra-individual characteristics variables: 1. ability in English (negative), 2. the personality trait "flexibility," and 3. the personality trait "achievement via conformance." At T2, IWA was largely determined by (expected) IWA(T1), and by another endogenous variable, FTA(T1). Two social structural variables had direct paths to IWA(T2), one the participation in an orientation program, the other the size of the institution (negative). One new intra-individual characteristics variable, highest degree obtained in Japan, negatively influenced IWA(T2). However, no paths from the intra-individual characteristics variables which were

significant for IWA(T1) turned out to be significant as determinants of IWA(T2). After one academic year of stay in America, when students were more used to the American way of life than at the T2 stage, their interaction with Americans was very strongly determined by preceding IWA(T2) variables. Also, the intra-individual variable ability in English had a significantly large positive effect on IWA(T3), even though this intra-individual variable had a negative effect on students' expectation as to amount of interaction with Americans while they were still in Japan. The reverse pattern was observed for another intra-individual characteristics variable, the personality trait "achievement via conformance," i.e., this variable had a positive direct path to (expected) IWA(T1). However, this became negative for IWA(T3). In addition the IWA(T3) was negatively affected by two other variables: the intra-individual characteristics variable original living place in Japan and by a social structural variable (measured at T3), the degree of easiness of social life in America.

The adequacy of the model for the causal chain for the students' interaction with Americans was determined through the examination of overall F-ratio and the size of residual path coefficients. In this causal chain, (expected) IWA(T1) was not significantly determined by the independent variables of this study. However, interaction with Americans at T2 and at T3 were adequately determined by the independent variables examined in the study.

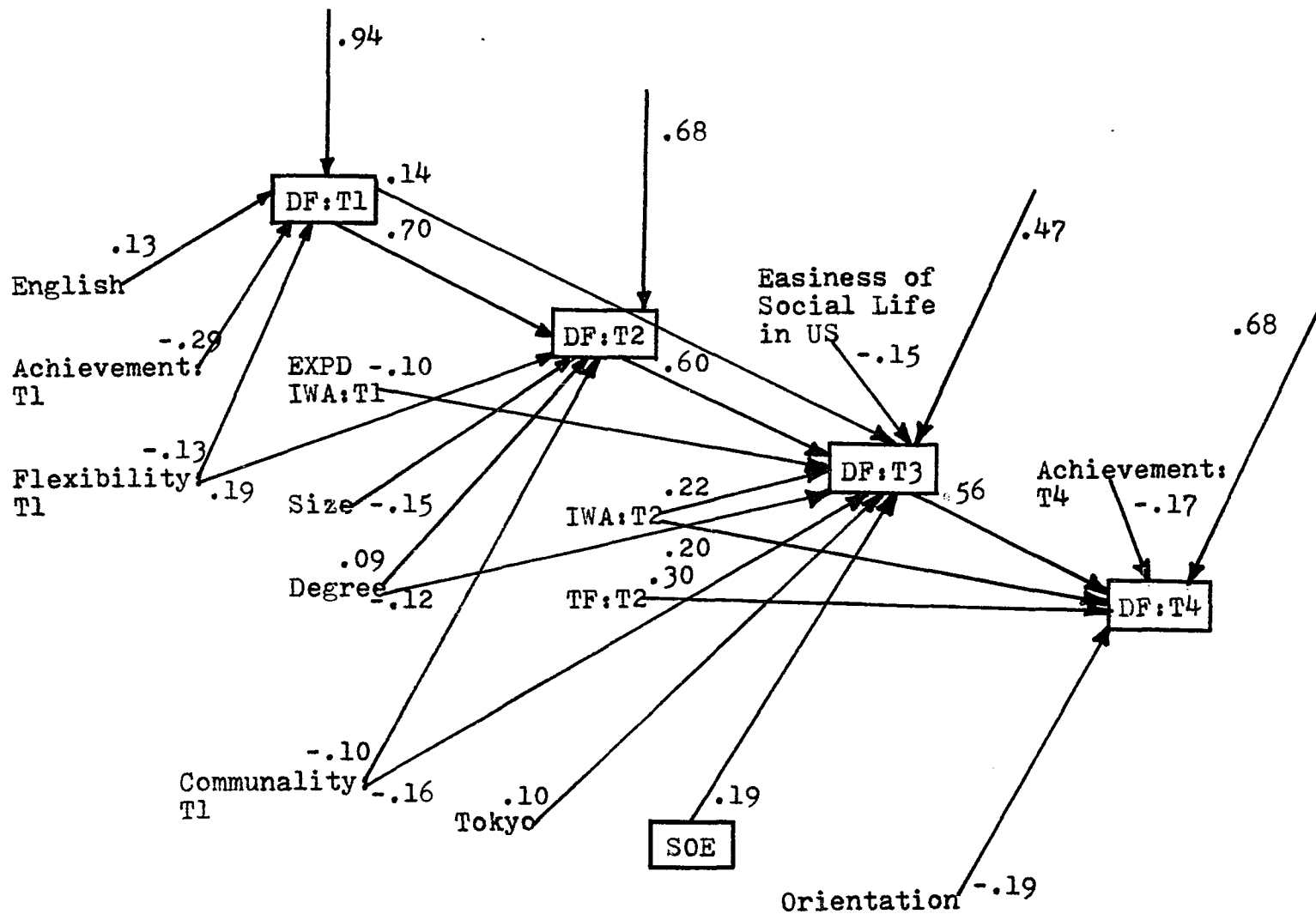


Figure 10. Restricted Causal Chain Model for DF(Differential Favorability) with TF and IWA at T1, T2, T3 and T4.

- (4) DF(differential favorability) measured at T1, T2, T3 and T4 with TF(T1, T2, T3, and T4), and IWA(T1, T2, and T3):

The results of the causal chain for differential favorability are shown in Figure 10. As was stated earlier, the greater the differential favorability index, the greater the degree of favorability toward America, in contrast to Japan. DF(T1) was determined primarily by three intra-individual characteristics, i.e., ability in English (positive), the personality trait "achievement via conformance" (negative), and personality trait "flexibility" (negative). At the first stage in America, DF(T2) was predominantly influenced by the preceding DF(T1), with some influences by three intra-individual characteristics, flexibility--positive; communality--negative; and the highest degree obtained in Japan--positive, and by one social structural variable, size of the institution (negative). At T3, after students had been exposed to American culture for one year, the differential favorability attitude was greatly determined by its value at T2, and a small significant effect from DF(T1). Two endogenous variables had significant influences on DF(T3): expected IWA(T1)--negative, and IWA(T2)--positive. Three intra-individual characteristics influenced the differential favorability at T3, these three determinants were the personality traits "communality" (negative), "living place in Japan" (positive), and "easiness of social life in America" (negative). Although no significant main effects of size, orientation, or English were observed on DF(T3), the multiplicative interaction effect SOE (Size X

Table 3. Multiple Regression for Restricted Path Model of IWA, DF, and TF at T1, T2, T3, and T4

<u>Dependent Variables</u>	<u>df</u>	<u>F</u>	<u>P</u>	<u>1-R²</u>	<u>$\sqrt{1-R^2}$</u>
EXPD IWA:T1	3/62	1.39	ns	.94	.97
DF:T1	3/62	2.51	ns	.89	.94
TF:T1	3/62	5.26	<.01	.80	.89
IWA:T2	4/61	3.20	<.05	.82	.91
DF:T2	5/60	14.18	<.01	.46	.68
TF:T2	5/60	7.26	<.01	.62	.79
IWA:T3	6/59	34.63	<.01	.22	.47
DF:T3	9/56	21.54	<.01	.22	.47
TF:T3	7/58	8.61	<.01	.49	.70
DF:T4	5/39	9.07	<.01	.46	.68
TF:T4	6/38	17.16	<.01	.27	.52

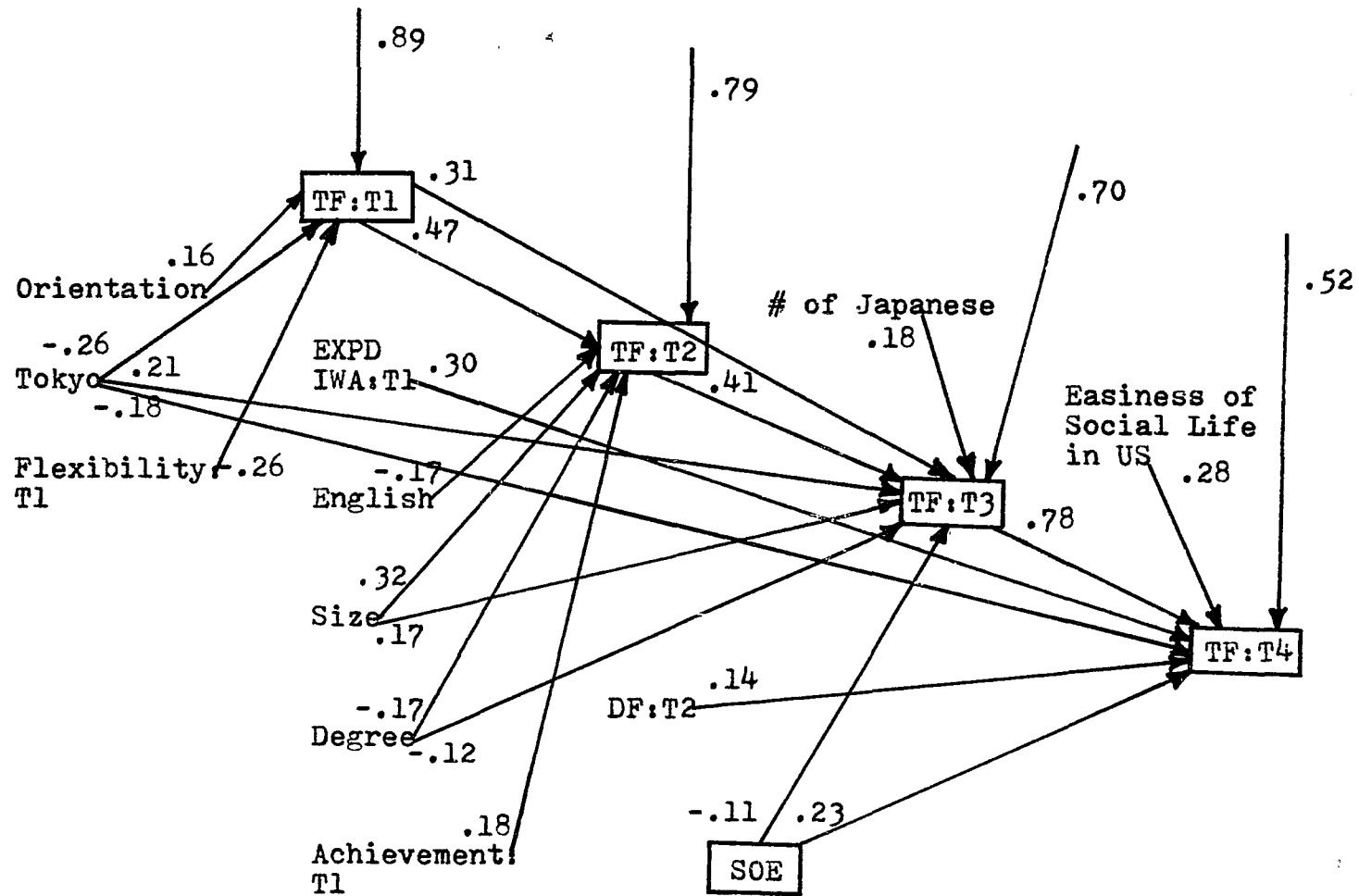


Figure 11. Restricted Causal Chain Model for TF (Total Favorability) with DF and IWA at T1, T2, T3, and T4.

Orientation X English) turned out to significantly influence the DF(T3). Upon their return to Japan, the students' differential favorability was determined by somewhat different variables from what had been observed in other times. Even though DF(T4) was greatly influenced by its preceding value, two other endogenous variables, total favorability and interaction with Americans at T2 had strong positive influences on DF(T4). Participation in an orientation program, as well as the personality trait "achievement via conformance," measured at T4 had negative influences on differential favorability at T4. No significant effect of SOE was observed.

The adequacy of the model for the causal chain of differential favorability was examined as before. These statistical results were shown in Table 3. In this causal chain, DF(T1) was not strongly supported by either of the statistical tests. This suggests that we might have to find some exogenous variables which will have a greater influence for DF(T1). Three other dependent variables in the model, i.e., DF(T2), DF(T3), and DF(T4) were adequately treated by this causal chain.

