

PATTERNS OF ADJUSTMENT OF INTERNATIONAL STUDENTS TO THE  
UNIVERSITY OF BRITISH COLUMBIA

By

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## Abstract

This study has been an attempt to investigate the process of cross-cultural adjustment of a group of 13 international students studying at the University of British Columbia. The "u-curve" theory of adjustment was tested. It was hypothesized that foreign students would have individual patterns of cross-cultural adjustment. General self-concept, academic self-concept, attitude towards Canadians and attitude towards Canadian culture were used as indices of cross-cultural adjustment. The self-concept dimensions were defined by Ishiyama's self-validation theory (1987,1988). The relationship between all indices were explored. The adjustment patterns of groups of international students (i.e; Male/Female) were also explored. The main method of data interpretation was visual analysis, using two dimensional graphs. C-statistic tests (Tryon, 1982) were used to test the statistical significance of the curves. Three dimensional graphs were also used for data interpretation. Interviews were conducted at the end of the study. It was concluded that the u-curve theory of cross-cultural adjustment was not supported across all subjects. General and academic self-concepts were found to be highly related. Academic performance was found to have a strong influence upon academic self-concept. No causal relationship was discovered between attitudes about Canadians and Canadian culture. Finally, female western

foreign students were found to have the most successful adjustment. This was followed in succession by non-western females, western males and finally, eastern males.

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## Chapter 1 Introduction

The present study is an attempt to investigate the actual process of adjustment of international students studying at the University of British Columbia (U.B.C). There were 1021 International Students at U.B.C in 1985 (Muehlen, 1985). Inevitably they find themselves in a new cultural environment different from their own. The issue of adjustment is a very important one for many foreign students because it strongly affects their social and academic lives while living and studying in a Canadian university environment.

Numerous research studies have shown that negative adjustment patterns can lead to psychological stress and general health problems (Torrey, 1970; Stafford, 1980; Owie, 1982; Brouke & Vandereycken, 1986). This makes it imperative for counselors to comprehend the nature of, and problems in, international students' emotional adjustment to a new culture. This knowledge may help prevent or reduce some of the cross-cultural adjustment difficulties and the negative consequences experienced by many international students.

The present survey investigated how a group of international students went through changes in general self-concept, academic self-concept, peer relationships with Canadians, and attitudes towards the host country. All of this was done during the academic year in order to test some

of the predictions made by researchers on cross-cultural adjustment. In a sense, the goal of this study was to better understand the cross-cultural adjustment of international students. The purpose of the study was to test the test the u-curve theory of cross-cultural adjustment (Deutsch & Won, 1963; Dubois, 1956; Gullahorn & Gullahorn, 1963; Jacobson, 1963; Lysgaard, 1955; Sellitz & Cook, 1962; Sewell, Morris & Davidson, 1954). The relationship between the General and academic self-concepts as well as the relationship between attitudes towards Canadian peers and Canadian culture were explored. Finally, groups of international students (i.e; Male/Female) were compared in terms of their adjustment to Canadian culture.

## Chapter 2 Literature Review

Despite the fact that cross-cultural psychology is a young field of scientific investigation, extensive work has been conducted in certain areas. Stonequist (1937) explored the difficulties experienced by individuals living in two cultural systems simultaneously. Since then the general theme in the psychological literature has been that life is difficult for a sojourner living in a foreign land (Furnham & Bochner, 1982). The following review is primarily concerned about international students' cross-cultural adjustment.

### International Students and Cross-Cultural Adjustment

The international students who come to North American universities face formidable challenges in terms of emotional, social, and academic adjustment. Social alienation (Owie, 1982) or homesickness (Stafford, 1980) are only a few of the problems faced by international students. Counsellors need to be aware of those issues. Poor adjustment by these students can lead to various negative consequences. For example, Torrey (1970) and Coelho (1981) noted that negative adjustment patterns towards North American college or university life tends to result in serious mental health problems for international students. They found that problems such as anxiety, depression, psychosomatic reactions, and paranoid thought disorders were common amongst foreign students studied. Stafford (1980)

found strong correlations between poor adjustment in foreign students and homesickness.

In a similar study, Owie (1982) discovered that social alienation was a common symptom amongst those foreign students experiencing difficulties in adjustment. Brouke and Vandereycken (1986) reported a link between eating disorders amongst foreign students and poor adjustment to a new cultural environment. It would seem from these studies (Torrey, 1970; Stafford, 1980; Owie, 1982; Brouke & Vandereycken, 1986), that international students go through some sort of "shock" when they come to a foreign country for studies.

#### Culture Shock, The U-Curve Model and Other Models Of Cross-Cultural Adjustment

Oberg (1960) proposed the idea of "culture shock" or the idea that entering a new culture is a potentially confusing and disorienting experience. Smalley (1963) expanded upon the idea and proposed a four stage model of the culture shock experience. According to Smalley, the first stage occurs when the newcomer is fascinated by the new culture, yet feels that there are certain barriers that prevent him from effectively interacting with the members of the host culture. The second stage witnesses hostility and anger against the host culture as well as an emphasis upon the superiority of the original culture. People at the third stage experience decreased anger and tension. Here, the sojourner improves in his/her adjustment towards the

host culture. Finally the sojourner develops a sense of bi-culturalism. At this final stage, the sojourner has been able to appreciate the host culture and come to terms with it.

A parallel theoretical approach, the u-curve hypothesis (Deutsch & Won, 1963; Dubois, 1956; Gullahorn & Gullahorn, 1963; Jacobson, 1963; Lysgaard, 1955; Sellitz & Cook, 1962; Sewell, Morris & Davidson, 1954), explained the process of cross-cultural adjustment as having three distinct phases: the first being elation and positive feelings towards the host culture followed by negativity, depression and confusion, then finally giving way to the initial feelings of optimism.

Other models of cross-cultural adjustment (Adler, 1975; Klein 1977; Morten & Sue 1979) follow a similiar "u-curve" pattern.

Morten and Sue (1979) proposed a model of minority identity development. Although not meant specifically for foreign students, it is a helpful model for understanding cross-cultural adjustment. They identified five stages of adjustment. The first stage is conformity. Here, the individuals attitude toward the dominant group is so called "appreciating". The second stage is dissonance. Conflicts arise within the individual between his/her group appreciating and group depreciating beliefs. The next stage is introspection, meaning that the individual concerns himself/herself with the basis of the group depreciation

beliefs. The final stage occurs when the individual selectively appreciates the dominant group. Morten and Sue call this last stage synergetic articulation and awareness.

The models developed by Adler (1975) and Klein (1977) follow similiar patterns (For more information see appendix IV.)

The main trend that all of these theories (Morten & Sue, 1979; Klein, 1977; Adler, 1975) are proposing is a simple one, similiar to the u-curve hypothesis proposed by Deutsch and Won (1963) and others. The models (Morten & Sue, 1979; Klein, 1977; Adler, 1975) suggest an initial state of elation, followed by a sort of depression or fall, finally followed by a resurgence of positive feelings towards the host culture and towards themselves.

The goals of the present study was to test the u-curve theory. The main research question is: do all foreign students go through a simple u-curve in their cross-cultural adjustment? The adjustment issue is faced not only by international students but by people such as Peace Corps volunteers, business persons, or diplomats.

#### Models of Cross-Cultural Adjustment of International Students

Certain other theories of foreign students' adjustment use different models to explain the adjustment process. Hull (1981) developed a model called the frequency of contact hypothesis. This theory states that frequency of contact between North American and foreign students results

in more positive attitudes in both foreign and North American students regarding each other's culture's. This theory has received both supportive and contradictory findings. Blackman's study (1979) for example, contradicted Hull's example. Blackman found that a program designed to foster peer relationships between Iranian and American students ended in an abject failure.

However, Westwood's peer pairing program (1984), has been successful due to the fact that Canadian and foreign students were matched up according to hobbies, field of study and/or work, age, sex, and other personal dimensions. Westwood (1986) also set specific criteria as to the number of times each Canadian-foreign student pair should meet. Westwood's aim was to foster a "peer relationship" between the international student and his/her Canadian counterpart. The Canadian would in essence, act as a social guide to the Canadian culture. The Canadians would assist in technical information and provide emotional support, thereby facilitating the foreign student's successful adjustment. The question now is: what lies at the heart of the adjustment process?

#### Cross-Cultural Adjustment and Self-Validation

Ishiyama's theory of self-validation (1987, 1987), notes how individuals strive to validate themselves. The manner in which the international student validates him/herself, may be affected by whether he/she will adjust successfully or not to the host culture. For example, if

the process of self-validation is blocked, the foreign student will not adjust successfully to the host environment.

Self-Validation as noted by Ishiyama (1987) is "...the process of restoring and re-inforcing the sense of self-worth, meaning in life, and personal identity and competence through a variety of activities and interactions with the natural and social environments, and transcending these qualities to a spiritual level" (p.7).

The more similarity there is between the social customs of the home and host environments, the easier it will be to validate oneself as a foreign student in an alien environment. This would in effect predict that students coming from Anglo-Saxon countries, will have an easier time adapting to the North American cultural and academic environments. The majority of the research literature confirms the fact that Western/European students adjust more successfully to North American culture than their non-western counterparts (Meloni, 1986; Dalili, 1982; Perkins, 1977). A few studies however, show contradictory findings that "Western" students do not adjust to North American culture any better than "Eastern" or non-white/non-European students (Bresee, 1985).

Helms (1978) and Meleis (1982) studied the adjustment of Arabic speaking students in American colleges and found that many went through difficult periods of adjustment due to their cultural attitudes and beliefs. Chang (1973) found

similar findings for Chinese students studying on North American campuses. Altscher (1976) and Perkins (1977) studied foreign students in North American campuses in general and found adjustment problems related to differences between their home cultures and that of North America in terms of social interaction and other cross-cultural variables. In short, self-validation is an important element in the process of adjustment to a foreign culture.

Cross-Cultural Adjustment and General Self-Concept (GSC)

Many studies suggest that adjustment itself may be affected by self-concept. Self-concept itself may mean different things to different researchers (Epstein, 1980). Phares (1984) noted that everything people see as theirs will be incorporated into the self. Allport (1961) took the notion that the self is everything considered important to the person that the person considers as his/her own. Body sense, self-esteem, and all other things significant to a person are important.

This leads to the Rogerian approach (1980) to the self. Rogers noted that as a person goes through life, he/she does so by way of his/her experiences (Rogers, 1980). The self is defined as being affected by those experiences (Rogers, 1980). Rogers (1980) notes that the essence of the self is that which strives to learn, improve, and to grow; a process which he calls "self-actualization".

Ishiyama's model (1987, 1988) is similar, but more specific than the previous approaches discussed (Allport,

1961; Epstein, 1980; Rogers, 1980; Phares, 1984).

Ishiyama's self-validation model (1987, 1988) contains five major thematic components: (1) security, comfort, and support (2) self-worth and self-acceptance (3) competence and autonomy (4) identity and belonging (5) love, fulfillment, and meaning in life (for definitions see "Definition of Terms" section). The self-validation process is the manner in which those components are restored, enhanced and reinforced (Ishiyama, 1988). From this self-validation perspective, the general self-concept (GSC) may be understood as a synergetic output of these five thematic components of self-validation. It is this definition of GSC that has been used as an index of adjustment for the international students.

#### Academic Performance and General Self-concept (GSC)

Research findings support a positive relationship between general self-concept and academic-self concept (Purkey, 1967; Kifer, 1977; Ames & Ames, 1978; Sohn, 1977; Johnson, 1981; Crano, 1985; Marsh, 1984; Zarb, 1984; Reinecke, 1986).

An interesting study by Purkey (1967) noted that school related failures stemmed largely from factors such as misdirected motivation, lack of committment, and cultural disadvantages. All of these are viewed by Purkey as the consequence of faulty perceptions of the self and the world.

Reinecke (1986) noted how foreign students in a foreign academic environment can be induced into a state of "learned

helplessness" because they see themselves as not being in control of themselves in the environment. Their "locus of control" is not with the "self" but rather more with the outside environment. In another study, Johnson (1981) found that poor self-concept within students had a significant positive correlation with their academic failures. Johnson noted that students in such a situation were in a state of "learned helplessness". In a study conducted with high school exchange students in New Zealand, Crano (1985) reported significant correlations between self-concept and how students saw themselves performing academically. These studies have confirmed the ability of the academic self-concept to affect the general self-concept.

These studies point toward a parallel between general and academic self-concepts. The academic self-concept (ASC) has been used as another measure of adjustment for the international student.

#### General and Academic self-concepts and Self-Validation

In terms of the self-validation model, "competence and autonomy" in studies would be a very important dimension of self-validation for any dedicated student. This dimension, "competence and autonomy", was hypothesized as being a part of the general self-concept (GSC). The academic self-concept (ASC) is hypothesized as being only the "competence and autonomy" dimension. Therefore, the ASC is that area where "competence and autonomy" is either validated or

invalidated. The ASC though part of GSC, is to be viewed as interdependent with GSC.

If the academic self-concept is not enhanced or validated (for example, the student receives poor grades), then the GSC is in danger of being damaged. The possibility then exists that the international student's frustration could be displaced onto the host culture and the host culture members. Note that this does not imply a causal relationship between the self-concept and attitude dimensions. This is contrary to the assumptions of Lefebvre and Lefebvre (1986) who predicted that self-concept and attitude dimensions were causally linked.

It is assumed that the academic and general self-concepts are both able to affect one another. In short, GSC and ASC are seen as overlapping. Perceptions with regards to Canadians and perceptions with regards to Canadian culture may bear a similiar relationship.

#### Attitudes about Canadian People (ACP)

Attitudes towards Canadians were not seen as being causally affected by the self-concept dimensions. Lefebvre and Lefebvre contend that self-concpt and attitude dimensions are causally linked (1986). Apart from one supportive study (Ryba, Edelman, & Chapman, 1984) very few studies have have found a causal link between self-concept and attitude dimensions.

Having discussed the general and academic self-concepts as measures of adjustment, it is suggested that the

international student's attitudes regarding host culture members (or Canadian people) also be used as an index of adjustment.

#### Attitude about Canadian Culture (ACC)

Another attitude dimension is that of Canadian culture (ACC). Perceptions regarding the culture at large may also be influenced by the process of cross-cultural adjustment. Camilleri (1984) studied foreign students sojourning in France and found that students who were confused about their cultural identity tended to hold more negative views with regards to the host (French) culture. Naser (1984) found that the perceptions that male Arab students had of the American culture were related to attitudes that these students held about themselves. In short, they found a positive correlation between self-concept and attitude about American culture.

The results of these studies (Camelleri, 1984; Naser, 1984) hint to the possibility that negative general and academic self-concepts could be related to negative perceptions of the host culture. Again, as in the discussion of ACP, ACC is seen as independent of the self-concept dimensions (eventhough a non-causal relationship may exist).

#### Language Proficiency in English

A very important issue that needs to be addressed is that of language competency and its effect upon adjustment. No matter what the other factors may be in the international

student's adjustment, language competency could be a very important one. Inadequate command of the English language has been shown to be a major source of maladjustment among international students. Hartung's study of Japanese students (1983) and Cummings' study of Caribbean immigrant students (1983) showed that the students experienced cross-cultural adjustment difficulties due to their lack of proficiency in English. Studies (de Wolf, 1980; Park, 1974) showed lower academic performance of foreign students due to being non-native English speakers.

### Chapter 3 Hypothesis

Based upon the discussion of the literature review, a series of predictions have been made. Each prediction is now discussed in turn.

#### Patterns of Cross-Cultural Adjustment

It has been predicted that foreign students tend to adjust in an individual fashion. It was predicted that the u-curve approach would not be an accurate predictor of adjustment for the international students. The international students were predicted to adjust in individual fashions.

The general self-concept (GSC) and the academic self-concept (ASC) were seen as overlapping and their relationship to cross-cultural adjustment was explored. GSC and ASC were used as measures of adjustment. Attitudes about host culture members (ACP) and host culture (ACC) were also used as measures of adjustment and explored. Finally the patterns of adjustment of Males vs. Females and Eastern vs. Western students were examined.

#### General Self-Concept and Adjustment

GSC was used as an index of cross-cultural adjustment. The components of GSC have been defined by the five major thematic components of Ishiyama's self-Validation model: (1) security, comfort, and support (2) self-worth and self-acceptance (3) competence and autonomy (4) identity and

belonging (5) love, fulfillment, and meaning in life (for definitions see "Definition of Terms" section).

#### Academic Self-Concept (ASC) and Adjustment

ASC has also been used as a measure of cross-cultural adjustment. The dimension of ASC has been hypothesized as Ishiyama's third thematic component: competence and autonomy. ASC though part of GSC, is considered as interdependent with GSC.

#### Attitudes about Canadian People (ACP) and Adjustment

ACP has also been used as an index of cross-cultural adjustment. The Lefebvre and Lefebvre model of adjustment was viewed as inadequate because it predicted a causal link between self-concept and attitude dimensions. This issue was also explored in the study.

#### Attitudes about Canadian Culture (ACC) and Adjustment

ACC was used as another index of cross-cultural adjustment. Again, like the self-concept dimensions, the ACP and ACC were seen to overlap. This relationship was also explored in the study.

Also, it was seen as possible that students coming from non-western nations would have more difficulty adjusting to North American culture than those coming from the western nations. The western students were expected to be better prepared for adjustment to North American culture since their processes of social self-validation is expected to be more similar. In fact, lack of knowledge of social interaction in a new culture has been shown to be related to

adjustment problems in students studying in a foreign country (Chang, 1973; Helms & Meleis, 1982; Heikenheimo & Schute, 1986; Penn & Durham, 1978). These possibilities were also explored.

## Chapter 4 Methodology

### Rationale

The research methodology used in this study, was an exploratory case study using a time series design. The reason such a time series design was used, was because of the interest in studying the processes of adjustment, and not the outcome. The process of adjustment that was put to test was that of the u-curve hypothesis. In essence, the validity of the u-curve theory was put to test. The international students were studied over a period of time (from October to April). The survey method was used to collect the data.

The time series method is a way of mapping change in individuals or organizations over time (Agnew & Pike, 1987). The up and down map of change in a time series curve, for a given individual, will follow a given course for a combination of reasons (Agnew and Pike, 1987). In this study, the time series curve under study was the cross-cultural adjustment of 13 international students. Indices of adjustment (GSC, ASC, ACP, ACC) were selected to explore the factors affecting adjustment.

Conducting a survey is often useful for exploring how people feel about a particular issue, or how they may behave in response to a particular situation (McBurney, 1983). In addition, surveys provide opportunities to examine

correlations among the subjects responses and to look for possible patterns of relationships among those responses (Kidder, 1981).

This study, explored change patterns over time and correlations among general self-concept and academic self concept, attitude towards Canadians, and attitude towards the Canadian culture.

Through graphical representation of the responses, the process of adjustment through time was investigated in this exploratory study. The graphed data and supplementary statistical tests were used to test the notions of a u-curve pattern of adjustment for the international students.

There are major strengths and limitations in the survey research method in terms of internal and external validity. Internal validity concerns itself with the extent to which the observational relationship between the independent variable and dependent variable is a causal one. External validity deals with the extent to which the generalizations can be made from the research to the populations of interest. The major strength of the survey method of research is that it offers a great deal of external validity in that it forces the researcher to examine the "real world" (Agnew & Pike, 1987). The use of actual physical evidence can greatly enhance the validity of the survey (Agnew & Pike, 1987). For example, after the collection of data via questionnaires, interviews would be conducted with the individual research participants.