(5) TF(total favorability) measured at T1, T2, T3, and T4 with DF(T1, T2, T3, and T4), and IWA(T1, T2, and T3):

The causal chain for total favorability measured four times throughout the study was shown in Figure 11. The index of total favorability was based on the sum of the score obtained from the favorability toward America index, and the favorability toward Japan index. The higher the score of total favorability,

the greater the degree of favorable attitudes toward both America and Japan. At T1, while students were still in Japan, the total favorability was primarily determined by three exogenous variables: the intra-individual characteristics of "flexibility" (negative), and "living place (negative), and one social structural variable, the plan to participate in an orientation program in America (positive). At T2, this total favorability attitude was largely determined by students' attitude of total favorability measured at T1. For TF(T2), the social structural variable "size of the institution students had attended" influenced quite significantly (positive), and three intra-individual characteristics had significant impact on TF(T2): the personality trait "achievement via conformance" (positive), ability in English (negative), and the highest degree obtained in Japan (negative). After the exposure to American life ways for one academic year, students' total favorability was determined by somewhat different variables. TF(T3) was largely determined by the preceding TF(T2), with two intra-individual characteristics variables (i.e., living place in Japan--positive, and degree obtained in Japan--negative), and by two social structural variables, the size of the institution (positive), and the number of Japanese on campus (positive). Also, the interaction effect SOE (Size X Orientation X English) played a significantly negative role in the determination of the total favorability at T3, even though only one main effect, the size of the institution revealed significant for TF(T3). Upon their

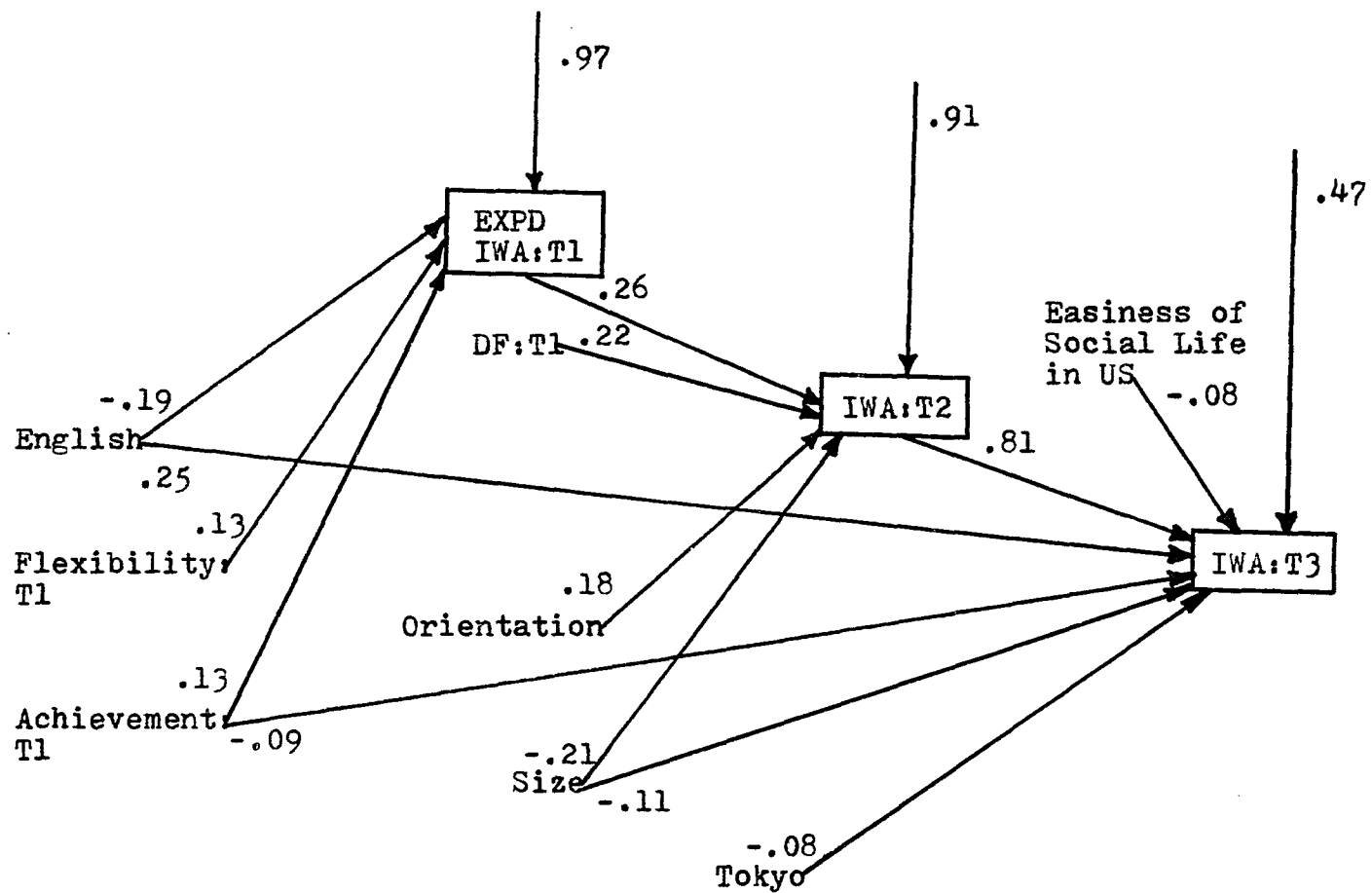


Figure 12. Restricted Causal Chain Model for IWA(Interaction with Americans) with DF and TF at T1, T2, and T3.

return to Japan, the students' total favorability was greatly determined by its previous value, and two other endogenous variables, expected IWA(T1), and DF(T2) played significantly positive roles in the determination of TF(T4). Two social structural variables, students' original living place in Japan before going to America, (which was highly correlated with the place of living in Japan upon their return ($r=.85$)) was significantly negative, and easiness of social life in America was significantly positive. In addition, the interaction effect SOE (Size X Orientation X English) appeared as a significant positive influence, although no main effects of size, orientation, or English by itself was significant.

The adequacy of the causal chain model was examined as before. The results are shown in Table 3. Examination of this table permits us to conclude that the restricted model for the causal chain for total favorability is valid, since the overall F tests for Tf(T1), TF(T2), TF(T3), and TF(T4) were significant, and the residual paths for each dependent variable were small.

(6) IWA(interaction with Americans) measured at T1, T2, and T3 with DF(T1, T2, and T3), and TF(T1, T2, and T3):

The results of the causal chain for interaction with Americans (IWA), with the differential favorability and total favorability indexes are shown in Figure 12. First of all, IWA(T2) was influenced largely by expected IWA(T1), and the Expected Interaction with Americans was influenced by three intra-individual characteristics, ability in English (negative),

the personality trait "flexibility" (positive), and "achievement via conformance" (positive). No social structural variables had a significant influence on expected IWA(T1). On the other hand, at T2 the interaction with Americans variable was influenced by no intra-individual characteristics, but by two social structural variables, orientation (positive), and size of the institution (negative). The interaction effect SOE turned out to be insignificant for IWA(T2). An endogenous variable, differential favorability at T1 had a significantly positive influence on IWA(T2).

After one academic year in America, the students' interaction with Americans was mostly determined by the preceding interaction with Americans at T2. Three intra-individual characteristics had an impact on IWA(T3): ability in English (positive), the personality trait "achievement via conformance" (negative), and original living place in Japan. Also, two social structural variables, size of the institution (negative) as well as the easiness of social life in America (negative) had some significant influences on their interaction with Americans at T3.

The adequacy of the causal chain for the students' interaction with Americans was determined as before. In this causal chain, expected IWA(T1) was not strongly supported by the independent variables. This suggests the need to investigate some other exogenous variables. The interaction with Americans at T2 and T3 in the causal chain were adequately represented in the model.

Table 4. Comparison of Full Path Model and Restricted Path Model of IWA(Interaction with Americans), FTA(Favorability toward America), and FTJ(Favorability toward Japan) at T1, T2, and T3

<u>Dependent Variables</u>	<u>Full Model</u>		<u>Restricted Model</u>	
	<u>R²</u>	<u>df</u>	<u>R²</u>	<u>df</u>
EXPD IWA:T1	.11	10	.06	3
FTA:T1	.18	10	.16	4
FTJ:T1	.16	9	.14	4
IWA:T2	.21 (.15)	12 (10)	.18 (.11)	5 (4)
FTA:T2	.39 (.09)	11 (10)	.36 (.07)	5 (3)
FTJ:T2	.59 (.37)	11 (12)	.59 (.34)	7 (7)
IWA:T3	.79 (.28)	17 (15)	.78 (.24)	6 (7)
FTA:T3	.68 (.35)	17 (15)	.66 (.30)	12 (6)
FTJ:T3	.72 (.46)	15 (15)	.70 (.44)	7 (7)

Table 5. Comparison of Full Path Model and Restricted Path Model of IWA(Interaction with Americans), DF(Differential Favorability), and TF(Total Favorability) at T1, T2, and T3

<u>Dependent Variables</u>	<u>Full Model</u>		<u>Restricted Model</u>	
	<u>R²</u>	<u>df</u>	<u>R²</u>	<u>df</u>
EXPD IWA:T1	.11	10	.06	3
DF:T1	.14	10	.11	3
TF:T1	.23	9	.20	3
IWA:T2	.21 (.15)	12 (10)	.17 (.12)	4 (4)
DF:T2	.56 (.12)	13 (12)	.54 (.06)	5 (2)
TF:T2	.40 (.22)	12 (12)	.38 (.21)	5 (6)
IWA:T3	.79 (.28)	17 (15)	.78 (.23)	6 (6)
DF:T3	.79 (.37)	17 (14)	.78 (.34)	9 (6)
TF:T3	.54 (.30)	16 (14)	.51 (.25)	7 (7)

It was found that the causal chain for interaction with Americans together with differential and total favorability showed a pattern very similar to that observed in the case of interaction with Americans together with favorability toward America and Japan.

6. Testing an Alternative Model

One of the significant aspects of path analysis is that it allows us to decide the selection of a specific path model over an alternative model. In this study, six restricted path models were created on the basis of F ratios of each independent variable. These restricted models were derived from the full models.

When we compare multiple R's (R^2) and degrees of freedom (df) of all the dependent variables used in the analyses between full models and restricted models, we are able to conclude that restricted models are good as the full models. The figures are shown in Tables 4 and 5. (Full models for dependent variables at T4 were not constructed since the small sample size at T4 did not allow us to introduce a large number of independent variables in the multiple regression equations.)

When we look at the variance explained (R^2) in Table 4 and 5, we can observe a clear pattern: as time progresses, the variance explained for each dependent variable continuously increases. We are satisfied with this trend, since our target variables are the final outcomes of Japanese scholars' attitudes and social relations, not their

initial values at T1. The pattern implies that the final attitudes of the Japanese students was more strongly explained as the time progresses by antecedent variables such as intra-individual characteristics, social structural, and multiplicative interaction variables. When previous values of the same variable were excluded from the regression, the amount of variance explained decreased drastically. (These variances are shown in parentheses in Tables 4 and 5.) Therefore, we can say that the variance was explained to a great extent by the stability of the dependent variable. This is taken as evidence in support of the "causal chain model" over the "historical model."

Close examination of the variance explained, without including the same variable at any previous time points, revealed, however, still a great proportion of variance of the dependent variables at T3 was explained as a social science research standard. When each pair of the same variable at T2 and T3, i.e., IWA(T2 vs. T3), FTA(T2 vs. T3), FTJ(T2 vs. T3), DF(T2 vs. T3), and TF(T2 vs. T3) were observed, it was noticed that the variance explained for all the variables at T3 is significantly larger than those of at T2. This is probably due to the fact that one of the criteria for the selection of variables in each path diagram was to regress the dependent variable at T3 on antecedent variables at previous time points, since the target of this study was to measure the degree of Japanese students' attitudinal and social adjustment at T3 when sojourners were used to the new cultural environment,

but not at T2 of students' early transition experience. This confirms that the selection of the variables in the model to account for students' adjustment was appropriate.

For each of the dependent variables, the residuals for the full models are only slightly smaller than those in restricted models. Degrees of freedom, which represent the number of independent variables in each of the multiple regressions, however, decreased drastically in the restricted model compared to the full models. This is evidence that in the full models many of the independent variables introduced in the multiple regression equations were of little impact, whereas in restricted models only strongly significant independent variables were retained in the equations in order to account for the dependent variables. Therefore, we can conclude that our selection of restricted models over the alternative models of full models was appropriate.

CHAPTER V

RESULTS: INTERACTION MODEL - MULTIVARIATE ANALYSIS OF VARIANCE

1. Multiplicative Interaction Effects

In regression analysis it is assumed that the effects of the independent variables are additive. This assumption implies that the relationship between the dependent variable and any given independent variable is the same across all values of the remaining independent variables, and no consideration for interactive relationships is given. Therefore, in the presence of these relationships, the use of the usual multiple regression equation will yield less than optimum predictions. The fit of the regression equation will not be as good as it could be if interactions between the independent variables were taken into account.

One partial approach to the problem of interaction is the inclusion of multiplicative terms in the regression equation. A multiplicative term is a product of two or more other terms. It is a new predictor variable created by multiplying scores on one predictor by corresponding scores on one or more others. For example, the equation $Y' = A + B_1X_1 + B_2X_2 + B_3X_1X_2$ includes the two predictors (factors) X_1 and X_2 and the multiplicative term X_1X_2 created by multiplying X_1 scores by corresponding X_2 scores. While this equation is still "additive" in form, the multiplicative term represents part

of the joint effect of X_1 and X_2 over and above the sum of B_1X_1 and B_2X_2 .

$$Y' = A + B_1X_1 + B_2X_2 + B_3X_1X_2$$

\uparrow \uparrow \uparrow \uparrow
 Mean Main Main Interaction Effect
 Effect Effect Effect (multiplicative effect
 of X_1 of X_2 of X_1 and X_2)

If a regression equation includes more than two predictors (factors), many more multiplicative terms may be required. The number of effects equal to 2^k (where k =number of independent variables), which includes the mean effect, the main effects, and all interaction effects. For the case of three independent variables, the relationship is shown in the following equation:

$$Y' = A + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_1X_2 + B_5X_1X_3 + B_6X_2X_3 + B_7X_1X_2X_3$$

Note that there are eight (2^3) effects represented in this equation.

The multivariate analysis of variance allows us to test the significance of interaction effects in cases where there are two or more dependent variables. Observing the patterns of the deviations from the grand mean for each cell in an n -way factorial design allows us to find the nature of these effects.

The significance of using this statistical technique in analyzing the data of this study is based on the assumption stipulated in Chapter I that human behavior is extraordinarily complicated and cannot be fully understood from any univariate perspective; we have to look at behavior from the standpoint of the effect of multiple factors on

human behavior, comprised of multiple facets.

In the Japanese scholars' adjustment, there exist at least two broad problems, one the psychological nature of their attitudes, the other the adjustment of social relations with other people. These different levels of adjustment enter into an individual, and are internalized within him. Then, when he behaves in a social situation, this individual is perceived by others as having certain behaviors. At the same time, any human behavior cannot be adequately analyzed from a single factor or predictor, and we have to take into account the possibility of multiplicative interaction effects of many independent variables.

2. Selection of Variables in the Interaction Model

The variables to be used as the independent and dependent variables in the analysis of variance were the same ones used in testing the additive model by means of path analysis. Multivariate analysis of variance was computed for four different data set, i.e., for each set at T1, T2, T3, and T4.

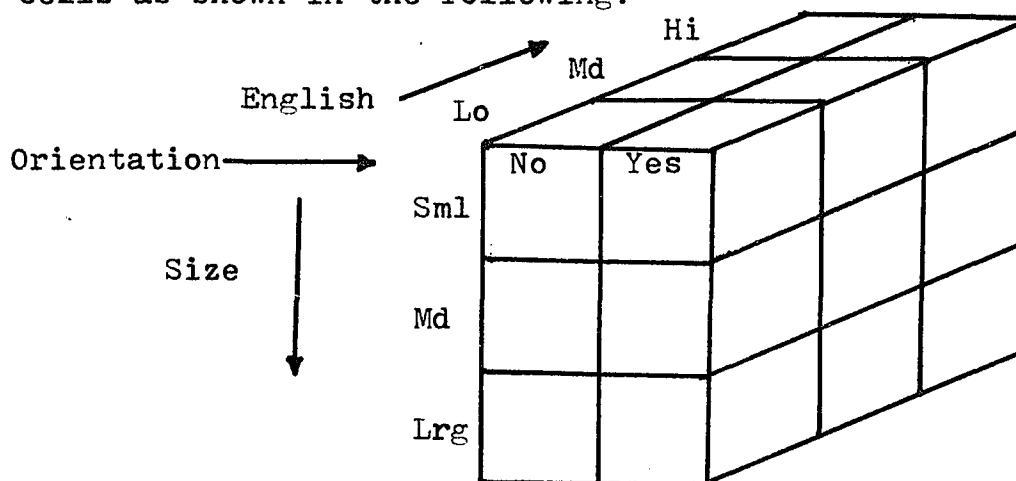
a. Independent Variables

To test the effects of intra-individual characteristics, and of the social structure, it was decided to include three variables: 1. Size of the institution that a student attended in America (this variable was measured while the student was in Japan, since he knew this before his departure), and this variable was trichotomized into small-medium-large, and it was considered one of the social structural variables.

2. The other social structural variable is the participation in an orientation program. This variable was also measured at T1 since students knew whether or not they would attend orientation programs in the United States before their departure. This variable was dichotomized as No-Yes.

3. The third factor included was the students' ability in English students were asked to report the scores of the standard English ability test (Test of English as a Foreign Language-TOEFL) which they had to take in Japan before they were admitted to the American educational institutions. (The TOEFL is administered by the Educational Testing Service at Princeton University, and the examination is not emphasizing to measure the conversational English ability, but places more emphasis on the grammatical context of the English language.) The score of the students ranged from the 370 points to 664 points, with a mean of 515. This variable was trichotomized into low-medium-high.

This design is therefore conceived as a 3 x 2 x 3 factorial design, and each subject was placed in one of the 18 cells as shown in the following:



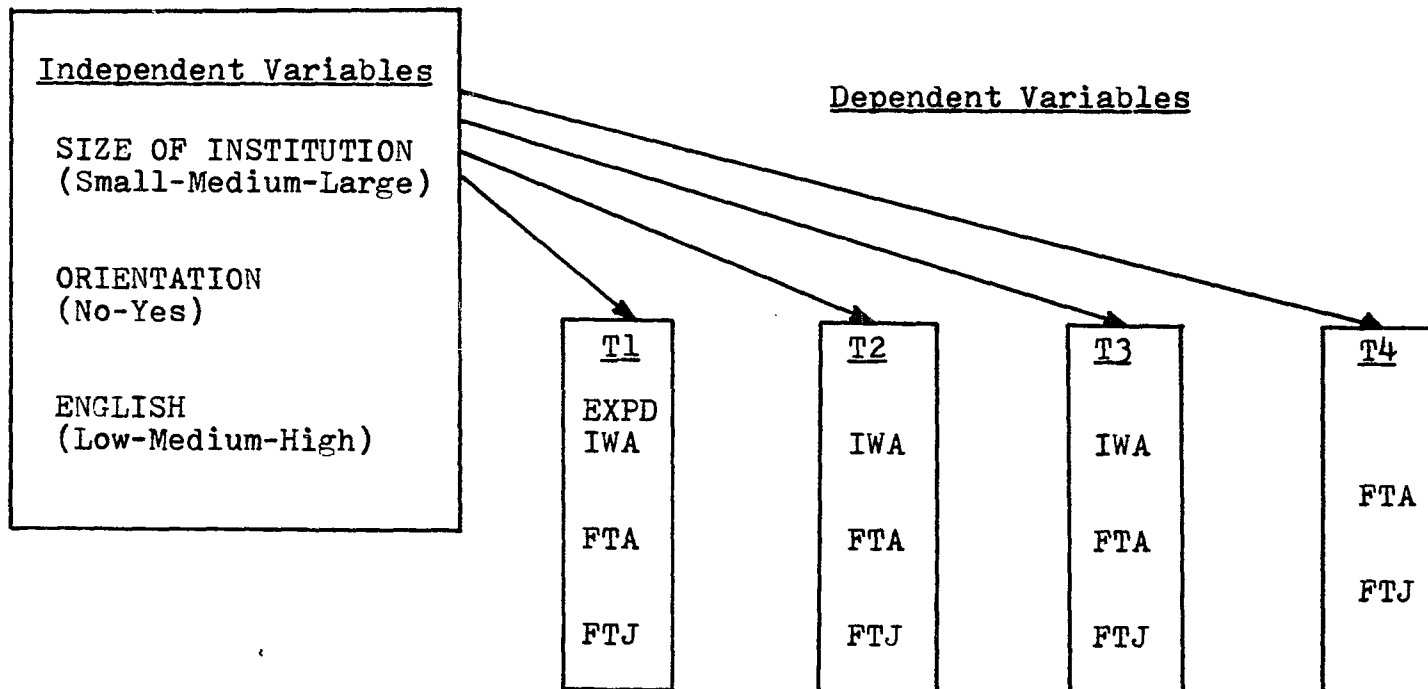


Figure 13. Causal Model for IWA(Interaction with Americans), FTA(Favorability toward America), and FTJ(Favorability toward Japan) in Multivariate Analysis of Variance at T1, T2, T3, and T4.

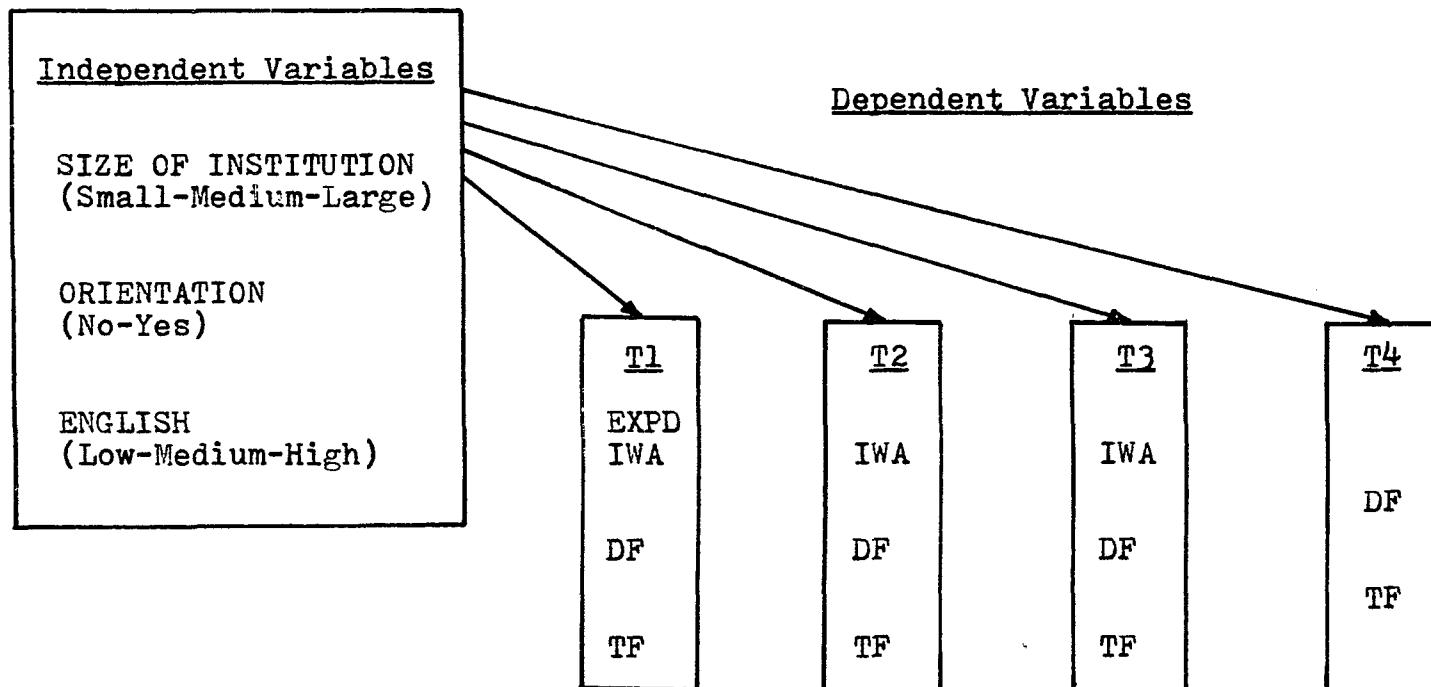


Figure 14. Causal Model for IWA(Interaction with Americans), DF(Differential Favorability), and TF(Total Favorability) in Multivariate Analysis of Variance at T1, T2, T3 and T4.

When the cells in the design had no cases, the Yates method to estimate value to replace missing data was applied. Each missing value is estimated as

$$Y_{ij} = G + R_i + C_j + e_{ij},$$

where G is the overall mean, R is an effect due to the i row, C is an effect due to the j column, and e is a random element. Each value is computed through interactive use of the formula.

$$(rR + cC - G) / (r - 1) (c - 1),$$

where r is the number of rows, c is the number of columns, and R , C , and G are partial row, column, and grand totals without the missing value. (Reference: MANOVA 2, OSIRIS III, vol.5).

The dependent variables were the Interaction with Americans index, the Favorability toward America index, the Favorability toward Japan index, the Differential Favorability index, and the Total Favorability index.

Relationships between the independent variables (factors) and the multivariate tests are presented in Figures 13 and 14. As is seen from these figures and from the above explanation, we are testing the simultaneous effect of the size of the institution where each student attended in America, participation in an orientation program in America, and student's original English ability measured before he was exposed to American culture, on his behavior, which was comprised of favorability attitudes and amount of interaction with Americans.