The weakness of this method lies in the fact that what is told to us may be vastly different from the actual reality (Agnew & Pike, 1987). Indeed, lack of correspondence between questionnaire responses and behavior may reflect a lack of internal validity (Webb, Campbell, Schwartz, & Sechrist, 1966).

The factor of confounding variables is a major concern in survey research (Sidman, 1960). Intervening variables could be anything from biased responding to the questionnaire to the manner in which questions were worded on the survey (Agnew & Pike, 1987). The intervening variables serve to weaken the internal validity of survey studies (Webb et al., 1966). Since the objective of the present study was to identify any possible variables bearing relationship to successful or unsuccessful adjustment, and to study to the actual process of adjustment for international students at U.B.C., the issue of internal validity does not become as relevant as that of external validity. The objective was to find results applicable to the whole body of students coming from foreign countries to the University of British Columbia. To help lessen the confounding variables, and to lessen the danger between the discrepancy of responses versus actual attitudes and/or behaviors, personal interviews were conducted with the research participants, following the process of data collection. As mentioned before, this approach helps to enhance the external validity of the study and also help to

alleviate the issue of internal validity (Agnew & Pike, 1987).

### The Survey Instrument

The instrument used in this study was a survey questionnaire. In essence, the questionnaire focussed on four areas, i.e; general self-concept, academic self-concept, attitude towards Canadians, and attitude towards the Canadian culture.

The following four questions were used:

The first question deals with the general self-concept:

How have you been feeling about yourself for the past week?

The second question deals with the academic self-concept:

How have you been feeling about your school work?

The third question deals with attitude and/or perception about Canadians:

How have you been feeling about the relationships with other Canadian students you study with?

The fourth question deals with attitudes and/or perceptions about Canadian culture and society:

How have you been feeling about the Canadian culture and society?

A Likert type rating scale was used for each area, ranging from -4 (extremely negative) to +4 (extremely positive).

In addition, subjects were asked to provide three descriptive adjectives in three blank spaces. Finally, a

small space is given to describe any major contributing factors and/or incidents for every question.

The format for answering each question is as follows:

(Ratings) -4 -3 -2 -1 0 +1 +2 +3 +4

Adjectives: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Major Contributing factors/incidents:

An important element, namely that of reliability, enters the discussion. The reason this issue has not been fully addressed is due to the fact that only four questions were involved in the whole survey, and for any reliability calculations, at least twenty items are needed (Nunnally, 1967). However as Nunnally notes (1967), Likert scales have shown a very high degree of reliability even when the number of items used are small (i.e; less than twenty). The reason only four items were used was because very clear and simplified questions were needed for the data sampling in the time series. Four questions were generated for the purpose of exploring the process of adjustment of international students over time. The limitation of course, is that no psychometric information on these scales is available.

#### Procedure

**Subjects:** The subjects for this study were a group of international students who had come to study in the University of British Columbia. Before the study actually began, 60 international students were paired up with an equal number of Canadian peers in a program run by Dr.s

Westwood and Ishiyama of the Department of Counselling Psychology of the University of British Columbia. All of the international students were volunteers in this "peer pairing program".

The matching was done very carefully, taking into account key factors such as age, sex, department or field of studies, interests, languages spoken, and any other important preferences the international students and their Canadian peers may have had. The International Students were then paired according to each of the key factors mentioned with a Canadian peer. For a more detailed description of the subjects, consult table I in the results section.

Survey Administration: In a meeting for the Canadian peers, volunteers were recruited to help in the process of data collection. The role of these Canadian participants was to administer a questionnaire to their peer in an interval of every 7-14 days throughout the academic year from September to April. Because the Canadian student and his/her international counterpart were to meet as peers, as part of the program, they could arrange the appropriate timetable so as to accommodate time for the questionnaire administration.

The study began late in September, and consent forms were signed by those international students willing to participate in the study. A total of 15 international students agreed to participate in the study, and of those, 2 dropped out for personal reasons. The data collection began

in October. The Canadians, in effect, acted as contact persons between the researchers and the international students being surveyed. All subjects went to their peer for completing the questionnaire. Completed surveys were dropped into the "survey deposit box" in the department of counselling psychology of the University of British Columbia. This approach proved very usefull in the interviewing segment of the study. When the study was over, most of the students had left the university to return to their home countries having completed their final exams. Since each of them had been assigned to a Canadian peer, it was possible to approach those peers in the event that the foreign student himself/herself was unavailable to provide information regarding his/her adjustment. For the format of the interviews, consult Appendix VII.

### Data Analysis

Due to a small number of subjects (n=13) an individual case analysis of the time series data was conducted on each subject. Visual analysis was the primary method of data analysis. Graphs were used to observe the patterns of adjustment. The u-curve hypothesis was put to test. As a back up to the graphs, C-Statistics and orthogonal polynomials were used to aid in the interpretation of the graphs. Correllations were used to explore the relationships between GSC and ASC, ACP and ACC, and between the self-concept and attitudinal dimensions (consult Appendix VIII for more information). These were done for

individuals and groups (Male vs. Female and Eastern vs. Western). Finally, 3-dimensional graphs were used to assist in the interpretation of the adjustment of the international students. The data analysis is now discussed in detail.

The first approach was to construct tables for the ratings given for every question across the timetable specified (October to April). The tables were used to record the ratings of every individual subject across the months of October to April. Since each subject gave four responses (for general self-concept, academic self-concept, attitudes towards Canadians, and attitudes towards Canadian culture respectively), each response was recorded onto a separate frequency table. All subjects responded to the four questions each time and their responses were recorded, tabulated, and graphed to indicate fluctuation over time.

Since the subjects gave variable numbers of questionnaires in any particular month of the study, the ratings were simply averaged for every month for every subject (Jaccard, 1983). For any missing data, the average of all the other data was taken as to provide an estimate of the missing point (Zar, 1984).

The next step was to visually analyze the trend of the data. The subjects ratings for each question were graphed to study the trend of adjustment to test the validity of the u-curve hypothesis. The ordinate ranged from a value of +4 to -4 (see survey instrument), and the abscissa was a timeline showing months (October-April). Since subjects

gave in different numbers of questionnaires, these graphs were used primarily to look for any trends in adjustment. Also, the trends for the each of the four questions were compared with each other as to visually test for any possible relationships among the four indices of adjustment. The trends for all four questions were then plotted onto the same graph for every subject.

As explained before, each subject had his/her responses to every question graphed. As a result, each subject ended up with four graphs. Since a total of 13 people participated in the study, a total of 52 graphs were obtained.

In accordance with the exploratory aspects of the study, the first graph, general self-concept, was compared to the second, academic self-concept, to see if any similar trends existed visually. The third and fourth graphs, regarding attitudes toward the Canadians and toward the Canadian culture, were also analyzed.

3-dimensional graphs of adjustment were also plotted. These were used to assist in the interpretation of the adjustment of the international students. These were done by a computer program derived from the TELEGRAF program for graphics. For more information about the three dimensional graphs, consult Appendix V.

In order to assist the analysis of the adjustment trends found on the graphs, a number of statistical tests were done. These were used as an adjunct to the visual analysis.

The individual graphs were statistically tested to see if any true trends did exist. The C-statistic (Tryon, 1982) was used to analyze the ratings to see if any significant trends existed. This approach provides a simple method of evaluating any possible intervention effects. The logic underlying the C-statistic is the same as that underlying visual analysis; the variability in the successive data points is evaluated relative to the changes in slope from one period of time to the other.

For the purposes of our experiment 7 data points ( $N=7$ ), were used which corresponded to the seven months of the study. The critical value was set 1.62 at the .05 level of significance (Tryon, 1982).

The main logical question to be answered by the C-statistic was whether or not the data had shown any significant trends. For more information consult Appendix I.

If a trend was found in any of the graphs, another mathematical technique, orthogonal polynomials (Rosenthal, Rosnow, 1982), was used to determine the nature of the trends. In this way we were able to see if the nature of the trends were curves or simply straight lines. For more information consult Appendix II.

On the adjective section of the questionnaire, the subjects had the opportunity to respond with a maximum of three adjectives for every question of the questionnaire. In order to analyze this portion of the data, it was

necessary first to find a method of objectively ranking the adjectives. All of the adjectives given by the researchers throughout the year were put onto one questionnaire. The raters were asked to rate the adjectives on a scale ranging from -4 (extremely negative) to +4 (extremeley positive). (see Appendix III: Adjective Rating Sheet). Five graduate students uninvolved in the research project rated the adjectives using the questionnaire (It was impossible to have the international students themselves rank the data, many of them having departed right after final exams). Following the ratings made by all five raters, averages were taken for the ratings given for every adjective.

For every question, all adjectives, positive and/or negative, were averaged as to provide an average adjective rating. Tables were set up in the same manner as the numerical ratings. Graphs were also drawn to provide another visual medium to test the u-curve hypothesis.

The last stage of the survey acted as an important follow up to the data analysis. This segment of the study was a way of obtaining additional information, as well as confirming the statistical and graphical information obtained during the data analysis. It was hoped that another approach would be provided to test the u-curve hypothesis. The interviews proved helpfull in that they helped in the exploratory aspects of the study discussed earlier. For more information regarding the interviews consult Appendix VII.

If the foreign students had departed for their home countries right after their final exams, the Canadian peers were approached to provide information about the international students' process of adjustment.

## Chapter 5 Results

### Introductory Comments

The results are presented here in four sections. The first section shows all of the tables for the numerical and adjective ratings for questions 1 through 4, and correlation tables for every single subject, Eastern and Western students, and Male and Female students. The second section discusses the results of each of the 13 subjects in the study. The third section does so with the East/West and Male/Female groups, as well as the whole subject pool. The final section is a summary section regarding the significant aspects of the results.

For definitions such as "GSC" or "ACC" refer to section on definition of terms (Appendix VIII). For terms such as "quadrant I" on the 3-dimensional graph, refer to appendix V. All graphs are in Appendix VI.

### Section I: Tables for Numerical Ratings, Adjective Ratings and Correlations

Preceding the tables, is a descriptive table listing all relevant characteristics of the subjects (see Table 1). There are a total of four tables for the rating responses corresponding to each of the four questions respectively (see tables 1-4). The same applies to the adjective ratings (see tables 5-8). Correlation tables exist for the individual subjects (table 9), East/West groups (table 10), and Male/Female groups (table 11).

Table 1

## DESCRIPTION OF SUBJECTS

	AGE	SEX	MARITAL STATUS	ETHNICITY	FIELD OF STUDY
S01	27	F	Single	Eastern	Biology
S02	27	F	Single	Eastern	Science (?)
S03	20	F	Single	Eastern	Psychology
S04	24	M	Single	Eastern	Engineering
S05	29	M	Single	Eastern	English Lit.
S06	23	M	Single	Eastern	Engineering
S07	28	M	Single	Eastern	Engineering
S08	22	F	Single	Western	English Lit.
S09	26	M	Single	Western	Political Sci.
S10	23	F	Single	Western	Psychology
S11	22	F	Single	Western	Botany
S12	22	F	Single	Western	Biology
S13	27	M	Single	Western	Political Sci.

TABLE 2  
SUBJECTIVE NUMERICAL RATINGS  
FOR GSC

	Oct	Nov	Dec	Jan	Feb	Mar	Apr
S01	+2.33	-2.00	+1.00	+3.00	+3.50	+4.00	+4.00
S02	+3.00	-1.00	+0.80	+2.50	+1.00	+1.00	0.00
S03	+2.00	+1.5	+1.57	+2.00	+2.00	+1.00	+1.00
S04	+2.00	+2.00	+2.00	+3.00	+3.00	+3.00	+3.00
S05	+0.50	0.00	0.00	0.00	0.00	+1.00	0.00
S06	+2.56	+2.67	+2.00	+2.50	+3.00	+2.50	+2.56
S07	-1.00	0.00	+0.50	+1.00	+2.00	+1.00	+1.00
S08	-1.00	+1.00	+0.67	+2.00	+1.00	0.00	+1.00
S09	+4.00	0.00	+1.13	+2.00	0.00	-0.50	+4.00
S10	+3.00	+3.00	+4.00	+1.75	+3.00	+4.00	+3.50
S11	+1.42	+1.67	+1.00	+2.67	+2.00	+1.00	-1.00
S12	+2.00	+2.50	-1.00	+2.67	+3.00	+3.00	+3.00
S13	+1.00	+0.50	+1.00	+1.00	+0.50	+1.50	+0.91

TABLE 3SUBJECTIVE NUMERICAL RATINGS  
FOR ASC

	Oct	Nov	Dec	Jan	Feb	Mar	Apr
S01	+2.33	+2.50	+0.50	+2.00	+2.50	+1.50	+2.50
S02	-3.00	+0.67	+0.30	+1.00	+2.00	+1.00	-2.00
S03	+1.00	+1.00	+0.71	+2.00	+1.00	0.00	-1.00
S04	+1.00	+1.00	+2.00	+3.00	+3.00	+3.00	+3.00
S05	-0.50	0.00	0.00	+1.00	+1.00	0.00	+1.00
S06	+2.44	+2.67	+1.00	+2.50	+3.00	+2.50	+2.44
S07	-2.00	-0.67	+0.13	+2.00	+2.00	+1.00	0.00
S08	0.00	+1.00	+0.33	+1.00	-1.00	0.00	+1.00
S09	0.00	+1.50	+0.75	+4.00	0.00	-1.00	+1.00
S10	+2.00	+2.33	+4.00	+3.00	+3.25	+3.00	+2.00
S11	+1.33	+1.67	+1.50	+1.33	+2.00	+1.50	-1.00
S12	+2.00	+2.00	0.00	+2.67	+3.00	0.00	+3.00
S13	-2.00	+1.00	+1.00	+1.50	-1.00	+2.00	+0.45

TABLE 4  
SUBJECTIVE NUMERICAL RATINGS  
FOR ACP

	Oct	Nov	Dec	Jan	Feb	Mar	Apr
S01	+4.00	+4.00	+4.00	+4.00	+4.00	+4.00	+4.00
S02	+3.00	+3.33	+2.50	+1.50	+3.00	+2.00	+2.00
S03	+2.00	+2.00	+2.00	+2.00	+2.00	+2.00	+2.00
S04	+3.00	+3.00	+3.00	+3.00	+3.00	+3.00	+3.00
S05	+0.50	0.00	0.00	-1.00	0.00	+1.00	+1.00
S06	+1.44	+0.67	+1.00	+2.00	+2.00	+1.00	+0.22
S07	+2.00	-1.33	0.00	+1.00	+2.00	+1.00	+1.00
S08	+1.00	+1.00	+0.83	0.00	+1.00	+2.00	0.00
S09	+1.00	0.00	+0.50	+2.00	0.00	-0.50	+2.00
S10	+4.00	+4.00	+4.00	+4.00	+4.00	+4.00	+4.00
S11	+2.17	+2.50	+2.00	+2.33	+3.00	+2.50	+2.00
S12	+1.00	+2.00	+1.00	+3.00	+3.00	+3.50	+3.00
S13	+3.00	+2.00	-1.00	-0.67	-1.50	+1.00	+0.27

TABLE 5SUBJECTIVE NUMERICAL RATINGS  
FOR ACC

	Oct	Nov	Dec	Jan	Feb	Mar	Apr
S01	+4.00	+4.00	+4.00	+4.00	+0.50	+3.00	+4.00
S02	+2.00	-1.00	0.00	+1.00	0.00	0.00	-1.00
S03	+2.00	+3.00	+2.71	+3.00	+3.00	+3.00	+2.00
S04	0.00	0.00	0.00	+1.00	+1.00	+2.00	+2.00
S05	-0.50	0.00	-1.00	+1.00	-1.00	-1.00	-1.00
S06	+0.22	0.00	0.00	0.00	0.00	+1.00	+0.22
S07	+2.00	0.00	+0.63	+1.00	+1.00	0.00	+1.00
S08	+1.00	+1.00	+0.17	0.00	-1.00	0.00	0.00
S09	-1.00	+2.00	+0.50	+1.00	0.00	-1.00	+2.00
S10	+3.00	+4.00	+3.00	+2.25	+3.00	+3.33	0.00
S11	+1.50	+0.67	+2.00	+1.33	+2.00	+2.25	+1.00
S12	-2.00	0.00	+1.00	+1.67	+1.00	+1.00	+2.00
S13	0.00	+1.00	0.00	+1.33	+0.50	+1.00	+0.82

TABLE 6SUBJECTIVE ADJECTIVE RATINGS  
FOR GSC

	Oct	Nov	Dec	Jan	Feb	Mar	Apr
S01	-1.55	-2.36	-0.92	+1.29	+1.34	+2.37	+1.57
S02	+0.72	-0.97	-0.24	+1.54	-1.00	+0.12	-1.83
S03	+1.95	-0.03	-0.32	+2.59	-1.83	-2.59	-2.00
S04	+0.67	+0.22	+0.77	+1.33	+1.17	+0.29	+0.92
S05	+0.11	+0.17	+0.67	+0.33	+0.33	-0.50	-0.50
S06	+0.40	+1.34	-2.17	+0.89	+2.67	-2.00	+1.67
S07	-2.33	+0.60	-0.13	+1.06	+1.42	+0.45	-2.00
S08	-1.33	+1.00	+0.51	+1.00	+1.50	-1.34	+2.25
S09	-0.59	+0.05	-0.17	-2.17	+0.33	-1.03	+2.39
S10	+1.19	+2.02	+2.11	-0.49	+1.89	+2.48	+0.06
S11	-1.15	+0.45	-2.33	+1.67	-2.33	-2.75	-1.61
S12	+1.67	+0.42	-1.50	+1.69	+1.67	+0.90	+2.17
S13	+1.28	-0.28	-0.97	+1.92	-0.61	+0.80	+0.36

TABLE 7

SUBJECTIVE ADJECTIVE RATINGS  
FOR ASC

	Oct	Nov	Dec	Jan	Feb	Mar	Apr
S01	-0.80	-0.13	-1.47	-0.67	+0.74	-0.30	-0.67
S02	-3.17	-0.33	-0.21	+1.71	+1.34	+0.72	-1.50
S03	+0.61	+0.96	-0.82	+1.83	-2.00	-3.17	-3.17
S04	-1.50	+0.24	+0.26	+1.17	-0.50	+0.67	+1.50
S05	+0.04	+0.67	+0.67	-0.50	+1.17	-0.22	+0.17
S06	+0.36	+0.74	+1.17	+0.42	+1.17	-2.00	+0.67
S07	-1.92	-0.80	+0.17	+1.42	+2.17	+1.75	-1.61
S08	-1.00	+0.67	-0.07	+1.25	-2.33	-1.28	+2.25
S09	-0.67	-0.92	0.00	+1.92	+0.33	-1.00	+0.39
S10	+0.92	+1.32	+2.28	+1.13	+1.89	+1.44	+2.33
S11	+0.15	+0.57	-0.28	+1.57	+0.33	+0.42	-1.75
S12	+1.11	+0.97	-2.33	+1.36	+1.25	-1.56	+1.33
S13	-0.17	-0.15	-0.80	+0.95	+0.05	+1.95	+0.51