Table 6. Analysis of Variance for EXPD IWA:T1, FTA:T1, and FTJ:T1 by Size x Orientation x English

<u>Effect</u>	<u>Multivariate Test</u>		<u>Univariate Test</u>	
	<u>F</u>	<u>df</u>	<u>F</u>	<u>df</u>
SIZE x ORIENTATION x ENGLISH	19.81**	12/204.01	EXPD	
			IWA:T1	37.09** 4/79
			FTA:T1	20.66**
			FTJ:T1	35.89**
SIZE x ORIENTATION	.27	6/154	EXPD	
			IWA:T1	.64 2/79
			FTA:T1	.08
			FTJ:T1	.05
SIZE x ENGLISH	1.06	12/204.01	EXPD	
			IWA:T1	2.74* 4/79
			FTA:T1	.52
			FTJ:T1	.24
ORIENTATION x ENGLISH	1.17	6/154	EXPD	
			IWA:T1	1.64 2/79
			FTA:T1	2.02
			FTJ:T1	.08
SIZE	1.33	6/154	EXPD	
			IWA:T1	.12 2/79
			FTA:T1	3.21*
			FTJ:T1	1.64
ORIENTATION	3.78*	3/77	EXPD	
			IWA:T1	.45 1/79
			FTA:T1	1.44
			FTJ:T1	8.01
ENGLISH	.21	6/154	EXPD	
			IWA:T1	.26 2/79
			FTA:T1	.01
			FTJ:T1	.25
GRAND MEAN	2939.16**	3/77	EXPD	
			IWA:T1	2375.10** 1/79
			FTA:T1	1953.55**
			FTJ:T1	2620.26**

* p<.05
** p<.01

Table 7. Analysis of Variance for IWA:T2, FTA:T2, and FTJ:T2 by Size x Orientation x English

<u>Effect</u>	<u>Multivariate Test</u>		<u>Univariate Test</u>		
	<u>F</u>	<u>df</u>		<u>F</u>	<u>df</u>
SIZE x ORIENTATION x ENGLISH	16.31**	12/185.49	IWA:T2	16.09**	4/72
			FTA:T2	34.20**	
			FTJ:T2	49.47**	
SIZE x ORIENTATION	.57	6/140	IWA:T2	1.11	2/72
			FTA:T2	.34	
			FTJ:T2	.26	
SIZE x ENGLISH	.97	12/185.49	IWA:T2	1.54	4/72
			FTA:T2	.83	
			FTJ:T2	.35	
ORIENTATION x ENGLISH	1.09	6/140	IWA:T2	.37	2/72
			FTA:T2	2.53	
			FTJ:T2	.14	
SIZE	2.09	6/140	IWA:T2	2.51	2/72
			FTA:T2	.70	
			FTJ:T2	2.83	
ORIENTATION	1.07	3/70	IWA:T2	1.65	1/72
			FTA:T2	.30	
			FTJ:T2	1.38	
ENGLISH	.62	6/140	IWA:T2	.16	2/72
			FTA:T2	.26	
			FTJ:T2	1.30	
GRAND MEAN	1830.65**	3/70	IWA:T2	684.55**	1/72
			FTA:T2	2086.58**	
			FTJ:T2	2675.66**	

* p<.05
** p<.01

Table 8. Analysis of Variance for IWA:T3, FTA:T3, and FTJ:T3 by Size x Orientation x English

<u>Effect</u>	<u>Multivariate Test</u>		<u>Univariate Test</u>		
	<u>F</u>	<u>df</u>		<u>F</u>	<u>df</u>
SIZE x ORIENTATION x ENGLISH	22.57**	12/148.45	IWA:T3	31.29**	4/58
			FTA:T3	64.97	
			FTJ:T3	73.62	
SIZE x ORIENTATION	1.12	6/112	IWA:T3	2.90	2/58
			FTA:T3	.62	
			FTJ:T3	.07	
SIZE x ENGLISH	1.53	12/148.45	IWA:T3	3.07*	4/58
			FTA:T3	1.25	
			FTJ:T3	.20	
ORIENTATION x ENGLISH	.89	6/112	IWA:T3	.84	2/58
			FTA:T3	1.11	
			FTJ:T3	.95	
SIZE	2.80*	6/112	IWA:T3	3.98*	2/58
			FTA:T3	.76	
			FTJ:T3	5.80	
ORIENTATION	.79	3/56	IWA:T3	1.93	1/58
			FTA:T3	.01	
			FTJ:T3	.21	
ENGLISH	1.19	6/112	IWA:T3	2.80	2/58
			FTA:T3	.68	
			FTJ:T3	1.37	
GRAND MEAN	1906.45**	3/56	IWA:T3	751.00**	1/58
			FTA:T3	1951.50**	
			FTJ:T3	2182.44**	

* p<.05
** p<.01

Table 9. Analysis of Variance for FTA:T4 and FTJ:T4 by Size x Orientation x English

<u>Effect</u>	<u>Multivariate Test</u>		<u>Univariate Test</u>		
	<u>F</u>	<u>df</u>		<u>F</u>	<u>df</u>
SIZE x ORIENTATION x ENGLISH	41.59**	8/62	FTA:T4	113.49**	4/32
			FTJ:T4	136.22**	
SIZE x ORIENTATION	6.59**	4/62	FTA:T4	7.31**	2/32
			FTJ:T4	6.32**	
SIZE x ENGLISH	30.90**	8/62	FTA:T4	64.59**	4/32
			FTJ:T4	78.12**	
ORIENTATION x ENGLISH	.24	4/62	FTA:T4	.36	2/32
			FTJ:T4	.18	
SIZE	1.59	4/62	FTA:T4	1.70	2/32
			FTJ:T4	2.18	
ORIENTATION	2.97	2/31	FTA:T4	.36	1/32
			FTJ:T4	6.11*	
ENGLISH	.60	4/62	FTA:T4	1.05	2/32
			FTJ:T4	.34	
GRAND MEAN	1844.67**	2/31	FTA:T4	1494.48**	1/32
			FTJ:T4	1658.14**	

* p<.05
** p<.01

Table 10. Analysis of Variance for EXPD IWA:T1, DF:T1, and TF:T1 by Size x Orientation x English

<u>Effect</u>	<u>Multivariate Test</u>		<u>Univariate Test</u>		
	<u>F</u>	<u>df</u>	<u>F</u>	<u>df</u>	
SIZE x ORIENTATION x ENGLISH	9.12**	12/204.01	EXPD		
			IWA:T1	37.09**	4/79
			DF:T1	.09	
			TF:T1	.51	
SIZE x ORIENTATION	.25	6/154	EXPD		
			IWA:T1	.64	2/79
			DF:T1	.07	
			TF:T1	.05	
SIZE x ENGLISH	1.07	12/204.01	EXPD		
			IWA:T1	2.74*	4/79
			DF:T1	.09	
			TF:T1	.65	
ORIENTATION x ENGLISH	1.10	6/154	EXPD		
			IWA:T1	1.64	2/79
			DF:T1	.78	
			TF:T1	1.54	
SIZE	.90	6/154	EXPD		
			IWA:T1	.12	2/79
			DF:T1	2.17	
			TF:T1	.52	
ORIENTATION	2.57	3/77	EXPD		
			IWA:T1	.45	1/79
			DF:T1	.42	
			TF:T1	7.60**	
ENGLISH	.23	6/154	EXPD		
			IWA:T1	.26	2/79
			DF:T1	.08	
			TF:T1	.23	
GRAND MEAN	823.35**	3/77	EXPD		
			IWA:T1	2375.10**	1/79
			DF:T1	.09	
			TF:T1	.06	

* p < .05
 ** p < .01

Table 11. Analysis of Variance for IWA:T2, DF:T2, and TF:T2 by Size x Orientation x English

<u>Effect</u>	<u>Multivariate Test</u>		<u>Univariate Test</u>	
	<u>F</u>	<u>df</u>	<u>F</u>	<u>df</u>
SIZE x ORIENTATION x ENGLISH	4.46**	12/185.49	IWA:T2 16.09**	4/72
			DF:T2 .26	
			TF:T2 .07	
SIZE x ORIENTATION	.52	6/140	IWA:T2 1.11	2/72
			DF:T2 .21	
			TF:T2 .24	
SIZE x ENGLISH	.84	12/185.49	IWA:T2 1.54	4/72
			DF:T2 .31	
			TF:T2 .40	
ORIENTATION x ENGLISH	.97	6/140	IWA:T2 .37	2/72
			DF:T2 .21	
			TF:T2 2.13	
SIZE	2.63	6/140	IWA:T2 2.51	2/72
			DF:T2 1.06	
			TF:T2 3.85*	
ORIENTATION	1.65	3/70	IWA:T2 1.65	1/72
			DF:T2 1.65	
			TF:T2 1.71	
ENGLISH	.73	6/140	IWA:T2 .16	2/72
			DF:T2 .50	
			TF:T2 1.36	
GRAND MEAN	231.15**	3/70	IWA:T2 684.55**	1/72
			DF:T2 .00**	
			TF:T2 .00**	

* p<.05
** p<.01

Table 12. Analysis of Variance for IWA:T3, DF:T3, and TF:T3 by Size x Orientation x English

Effect	Multivariate Test			Univariate Test	
	F	df		F	df
SIZE x ORIENTATION x ENGLISH	7.88**	12/148.45	IWA:T3	31.29**	4/58
			DF:T3	.68	
			TF:T3	1.29	
SIZE x ORIENTATION	1.03	6/112	IWA:T3	2.90	2/58
			DF:T3	.22	
			TF:T3	.36	
SIZE x ENGLISH	1.28	12/148.45	IWA:T3	3.07*	4/58
			DF:T3	.40	
			TF:T3	.43	
ORIENTATION x ENGLISH	.82	6/112	IWA:T3	.84	2/58
			DF:T3	.20	
			TF:T3	1.65	
SIZE	3.06**	6/112	IWA:T3	3.98*	2/58
			DF:T3	3.43*	
			TF:T3	3.02	
ORIENTATION	1.30	3/56	IWA:T3	1.93	1/58
			DF:T3	.90	
			TF:T3	.24	
ENGLISH	1.09	6/112	IWA:T3	2.80	2/58
			DF:T3	1.22	
			TF:T3	.07	
GRAND MEAN	259.47**	3/56	IWA:T3	751.00**	1/58
			DF:T3	.00	
			TF:T3	.00	

* p<.05
** p<.01

Table 13. Analysis of Variance for DF:T4 and TF:T4 by Size x Orientation x English

<u>Effect</u>	<u>Multivariate Test</u>			<u>Univariate Test</u>	
	<u>F</u>	<u>df</u>		<u>F</u>	<u>df</u>
SIZE x ORIENTATION x ENGLISH	.37	8/62	DF:T4 TF:T4	.75 .02	4/32
SIZE x ORIENTATION	.13	4/62	DF:T4 TF:T4	.02 .25	2/32
SIZE x ENGLISH	1.11	8/62	DF:T4 TF:T4	1.51 .83	4/32
ORIENTATION x ENGLISH	.26	4/62	DF:T4 TF:T4	.12 .45	2/32
SIZE	1.79	4/62	DF:T4 TF:T4	3.67* .17	2/32
ORIENTATION	2.13	2/31	DF:T4 TF:T4	3.27 .95	1/32
ENGLISH	.28	4/62	DF:T4 TF:T4	.49 .11	2/32
GRAND MEAN	.06	2/31	DF:T4 TF:T4	.04 .09	1/32

* p<.05
** p<.01

3. Findings and Discussion

When we have three variates to test simultaneously in 3 x 2 x 3 factorial design, the following regression equation represents all the possible eight effects:

$$Y' = A + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_1X_2 + B_5X_1X_3 + B_6X_2X_3 + B_7X_1X_2X_3,$$

which was discussed earlier in this chapter. Results of eight multivariate analysis of variance tests are shown in Tables 6 to 13.

a. Test of the Interaction Effect on IWA, FTA, and FTJ

The 3-way interaction effect on multivariate tests was tested. At T1, the dependent variables were Expected Interaction with Americans, Favorability toward America, and Favorability toward Japan; at T2, Interaction with Americans, Favorability toward America, and Favorability toward Japan; at T3, Interaction with Americans, Favorability toward America, and Favorability toward Japan; and at T4, Favorability toward America, and Favorability toward Japan.

Throughout these tests the 3-way interaction effect SOE (Size X Orientation X English) was significant for both multivariate tests and univariate tests ($p < .01$). This means that the multiplicative interaction effect of one intra-individual characteristics variable (English ability) and two social structural variables--size of institution and participation in an orientation program--are significantly noticeable in Japanese students' attitudes (i.e., Favorability toward America, and Favorability toward Japan) and social relations (Interaction with Americans). These

3-way multiplicative interaction effects were also strongly significant on all the univariate tests.

The 2-way interaction effects (Size X Orientation; Size X English; or Orientation X English) were not significant except in two cases at T⁴, Size X Orientation, and Size X English, where these 2-way interaction effects were significant at $p < .01$ level.

As for the main effect of each independent variable included in this 3-way multivariate analysis of variance, only two instances were observed to be significant: one the effect of the orientation plan at T¹ on Expected Interaction with Americans, Favorability toward America, and Favorability toward Japan, with a significance level of $p < .05$; the other the effect of the size of the institution on interaction with Americans, favorability toward America, and favorability toward Japan(T³), with a significance level of $p < .01$.

b. Test of Interaction Effect on IWA, DF, and TF

The 3-way interaction effect (Size X Orientation X English) on multivariate (interaction with Americans, differential favorability, and total favorability) dependent variables was conducted. At T¹, dependent variables expected interaction with Americans, differential favorability, and total favorability at T², interaction with Americans, differential favorability, and total favorability; at T³, interaction with Americans, differential favorability, and total favorability; and at T⁴, differential favorability,

and total favorability.

The effects of 3-way interaction were significant at T1, T2, and T3 at a significance level of $p < .01$. At T4, however, this interaction effect was insignificant, where no interaction with Americans (IWA) index was included in multivariate test. It was noticed from the findings at T1, T2, and T3 that this 3-way interaction effects predominantly determined the variable interaction with Americans. The multiplicative interaction effect of Size, Orientation, and English had significant impact on interaction with Americans, but not on differential favorability nor total favorability of the students. Therefore, at the T4 stage, without the inclusion of the interaction with Americans index (since this index was not measured at T4) in multivariate test, the result of the F-ratio for multivariate test showed that the 3-way multiplicative interaction effect was insignificant for both the multivariate and the univariate tests of both differential favorability and total favorability. The interaction effects of Size, Orientation, and English had a strongly significant ($p < .01$) effect on the degree of one's interaction with Americans, but not on the degree of one's differential favorability nor on total favorability.

No significant results were obtained for the 2-way interaction effects, i.e., Size X Orientation; Size X English; or Orientation X English) throughout the four time periods.

As for the main effects, two instances were significant; the one the effect of size of the institution on multivariate

test at T2 ($p < .05$). This significant main effect in the multivariate test was confirmed by the univariate test in which it was found that this main effect was only significant on total favorability ($p < .05$); the other, the effect of size of the institution in the multivariate test at T3 ($p < .01$). In this instance, contrary to the finding obtained at T2, the main effect of size of the institution has significant influence on both the degree of the interaction with Americans ($p < .05$), and on differential favorability ($p < .05$), but not on the degree of total favorability.

From these findings, we can conclude that this multiplicative interaction effect is statistically significant in Japanese scholars' attitudes and social relations. When these attitudes and social relations were observed from a single perspective of either psychological reductionism, or sociological reductionism, the main effects of each variable on behavior were not strongly significant. Therefore, the findings suggest that human behavior should be analyzed from the standpoint of a larger theory where personality and social structural variables are combined together to see complicated multi-faceted human behaviors.

4. Observations of 3-way Analysis of Variance Cell Means

The multivariate analysis of variance includes both a multivariate test where dependent variables are two or more, and a univariate test where only one dependent variable is the object of study. Some times certain human behavior is the outcomes of highly intercorrelated attitudes. For

Independent Variables

Dependent Variables

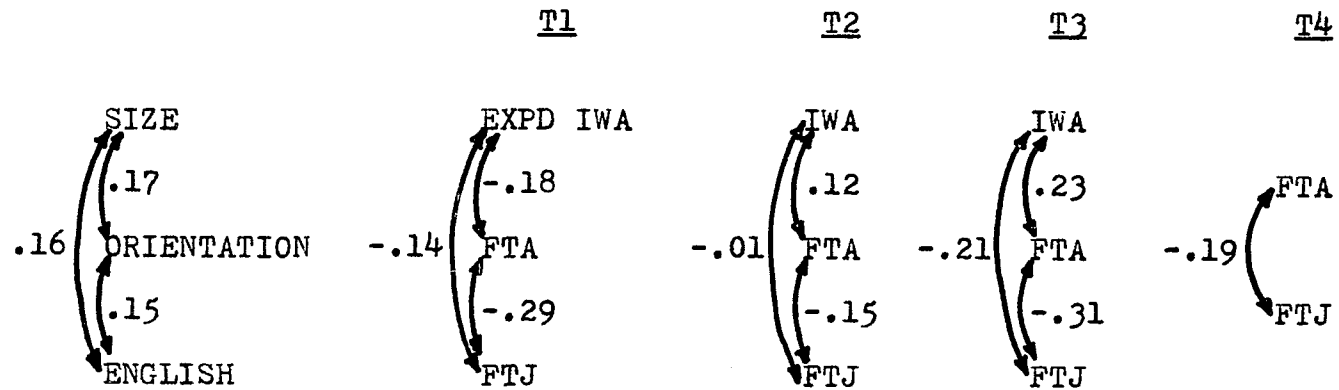


Figure 15. Zero-order Correlations between Variables Used in Multivariate Analysis of Variance in IWA(Interaction with Americans), FTA(Favorability toward America), and FTJ(Favorability toward Japan) Model at T1, T2, T3, and T4.

Independent Variables

Dependent Variables

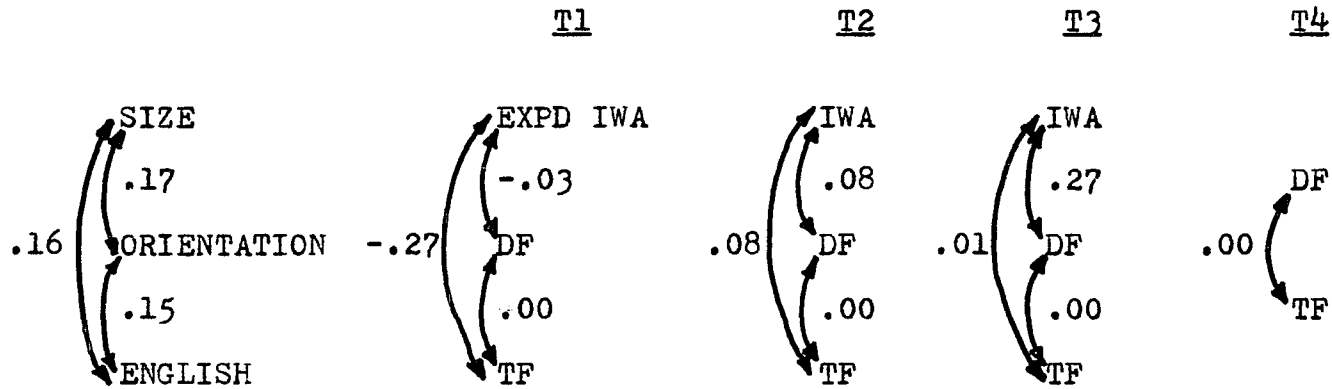


Figure 16. Zero-order Correlations between Variables Used in Multivariate Analysis of Variance in IWA(Interaction with Americans), DF(Differential Favorability), and TF(Total Favorability) Model at T1, T2, T3, and T4.

example, if a person is highly prejudiced against Blacks, he has tendency to show a high degree of prejudice against Jews. In this situation, examining the significance of the multivariate test is appropriate for the effect of certain independent variables, since these two dependent variables merely represent racial prejudice under different names. On the other hand, there are situations where intercorrelation within multi-dependent variables are relatively low. One example of this situation is that the effect of a drug may be on blood pressure and heart rate, as well as temperature, simultaneously. In this case, the multivariate test combining these three dependent variables (blood pressure, heart rate, and temperature) tells the overall significance of the effect of certain independent variable (the drug). On the other hand, however, if one examines the univariate test taking each dependent variable separately, he will be able to obtain information about the effects of certain independent variables on each single dependent variable. If one is particularly interested in observing the effects of the pattern of certain independent variables on a specific dependent variable at one time, it may be appropriate to examine the results of the univariate test in multivariate analysis of variance, i.e., examination of n-way analysis of variance.

In this study, the multivariate analysis of variance was utilized to examine students' attitudes and social relations. Pearson correlation coefficients shown in Figures 15 and 16 reveal that these dependent variables were not

Table 14. Mean Scores and Deviations from Grand Mean for FTA at T1, T2, T3, and T4 by Size x Orientation x English

		T1		T2		T3		T4	
		N=97 X=3.49		N=90 X=3.62		N=76 X=3.84		N=50 X=4.22	
		<u>English</u>		<u>English</u>		<u>English</u>		<u>English</u>	
		Low	High	Low	High	Low	High	Low	High
<u>No Orientation</u>	Small	(-.07) 3.42 n=24	(-.29) 3.20 n=5	(-.05) 3.57 n=21	(-.37) 3.25 n=4	(.10) 3.94 n=15	(-.34) 3.50 n=4	(.03) 4.25 n=8	(-.22) 4.00 n=2
	Large	(-.10) 3.39 n=23	(.09) 3.58 n=12	(.00) 3.62 n=21	(.38) 4.00 n=12	(-.21) 3.63 n=19	(.36) 4.20 n=10	(-.22) 4.00 n=14	(.45) 4.67 n=6
<u>Orientation</u>	Small	(.08) 3.57 n=7	(-.49) 3.00 n=2	(.05) 3.67 n=6	(-.62) 3.00 n=1	(-.17) 3.67 n=6	(-.84) 3.00 n=1	(.03) 4.25 n=4	(-1.22) 3.00 n=1
	Large	(.41) 3.90 n=10	(.08) 3.57 n=14	(.28) 3.90 n=10	(-.29) 3.33 n=15	(.16) 4.00 n=8	(.08) 3.92 n=13	(-.05) 4.17 n=6	(.22) 4.44 n=9

Table 15. Mean Scores and Deviations from Grand Mean for FTJ(Favorability toward Japan) at T1, T2, T3, and T4 by Size x Orientation x English

		T1		T2		T3		T4	
		N=97 \bar{X} =3.69		N=90 \bar{X} =3.91		N=76 \bar{X} =3.87		N=50 \bar{X} =3.80	
		<u>English</u>		<u>English</u>		<u>English</u>		<u>English</u>	
		Low	High	Low	High	Low	High	Low	High
<u>Size</u>	<u>No Orientation</u>	(-.15) 3.54 n=24	(-.09) 3.60 n=5	(.29) 3.62 n=21	(-.16) 3.75 n=4	(.27) 3.60 n=15	(.37) 3.50 n=4	(-.17) 3.63 n=8	(-.30) 3.50 n=2
	Large	(-.03) 3.66 n=23	(.36) 3.33 n=12	(.09) 4.00 n=21	(.01) 3.92 n=12	(.13) 4.00 n=19	(.13) 4.00 n=10	(-.01) 3.79 n=14	(-.47) 3.33 n=6
<u>Size</u>	<u>Orientation</u>	(.31) 4.00 n=7	(.31) 4.00 n=2	(.09) 4.00 n=6	(.09) 4.00 n=1	(-.20) 3.67 n=6	(.13) 4.00 n=1	(-.05) 3.75 n=4	(.20) 4.00 n=1
	Large	(.31) 4.00 n=10	(.24) 3.93 n=14	(.29) 4.20 n=10	(.09) 4.00 n=15	(.50) 4.37 n=8	(-.10) 3.77 n=13	(.53) 4.33 n=6	(.20) 4.00 n=9

Table 16. Mean Scores and Deviations from Grand Mean for DF(Differential Favorability) at T1, T2, T3, and T4 by Size x Orientation x English

		T1		T2		T3		T4	
		N=97 X̄=-.05		N=90 X̄=.01		N=76 X̄=-.01		N=50 X̄=.04	
		<u>English</u>		<u>English</u>		<u>English</u>		<u>English</u>	
		Low	High	Low	High	Low	High	Low	High
<u>Size</u>	<u>No Orientation</u>	(.13) .08 n=24	(-.15) -.20 n=5	(.32) .33 n=21	(-.01) .00 n=4	(.54) .53 n=15	(.01) .00 n=4	(.71) .75 n=8	(-.54) -.50 n=2
	Small								
	Large	(-.08) -.13 n=23	(.38) .33 n=12	(.04) .05 n=21	(.32) .33 n=12	(-.36) -.37 n=19	(.51) .50 n=10	(-.25) -.21 n=14	(1.13) 1.17 n=6
	<u>Orientation</u>	(-.38) -.43 n=7	(-.95) -1.00 n=2	(-.18) -.17 n=6	(-1.01) -1.00 n=1	(-.32) -.33 n=6	(-.99) -1.00 n=1	(-.04) .00 n=4	(-2.04) -2.00 n=1
Small									
Large	(.05) .00 n=10	(-.09) -.14 n=14	(-.31) -.30 n=10	(-.41) -.40 n=15	(-.61) -.62 n=8	(.09) .08 n=13	(-1.04) -1.00 n=6	(.07) .11 n=9	

Table 17. Mean Scores and Deviations from Grand Mean for TF(Total Favorability) at T1, T2, T3, and T4 by Size x Orientation x English