TABLE 8SUBJECTIVE ADJECTIVE RATINGS  
FOR ACP

	Oct	Nov	Dec	Jan	Feb	Mar	Apr
S01	+2.29	+2.00	+2.78	+2.42	+2.17	+2.50	+1.39
S02	+1.83	+2.69	+2.21	+0.97	+3.00	+2.42	+2.34
S03	-0.17	+1.28	+1.02	+1.33	+0.33	+3.00	+0.33
S04	+1.94	+0.56	+0.85	+1.42	+0.33	+0.50	+0.33
S05	+1.39	+1.59	+1.00	+0.33	+0.33	+1.42	+0.67
S06	+0.71	+0.33	+0.33	+1.59	+1.00	+0.67	+0.33
S07	+1.34	-2.33	+0.71	+1.59	+1.42	+1.34	+0.92
S08	+0.67	+0.67	+0.11	-0.67	-1.17	+0.84	+0.33
S09	-1.44	+0.27	+0.27	+3.00	-1.50	+0.79	+0.50
S10	+2.33	+2.15	+1.89	+2.13	+2.24	+2.08	+1.84
S11	+1.61	+2.25	+2.58	+1.50	+0.92	+2.33	+0.09
S12	+1.39	+2.00	+2.33	+1.50	+2.00	+1.80	+1.50
S13	+0.67	-0.33	-1.21	-0.13	-2.33	+2.42	-0.15

TABLE 9SUBJECTIVE ADJECTIVE RATINGS  
FOR ACC

	Oct	Nov	Dec	Jan	Feb	Mar	Apr
S01	+2.17	+2.42	+2.42	+1.84	-2.33	-0.22	+0.33
S02	+2.83	-1.67	-0.52	+0.28	-2.83	+0.17	-1.92
S03	+1.78	+1.88	+1.69	+1.33	+1.17	+1.83	+2.17
S04	-0.17	+0.33	+0.47	+1.00	+0.33	+1.00	+0.33
S05	+0.50	-1.83	-2.33	+2.33	-0.83	+0.11	+0.84
S06	+0.48	-0.08	-0.33	-0.33	-0.33	+1.67	+2.25
S07	-0.42	+0.12	+0.18	+0.92	+1.34	-1.78	+0.92
S08	+0.67	+0.67	-0.27	-0.17	-1.42	-0.67	-0.67
S09	+0.06	+0.22	-0.24	-1.39	-1.50	-1.44	-0.28
S10	+1.71	+1.79	+1.22	-0.60	+1.83	+0.85	+2.06
S11	+0.45	+0.42	+2.00	+0.08	+1.83	+0.84	+1.17
S12	-1.75	-0.50	0.00	+1.06	-0.67	-0.13	+1.67
S13	+0.61	+1.54	-2.16	-0.83	+0.78	+3.00	+0.49

TABLE 10

	Gsc and Asc	Gsc and Acp	Gsc and Acc	Asc and Acp	Asc and Acc	Tsc and Acp	Tsc and Acc	Can and Gsc	Can and Asc
S01	+ .23	*n.a	- .18	*n.a	+ .13	*n.a	+ .08	- .32	- .20
S02	- .04	- .07	+ .25	- .44	+ .32	- .40	+ .40	+ .10	- .26
S03	+ .88	- .54	+ .09	- .52	+ .44	- .54	+ .34	- .35	- .11
S04	+ .96	*n.a	+ .89	*n.a	+ .85	*n.a	+ .87	+ .89	+ .85
S05	- .73	+ .66	0	- .50	- .13	- .10	- .18	+ .66	- .43
S06	+ .40	+ .75	+ .06	+ .04	+ .04	+ .75	+ 1.00	+ .79	+ .06
S07	+ .67	+ .65	+ .52	+ .50	+ .10	+ .63	+ .32	+ .05	+ .19
S08	+ .34	- .60	- .43	- .54	+ .54	- .67	0	- .71	0
S09	+ .72	+ .88	+ .68	+ .83	+ .88	+ .92	+ .83	+ .82	+ .90
S10	+ .21	- .23	- .33	- .10	+ .37	- .15	+ .27	- .09	+ .35
S11	+ .75	+ .34	- .04	+ .41	+ .09	+ .40	+ .02	+ .11	+ .25
S12	+ .35	+ .64	+ .20	+ .13	+ .09	+ .42	+ .16	+ .44	+ .12
S13	+ .33	+ .37	+ .21	- .32	- .34	+ .16	+ .42	+ .44	+ .44

\*n.a: All values in one column are identical, making correlation computations by the Minitab program impossible.

Note: "Can" is the same term as "Can/p/c".

P set at .05.

TABLE 11

	Gsc and Asc	Gsc and Acp	Gsc and Acc	Asc and Acp	Asc and Acc	Tsc and Acp	Tsc and Acc	Can and Gsc	Can and Asc
EAST	+ .50	+ .14	+ .22	- .18	- .41	- .03	- .13	+ .27	- .46
WEST	+ .40	+ .46	- .26	- .24	+ .60	+ .07	+ .26	+ .12	+ .33

TABLE 12

	Gsc and Asc	Gsc and Acp	Gsc and Acc	Asc and Acp	Asc and Acc	Tsc and Acp	Tsc and Acc	Can and Gsc	Can and Asc
MALE	+ .26	- .01	+ .51	- .51	+ .67	- .44	+ .75	+ .27	0
FEMALE	+ .30	+ .22	- .15	+ .29	- .15	+ .31	- .19	+ .05	+ .12

EAST: n=7

WEST: n=6

MALE: n=6

FEMALE: n=7

## Section II: Results for Individual Subjects

There were a total of thirteen subjects in the study. The results of each are now discussed.

Subject 1 (Japanese/Female/Single/Age 27): The numerical rating graphs (fig.1) showed that questions one (GSC) and two (ASC) were similiar in shape. Question 1 showed a dip in the October-November time frame. No real u-curve was seen in either graph. Questions three (ACP) and four (ACC) were both straight lines and were parrallel. However, a dip was seen for both questions in February. The adjective rating graphs (fig.2) showed roughly the same results for questions 1, 2, and 4, however question 3 showed consistently high ratings. This indicates that this subject gave constant favorable adjective descriptions about Canadian people.

The orthogonal estimates showed statistically that the linear trend for question 3 was significant. The correlations yielded no significant results.

The 3-dimensional graphs (fig.3) showed that the subject's overall perception of Canadian culture and people (Can/p/c) was high. It was only in February that a real "nose dive" was seen, however by March all was normal again.

The interview showed that the first set of mid-term exams lowered the subject's self-esteem. Note that this was indicated by the monthly graphs. This subject found

academic work to be very important and strongly tied to her general self-concept.

Her attitudes about Canadians were constantly favorable, as indicated in the 2 and 3-dimensional graphs; especially graph three of the adjectives. Her experience with the Canadian culture was more mixed. She enjoyed the individualism that she was able to express. She took great pride in her academic achievements. The slight dip found in December on the two dimensional graphs were found to be consistent with academic worries and performance. All of these emotions however, put her in direct conflict with her Japanese cultural self. Here, she was expected to marry, bear children, and become a housewife; thereby abandoning any personal pursuits she may have. Another source of conflict, was the fact that younger people were able to challenge their elders. This was shown to her when a student challenged his instructor in class.

Subject 2 (Japanese/Female/Single/Age 27): The numerical rating graphs (fig.4) showed no similarities between questions 1 (GSC) and 2 (ASC) in the first term (October to December), however these differences receded in the second term (January to April). The same situation held for questions 3 (ACP) and 4 (ACC). The adjective graphs (fig.5) showed the same results. What came up consistently was a dip in ratings in the month of April. No real u-curve was found in any of the graphs, however a mild "sawtooth" pattern was evident, to some extent, in each of them.

The orthogonal estimates showed no significant trends for any of the graphs. The only significant correlations were: GSC vs. ASC (-.44), and between ACP and TSC (-.40).

The 3-dimensional graph (fig.6) showed a "nosedive" in the month of April. Interestingly, this occurred in quadrant IV (GSC and ASC negative). Note that this is in agreement with the absolute value of the ACP vs. TSC correlation (.40).

The interview showed that the subject felt conscious about being a Japanese female in Canadian society. Her ASC and GSC were found to be very close to each other. Her ASC was strongly tied to her academic marks and performance. This was shown in the 2 dimensional graphs. Like subject one, she found the expression of individuality in Canadian culture exciting. She was also impressed that females were able to explore careers that were traditionally male-dominated (i.e pilot). She did have a conflict with her

Japanese female role. Here she was expected to eventually marry and abandon her personal pursuits. The aspects of Canadian culture (ACC) that displeased her were: "overly aggressive" females, the weakening of the traditional family, and relative freedom of homosexual expression. Her attitudes about Canadian people (ACP) were closely tied to her attitudes about Canadian culture in general. The interview session failed however, to show the significance of the negative correlations.

Subject 3 (Malaysian/Female/Single/Age 20): The numerical rating graphs (fig.7) showed questions 1 (GSC) and 2 (ASC) to very similar. Both had a wavelike pattern. Questions 3 (ACP) and 4 (ACC) were hardly similar at all. Question 3 was simply a straight line. Question 4 resembled an "inverted u-curve". The adjective graphs (fig.8) roughly showed similar results, except that question three was not a straight line. No true "u-curves" showed up.

The orthogonal estimates showed that the wavelike pattern for question 1 was significant. The significant correlations were: GSC vs. ASC (.88), GSC vs. ACP (-.54), ASC vs. ACP (-.52), ASC vs. ACC (.44), and TSC vs. ACC (.34).

The 3-dimensional graph showed (fig.9) low Can/p/c ratings in October, but that rapidly changed. The ratings shot up in November. From November until February, the level of ratings stayed high. Note that all of this occurred in quadrant II (GSC and ASC are positive). In March a "nosedive" occurred in which the ratings with respect to Can/p/c simply dropped. This happened all the way to April. The "nosedive" occurred in quadrant IV (GSC and ASC are negative).

This subject had strong links between her GSC and ASC. This was amply supported by the graphs and correlations. Academic performance was linked to ASC. She got along well with Canadians and apparently had no trouble making friends. She also like the Canadian culture and noted that she would

like to return to Canada to continue her studies and possibly make a life in Canada. What was difficult to explain in the correlations were the negative numbers. Like the previous subject, the interview failed to highlight the significance of those negative correlations.

Subject 4 (Sri Lankan/Male/Single/Age 24): The numerical rating graphs (fig.10) for questions 1 (GSC) and 2 (ASC) were found to be very similar. A slight u-shape was evident in both. Question 3 (ACP) was a simple straight line and question 4 (ACC) showed a "step ladder" progression. The adjective graphs (fig.11) showed very different results. Questions 1 and 2 showed a "sawtooth" pattern. Question 3 showed lower ratings from its numerical counterpart and it was not a straight line. The numerical rating graph (fig. 10) was a straight line at an average rating of three. The adjective version of question 3 had an average rating at roughly 1.

The orthogonal estimates showed significant trends for questions 2 and 4 for the numerical ratings. Note that question 2 showed a slight u-curve trend. As noted previously, questions 1 and 2 showed slight u-curve trends in the graphs.

The significant correlations were: GSC vs. ASC (.96), GSC vs. ACC (.89), ASC vs. ACC (.85), TSC vs. ACC (.87), Can/p/c vs. GSC (.89), and Can/p/c vs. ASC (.85).

The 3-dimensional graph (fig.12) simply confirmed the results of the 2 dimensional graphs and the correlations. However, new discoveries were made. Throughout the months of October to April, the Can/p/c ratings were low. Note that throughout this time, the ratings were in quadrant IV (GSC and ASC negative). However in the month of January, the ratings simply "shot up" and they stayed up all the way

into April. This occurred in quadrant II (GSC and ASC both positive).

In the interview the subject stated that he experienced no abrupt changes in his GSC. This was in contradiction to the results found in all of the graphs. The ASC was found to be strongly related to GSC, as the correlations and graphs testified. The subject's goal was to become a civil engineer and to work in his home country of Sri-Lanka. In terms of ACC, the subject did not have much contact with Canadians. Most of his classmates were foreign students and his daily life passed with fellow Sri-Lankans whom he rented a house with. He did note however, that Canadian women were "loose" and "less morally strict".

Subject 5 (Japanese/Male/Single/Age 29): The numerical rating graphs (fig.13) indicated that question 1 (GSC) went along in a wavelike fashion across time. The ratings fluctuated between 0 and 1. Question 2 (ASC) showed a similiar pattern, except that the ratings fluctuated between 0 and -1. Question 3 (ACP) showed a steady deterioration of ratings up to January where they reached a nadir of -1. A steady climb is then seen up to the month of March where the ratings reached an average of 1. Question 4 (ACC) showed ratings consistently below 0; except for January where they reached an average of 1. The adjective rating graphs (fig.14) showed roughly the same trends.

The orthogonal estimates showed no significant trends for any of the graphs. The significant correlations were: GSC vs. ASC (-.73), GSC vs. ACP (.66), ASC vs. ACP (-.50), and Can/p/c vs. GSC (.66).

The 3-dimensional graph (fig.15) showed low Can/p/pc ratings for the October-December period. Note that this was in quadrant IV (GSC and ASC are negative). In the January-February period, the ratings began to move up. The location of the ratings was still in quadrant IV. In March the ratings stayed high and moved to quadrant II (GSC and ASC are positive). In April, the ratings were located at quadrant I (ASC positive).

The interview showed that the subject's GSC was under severe strain due to being a Japanese male in Canadian culture. The subject's ASC was very damaged in the month of

December. Here, he received poor results from his English exam. This explains the location of the ratings in the 3 dimensional graph in the October-December period. From January on, the subject's ASC rose (see 2 dimensional graphs) as his academic performance improved. The 3-dimensional graph showed improvement in the subject's Can/p/c ratings throughout the months as his GSC and ASC improved. The correlations also confirmed the strong connection between self-concept and attitude dimensions. The interview also highlighted this connection. Finally, the subject noted how Canadian culture was "individualistic" and that "every man is for himself". He noted that this was in stark contrast to his traditional Japanese cultural upbringing where group support is stronger for the individual.

Subject 6 (Mauritius Chinese/Male/Single/Age 23): The numerical rating graphs (fig.16) showed the first two questions (GSC and ASC) to be very similar in shape, however question 2 showed a slight u-curve trend. In the month of December, both GSC and ASC showed a dip. Questions three and four (ACP and ACC) did not show similar shapes. Question 3 fluctuated roughly between 1 and 2. Question 4 generally stayed close to 0. The adjective rating graphs (fig.17) were similar to their numerical counterparts (fig.16) for questions one and two. The December drop in GSC however, was markedly sharper than the numerical version. The Month of march also showed a large dip for both GSC and ASC.

The orthogonal estimates showed no significant trends for any of the graphs. Significant correlations were: GSC vs. ASC (.40), GSC vs. ACP (.75), TSC vs. ACP (.75), TSC vs. ACC (1.00), and Can/p/c vs. GSC (.79).

The 3 dimensional graph (fig.18) showed a "curving up" in the months of October-February. From March onwards however, there is a "nosedive". The nosedive occurs in quadrant II (GSC and ASC are positive). This is curious because it implies that as GSC and ASC of the subject rose, his Can/p/c ratings of Canadian people and Culture became lower.

The interview cleared up this curious result. The subject noted that as he entered Canada he was overcome by a feeling of awe and inferiority with respect to the Canadian

culture. His GSC was therefore low in the initial months. In the following months however, he claimed that as his GSC rose, he became more critical of the Canadian people and culture. The 2-dimensional graphs did not show this subtle change, but the 3-dimensional graph did. His ASC was greatly affected by his studies and he did do well. His ACP was that the people seemed superficial and always on the go. He claimed that it was hard to make any true friends. His ACC was very similiar to his ACP. Again he noted the fast paced life and the "superficiality".

Subject 7 (Sri Lankan/Male/single/Age 28): The numerical rating graphs (fig.19) showed a consistently low GSC at a mean of around -1. The only "high" occurred in February where the mean was 2. The ASC followed a similar pattern. Questions 3 (ACP) and 4 (ACC) showed similar shapes. Both start at a rating of 2 and both dip in the November-December period. Both climb and then drop in March, only to climb up again. These two curves show u-curve trends. The adjective rating graphs (fig.20) show trends similar to the numerical ratings for questions 1 and 2. Questions 3 and 4 show a "u-curve" in the October-December time region, but that pattern does not repeat itself in later months; the curves remain at an upward trend.

The orthogonal estimates showed only that the graph for question 2 was significant. None of the "u-curve's" were found to be significant. The significant correlations were: GSC vs. ASC (.67), GSC vs. ACP (.65), GSC vs. ACC (.52), ASC vs. ACP (.50), and TSC vs. ACP (.63).

The 3-dimensional graph (fig.21) showed very low ratings for the October-December time period (after an initial high point in October). These ratings occurred at quadrant IV (GSC and ASC are negative). The December-February time saw the Can/p/c ratings shoot up and fall down in the following months. All ratings from December onward occurred at quadrant II (GSC and ASC are both positive).

The interview yielded very interesting results. The subject felt a great deal of pressure on his GSC. He was

very self-conscious about being a dark skinned person in a white-dominated society. His way of coping was to associate primarily with the Sri-Lankan community in Vancouver, and to become politically active in Sri-Lankan affairs. His ASC was also very tied to his GSC. He felt great urgency to successfully complete his Ph.d in Civil Engineering. The degree was of utmost importance to him, because he needed it to find work in Sri-Lanka. His ACP was that females were too "loose" and the power they held with respect to men deeply surprised him. His ACC was that Canadian culture was "loose and wild" and "lacking in true culture".

Subject 8 (West German/Female/Single/Age 22): The numerical rating graphs (fig.22) showed a "mountain peak" pattern for questions 1 and 2 (GSC and ASC). The ratings were lower at the beginning and end of the study for both questions.

Questions 3 and 4 (ACP and ACC) showed a gradual decline of ratings. Question 3 showed a peak for March, however the decline in ratings continued after that month. The Adjective rating graph (fig.23) showed similar trends for questions 1 and 2, however a real "nosedive" is evident for question 1 in February. Questions 3 and 4 showed gradual deterioration of ratings across time. The only exception was in March for question 3 where the ratings slightly improved. After that, the decline in ratings continued.

The orthogonal estimates showed no significant trends. The significant correlations were: GSC vs. ACP (-.60), ASC vs. ACP (-.54), ASC vs. ACC(.54), TSC vs. ACP (-.67), and Can/p/c vs. GSC (-.71).

The 3-dimensional graph (fig.24) showed high ratings for Can/p/c in October, despite the fact that the rating was located in quadrant IV (GSC and ASC are negative). From November to January a virtual "nosedive" occurs. Curiously, this occurs in quadrant II (GSC and ASC are positive). In the January-February period, the ratings are virtually "rockbottom". These ratings are located in quadrant II for January (GSC and ASC positive). There is a climb in April in quadrant IV, but then the rating "dives" in quadrant II (GSC and ASC are positive).

The interview did not illuminate any real solutions as to the complexity of the 2 and 3 dimensional graphs. Also, the negative nature of most of the correlations could not be explained. However, the absolute value of the correlations were strong. Indeed, the subject noted that her GSC and ASC were very closely related, and that her studies were very important to her. In terms of ACP she noted that she got along very well with Canadians. She liked the Canadian social life, and noted that she had many Canadian friends. Her ACC was that there is no "real Canadian culture". However, she found Canadian culture to be "carefree and fun".

Subject 9 (British/Male/Single/Age 26): The numerical rating graphs (fig.25) showed a double u-curve occurring for question 1 (GSC). The dips occurred in November and March. Question 2 (ASC) showed a similar profile, except that the graph showed a "low start" in the early part of the study (October). Question 3 (ACP) showed a similar profile to question 1. Question 4 (ACC) showed a profile similar to question 2, except that the ratings here were much lower. The adjective rating graphs (fig.26) showed similar shapes to their numerical counterparts for questions 1 and 2. Question 3 was different. It showed a "mountain peak" pattern. Question 4 was also different from its numerical counterpart. It was almost a straight curve with very low ratings.

The orthogonal estimates confirmed that the u-curve trends found in question 1 were significant. They also confirmed that the graph for question 4 was significant. The significant correlations were: GSC vs. ASC (.72), GSC vs. ACP (.88), GSC vs. ACC (.68), ASC vs. ACP (.83), ASC vs. ACC (.84), TSC vs. ACC (.83), TSC vs. ACP (.95), Can/p/c vs. GSC (.82), Can/p/c vs. ASC (.90).

The 3-dimensional graph (fig.7) showed an initially moderate Can/p/c ratings and then a downfall in the November-December time. The ratings started in quadrant III (GSC positive) and hovered onto quadrant IV (GSC and ASC negative). In January the Can/p/c ratings rose and moved to quadrant II (GSC and ASC positive). In February to March,

the ratings dropped and moved to quadrant IV (GSC and ASC both negative). In April, the Can/p/c rating rose dramatically and moved to quadrant III (ASC positive).

The interview confirmed the results of all the graphs and the correlations. GSC and ASC found to be strongly related. Academic performance greatly affected the ASC. There was indeed a "u-curve" in the person's GSC. Personal and academic issues contributed to the shape of the curve. In terms of ACP, the subject noted that Canadians were superficial and that it was hard to meet people. The subject commented on the lack of knowledge shown by Canadians in the areas of world affairs and general information. He noted that his perception of them went hand in hand with his GSC and ASC (as shown in the graphs and ratings). In terms of ACC, the subject noted he would never want to be a "Canadian" and that Canadian culture was a very "mechanical and plastic" culture, with heavy emphasis on the material aspects of life.

Subject 10 (American/Female/Single/Age 23): The numerical rating graphs (fig.28) showed questions 1 and 2 (GSC and ASC) to be similar. The lowest point for GSC was in January. Both showed a consistent "sawtooth" like pattern. The ratings stood consistently high; fluctuating between 2 and 4. Question 3 (ACP) was simply a straight line at a rating of 3. Question 4 (ACC) showed an "inverted u" with the lowest ratings at 2, in the beginning and end of the curve. The adjective rating graphs (fig.29) showed similar shapes to their numerical counterparts for questions 1 through 4. The only real differences were the dips taken by question 1 in February, and question 4 in April.

The orthogonal estimates showed no significant trends. The correlations were also insignificant (see table 9).

The 3-dimensional graph (fig.30) showed consistently high Can/p/c ratings throughout the year, except for the April month. The ratings generally shifted between quadrants II (GSC and ASC positive) and III (GSC positive). Only in January did the rating move to the quadrant IV (GSC and ASC negative) and Quadrant I (ASC positive) border. The Can/p/c ratings were high in this region as well.

The interview found that the subject's GSC and ASC were high throughout the year. It was in January when they sunk, due to interpersonal problems; as indicated in the 2 and 3 dimensional graphs. She noted that her GSC and ASC were strongly related, however her GSC was also strongly related to her ACP. Her ACP was very high throughout the

year, because as an American she "felt right at home". She made many friends without difficulty and felt immediately accepted. The subject's ACC was also very favorable, due to her American background. American and Canadian cultures were found to be the "same" to her. Her perception altered temporarily in April due to her personal dislike of Premier Van Der Zalm's policies on abortion.

Subject 11 (Danish/Female/Single/Age 22): The numerical rating graphs (fig.31) showed a "sawtooth" pattern for question 1 (GSC), with the peak in January and a steady decline thereafter. Similar patterns showed for questions 2 (ASC) and 3 (ACP). Question 4 (ACC) was similar except for a markedly low rating in November. The adjective rating graphs (fig.32) were more or less similar across all four questions.

The orthogonal estimates found no real trends. The significant correlations were: GSC vs. ASC (.75), ASC vs. ACP (.41), GSC vs. ACP (.34), TSC vs. ACP (.40).

The 3-dimensional graph (fig.33) showed very low Can/p/c ratings in October, where the ratings occurred in quadrant III (GSC positive). From November to February, the ratings simply shot up. The December-February ratings were located in quadrant II (GSC and ASC positive). The ratings continued to stay on a high plane in the March-April period, however they were now located in quadrant IV (GSC and ASC negative).

The interview results showed that the client's GSC was greatly tied to her relationship with her Canadian boyfriend. She felt very bad about that relationship and when she broke up, her GSC (along with ASC, ACP, and ACC) steadily improved. Her ASC was in tune with her GSC; they went up and down together. She had difficulty adjusting to the Canadian university system at first, but she adapted well, and her grades were good. Her ACP was neutral at

first, but after breaking up with her boyfriend, her attitudes with regards to Canadians improved greatly. In terms of ACC, she found the differences and contrasts of Canadian culture "fascinating". As the year progressed, she became more neutral about ACC, but never truly negative. All of the graphs and correlations confirmed the results of the interview.

Subject 12 (British/Female/Single/Age 22): The numerical rating graphs (fig.34) showed a definite "u-curve" for question 1 (GSC) with the low point in December. Question 2 (ASC) was similar, however the low point occurred in March. Question 3 (ACP) was also very similar to 1. Question 4 (ACC) was a curve that gradually rose high from a very low starting point. The ratings then continued to stay more or less higher. The adjective rating graph (fig. 35) showed very similar graphs for question 1,2, and 4. Question 3 however, was linear. This may indicate that the subject was usually "kinder" in her adjective descriptions about Canadians than her numerical ratings may have shown.

The only significant trends found by the orthogonal estimates were the results for question 4. The only significant correlations were for GSC vs. ACP (.64) and Can/p/c vs. GSC (.44) (see table 9).

The 3-dimensional graph (fig.36) ratings climbing up steadily in the October-November time. The ratings occurred in quadrant II (GSC and ASC positive). In December the ratings stayed the same, however they were located in quadrant IV (GSC and ASC negative). Note the low point for GSC in December for question 1 in fig.s 34 and 35. The ratings moved back to quadrant II in January and continued to stay there until April.

The most important point that turned up in the interview was the strong relationship between the subject's GSC and ACP. This confirmed the similarities of questions 1

and 3 in fig.s 34 and 35 as well as the correlations. Even though the subject noted that her ASC was tied to her GSC, it was her "social life" that affected her GSC the most. In December she had a low point due to the pressure of exams, as noted in all of the graphs. Her ASC remained stable thereafter. Due to her ability to socialize, and also because of her British background, the subject's ACP was very high. Her ACC was also high and she noted how Canada was similar to Britain. The 3-dimensional graph noted the high ratings that she made of Canadian people and culture (Can/p/c).

Subject 13 (German/Male/Single/Age 27): The numerical rating graphs (fig.37) found that question 1 (GSC) showed a "sawtooth pattern". Similar results were found for question 2 (ASC). Question 3 (ACP) showed a "double u-curve" with a low point in December and a further fall in February. Question 4 (ACC) showed a "sawtooth" pattern. The adjective rating graphs (fig. 38) were not very similar to their numerical counterparts. Questions 1,3 and 4 showed "sawtooth" patterns, and question 3 was a relatively stable curve with no real ups or downs.

The orthogonal estimates showed that the graph for question 4 was significant. The significant correlations were: GSC vs. Can/p/c (.44), ASC vs. Can/p/c (.44), and TSC vs. ACC (.42).

The 3-dimensional graph (fig.39) was interesting in that the ratings moved in all four quadrants. The Can/p/c ratings fluctuated greatly. From February however, the ratings steadily deteriorated.

The subject noted in the interview that the concept of "himself as a person" did not change greatly. He did find the concept of himself in Canadian culture important. He noted that his GSC and ASC were strongly related (see fig.37). It was in his ACP and ACC where he was most critical. His ideas about ACP and ACC fluctuated greatly in the first months, and then they gradually deteriorated. All of this was noted in his 3-dimensional graph (fig.39). He noted that in Canadian culture, females receive more

positive attention than males. He found Canadians to be lacking in general political awareness and activism, and that their system of socializing is poor.

### Section III: Results for Groups

Two main groups were analyzed; Group 1 (Eastern/Western) and Group 2 (Female/Male). The results of each group is now discussed.

Group 1 (Eastern): The numerical rating graphs (fig.40) showed similiar shapes for questions 1 and 2 (GSC and ASC), but no real u-curve. Questions 3 (ACP) and 4 (ACC) were also similiar, however question 3 had higher ratings.

The significant correlations were: GSC vs.ASC (.50), ASC vs. ACC (-.41), and Can/p/c vs. ASC (-.46).

The 3-dimensional graph (fig.41) showed moderate Can/p/c ratings in the October-December period. These ratings were located in quadrant III (GSC high). The ratings shot high in the January-February time, where the ratings moved to quadrant II (GSC and ASC positive). The ratings stayed in that quadrant until April where they moved to quadrant III (GSC positive). By April, the ratings had dropped to roughly the same level as the October-December time.

Judging from the interviews, female easterners were as a whole, more positive about ACP and ACC than their male counterparts. All of the the 3 dimensional graphs (fig.s 41, 43, 45, and 47) show this. Most importantly, the GSC and ASC of the easterners were not found to be causally linked to the attitude dimensions.

Group 1 (Western): The numerical rating graphs (fig.42) showed questions 1 (GSC) and 2 (ASC) to be very similar, but no real u-curve exists. Questions 3 (ACP) and 4 (ACC) were not as similar, and question 3 had higher ratings than 4.

The significant correlations were: GSC vs. ASC (.40), ASC vs. ACP (.46), and Can/p/c vs. ACC (.60).

In the 3-dimensional graph (fig.43) the ratings showed very low Can/p/c ratings in quadrant III (GSC positive) and IV (GSC and ASC negative), for the October-December time. They then moved to quadrant II (GSC and ASC positive) and shot to their highest level in January. The ratings fluctuated greatly but moved back to quadrant II in April, where the Can/p/c ratings were at a moderate level.

The only interesting fact worth mentioning is that western females were more positive about ACP and ACC than their male counterparts.

Group 2 (Females): The numerical rating graphs (fig.44) for questions 1 (GSC) and 2 (ASC) showed no similarities. Neither of them showed a "u-curve". The same situation occurred for questions 3 (ACP) and 4 (ACC).

The highest correlation was between GSC vs. ASC. All other correlations were insignificant (see table 11).

The 3-dimensional graph (fig.45) showed great fluctuations in ratings between the months. The quadrants changed between II, III, and IV. Generally, the Can/p/c ratings started very low in October in quadrant III (GSC positive), and ended up very high in April in quadrant II (GSC and ASC positive).

Generally, the interviews found that eastern females had conflict between the roles imposed by their home cultures and the individualism they could express in Canadian culture. The western females seemed to be the group that had the easiest time adjusting.

Group 2 (Males): The numerical rating graph (Fig.46) showed great similarities in shape between questions 1 (GSC) and 2 (ASC). The only difference between them was that the ratings for question 1 were much higher. Questions 3 (ACP) and 4 (ACC) showed the same results, except that question 3 had much higher ratings than question 4. None of the graphs showed any "u-curve".

The significant correlations were: GSC vs. ACC (.51), ASC vs. ACP (-.51), ASC vs. ACC (.67), TSC vs. ACP (.31), TSC vs. ACC (.75). Note that the correlation of GSC vs. ASC was only .26.

The 3-dimensional graph (fig.47) showed a very complex fluctuation of Can/p/c ratings. In general, the ratings started very low in the October-December months, and rose to their highest level in January. In the February-March period, the ratings dropped to a moderate level. The ratings shifted between all four quadrants throughout the year.

The interviews generally showed both eastern and western males to be more critical of Canadian people (ACP) and Canadian culture (ACC). The criticisms ranged anywhere from people's lack of political awareness, superficiality of the culture, to the ambiguous roles demanded from males and females.

Total Group (All Subjects): A two-dimensional graph was made of subjective numerical ratings of all four questions.

Nothing significant was noted except that GSC and ASC were similar in shape, as well as ACP and ACC. The only other point that can be made is that no u-curve truly showed up. Caution is advised in drawing inferences from this graph because

- A) The number of subjects are small (n=13)
- B) The subjects come from very diverse backgrounds (see Table I, pp.34)

#### Section IV: Results Summary

The most striking aspect of the results had to do with the shapes of the curves. Although a few solid "u-curves" showed themselves, no real consistent or solid evidence was found to support the u-curve hypothesis. Most of the curves were very individual in character. This may indicate that each student adjusts in an individual fashion.

The graphs, correlations, and interviews all hinted towards a powerful link between GSC and ASC. ASC was found to be strongly affected by exam marks and academic performance. The relationship between ACP and ACC was similar but less powerful than GSC and ASC. Strong relationships were found between the TSC and attitude dimensions, and Can/p/c and self-concept dimensions.

As a whole, western females seemed to adjust most successfully. They all found themselves at home in Canada and related to the roles they could play as women and the individuality they were encouraged to express. Eastern females felt the same way, however they tended to be in conflict with the traditional roles demanded from their home cultures. Western and eastern males were both critical of the Canadian culture, stating that it was superficial and materialistic. Eastern men were particularly critical of the women, stating that they "loose", "wild" and "without morals".

The 3 dimensional graphs were of great assistance in understanding the adjustment pattern of the international students. Also, they helped to show that the self-concept and attitude dimensions are not causally related as Lefebvre and Lefebvre (1986) have predicted. The three dimensional graphs helped to add another perspective to the results and highlight aspects that may have not shown themselves. Most individual's Can/p/c ratings rose very high in January. Also worthy of mention is the fact that the Can/p/c ratings of females stayed consistently high in the 3 dimensional graphs.

## Discussion

### Implications of Results

The U-Curve Hypothesis: Having analyzed the results of the data, it may be possible to conclude that the u-curve analogy of adjustment is an incomplete way of assessing the adjustment of foreign students studying in Canadian universities. Although a few u-curve patterns were found, the overwhelming evidence seems to show that foreign students adjust in an individual fashion. It seems that in order to explain the process of adjustment for the foreign student, a number of factors must be taken into account. General and academic self-concepts (GSC and ASC), attitude about Canadians and Canadian culture (ACP and ACC), and their relationship to self-validation were discussed as possible indices of adjustment in the literature review and hypothesis sections.

Indices of Adjustment: The indices of adjustment (GSC, ASC, ACP, ACC) proved helpful in understanding the adjustment of the international students. The results showed that the GSC and ASC overlapped. ASC was found to be central to the identity of many of the international students. Grades and academic performance had a powerful impact upon ASC, which in turn was reflected upon the GSC. In fact, the interviews revealed that academic studies and success were very central to the identity of the foreign students. Exploration of the data did show significant relationships between the general

and academic self-concepts. In short, the ASC was found to be very central to the process of self-validation of the international students.

To a lesser extent, ACP and ACC were found to overlap. What proved interesting however, was that the self-concept dimensions (GSC and ASC) and the attitude dimensions (ACP and ACC) were not found to be causally linked. Although a relationship between the two is not ruled out, no causal link was found.

#### Importance of Gender and Ethnicity in Cross-Cultural

Adjustment: Apart from the dimensions discussed as having a possible impact on adjustment, gender and ethnic differences were found to be important as well. Western women were found to have the most successful adjustment, followed by eastern women, western men, and finally eastern men.

Although the numbers of subjects were too small to allow us to make any strong generalizations, the results indicated that it is possible that men and women coming from an "eastern" culture, meaning non white or non western/European, would have a harder time adjusting to a north American university than men and women coming from a "western" culture. Also, it may be possible that men and women coming from the same culture, may have different experiences, positive or negative, in their adjustments. For example, a woman coming from an "eastern" culture to study in North America, may find that her role as an independent woman is more reinforced than the way it was

back home. This may help in her adjustment to North American culture. Basow (1984) discovered that female Fijian university students were more similar to their U.S counterparts in terms of attitudes about sex roles than Fijian university males and Americans. Such an individual, a female "eastern" student, may in fact find her adjustment to a North American university environment easier than her male counterpart. On the other hand, a man coming from the same "eastern" culture may find that his role as a man in North America is not regarded in the way it was back home. Such a person could stumble into adjustment difficulties. Of course, infinite types of scenarios may exist for men and women from different cultures, however the potential for different patterns of adjustment may exist due to gender differences. The results did show that women as a whole seemed to adjust better than men, although this was more pronounced for the "eastern" students.

#### Implications for Future Research

This study was a pioneer study in that many of the issues it tackled had not been explored before by previous research. Since the numbers of subjects were small ( $n=13$ ), it was not possible to make overall generalizations upon international students studying in Canada. Therefore any future research would have to obtain larger samples. A larger sample (with  $n$  at least 30) allows for more rigorous statistical testing and generalizability upon the population of interest (Jaccard, 1983). Any future study involving

international students could take the factors of gender and ethnicity into consideration. In this study, these were found to be very important to the cross-cultural adjustment of the international students. Further suggestions for further research in this area would be to conduct studies over longer periods of time. Finally, it seems most convenient to have a researcher collect the questionnaires from the research participants directly. The Canadian peers who were assigned to the task at times proved unreliable. Only direct intervention by the researchers prevented the falling off of survey data in such cases.

#### Implications for Counselling

The information found with regards to GSC, ASC, ACP, and ACC have important implications for counselling. Based upon the results it was found that academic success and knowledge of Canadian cultural norms play very important roles in the adjustment of foreign students. Although the importance of ASC has been noted, it is the role of the latter that is especially important. As noted by Ishiyama (1988), foreign students often experience problems in encoding and decoding communicational cues. The result is that they experience problems in accurately understanding and conforming to the host culture's socio-cultural norms (Ishiyama, 1988). Such problems inevitably lead them to feelings confusion and neglect by host culture members (Hull, 1981). Counsellors can assist foreign students by teaching them the communication systems and norms of the

host culture. Many such projects have already been implemented. The successful "peer program" (Westwood, 1984) has assisted many foreign students in their adjustment to Canadian culture. Workshops also exist for teaching communication patterns and action oriented problem solving skills for foreign students (Wong-Rieger, 1984). Study workshops and thinking strategies (Hageman, 1984) can also be beneficial for the foreign students. By assisting in a multipronged approach such as the teaching of socio-cultural skills, problem-solving, and study skills, counsellors hold great promise in helping foreign students adjust successfully to the Canadian culture and university. These approaches will provide the foreign student with tools as to ensure his/her process of self-validation. When the process of self-validation is free and unchecked, successful adjustment by the foreign student becomes inevitable.

A counselling approach that assists the foreign student's process of self-validation could prove productive. Eclectic approaches such as Christenson's "perceptual approach to cross-cultural counselling" (1985) hold promise because they view the cross-cultural client as a "unique" individual, rather than a "foreigner". The term "uniqueness" has been used by other cross-cultural counsellors (Altscher, 1976; Mcmillen, 1976). Viewing the international student as a unique person with a unique

system of self-validation may prove to be a very powerful method of cross-cultural counselling.

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## APPENDIX I

The C-Statistic

There are two orthogonal estimates of the variance of a time series. The first measure is the variance calculated as indicated by equation A:

$$S^2 = 1/N \sum^{N(\text{with } i=1)} (X_i - \bar{X})^2$$

Where N is the number of data points and X is the score for the particular data point. Each X is subtracted from the mean of all those data points. All of that is summed up and multiplied to 1/N.

This variance of the time series increases in direct proportion to any changes or trends in the mean value of the series. As a result, the presence of a trend increases both the mean and the variance.

The second estimate of the variance of a times series is the Mean Square Successive difference (MSSD) statistic. It is calculated as its name implies. The consecutive differences among data points are first calculated, squared, and finally averaged as indicated by equation B:

$$MSSD = D^2 = \sum^{N-1(\text{with } i+1)} (X_{i+1} - X_i)^2 / N-1$$

In this case, the "i" stands for the initial value.