		T1		T2		T3		T4	
		N=97 X̄=.03		N=90 X̄=.00		N=76 X̄=.00		N=50 X̄=-.06	
		<u>English</u>		<u>English</u>		<u>English</u>		<u>English</u>	
		Low	High	Low	High	Low	High	Low	High
<u>No Orientation</u>	Small	(-.28)	(-.43)	(-.95)	(-.75)	(-.40)	(-.50)	(-.19)	(-.44)
		-.25	-.40	-.95	-.75	-.40	-.50	-.25	-.50
		n=24	n=5	n=21	n=4	n=15	n=4	n=8	n=2
	Large	(-.38)	(.05)	(.19)	(.33)	(.00)	(.50)	(-.30)	(.23)
-.35		.08	.19	.33	.00	.50	-.36	.17	
	n=23	n=12	n=21	n=12	n=19	n=10	n=14	n=6	
<u>Orientation</u>	Small	(.68)	(-.03)	(.34)	(.00)	(-.33)	(-1.00)	(.00)	(-.94)
		.71	.00	.34	.00	-.33	-1.00	.00	-1.00
		n=7	n=2	n=6	n=1	n=6	n=1	n=4	n=1
	Large	(.87)	(.26)	(1.10)	(-.27)	(.88)	(-.08)	(.56)	(.28)
.90		.29	1.10	-.27	.88	-.08	.50	.22	
	n=10	n=14	n=10	n=15	n=8	n=13	n=6	n=9	

Table 18. Mean Scores and Deviations from Grand Mean for IWA(Interaction with Americans) at T1, T2, T3, and T4 by Size x Orientation x English

		T1		T2		T3	
		$\frac{N=97}{\bar{X}=2.25}$		$\frac{N=90}{\bar{X}=2.82}$		$\frac{N=76}{\bar{X}=2.76}$	
		<u>English</u>		<u>English</u>		<u>English</u>	
		Low	High	Low	High	Low	High
<u>No Orientation</u>	Small	(.13)	(-.05)	(.13)	(.43)	(-1.38)	(1.49)
		2.38	2.20	2.95	3.25	1.38	4.25
	Large	n=24	n=5	n=21	n=4	n=15	n=4
		(-.03)	(-.08)	(-.24)	(.40)	(-.07)	(.14)
	2.22	2.17	2.58	2.42	2.69	2.90	
	n=23	n=12	n=21	n=12	n=19	n=10	
<u>Orientation</u>	Small	(-.25)	(-.25)	(-.15)	(-.82)	(.24)	(-.76)
		2.00	2.00	2.67	2.00	3.00	2.00
	Large	n=7	n=2	n=6	n=1	n=6	n=1
		(-.05)	(.11)	(.18)	(.38)	(.74)	(.62)
	2.20	2.36	3.00	3.20	3.50	3.38	
	n=10	n=14	n=10	n=15	n=8	n=13	

significantly correlated with each other. Therefore, it is possible to use the results of the univariate test of 3-way analysis of variance. In order to find the pattern in the 3-way analysis of variance, it was decided to observe the cell means. Originally, this study was a 3 x 2 x 3 factorial design, and each 3-way analysis of variance had 18 cells. In order to have a clear grasp of the effects of the changes in the pattern of independent variables throughout four time periods, the original 3 x 2 x 3 factorial design was modified into a 2 x 2 x 2 factorial design with two levels of size of the institution (small vs. large), two levels of the participation in an orientation program (no orientation vs. orientation), and English ability (low vs. high). Therefore, this design became a 3-way analysis of variance with eight cells.

Results of the findings concerning the changes in the pattern of cell means, deviations from grand mean, and number of cases for each cell for each dependent variable are shown in Tables 14 to 18.

Each of these tables contain four factors simultaneously, i.e., size of the institution, orientation program, ability in English, and time. Thus, we can see the trend of these factors for each dependent variable.

Examining the original data, it was found that respondent answers to the question of the size of the institution they attended in America was confounded to a great extent with the general prestige of the institution. This was mainly because the question of the size of the

Table 19. Participation in Orientation Program by Level of English Ability and Size of Institution Attended

		ENGLISH		SIZE	
		Low	High	Small	Large
NO Orientation		73% n=47	52% n=17	76% n=29	59% n=35
Orientation		27% n=17	48% n=16	24% n=9	41% n=24
		100% n=64	100% n=33	100% n=38	100% n=59
		N=97		N=97	

institution was asked at T1 when students were in Japan and they did not have realistic views about the size of the student body of the institution where they were going to enroll. Thus, respondents equated the size of the institution with the prestige of the institution. Examples of large and small institutions are as follows:

Large: Harvard, MIT, Yale, Princeton, Chicago, Pennsylvania, Columbia, Notre Dame, Amherst, Oberlin, Stanford, Georgetown, UC Berkeley, UCLA, Michigan, Wisconsin, Minnesota, Illinois, Ohio State, Washington.

Small: U. of Virginia, U. of Georgia, U. of Delaware, Temple U., Louisiana State, Iowa State, Loyola U. of Los Angeles, Oregon State, Southern Methodist U., Kalamazoo College, Western Maryland College, Earlham College.

Thus, we can say that the Japanese students' concept of the size of the institution is an indicator of the general prestige of the institution in America.

Distinctive patterns of the association of the variables "Orientation and English," and "Orientation and Size" were observed in Table 19. English ability and participation in an orientation program showed positive association, which means that the probability of getting in an orientation program increases as English ability increases. At the same time, the size of the institution and orientation program showed a positive association, i.e., probability of getting orientation program increases as the size of the institution increases, or as the prestige of the institution rises.

Close examinations of the patterns of the cell means in Size-Prestige(2) X Orientation(2) X English(2) factorial

design revealed a distinctive general trend in the combination of variables throughout T1, T2, T3, and T4 in all the attitudinal and social relational dependent variables measured in the 3-way analysis of variance tests. It was thought, however, that this distinctive trend might be spurious due to the differential attrition in sample size over time. Nevertheless, this question is safely solved by evidence obtained from the examination of the mean scores for the dependent variables (FTA, FTJ, IWA, DF, and TF) (see Section 9, Chapter III), and for the 18 CPI personality traits measured at T1 and T4 (see Section 6, Chapter III). It was discovered that there are no significant differences in mean scores for these variables between the original 104 subjects and the decreased 52 subjects who answered the questionnaires four times throughout the study. Therefore, it is appropriate to discuss the distinctive patterns of the cell means in the 3-way analysis of variance computed based on the attritioned sample over time.

This distinctive trend is that the combination of the no-orientation and large-prestigious institution makes the effect of English reverse from positive to negative. This distinctive trend can be expressed in the following ways:

1. English ability showed a negative effect on the attitudes of Japanese students who studied at relatively large size and prestigious institutions attending an orientation programs in America prior to their formal academic studies.
2. English ability showed a positive effect on the attitudes of Japanese students who studied at relatively large size and prestigious institutions without attending an orientation program in America prior to their formal academic studies.

These findings were especially pronounced in the case of students' attitude of FTA (Favorability toward America).

CHAPTER VI

SUMMARY AND CONCLUSIONS

1. Summary

This was a study to discover some answers to questions concerning three broad approaches to the causation of human behavior. The starting point was the contrast between two important schools of thought concerning the sources of human behavior, the one psychological, the other sociological. The former position attempts to explain behavior with reference to personality factors which are the products of individual experiences in a cultural environment and in social interaction. Another major school of thought on human behavior emphasizes social structural factors in the immediate situation. Social structure is the pattern of interrelated statuses and roles found in a society or other group at a particular time and constituting a relatively stable set of social relations. In contrast to the two approaches, the assumption adopted and tested in this study is that human behavior cannot be fully understood from either of these perspectives by themselves. The appropriate unit of analysis in human behavior is neither the individual nor the social structure, but the "field" within which both of these analytic foci meet. There are multiple possibilities in each unit of analysis, and the outcome of human behavior

is determined by their mutual multiplicative influences.

A brief summary of psychological reductionism, sociological reductionism, and the field view of behavior was presented in order to have some understanding of the issue of personality and social structural influences on human behaviors. In addition, a couple of statistical models which suggest ways to combine variables in the study of human behavior were presented. Examples of these models discussed are additive model and interaction model.

The field view of interpreting human behavior was applied to the area of cross-cultural education. A brief history of the studies of cross-cultural education was included so that the reader could better understand the perspective of this research. Sojourners experienced culture shock when they were suddenly transplanted to the different cultural environment. They had to cope with the problems of adjustment and also with the problems of readjustment to their own society upon their return.

Study abroad and cross-cultural education have a long history. It is one of the most important media in the history of mankind for the spread of new knowledge and ideas and the rapprochement of the various cultures. It may be right to say that cross-cultural education can be regarded as one of the decisive historical conditions for the development of modern learning and culture and as one of the most significant factors in the future development of mankind.

The United States has encouraged extensive international exchange of students in the belief that the human experience of the visiting student is as valuable as his educational experience. Every year Japanese scholars come to the United States with the hope of gaining valuable human experiences from their cross-cultural educational experiences.

Since the hierarchical-vertical pattern of Japanese culture and the egalitarian-horizontal American culture are quite different from each other, the problems which Japanese sojourners encounter in America can be fully understood only with a wide knowledge of Japanese culture. Therefore, a brief discussion of the patterns of Japanese culture was included. The emphasis was on certain patterns of Japanese social and cultural norms, such as the "vertical social structure" with its concern for status, the pattern of interpersonal communication with its "mind-to-mind" consensus along with behavioral reserve, three major characteristics of the Japanese language (honorific form, syntax, and writing system), and the educational system characterized as the "entrance examination hell." All of these may become factors to account for difficulties in personal, social, and academic adjustment of Japanese scholars in America.

This study attempted to examine evidence which bears on the question of which factors have more effect on the Japanese students' adjustment to the American situation and subsequently to that of their own on their

return; intra-individual characteristics of the students, or the social structure of the situation where individual students were located; and what combination of variables between these different levels resulted in the interaction effects with impact on the students' adjustment?

The term "intra-individual" is roughly synonymous with "individual," "psychological," and "personal" but more general than each of these rough synonyms. In this study, the term "intra-individual characteristics" was used to represent the personality and other relatively enduring characteristics of the students who were studied.

In order to solve the research problem stated above, this study utilized a longitudinal design with questionnaires administered in Japanese to a sample of 104 Japanese male graduate students on four occasions: shortly before departure for the United States while they were still in Japan (summer 1972); early in their transition experience in the United States (December 1972); after one academic year in America (May 1973); and after their return to Japan (January and December 1974).

There are two distinctive methodological aspects in this research project. First, this study utilized the longitudinal research design. There have been many small-scale studies of the cross-cultural educational experiences in various countries, but very few have dealt with the whole period, i.e., starting before the departure for the host countries when sojourners were still in their own countries, and extending to the return to their home

countries. This research dealt with the whole period of the cross-cultural experiences and of the long-range impact of the U.S. training on Japanese scholars. A second advantage of this study over others made in this area is that four different questionnaires were administered consistently in Japanese, rather than in English. This is significant since questions in English could easily be misinterpreted and distorted.

It was decided to use the term "adjustment" in the present study to represent the following five characteristic aspects of cross-cultural experiences of Japanese scholars: 1. Favorability toward America (FTA); 2. Favorability toward Japan (FTJ); 3. Differential Favorability (DF); 4. Total Favorability (TF); and 5. Interaction with Americans (IWA). These five variables which signify Japanese scholars' personal and social adjustment served as dependent variables in the study. With the large scope of this longitudinal research, the total number of variables asked throughout the four time periods amounted to close to 800. In order to examine properly the research problem in this study, operational measures of indexes were developed for each of the five concepts of attitudes and behaviors.

Developmental trends of attitudes (favorability toward America, and favorability toward Japan), and social relations (interaction with Americans) of Japanese scholars were observed. The steady increase in favorability toward America, and in interaction with Americans may be interpreted as evidence of the students' personal and social adjustment.

Before their departure for America, the students preferred Japanese social patterns, but upon their return to Japan, the trend was reversed. The Japanese scholars showed significantly higher favorability toward American egalitarian culture than toward Japanese hierarchical culture only after the exposure to the American life-ways.

The same personality traits measured twice at T1 shortly before the students' departure for America and at T4 after their return to Japan, using the Japanese version of the entire California Psychological Inventory (CPI), revealed that sojourn experiences had no significant impact on Japanese students' personalities. This is taken as evidence in support of a definition of personality which emphasizes the enduring characteristics of an individual's orientation to a varying environment, reflecting the structure and processes of the person's own society and culture.

The independent variables in this study fall into two categories: intra-individual characteristics and the social structure of the situation. The final statistical analyses used the following six intra-individual characteristics variables: highest degree obtained in Japan, location in Japan, personality traits of "communality," "achievement via conformance," and "flexibility." The following three social structural variables were used as independent variables: number of Japanese on campus where students were studying, size and prestige of the institution attended in America, and the participation in an orientation program in

America. As one of the other independent variables, a multiplicative interaction index ("SOE") was created based on the following three independent variables: Size of the institution, participation in an Orientation program, and the ability in English.

Two different statistical procedures were used. First, path analysis multiple regression technique was applied to test the additive model. Secondly, in order to test the interaction model, a statistical procedure of multivariate analysis of variance was utilized.