The MSSD or D is independent of changes in the mean value of the time series. Von Neumann (1941) discussed extensively the distribution of the MSSD to the actual variance. Young (1941) developed this line of reasoning into the actual C-statistic as given by equation C:

The standard error of the C-statistic is calculated as such:

$$S_C = (N-2 / ((N-1)(N+1)))^{1/2}$$

Young (1941) has shown that the ratio of C to its standard error is the Z-statistic:

$$Z = C / S_C$$

For further information, consult Tryon's article on "A Simplified Time-Series Analysis for Evaluating Treatment Interventions" (1982).

## APPENDIX II

Orthogonal Polynomials

In simple algebraic terms, a linear trend is any function that is dependent upon an x variable. This type of trend is closer to a "straight line". If a student shows this type of trend, it is possible to conclude, from a mathematical standpoint, that the student's adjustment did not follow a "U-curve". It either stayed stable (Slope=0), kept going up through time (Slope is positive), or kept going downhill (Slope is negative). However, it is possible to also to use a quadratic function with  $X^2$  to see if a "U" type trend exists. Trend analysis (Rosenthal & Rosnow, 1982) allows us to take a set of data and put them into a mathematical formula to see what sort of form they have. Two formulas have been used; one for plotting numbers to see if a linear trend exists, and the other plots for quadratic functions.

Note that the graphs were already plotted, however we had no way of knowing whether the trends that showed themselves were in any way statistically significant. Since the derivation of the quadratic polynomials is rather complex, It is advised to consult Rosenthal and Rosnow's book on "Trend Analysis" (1982).

## APPENDIX III

Adjective Rating Sheet

This rating sheet is anonymous. You are to rate each adjective on a scale of +4(very positive) to -4(very negative). Don't dwell too long on a single adjective; try to flow through the questions.

The purpose of this rating sheet is to find a standardized rating sheet for adjectives given by participants in a research study. You are one of the independent judges who will help build that standardized rating sheet.

Disappointment -1 -2 -3 -4 0 +1 +2 +3 +4

friendly -1 -2 -3 -4 0 +1 +2 +3 +4

sad -1 -2 -3 -4 0 +1 +2 +3 +4

Helpfull -1 -2 -3 -4 0 +1 +2 +3 +4

tired -1 -2 -3 -4 0 +1 +2 +3 +4

very nice -1 -2 -3 -4 0 +1 +2 +3 +4

frustration -1 -2 -3 -4 0 +1 +2 +3 +4

kind -1 -2 -3 -4 0 +1 +2 +3 +4

not enough energy -1 -2 -3 -4 0 +1 +2 +3 +4

friendly -1 -2 -3 -4 0 +1 +2 +3 +4

feel stupid	-1	-2	-3	-4	0	+1	+2	+3	+4
great	-1	-2	-3	-4	0	+1	+2	+3	+4
feel silly	-1	-2	-3	-4	0	+1	+2	+3	+4
I like school	-1	-2	-3	-4	0	+1	+2	+3	+4
Canadians are Individualist	-1	-2	-3	-4	0	+1	+2	+3	+4
vivid	-1	-2	-3	-4	0	+1	+2	+3	+4
jolly	-1	-2	-3	-4	0	+1	+2	+3	+4
active	-1	-2	-3	-4	0	+1	+2	+3	+4
tired	-1	-2	-3	-4	0	+1	+2	+3	+4
excited	-1	-2	-3	-4	0	+1	+2	+3	+4
nervous	-1	-2	-3	-4	0	+1	+2	+3	+4
relieved	-1	-2	-3	-4	0	+1	+2	+3	+4
difficult	-1	-2	-3	-4	0	+1	+2	+3	+4
sharing	-1	-2	-3	-4	0	+1	+2	+3	+4
dum	-1	-2	-3	-4	0	+1	+2	+3	+4
good	-1	-2	-3	-4	0	+1	+2	+3	+4
terrible	-1	-2	-3	-4	0	+1	+2	+3	+4

free	-1	-2	-3	-4	0	+1	+2	+3	+4
so hard	-1	-2	-3	-4	0	+1	+2	+3	+4
comfortable	-1	-2	-3	-4	0	+1	+2	+3	+4
lonesome	-1	-2	-3	-4	0	+1	+2	+3	+4
settled	-1	-2	-3	-4	0	+1	+2	+3	+4
unsatisfied	-1	-2	-3	-4	0	+1	+2	+3	+4
more accepted	-1	-2	-3	-4	0	+1	+2	+3	+4
angry	-1	-2	-3	-4	0	+1	+2	+3	+4
no worries	-1	-2	-3	-4	0	+1	+2	+3	+4
sick	-1	-2	-3	-4	0	+1	+2	+3	+4
positive	-1	-2	-3	-4	0	+1	+2	+3	+4
hard	-1	-2	-3	-4	0	+1	+2	+3	+4
normal	-1	-2	-3	-4	0	+1	+2	+3	+4
complete	-1	-2	-3	-4	0	+1	+2	+3	+4
homesick	-1	-2	-3	-4	0	+1	+2	+3	+4
looking up	-1	-2	-3	-4	0	+1	+2	+3	+4
ignorant	-1	-2	-3	-4	0	+1	+2	+3	+4
motivated	-1	-2	-3	-4	0	+1	+2	+3	+4

Canadian culture is too moderate	-1	-2	-3	-4	0	+1	+2	+3	+4
anxious	-1	-2	-3	-4	0	+1	+2	+3	+4
challenging	-1	-2	-3	-4	0	+1	+2	+3	+4
so so	-1	-2	-3	-4	0	+1	+2	+3	+4
enlightened	-1	-2	-3	-4	0	+1	+2	+3	+4
overloaded with work	-1	-2	-3	-4	0	+1	+2	+3	+4
loneliness	-1	-2	-3	-4	0	+1	+2	+3	+4
I don't care	-1	-2	-3	-4	0	+1	+2	+3	+4
loving	-1	-2	-3	-4	0	+1	+2	+3	+4
not great	-1	-2	-3	-4	0	+1	+2	+3	+4
lonely people	-1	-2	-3	-4	0	+1	+2	+3	+4
understanding	-1	-2	-3	-4	0	+1	+2	+3	+4
funny	-1	-2	-3	-4	0	+1	+2	+3	+4
rude	-1	-2	-3	-4	0	+1	+2	+3	+4
nothing new	-1	-2	-3	-4	0	+1	+2	+3	+4
more exciting	-1	-2	-3	-4	0	+1	+2	+3	+4
reasonable	-1	-2	-3	-4	0	+1	+2	+3	+4

not too enthusiastic	-1	-2	-3	-4	0	+1	+2	+3	+4
puzzled	-1	-2	-3	-4	0	+1	+2	+3	+4
energetic	-1	-2	-3	-4	0	+1	+2	+3	+4
limited	-1	-2	-3	-4	0	+1	+2	+3	+4
I can manage	-1	-2	-3	-4	0	+1	+2	+3	+4
demanding	-1	-2	-3	-4	0	+1	+2	+3	+4
more clear	-1	-2	-3	-4	0	+1	+2	+3	+4
scared	-1	-2	-3	-4	0	+1	+2	+3	+4
thoughtful	-1	-2	-3	-4	0	+1	+2	+3	+4
fair	-1	-2	-3	-4	0	+1	+2	+3	+4
regretful	-1	-2	-3	-4	0	+1	+2	+3	+4
sociable	-1	-2	-3	-4	0	+1	+2	+3	+4
disillusioned	-1	-2	-3	-4	0	+1	+2	+3	+4
less insecure	-1	-2	-3	-4	0	+1	+2	+3	+4
archaic	-1	-2	-3	-4	0	+1	+2	+3	+4
leisured	-1	-2	-3	-4	0	+1	+2	+3	+4
I want to leave Canada!	-1	-2	-3	-4	0	+1	+2	+3	+4

strong	-1	-2	-3	-4	0	+1	+2	+3	+4
going out	-1	-2	-3	-4	0	+1	+2	+3	+4
inquisitive	-1	-2	-3	-4	0	+1	+2	+3	+4
healthy	-1	-2	-3	-4	0	+1	+2	+3	+4
inefficient	-1	-2	-3	-4	0	+1	+2	+3	+4
supportive	-1	-2	-3	-4	0	+1	+2	+3	+4
overworked	-1	-2	-3	-4	0	+1	+2	+3	+4
approachable	-1	-2	-3	-4	0	+1	+2	+3	+4
I despise them	-1	-2	-3	-4	0	+1	+2	+3	+4
impressed	-1	-2	-3	-4	0	+1	+2	+3	+4
primitive	-1	-2	-3	-4	0	+1	+2	+3	+4
a little unhappy	-1	-2	-3	-4	0	+1	+2	+3	+4
quaint	-1	-2	-3	-4	0	+1	+2	+3	+4
amiable	-1	-2	-3	-4	0	+1	+2	+3	+4
Canadian culture is commercial	-1	-2	-3	-4	0	+1	+2	+3	+4
irrelevant	-1	-2	-3	-4	0	+1	+2	+3	+4

enlightment	-1	-2	-3	-4	0	+1	+2	+3	+4
average	-1	-2	-3	-4	0	+1	+2	+3	+4
well prepared	-1	-2	-3	-4	0	+1	+2	+3	+4
proud of self	-1	-2	-3	-4	0	+1	+2	+3	+4
aggressive	-1	-2	-3	-4	0	+1	+2	+3	+4
familiar	-1	-2	-3	-4	0	+1	+2	+3	+4
hectic	-1	-2	-3	-4	0	+1	+2	+3	+4
image conscious	-1	-2	-3	-4	0	+1	+2	+3	+4
decreased self discipline	-1	-2	-3	-4	0	+1	+2	+3	+4
looking forward	-1	-2	-3	-4	0	+1	+2	+3	+4
exhausted	-1	-2	-3	-4	0	+1	+2	+3	+4
full	-1	-2	-3	-4	0	+1	+2	+3	+4
familiar	-1	-2	-3	-4	0	+1	+2	+3	+4
impatient	-1	-2	-3	-4	0	+1	+2	+3	+4
easy going	-1	-2	-3	-4	0	+1	+2	+3	+4
congenial	-1	-2	-3	-4	0	+1	+2	+3	+4

mixed	-1	-2	-3	-4	0	+1	+2	+3	+4
surprised	-1	-2	-3	-4	0	+1	+2	+3	+4
inspired	-1	-2	-3	-4	0	+1	+2	+3	+4
lack of self- discipline	-1	-2	-3	-4	0	+1	+2	+3	+4
more organized	-1	-2	-3	-4	0	+1	+2	+3	+4
lonely	-1	-2	-3	-4	0	+1	+2	+3	+4
hopeful	-1	-2	-3	-4	0	+1	+2	+3	+4
rested	-1	-2	-3	-4	0	+1	+2	+3	+4
pleasant but bland	-1	-2	-3	-4	0	+1	+2	+3	+4
questioning	-1	-2	-3	-4	0	+1	+2	+3	+4
getting better	-1	-2	-3	-4	0	+1	+2	+3	+4
neat!	-1	-2	-3	-4	0	+1	+2	+3	+4
moderately content	-1	-2	-3	-4	0	+1	+2	+3	+4
Canadian culture is too liberated	-1	-2	-3	-4	0	+1	+2	+3	+4
upward trend	-1	-2	-3	-4	0	+1	+2	+3	+4
confident	-1	-2	-3	-4	0	+1	+2	+3	+4

unintriguing	-1	-2	-3	-4	0	+1	+2	+3	+4
fun	-1	-2	-3	-4	0	+1	+2	+3	+4
worried	-1	-2	-3	-4	0	+1	+2	+3	+4
happy	-1	-2	-3	-4	0	+1	+2	+3	+4
stressful	-1	-2	-3	-4	0	+1	+2	+3	+4
disorganized	-1	-2	-3	-4	0	+1	+2	+3	+4
warm hearted	-1	-2	-3	-4	0	+1	+2	+3	+4
neutral	-1	-2	-3	-4	0	+1	+2	+3	+4
pissed off	-1	-2	-3	-4	0	+1	+2	+3	+4
curiosity	-1	-2	-3	-4	0	+1	+2	+3	+4
moderate	-1	-2	-3	-4	0	+1	+2	+3	+4
good mood	-1	-2	-3	-4	0	+1	+2	+3	+4
anxious to be finished with school	-1	-2	-3	-4	0	+1	+2	+3	+4
glad	-1	-2	-3	-4	0	+1	+2	+3	+4
pressed	-1	-2	-3	-4	0	+1	+2	+3	+4
waiting	-1	-2	-3	-4	0	+1	+2	+3	+4
hopeless	-1	-2	-3	-4	0	+1	+2	+3	+4

camaraderie	-1	-2	-3	-4	0	+1	+2	+3	+4
somewhat nervous	-1	-2	-3	-4	0	+1	+2	+3	+4
I hate it!	-1	-2	-3	-4	0	+1	+2	+3	+4
self assured	-1	-2	-3	-4	0	+1	+2	+3	+4
impatient	-1	-2	-3	-4	0	+1	+2	+3	+4
accelerating	-1	-2	-3	-4	0	+1	+2	+3	+4
insecure	-1	-2	-3	-4	0	+1	+2	+3	+4
empathetic	-1	-2	-3	-4	0	+1	+2	+3	+4
losing interest	-1	-2	-3	-4	0	+1	+2	+3	+4
well prepared	-1	-2	-3	-4	0	+1	+2	+3	+4
unique	-1	-2	-3	-4	0	+1	+2	+3	+4
communication with others	-1	-2	-3	-4	0	+1	+2	+3	+4
demanding	-1	-2	-3	-4	0	+1	+2	+3	+4
not punctual	-1	-2	-3	-4	0	+1	+2	+3	+4
honesty	-1	-2	-3	-4	0	+1	+2	+3	+4
sometimes loose	-1	-2	-3	-4	0	+1	+2	+3	+4

cheerful	-1	-2	-3	-4	0	+1	+2	+3	+4
more unsure	-1	-2	-3	-4	0	+1	+2	+3	+4
more contacts	-1	-2	-3	-4	0	+1	+2	+3	+4
uncertain	-1	-2	-3	-4	0	+1	+2	+3	+4
awareness	-1	-2	-3	-4	0	+1	+2	+3	+4
together	-1	-2	-3	-4	0	+1	+2	+3	+4
down	-1	-2	-3	-4	0	+1	+2	+3	+4
too wrapped up	-1	-2	-3	-4	0	+1	+2	+3	+4
sometimes fun	-1	-2	-3	-4	0	+1	+2	+3	+4
negative	-1	-2	-3	-4	0	+1	+2	+3	+4
cautiously favorable	-1	-2	-3	-4	0	+1	+2	+3	+4
disgusting	-1	-2	-3	-4	0	+1	+2	+3	+4
decisive	-1	-2	-3	-4	0	+1	+2	+3	+4
unsatisfied with self	-1	-2	-3	-4	0	+1	+2	+3	+4
coping	-1	-2	-3	-4	0	+1	+2	+3	+4
divided	-1	-2	-3	-4	0	+1	+2	+3	+4
gregarious	-1	-2	-3	-4	0	+1	+2	+3	+4

time consuming	-1	-2	-3	-4	0	+1	+2	+3	+4
disgruntled	-1	-2	-3	-4	0	+1	+2	+3	+4
a bit sad	-1	-2	-3	-4	0	+1	+2	+3	+4
close	-1	-2	-3	-4	0	+1	+2	+3	+4
in control	-1	-2	-3	-4	0	+1	+2	+3	+4
comprehending	-1	-2	-3	-4	0	+1	+2	+3	+4
Canadian culture is a little conservative	-1	-2	-3	-4	0	+1	+2	+3	+4
fulfilled	-1	-2	-3	-4	0	+1	+2	+3	+4
getting behind in school	-1	-2	-3	-4	0	+1	+2	+3	+4
confused	-1	-2	-3	-4	0	+1	+2	+3	+4
enjoyable	-1	-2	-3	-4	0	+1	+2	+3	+4
satisfied	-1	-2	-3	-4	0	+1	+2	+3	+4
reserved	-1	-2	-3	-4	0	+1	+2	+3	+4
cautious	-1	-2	-3	-4	0	+1	+2	+3	+4
trying	-1	-2	-3	-4	0	+1	+2	+3	+4
competitive	-1	-2	-3	-4	0	+1	+2	+3	+4

secure	-1	-2	-3	-4	0	+1	+2	+3	+4
anticipatory	-1	-2	-3	-4	0	+1	+2	+3	+4
pleased	-1	-2	-3	-4	0	+1	+2	+3	+4
uncompre- hending	-1	-2	-3	-4	0	+1	+2	+3	+4
new	-1	-2	-3	-4	0	+1	+2	+3	+4
indifferent	-1	-2	-3	-4	0	+1	+2	+3	+4
preoccupied	-1	-2	-3	-4	0	+1	+2	+3	+4
I will miss the Canadians	-1	-2	-3	-4	0	+1	+2	+3	+4
stimulated	-1	-2	-3	-4	0	+1	+2	+3	+4
working in school	-1	-2	-3	-4	0	+1	+2	+3	+4
ambivalent	-1	-2	-3	-4	0	+1	+2	+3	+4
settle down	-1	-2	-3	-4	0	+1	+2	+3	+4
time pressure	-1	-2	-3	-4	0	+1	+2	+3	+4
Canadians lack depth	-1	-2	-3	-4	0	+1	+2	+3	+4
lousy	-1	-2	-3	-4	0	+1	+2	+3	+4
carefree	-1	-2	-3	-4	0	+1	+2	+3	+4

difficulties for me in the future	-1	-2	-3	-4	0	+1	+2	+3	+4
elated	-1	-2	-3	-4	0	+1	+2	+3	+4
panic	-1	-2	-3	-4	0	+1	+2	+3	+4
puzzled	-1	-2	-3	-4	0	+1	+2	+3	+4
Canadians lack finesse	-1	-2	-3	-4	0	+1	+2	+3	+4
thoughtful	-1	-2	-3	-4	0	+1	+2	+3	+4
apprehensive	-1	-2	-3	-4	0	+1	+2	+3	+4
peaceful	-1	-2	-3	-4	0	+1	+2	+3	+4
nice	-1	-2	-3	-4	0	+1	+2	+3	+4
forgetful	-1	-2	-3	-4	0	+1	+2	+3	+4
fine	-1	-2	-3	-4	0	+1	+2	+3	+4
helpless	-1	-2	-3	-4	0	+1	+2	+3	+4
hospitable	-1	-2	-3	-4	0	+1	+2	+3	+4
terrified	-1	-2	-3	-4	0	+1	+2	+3	+4
not bad	-1	-2	-3	-4	0	+1	+2	+3	+4
unconcerned	-1	-2	-3	-4	0	+1	+2	+3	+4
busy	-1	-2	-3	-4	0	+1	+2	+3	+4

too much	-1	-2	-3	-4	0	+1	+2	+3	+4
interesting	-1	-2	-3	-4	0	+1	+2	+3	+4
dull	-1	-2	-3	-4	0	+1	+2	+3	+4
easy	-1	-2	-3	-4	0	+1	+2	+3	+4
felt blamed	-1	-2	-3	-4	0	+1	+2	+3	+4
generous	-1	-2	-3	-4	0	+1	+2	+3	+4
wonderfull	-1	-2	-3	-4	0	+1	+2	+3	+4
bored	-1	-2	-3	-4	0	+1	+2	+3	+4
energetic	-1	-2	-3	-4	0	+1	+2	+3	+4
reflective	-1	-2	-3	-4	0	+1	+2	+3	+4
Canadian culture too recent	-1	-2	-3	-4	0	+1	+2	+3	+4
I feel closer to Canadians	-1	-2	-3	-4	0	+1	+2	+3	+4
relaxed	-1	-2	-3	-4	0	+1	+2	+3	+4
not so good	-1	-2	-3	-4	0	+1	+2	+3	+4
supportive	-1	-2	-3	-4	0	+1	+2	+3	+4
Canadian	-1	-2	-3	-4	0	+1	+2	+3	+4

culture is  
a little  
confused

slow -1 -2 -3 -4 0 +1 +2 +3 +4

able to  
cope -1 -2 -3 -4 0 +1 +2 +3 +4

marking time -1 -2 -3 -4 0 +1 +2 +3 +4

beneficial -1 -2 -3 -4 0 +1 +2 +3 +4

Canadian  
culture is  
too  
irksome -1 -2 -3 -4 0 +1 +2 +3 +4

favorable -1 -2 -3 -4 0 +1 +2 +3 +4

I'm  
impressed  
with  
Canadian  
culture -1 -2 -3 -4 0 +1 +2 +3 +4

supportive -1 -2 -3 -4 0 +1 +2 +3 +4

too easy -1 -2 -3 -4 0 +1 +2 +3 +4

transitional -1 -2 -3 -4 0 +1 +2 +3 +4

Canadian  
culture is  
too fast  
and too  
wild -1 -2 -3 -4 0 +1 +2 +3 +4

getting tough -1 -2 -3 -4 0 +1 +2 +3 +4

intrigued -1 -2 -3 -4 0 +1 +2 +3 +4

content	-1	-2	-3	-4	0	+1	+2	+3	+4
better	-1	-2	-3	-4	0	+1	+2	+3	+4
felt judged	-1	-2	-3	-4	0	+1	+2	+3	+4
very well	-1	-2	-3	-4	0	+1	+2	+3	+4
Canadians are compartment -alized	-1	-2	-3	-4	0	+1	+2	+3	+4
I feel I know the Canadians better	-1	-2	-3	-4	0	+1	+2	+3	+4
moderate stress	-1	-2	-3	-4	0	+1	+2	+3	+4
I am getting along and I am more familiar with Canadian culture	-1	-2	-3	-4	0	+1	+2	+3	+4
uncertain	-1	-2	-3	-4	0	+1	+2	+3	+4
Canadian culture has less depth than other cultures	-1	-2	-3	-4	0	+1	+2	+3	+4
better	-1	-2	-3	-4	0	+1	+2	+3	+4

prepared

feel adapted      -1 -2 -3 -4 0 +1 +2 +3 +4

complete          -1 -2 -3 -4 0 +1 +2 +3 +4

no true Canadian  
culture exists      -1 -2 -3 -4 0 +1 +2 +3 +4

not well          -1 -2 -3 -4 0 +1 +2 +3 +4

enjoyable        -1 -2 -3 -4 0 +1 +2 +3 +4

depressed        -1 -2 -3 -4 0 +1 +2 +3 +4

under pressure    -1 -2 -3 -4 0 +1 +2 +3 +4

not so exciting    -1 -2 -3 -4 0 +1 +2 +3 +4

Canadian culture is  
respectful of the  
individual          -1 -2 -3 -4 0 +1 +2 +3 +4

stable            -1 -2 -3 -4 0 +1 +2 +3 +4

less confusing    -1 -2 -3 -4 0 +1 +2 +3 +4

more accepting    -1 -2 -3 -4 0 +1 +2 +3 +4

shocking          -1 -2 -3 -4 0 +1 +2 +3 +4

I respect          -1 -2 -3 -4 0 +1 +2 +3 +4

Canadian  
culture

Canadians are selfish	-1	-2	-3	-4	0	+1	+2	+3	+4
-----------------------------	----	----	----	----	---	----	----	----	----

full	-1	-2	-3	-4	0	+1	+2	+3	+4
------	----	----	----	----	---	----	----	----	----

interesting	-1	-2	-3	-4	0	+1	+2	+3	+4
-------------	----	----	----	----	---	----	----	----	----

acculturated	-1	-2	-3	-4	0	+1	+2	+3	+4
--------------	----	----	----	----	---	----	----	----	----

ok	-1	-2	-3	-4	0	+1	+2	+3	+4
----	----	----	----	----	---	----	----	----	----

satisfied	-1	-2	-3	-4	0	+1	+2	+3	+4
-----------	----	----	----	----	---	----	----	----	----

unconfident	-1	-2	-3	-4	0	+1	+2	+3	+4
-------------	----	----	----	----	---	----	----	----	----

Canadians are a little distant	-1	-2	-3	-4	0	+1	+2	+3	+4
--------------------------------------	----	----	----	----	---	----	----	----	----

energetic	-1	-2	-3	-4	0	+1	+2	+3	+4
-----------	----	----	----	----	---	----	----	----	----

understand my school work better	-1	-2	-3	-4	0	+1	+2	+3	+4
---	----	----	----	----	---	----	----	----	----

discontented	-1	-2	-3	-4	0	+1	+2	+3	+4
--------------	----	----	----	----	---	----	----	----	----

Canadians are superficial	-1	-2	-3	-4	0	+1	+2	+3	+4
------------------------------	----	----	----	----	---	----	----	----	----

optimistic	-1	-2	-3	-4	0	+1	+2	+3	+4
------------	----	----	----	----	---	----	----	----	----

reflective	-1	-2	-3	-4	0	+1	+2	+3	+4
------------	----	----	----	----	---	----	----	----	----

I'm understanding the attitudes of the Canadians	-1	-2	-3	-4	0	+1	+2	+3	+4
unchanged	-1	-2	-3	-4	0	+1	+2	+3	+4
I'm fascinated with the contrasts of Canadian culture	-1	-2	-3	-4	0	+1	+2	+3	+4
powerless	-1	-2	-3	-4	0	+1	+2	+3	+4
as usual	-1	-2	-3	-4	0	+1	+2	+3	+4
safe	-1	-2	-3	-4	0	+1	+2	+3	+4
fascinating	-1	-2	-3	-4	0	+1	+2	+3	+4
not interesting	-1	-2	-3	-4	0	+1	+2	+3	+4
rewarding	-1	-2	-3	-4	0	+1	+2	+3	+4
not too pleasant	-1	-2	-3	-4	0	+1	+2	+3	+4
enthusiastic	-1	-2	-3	-4	0	+1	+2	+3	+4
slightly overwhelmed	-1	-2	-3	-4	0	+1	+2	+3	+4
relaxed	-1	-2	-3	-4	0	+1	+2	+3	+4
Canadians are similiar	-1	-2	-3	-4	0	+1	+2	+3	+4

to us

not denigrating	-1	-2	-3	-4	0	+1	+2	+3	+4
livelier	-1	-2	-3	-4	0	+1	+2	+3	+4
could be better	-1	-2	-3	-4	0	+1	+2	+3	+4
apprehensive	-1	-2	-3	-4	0	+1	+2	+3	+4
restricted	-1	-2	-3	-4	0	+1	+2	+3	+4
fulfilling	-1	-2	-3	-4	0	+1	+2	+3	+4
pleasant	-1	-2	-3	-4	0	+1	+2	+3	+4
competent	-1	-2	-3	-4	0	+1	+2	+3	+4
heavy	-1	-2	-3	-4	0	+1	+2	+3	+4
moderately confident	-1	-2	-3	-4	0	+1	+2	+3	+4
enthusiastic	-1	-2	-3	-4	0	+1	+2	+3	+4
interested	-1	-2	-3	-4	0	+1	+2	+3	+4
managable	-1	-2	-3	-4	0	+1	+2	+3	+4
less heavy	-1	-2	-3	-4	0	+1	+2	+3	+4
exciting	-1	-2	-3	-4	0	+1	+2	+3	+4
wondering	-1	-2	-3	-4	0	+1	+2	+3	+4

## APPENDIX IV

Models of Cross-Cultural Adjustment*Klein's Model of Cross-Cultural Adjustment*

Klein (1977) developed a hypothesis which also identifies various stages of adjustment. This model of adjustment is geared specifically towards foreign students coming to study in North American universities and colleges. Klein proposes four phases; spectator, stress and adaptation, coming to terms, and decision. The spectator phase sees the cross-cultural person as positive and delighted about the host culture. The stress and adaptation phase witnesses a conflict of home and host cultures. In this particular stage, feelings of stress and disappointment become manifest. The next phase, coming to terms, occurs when the individual shows a greater degree of social involvement and has developed a more favourable perception of the host environment. The final phase, decision, is concerned with the time to return to the home country. Here the student experiences a reawakening of tension, re-examination, and dealing with issues about returning to home and alienation from the home culture.

*Adler's Model of the Transitional Experience*

Adler's theory of the "transitional experience" (1975) is similar to the stage theories just discussed. Adler (1975) forecasts stages of adjustment for the individual immersed within a cross-cultural situation. In

the contact stage, the individual is liable to see differences as intriguing. In this stage, excitement, euphoria, and other positive feelings manifest themselves. The disintegration phase witnesses confusion, disorientation, loss, loneliness and a whole host of other negative feelings and perceptions. In the reintegration phase, the individual rejects differences between his/her culture and the host culture, resulting in feelings of anger and rage. The next two stages are predicted by Adler to be more positive. The autonomy phase occurs when the person is able to see the differences and similarities between both his/her culture and the host culture. The final stage, independence, unfolds when differences and similarities have become valued and significant to the individual. Predictably, the emotional feelings of the individual become more positive during the last two stages.

## APPENDIX V

The 3-Dimensional Graph

The 3-dimensional graph is based upon a FORTRAN program called DISSPLA. This is a program which charts data into 3 dimensional planes.

The X-axis was chosen to represent general self-concept (GSC), the Y-axis for academic self-concept (ASC), and the Z-axis was a collapsed category for the attitude towards Canadians, question 3, and attitude towards Canadian culture. The collapsed category, denoted by Can/p/c, was calculated by the Minitab program. The X-Y plane, or GSC versus ASC, simply relied upon the plots arrived at for the seven monthly ratings. As a result, the trend of adjustment was observed over the seven month period. There were two ways of looking at these graphs as to obtain useful information. The first is the obvious observation that the higher the "height", or Z-axis is, the more "positive" the students is with regards to Canadian culture and people. The second manner of observation has to do with the four quadrants of the X-Y plane.

The objective of this graph is to first see the relationship between the GSC and ASC ratings against the collapsed ratings of Canadian people and Canadian culture (Can/p/c).

For this study, first imagine a window with the "GSC" as the bottom line and the "ASC" as the right hand line.

A)Left side of GSC: ratings which were "lower than usual" or negative with respect to the normal ratings given by the subject for question 1 on the questionnaire. This is known as the negative side of GSC.

B)Right side of GSC: ratings which were "higher than usual" or positive with respect to the normal ratings given by the subject for question 1 on the questionnaire. This is known as the positive side of GSC.

C)Lower side of ASC: ratings which were "lower than usual" or negative with respect to the normal ratings given by the subject for question 2 on the questionnaire. This is known as the negative side of ASC.

D)Upper side of ASC: ratings which were "higher than usual" or positive with respect to the normal ratings given by the subject for question 2 on the questionnaire. This is known as the positive side of ASC.

The "quadrants" are areas defined by the plane of GSC and ASC (see "Graphs of Adjustment" in Appendix VI). Note that on the graphs, "quadrant will be denoted by "Q").

The last step is to see the table as lying down and to put a "pole" or axis on the corner of quadrant I. This is the Can/p/c ratings (the collapsed ratings of attitudes about Canadian people and culture).

Four points will be considered with these graphs:

1) The "higher" the Can/p/c ratings, the higher the subject (or group of subjects) is rating the Canadian people and culture.

2) There will be 7 points for each graph, corresponding to the seven months of the study (october-april).

3) The initial point (october) will be marked as such:

and the final point (april) will be marked as such:

4) As the ratings move across time, they will move across the different quadrants. The quadrants will be shown on the graphs as to ease the interpretation process.

for Example: In november, a subject has a high Can/p/c rating. That rating is likely to be in quadrant IV (GSC and ASC negative). However, as the study has shown, other combinations are possible.

## Appendix VI

Graphs of Adjustment

The graphs will be presented in two sections:

A) Subjects: Each subject will have 3 graphs.

1) A 2-dimensional Subjective Numerical Rating  
Graph

2) A 2-dimensional Subjective Adjective Rating  
Graph

3) A 3-dimensional graph

B) Groups: Each Group except "Total Subjects" will have (2)  
and (3). The "Total Subjects" will have only  
(2).

FIG.1

Rating Responses  
subject 1

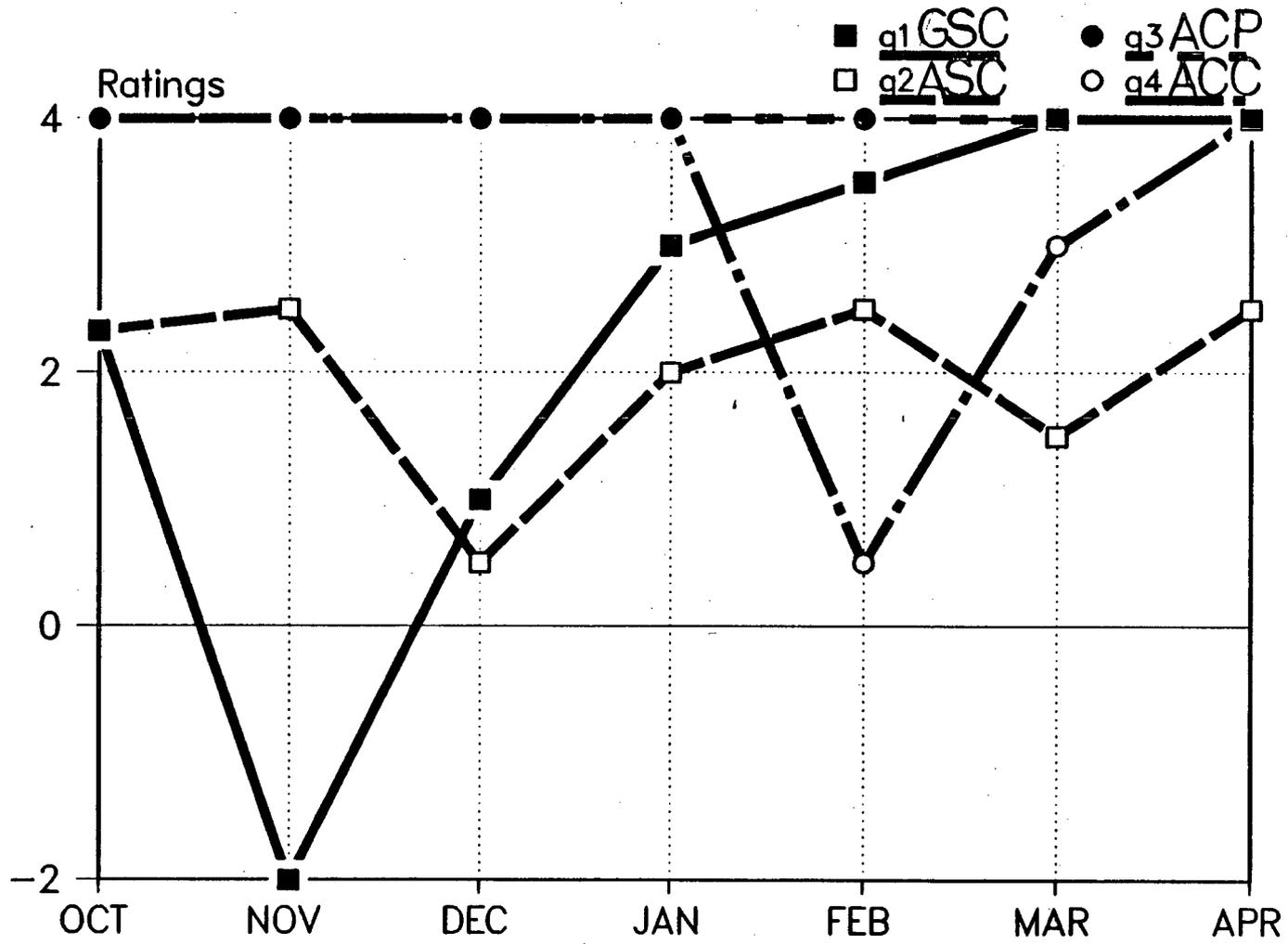
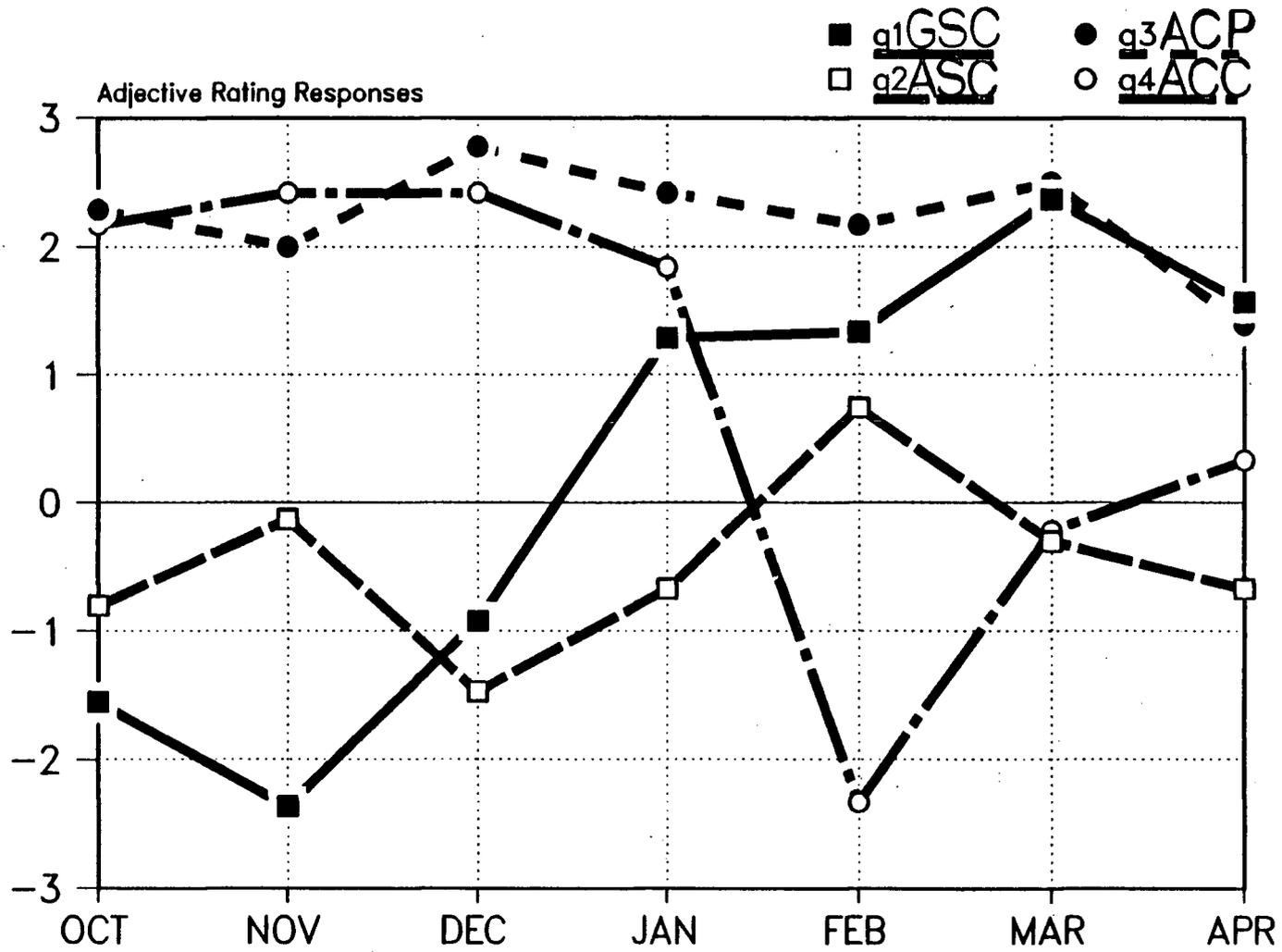
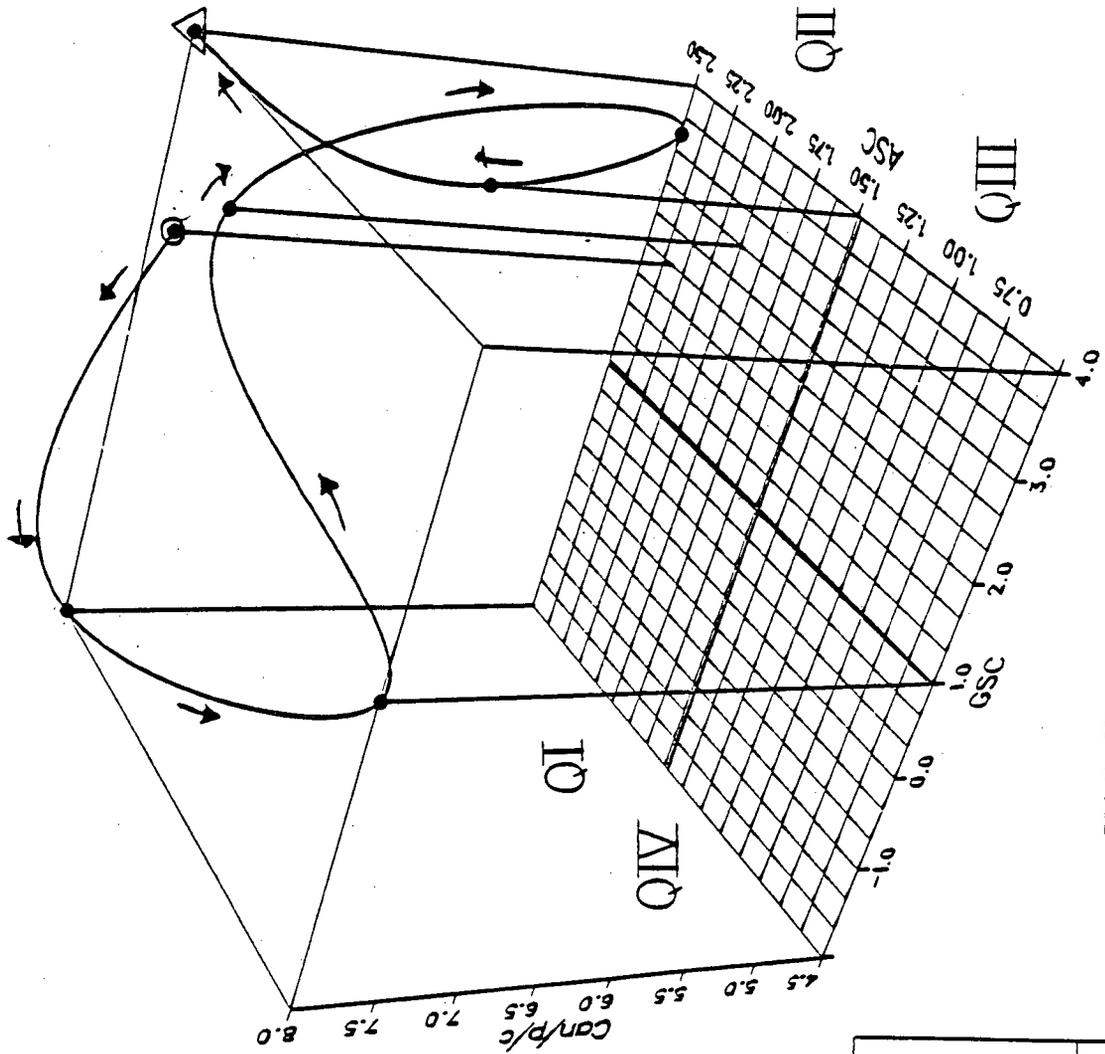