Using the multiple regression technique of path analysis it was discovered that to account for the Japanese students' attitudes and social relations (measured in terms of indexes of favorability and interaction with Americans variables) both intra-individual variables and social structural variables simultaneously acting together have significant influence. This finding was more strongly confirmed with the introduction of a multiplicative interaction independent variable composed of "Size of the institution by Orientation Program by English ability" (SOE). The interaction index of SOE had a significant impact on Japanese students' attitudes and social relations even though the separate effects of size, orientation, or English was insignificant. Therefore, this finding strongly supports the theory that human behavior can only be understood from both personality and social structural standpoints, but not from either one of the single perspectives.

Observation of the scores over time for each dependent variable in the path diagram revealed the stability of the variable. This is taken as evidence in support of the "causal chain model" over the "historical model." Even when the same variables were excluded from the diagram, a great proportion of the variance was explained. This confirms that the selection of the variables in the model to account for students' adjustment was appropriate.

More fully to test the interaction model a 3-way analysis of variance tests was performed. This technique allowed us to observe both multivariate and univariate effects of a 3 x 2 x 3 factorial design composed of size of the institution, participation in an orientation program, and ability in English, simultaneously throughout T1, T2, T3, and T4. Findings of these trend analyses showed a consistent trend such that, in the multivariate test, to explain Japanese students' attitudes and social relations together, only the 3-way interaction effect of size by orientation by English turned out to be significant. The univariate tests produced the same results, i.e., each dependent variable of students' attitudes or social relations separately was significantly affected by the interaction of the three independent variables simultaneously, but not by a single main effect. (In this study, even the 2-way interaction effects turned out to be insignificant.) Therefore, we can say that the behaviors studied are the result of interaction effects of intra-individual characteristics, and social structural variables.

Analyses of the cell means in the 3-way analysis of variance univariate test showed two distinctive trends: Firstly, English ability had a negative effect on the attitudes of Japanese students who studied at relatively large and prestigious institutions and who attended an orientation program in America prior to their academic studies. Secondly, English ability had a positive effect on the attitudes of Japanese students who studied at relatively large and prestigious institutions if they did not attend an orientation program in America prior to their formal academic studies.

2. Discussion: Interpretation of Findings

Two distinctive findings were obtained from the research concerning the Japanese scholars' attitudes, especially on their favorability toward American social and cultural patterns. These two points were as follows:

1. Students with high English ability who studied at relatively large and prestigious institutions and who attended orientation programs in America prior to their formal academic studies showed a negative attitude toward American culture.
2. Students with high English ability who studied at relatively large and prestigious American institutions without attending an orientation program in America prior to their formal academic studies showed a positive attitude toward American culture.

These findings suggest that English ability had a negative effect on the Japanese scholars' attitudes toward

the United States if these students also took part in an orientation program. On the other hand, if such students did not take part in an orientation program their attitudes tended to be positive.

Why are there difference of negative and positive attitudes toward American culture among Japanese students who possess the same high command of English, and who study at similarly large and prestigious U.S. institutions? Japanese sojourners were divided into two groups: those who had an orientation, and the non-orientation group. (The major purpose of the orientation program, which usually lasts for about a month in some U.S. educational institution, is to give opportunities to Japanese students to get acquainted with American social and cultural norms, to learn American higher educational system and campus life, and to improve conversational English.)

Two plausible explanations of these findings were derived: a. extrinsic-professional-objective vs. intrinsic-humanistic-subjective orientation to the sojourn; and b. legitimacy of criticism.

a. Extrinsic-Professional-Objective vs. Intrinsic-Humanistic-Subjective Orientation to the Sojourn

The tendency for English ability to be associated with low liking of American culture may reflect the predominance of extrinsic-professional-objective over intrinsic-humanistic-subjective motive for the sojourn. A Japanese student in the United States has two goals to fulfill: the extrinsic and objective goal of acquiring

professional knowledge in his field, and the intrinsic and subjective purpose of gaining a knowledge of American culture.

A sojourner with high English ability may be primarily interested in expanding his professional area and his academic knowledge, i.e., he exhibits an extrinsic and objective aspect of human nature. His goal orientation is stronger than the need for temporary pleasure, and he directs himself to the deferred gratification. Therefore, Japanese students who score high in English ability were less favorable toward American life-ways. On the contrary, if a Japanese sojourner with low English ability is in America, he may be more interested in learning English and in seeing America than in acquiring professional knowledge. His intrinsic and subjective purpose of absorbing American life-ways supersedes the other purpose of cross-cultural education.

b. Legitimacy of Criticism

English ability may be conceived of as an indicator of the understanding of American social patterns. A Japanese sojourner with high English facility may understand American culture better, and therefore be able to express negative attitudes more openly than one whose poor command of English symbolizes lack of familiarity with American ways. This "legitimacy of criticism" phenomenon supersedes the traditional Japanese ethic of never express negative feelings about a host, and it has facilitated Japanese students' liberation from the characteristic Japanese pattern of

interpersonal communication with its "mind-to-mind" consensus of implicit agreement between the parties along with behavioral reserve of "enryo" behavior.

3. Similarities to the Findings Reported in the Former Study

Bennett et al. (1958:240-244) reported three profiles of interpersonal behavior for Japanese male sojourners, i.e., Adjustor, Constrictor, and Idealist. These three profiles are defined as follows:

The adjustor profile: Students whose interpersonal behavior fell into this category generally preferred American norms, but could adhere to the Japanese formal code of social behavior when it was suitable to the occasion. They could function, without important conflict, as "typical Japanese" in interaction with other Japanese and with Americans. However, they were equipped to meet Americans with casual freedom and were willing to accept egalitarian cues and react appropriately to them. . .

The constrictor profile: Students whose behavior conformed to this profile showed a marked preference for Japanese formal principles of interpersonal relations and tended to react spontaneously in terms of them. . . Their needs to learn about America were superficial in the sense that they appeared to perceive little more than what they knew already. . . The social behavior of such subjects was on the formal side: they avoided informal situations, close friendships, and casual recreational experiences with Americans. . .

The idealist profile: Students whose interpersonal behavior fell along this profile rejected the Japanese code of social behavior as feudal, reactionary, and embarrassing to a modernized people. They were, correspondingly, receptive toward American culture and social patterns, and particularly American egalitarian styles of interaction. . . Their interest lay in learning American interaction patterns so that they might achieve their ideological and identificational goals, and also so that they might assist in the modernization of their own society. This meant that their needs for communication and learning were extensive and deep. In particular, they desired

informal and intense relations with intellectual Americans and extensive participation in many varieties of American social situations. . . Identification with American social ideology often led to an idealization of the American versus the Japanese pattern--an attitude which could lead . . . to a perception of Americans as high-status people.

I would like to attempt some speculations as to whether or not the findings of this study confirm the profiles projected in the former study. When we examined the favorability toward America, we found that the greater the English ability the less the favorability toward America, except in the case of the high English ability students studying at large institutions who had not participated in an orientation program (i.e., the latter were more favorable toward America). Also, a similar pattern was observed in the differential favorability (the higher the differential favorability score the more favorability toward America exceeds favorability toward Japan). Those who had high English ability showed the negative differential favorability, i.e., the higher the English ability the more favorability toward Japan exceeded favorability to America; except in the cases of those who studied at large institutions without participating in an orientation program (i.e., they are more favorable toward America than toward Japan).

Those who scored high in English ability, and lower in favorability toward America but more favorable toward Japan may be similar to "constrictors" of Bennett et al.'s study. They may possess extrinsic orientation to the sojourn

and objective evaluation of cultures. They may prefer the Japanese formal principles of interpersonal relations and seek their goals via conformance. They tend to be rigid or less flexible. Sojourners in this group may be motivated by a strong desire to gain professional knowledge in their fields, and may have a tendency to avoid many types of social situations in America. Therefore, they are indifferent to American social patterns and express publicly their critical attitudes toward American life-ways enabled by their high English abilities to do so, and also motivated by their exposure to strong intellectual-ideological currents.

Students who scored high in English, and in favorability toward America, who attended large institutions without participating in an orientation program, may be similar to the classification of "idealists." Their orientation toward sojourn may have been intrinsic, and they might have been subjective in their evaluation of cultures. They were high in "communality" and may have been interested in learning American culture and social patterns, particularly American egalitarian interaction patterns. The degree of their conformance is less, and they tend to be flexible. The idealists in the Bennett et al.'s study were often less critical even though they possessed the high English ability to do so, because their need to learn American life-ways was very strong, and they also showed active involvement in informal social situations.

Since the "adjustors" are the people who behave according to a given social situation, and who can meet

the requirements of each situation, they accept both American norms and Japanese formal social patterns. They may be the most flexible group among the three profiles of Japanese students reported by Bennett et al. They tend to score high in total favorability attitudes since they accept both American and Japanese social patterns. The fact that an individual accepts certain social patterns does not mean that he concurs with them, but rather that he has a proper understanding and appreciation of the culture. An understanding of American life-ways is essential for the adjustment of the Japanese sojourners in American culture. However, this does not mean that a Japanese should necessarily give up his own Japanese culture. He can be a bi-cultural person with two patterns of behavior, i.e., an "adjustor." A Japanese sojourner in America with a bi-cultural mind will see good and bad aspects of both Japanese and American cultures, he will acquire skills needed to adjust comfortably to these. He will gradually establish his own views which have been developed by exposure to these two opposing cultures.

4. Some Final Speculations

It has been suggested that ability in English could reflect some or all of the following: extrinsic-professional-objective vs. intrinsic-humanistic-subjective orientation to the sojourn; "legitimacy of criticism," which implies that command of English as facilitating the critical understanding of American social patterns; and the orientation program as

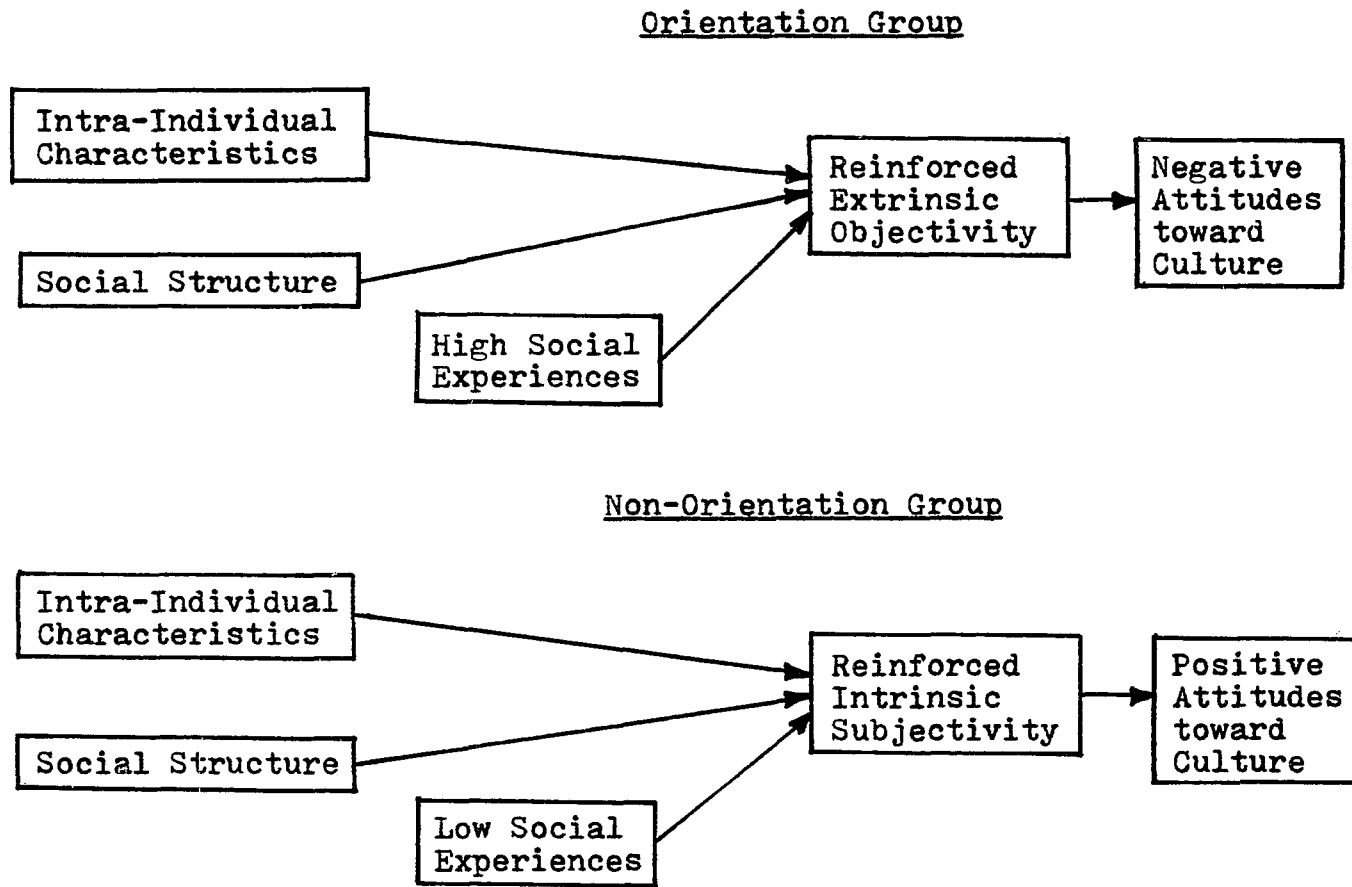


Figure 17. Causal Model for Negative and Positive Attitudes toward Culture

encouraging objectivity in the evaluation of cultures.

Combining the above mentioned speculations, the conclusion has been reached that the multiplicative interaction effects of three facilitator variables, i.e., intra-individual characteristics such as linguistic ability and personality factors, social structural variables such as size-prestige of the institution, and the prior knowledge of the culture in terms of the participation in an orientation program, reinforced inner-directed or other-directed personality variables which in turn influenced a Japanese sojourner's attitude toward American life-ways and social patterns.

The causation of the positive and negative attitudes toward American culture are shown in Figure 17. Whether an individual possesses the traits of reinforced extrinsic objectivity or reinforced intrinsic subjectivity is primarily determined by the multiplicative interaction effects of intra-individual characteristics (such as linguistic ability and personality traits), social structure (such as size-prestige of the institution that sojourners are studying), and the degree of social experiences in the prior exposure to the culture (which can be determined by whether or not the Japanese scholars have participated in orientation programs in America prior to their formal academic studies). With prior knowledge of a certain culture, one's extrinsic objectivity or inner-directed personalities such as self-sufficient, independency is reinforced, which results in negative attitudes toward the culture,

i.e., dislike of American life-ways. On the other hand, without prior exposure to a certain culture, one's personal trait of intrinsic subjectivity or other-directed personalities such as social, dependent, is reinforced, which will cause positive attitudes toward the culture, i.e., liking and favorable attitudes toward American social patterns.

It was suggested earlier that Japanese students whose command of English is high had a greater probability of being given opportunities to participate in an orientation program. Bennett et al.'s study reported that the orientation program was not taken seriously by Japanese students, and the program itself had a tendency to awaken anti-US feelings among those who participated in it. Japanese students in the high-English, anti-US group tend to come from the more prestigious Japanese universities and to study at the more prestigious American institutions. These students tend to form strong ideological motives and views, and to express more freely their critical opinion about America, since they have been exposed to strong intellectual-ideological currents. They were members of the elite in Japanese society with the successful experience of the "entrance examination hell" for the prestigious Japanese schools, and they were very proud of being admitted to the more prestigious American graduate schools as this enhanced their elite status in Japan.

In the Japanese educational system, the most difficult aspect is to "get in" the system. Once one is got admitted into a program, he is most likely to receive a degree

either a bachelor, a master, or a doctorate after a certain length of time; usually four, two, or three years for the respective degree. On the contrary, in the American educational system getting admitted to a program does not necessarily mean receiving a degree. In fact, the U.S. statistics reveal that only about half of those beginning a degree program, either a bachelor, a master, or a doctorate, ever complete that program and receive the degree. The most difficult aspect of the American educational system is that of "getting out" of the program as opposed to that of "getting in" of the Japanese educational system.

When Japanese sojourners were confronted with the difficulties of "getting out" of the American higher educational system which required them to continuously pass examinations, they may have been frustrated and showed resentment, which led them to form critical attitudes toward the American social patterns. Graduate studies in American educational institutions entails keen competition among students, and it is quite difficult to form congenial friendships among peers. Japanese students did not realize this aspect of American academic life until they came to America, and when they discovered this fact they felt strongly that it was against their expectations. They realized the differences in educational system between Japan and America, and these became one of the major factors which caused problems in the academic adjustment of Japanese student in America. All of these could explain why the Japanese students with high command of English, who

participated in an orientation program, and who studied at prestigious graduate schools in America, exhibited less favorability toward American social patterns.

In conclusion, the findings of this study and the interpretations just presented show that the psychological and social adjustment of Japanese students in the United States and on their return to Japan can best be understood by means of the interaction effects of intra-individual characteristics and social structural variables. It cannot be understood by taking one independent variable at a time. The causes of human behavior are much too complicated to be explained on by one analytic level or from a single perspective. This conclusion supports the "field theory" of behavior and underscores the need for multi-level approach. The appropriate unit of analysis is neither the individual nor the social structure alone, but the field where the analytic foci of intra-individual characteristics and social structural variables meet.

APPENDIX

Table 20. Item Analysis for "Satisfaction Index" at T1, T3
and T4 in the United States

	$\bar{X}=2.29$ T1: SD=.31	$\bar{X}=2.32$ T3: SD=.56	$\bar{X}=2.59$ T4: SD=.59
Getting to know people in the U.S.A. well	.44	.66	.71
Getting training in my field	.29	.40	.57
Getting a degree	.32	.37	.47
Seeing different parts of the U.S.A.	.41	.45	.32
Finding out how people live in the U.S.	.62	.68	.65
Learning about the form of government in the U.S.	.43	.46	.59
Having a chance to be away from home	.44	.52	.56
Having a chance to live with people in another country	.63	.43	.67
Finding out how people in my profession work in the U.S.	.37	.41	.53
Finding out what student life is like in the U.S.	.51	.50	.63
Finding out more about what I am like	.56	.60	.42
Having different experiences	.60	.60	.50
Meeting professional colleagues	.44	.67	.68
Look Japan from outside	.56	.63	.61
Knowing Americans' attitudes toward Japan	.52	.50	.69

Table 21. Item Analysis for "Satisfaction Index" at T4
in Japan

	$\bar{X}=3.05$ <u>T4: SD=.63</u>
(Satisfaction to the present position)	
Chance for promotion based on ability	.68
Work facilities and resources	.74
Chance to use training	.61
Openness to new ideas	.71
Respect from superiors	.69
Acceptance by co-workers	.79
Chance for fulfilling your long-term career goals	.52
Opportunity to publish or do research	.64
Relevance to your interests	.63
Location	.35
Attitudes of your parents	.48
In comparison with your original hopes	.64

Table 22. Item Analysis for "FTA(Favorability toward America) Index" at T1, T2, T3, and T4

	<u>T1</u>	<u>T2</u>	<u>T3</u>	<u>T4</u>
It is not necessary to take along native-style clothes when going abroad.	.48	.43	.45	.46
I like to wear blue-jeans when going to classes in the U.S.	.62	.40	.53	.55
I like coffee better than Japanese tea.	.56	.50	.45	.45
I consider that the taste of wine is far better than Japanese "sake."	.58	.46	.51	.55
I appreciate very much the individual freedom, without restraint from others, of the Americans.	.58	.49	.48	.58
It is worthwhile for us to emulate our American friends in their spending much of their savings on vacation travel.	.40	.50	.39	.43
I feel that I already have a full comprehension of American culture.	.40	.54	.45	.54
	(\bar{X} =3.51)	(\bar{X} =3.61)	(\bar{X} =3.77)	(\bar{X} =4.17)
	(SD=.80)	(SD=.71)	(SD=.67)	(SD=.74)

Table 23. Item Analysis for FTJ(Favorability toward Japan) Index" at T1, T2, T3, and T4

	$\bar{X}=3.72$ SD=.63 <u>T1</u>	$\bar{X}=3.88$ SD=.63 <u>T2</u>	$\bar{X}=3.88$ SD=.66 <u>T3</u>	$\bar{X}=3.84$ SD=.60 <u>T4</u>
It is a waste to train Japanese students' children born and reared in a foreign country to speak Japanese. (Reversed)	.31	.22	.41	.34
Japanese students studying abroad should seek the opinion of their parents concerning their boy/girl friend met abroad or marriage abroad.	.58	.53	.65	.58
I consider that the younger generation should listen to and obey the opinions of their elders more often.	.51	.51	.55	.42
We should propagate our traditional virtue of filial piety.	.60	.60	.55	.57
To return to one's home country after completion of studies abroad is the general desire of Japanese students.	.54	.46	.53	.53
I think that when close relatives like brothers and sisters borrow money from us, we should not expect repayment.	.41	.48	.40	.39
To live with one's parents-in-law after marriage would spoil an ideal home(Reversed).	.30	.43	.42	.47
I think that the American way of placing the relationship between husband and wife above that between parents, brothers, and sisters is worth following (Reversed).	.39	.42	.35	.40
I believe that interracial marriages between Japanese and foreigners are happy(Reversed).	.41	.46	.51	.39

Table 24. Zero-Order Correlation Coefficients among DF(Differential Favorability) Indexes Measured at T1, T2, T3, and T4

	<u>T1</u>	<u>T2</u>	<u>T3</u>	<u>T4</u>
\bar{X}	.00	.00	.00	.00
Range	-3.76 to 3.70	-3.91 to 3.88	-3.63 to 3.93	-3.66 to 3.25
	<u>T1</u>	<u>T2</u>	<u>T3</u>	<u>T4</u>
<u>T1</u>	1.00			
<u>T2</u>	.68	1.00		
<u>T3</u>	.64	.77	1.00	
<u>T4</u>	.48	.54	.62	1.00

Table 25. Zero-Order Correlation Coefficients among TF(Total Favorability) Indexes" Measured at T1, T2, T3, and T4

	<u>T1</u>	<u>T2</u>	<u>T3</u>	<u>T4</u>
\bar{X}	.00	.00	.00	.00
Range	-5.18 to 2.69	-3.91 to 2.59	-2.86 to 3.60	-2.93 to 3.47

	<u>T1</u>	<u>T2</u>	<u>T3</u>	<u>T4</u>
<u>T1</u>	1.00			
<u>T2</u>	.47	1.00		
<u>T3</u>	.45	.61	1.00	
<u>T4</u>	.32	.48	.71	1.00

Table 26. Item Analysis Correlations for "Difficulty in English Index" at T2

	<u>T2</u>
Difficulty in understanding Americans speak	.46
Americans' difficulty in understanding you	.50
Hesitate to talk to Americans	.58
English speaking ability comparing to American students	.31
	(\bar{X} =2.18)
	(SD=.63)

Table 27. Item Analysis Correlations for "Difficulty in the U.S. Index" at T1, T3, and T4

	T1	T3	T4
Not having enough money	.50	.44	.39
Getting used to the climate	.59	.40	.43
Finding a place to live	.50	.41	.41
Not having the food I'm used to	.27	.22	.27
Not understanding English	.38	.61	.39
Not being able to express myself in English	.54	.59	.22
Feeling lonesome for my home and family	.23	.36	.64
Making friends with Americans	.57	.58	.57
Making friends with the opposite sex	.42	.42	.55
Getting to meet Americans outside of the University setting	.58	.49	.57
Getting a job if I want one	.41	.43	.60
Finding the school work too difficult	.53	.53	.58
Finding out about the right courses to take	.65	.43	.64
Not having enough time to study	.61	.52	.56
Getting along with my advisor	.76	.46	.52
Getting to travel in the United States	.51	.54	.45
Concern about racial discrimination	.59	.46	.27
Keeping up with the news from home	.40	.32	.49
Concern about family, friends, or conditions at home	.42	.34	.49
Having my behavior misunderstood	.56	.50	.41
	$\bar{X}=1.81$ SD=.35	$\bar{X}=1.92$ SD=.50	$\bar{X}=1.89$ SD=.47

Table 28. Item Analysis Correlations for "Difficulty in Japan Index" at T4

(Problems with parents and family)	<u>T4</u>
They treat me too much a child.	.58
They try to run my life.	.61
They think I've become Americanized.	.40
We do not agree on politics.	.55
We do not agree on important values.	.77
We disagree on my choice of wife.	.50
They are not satisfied with my job or career.	.35
	(\bar{X} =.09)
	(SD=.15)

Table 29. Item Analysis Correlations for "Interaction with Americans Index" at T1, T2, and T3

	<u>T1</u>	<u>T2</u>	<u>T3</u>
Talk about courses and studies	.55	.52	.73
Visit in each others' rooms and homes	.57	.78	.70
Talk about literature, music, art, etc.	.65	.75	.80
Play sports together	.69	.62	.76
Talk about families and life at home	.71	.66	.71
Talk about politics, economics, international affairs	.66	.80	.75
Talk about or do the sort of things you would talk about or do only with your best friends at home	.54	.74	.71
	(\bar{X} =2.26)	(\bar{X} =2.83)	(\bar{X} =2.99)
	(SD=.37)	(SD=.99)	(SD=1.03)

Table 30. Item Analysis Correlations for "Interaction with Japanese Index" at T4

(Problems with friends in Japan)	<u>T4</u>
They think I've become Americanized.	.53
They are jealous of me.	.70
They expect me to help them in ways that I can't.	.30
We don't agree on politics.	.48
We don't agree on important values.	.77
They seem very conservative and rigid to me now.	.30
	(\bar{X} =.07)
	(SD=.13)

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