FIG.2  
Adjective Responses  
subject 1





QI	QII
GSC-	GSC+
ASC+	ASC+
QIV	QIII
GSC-	GSC+
ASC-	ASC-

FIG.3 Adjustment for S1

START

END

FIG. 4  
Rating Responses  
subject 2

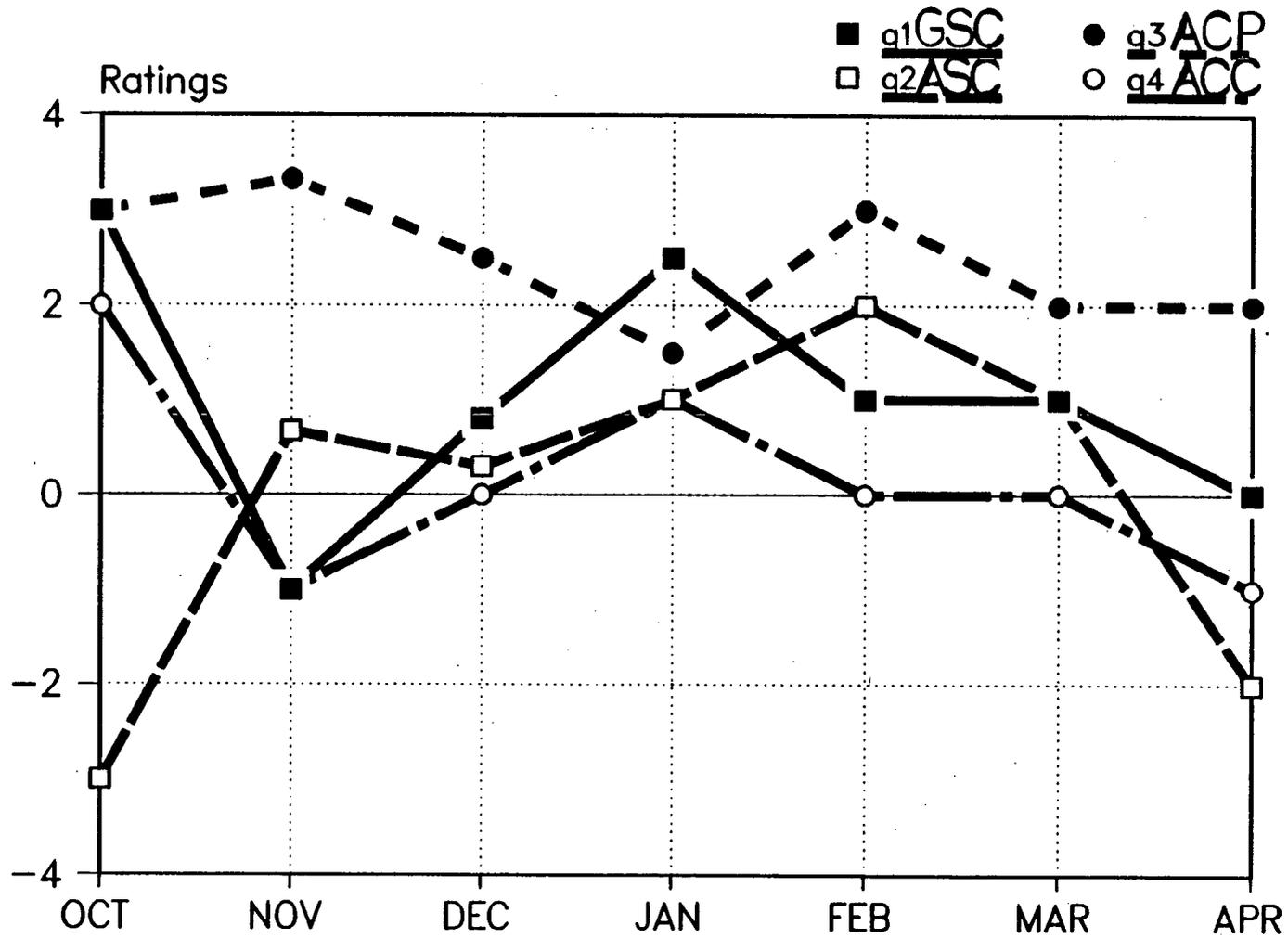
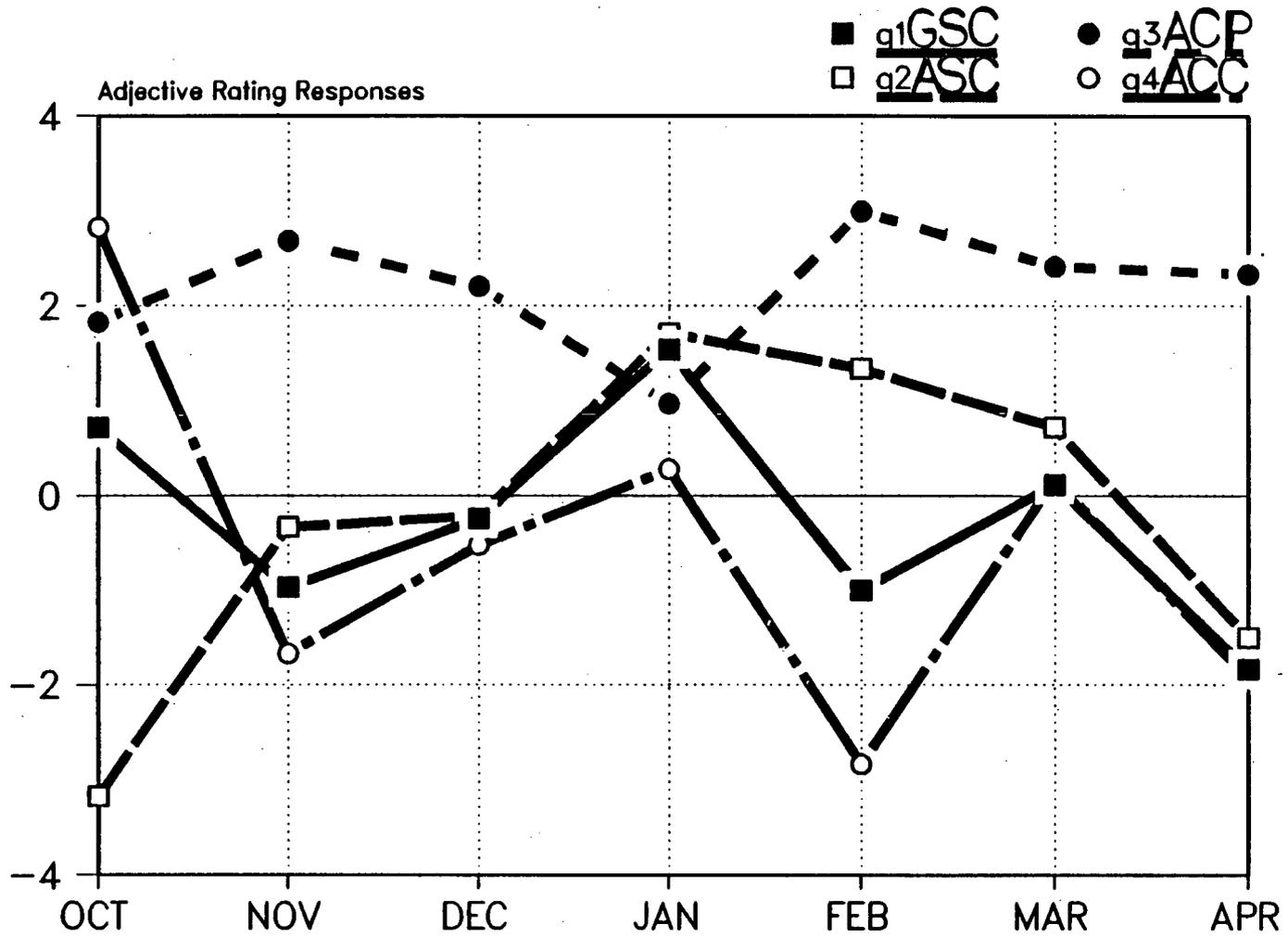


FIG.5  
Adjective Responses  
subject 2



START

END

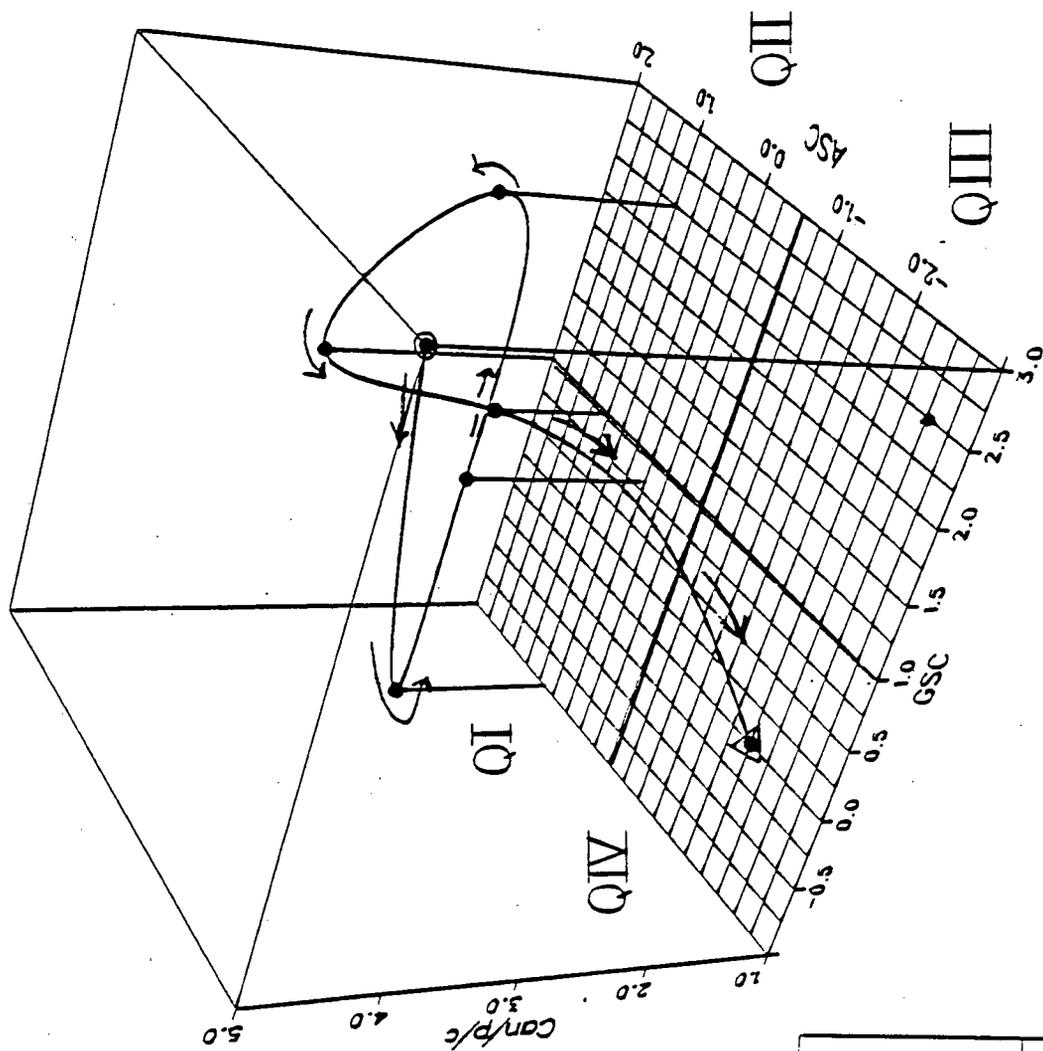


FIG. 6 Adjustment for S2

QI	QII
GSC-	GSC+
ASC+	ASC+
QIV	QIII
GSC-	GSC+
ASC-	ASC-

FIG.7  
Rating Responses  
subject 3

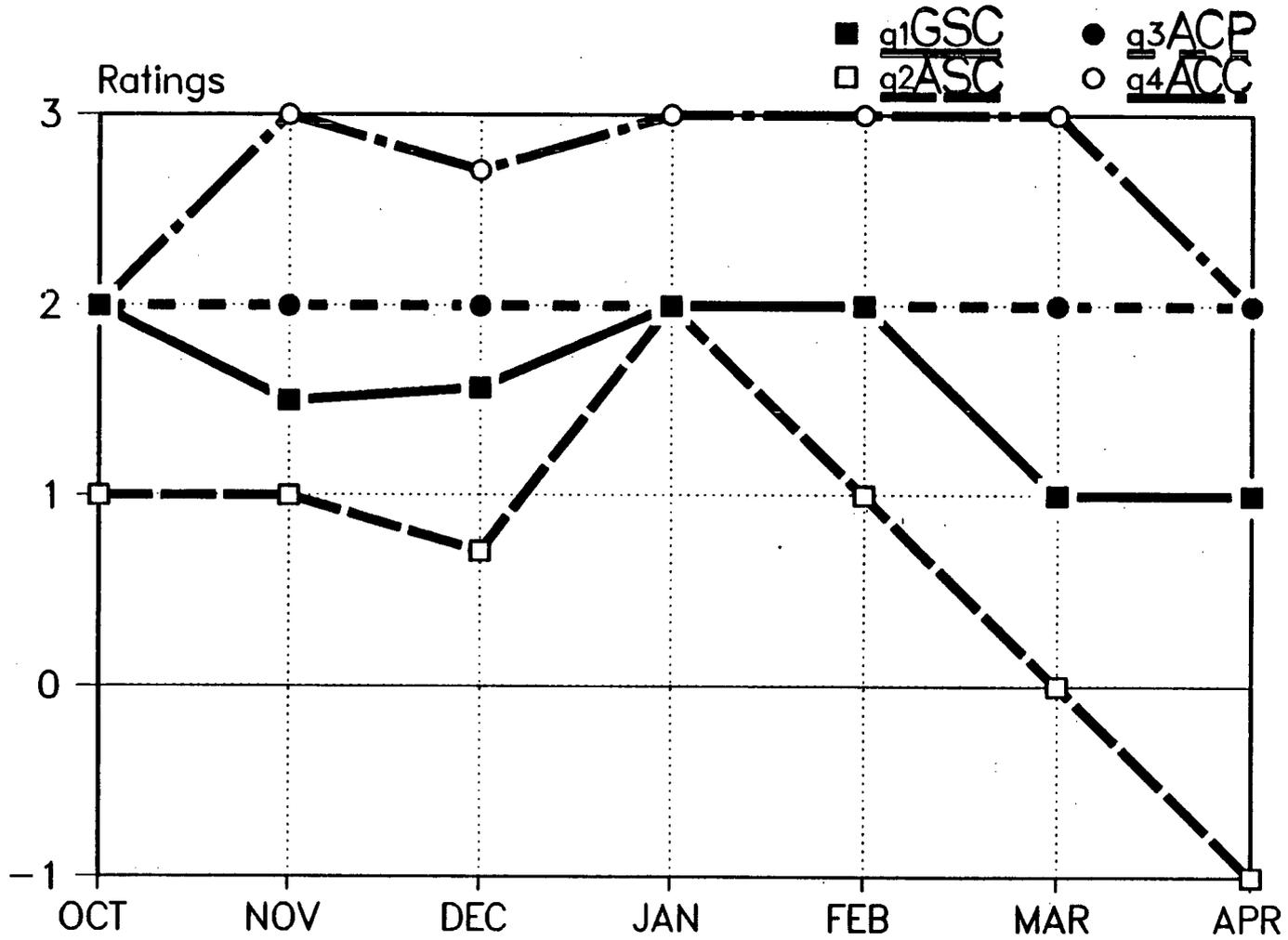
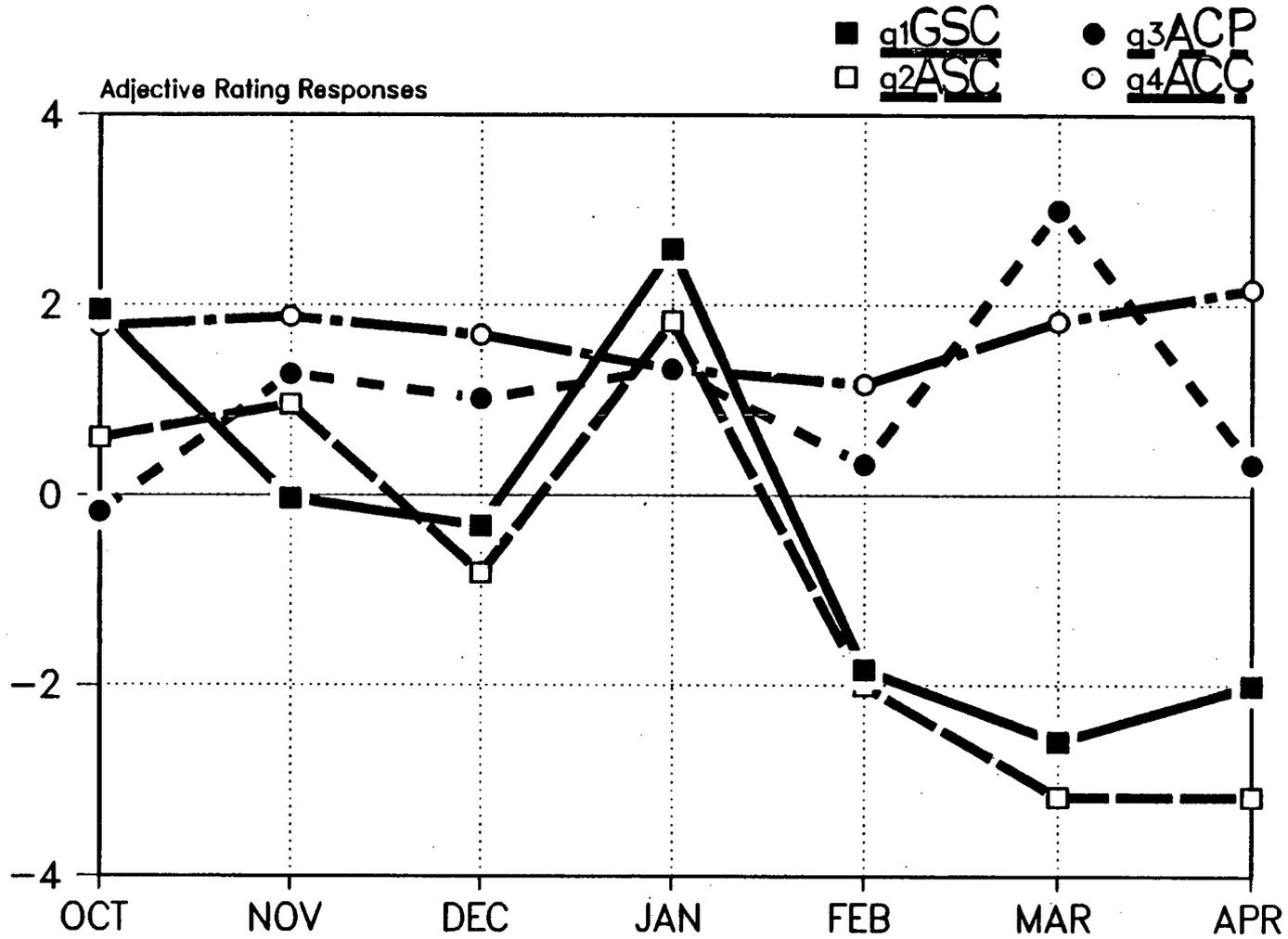


FIG.8  
Adjective Responses  
subject 3



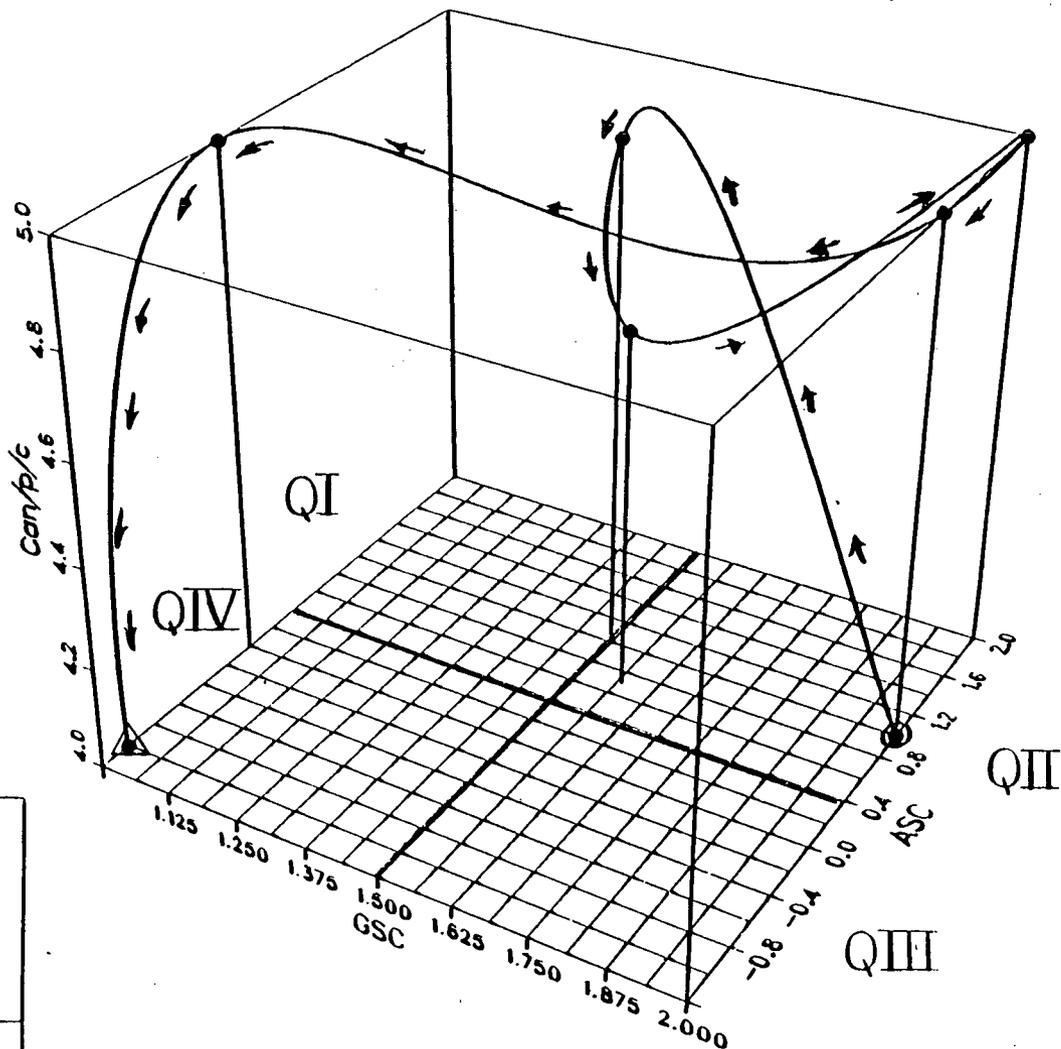


FIG.9 Adjustment for S3

QI GSC- ASC+	QII GSC+ ASC+
QIV GSC - ASC -	QIII GSC+ ASC-

● START  
 ———  
 ▲ END

FIG.10  
Rating Responses  
subject 4

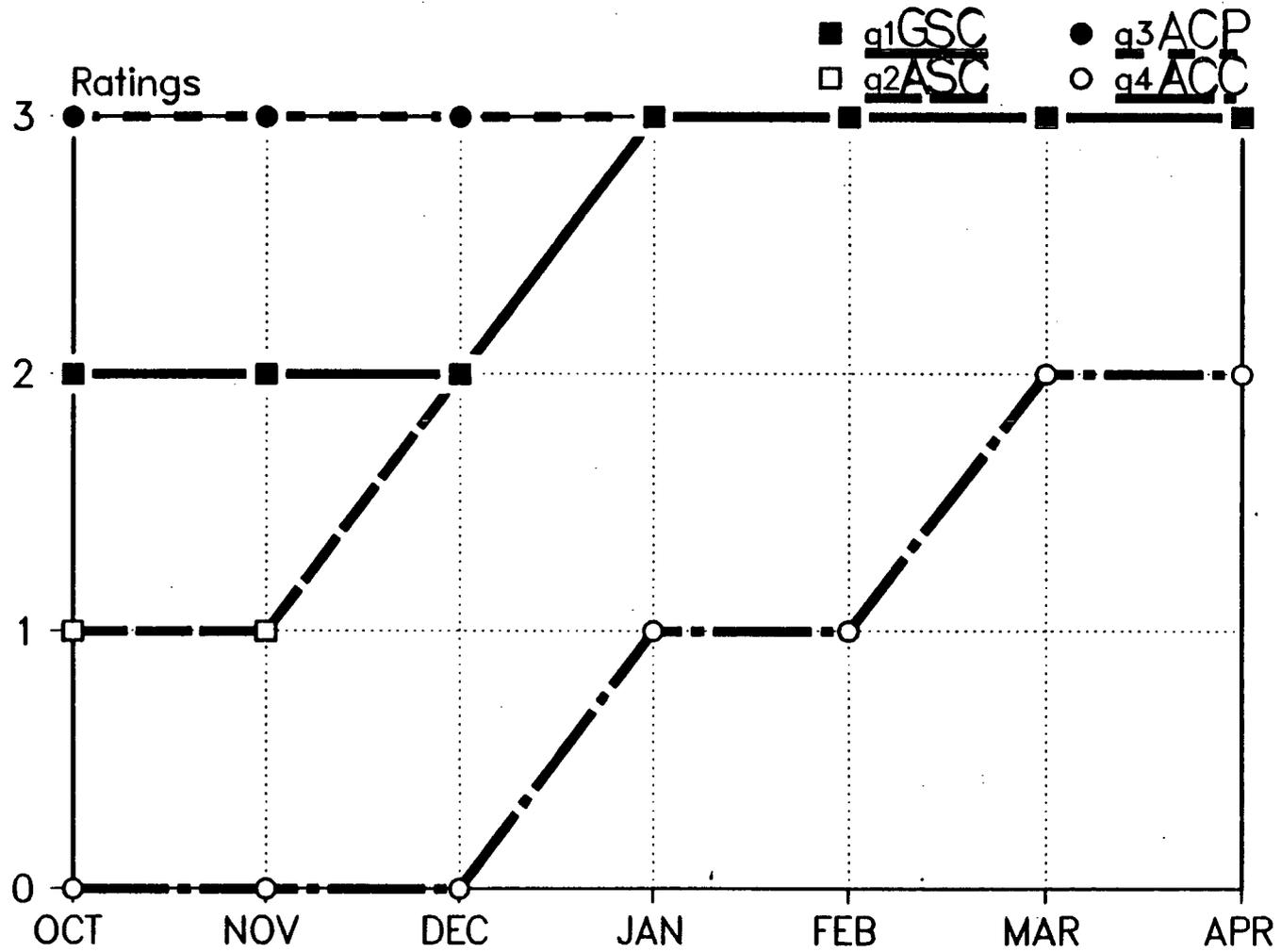
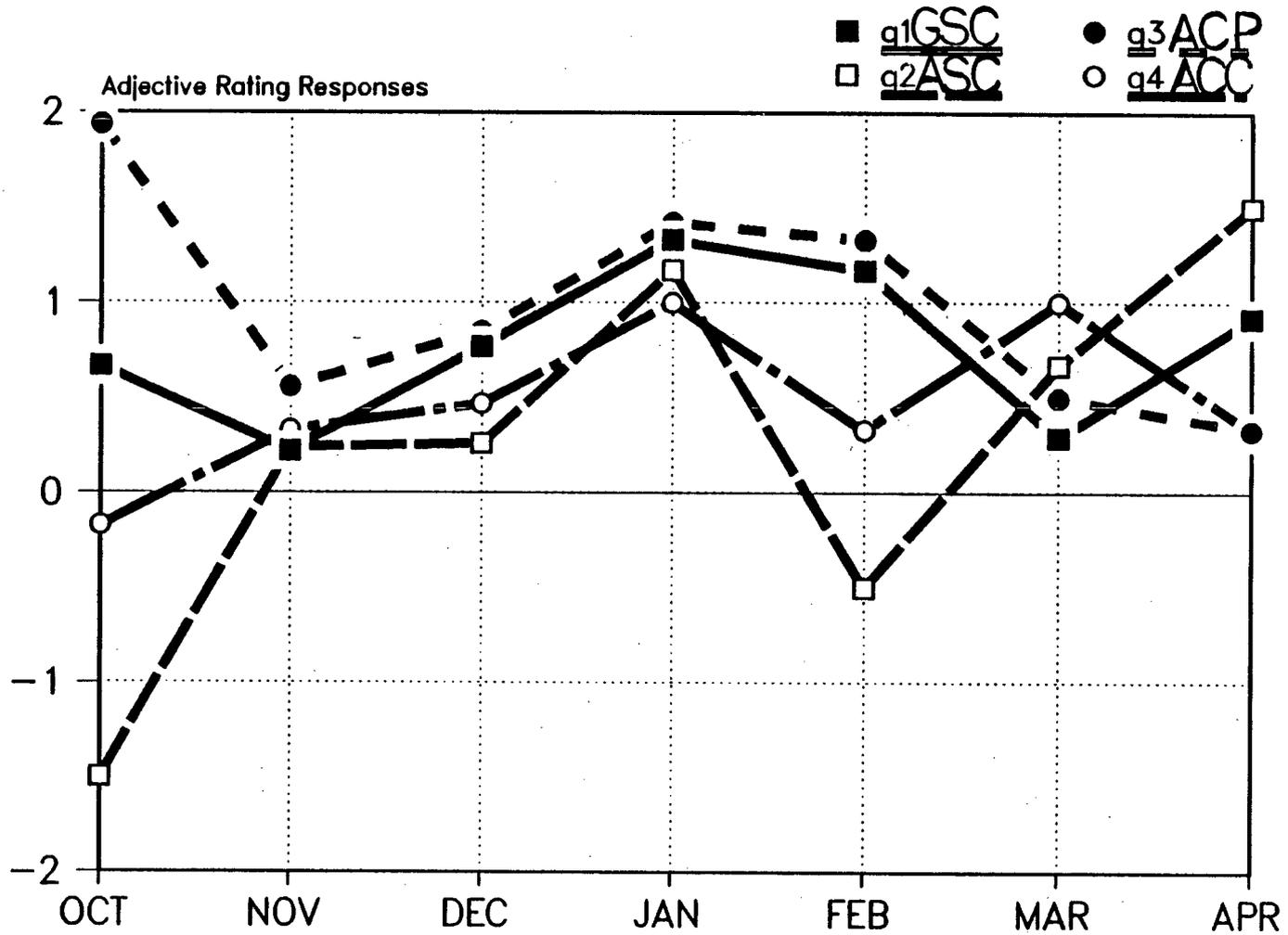


FIG.11  
Adjective Responses  
subject 4



◎ START

▲ END

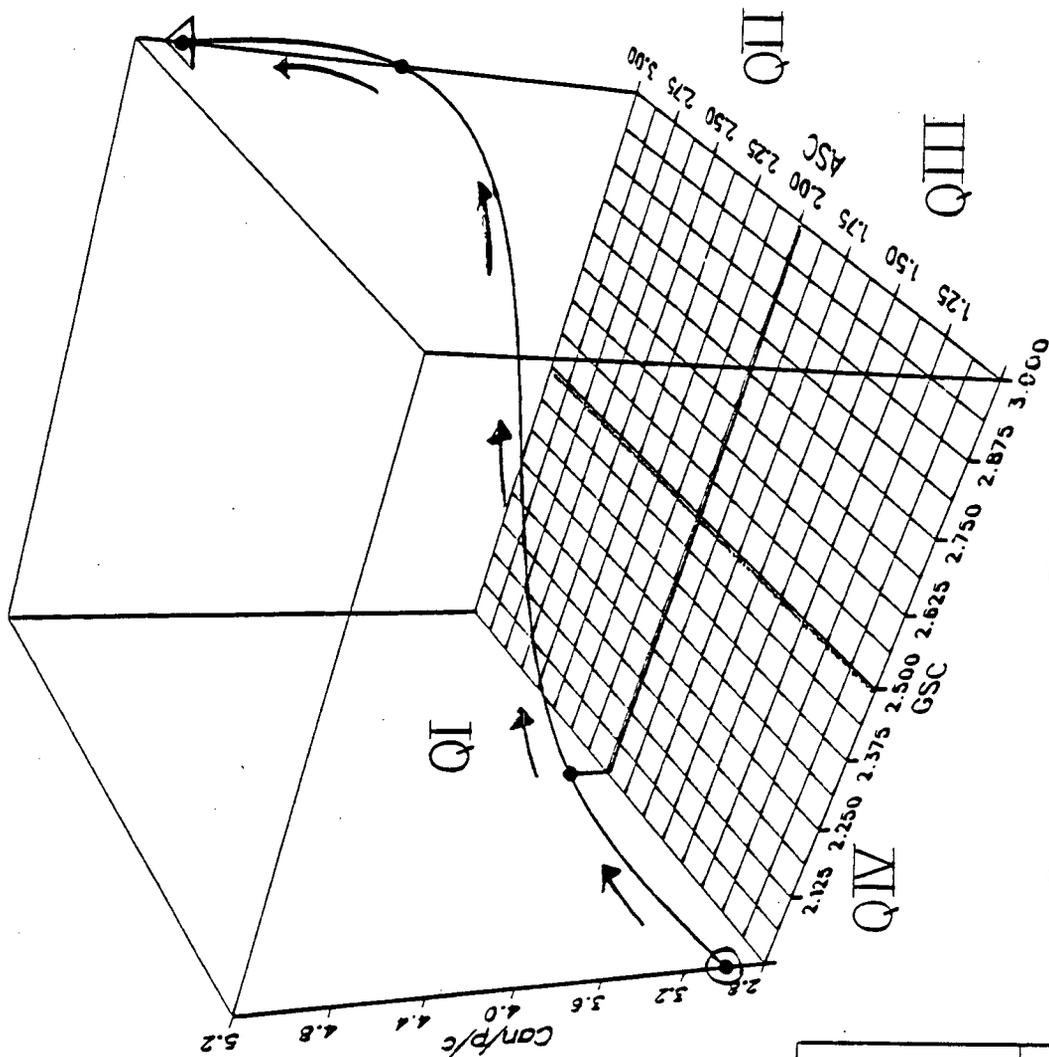


FIG.12 ADJUSTMENT for S4

QI	QII
GSC-	GSC+
ASC+	ASC+
QIV	QIII
GSC-	GSC+
ASC-	ASC-

FIG.13  
Rating Responses  
subject 5

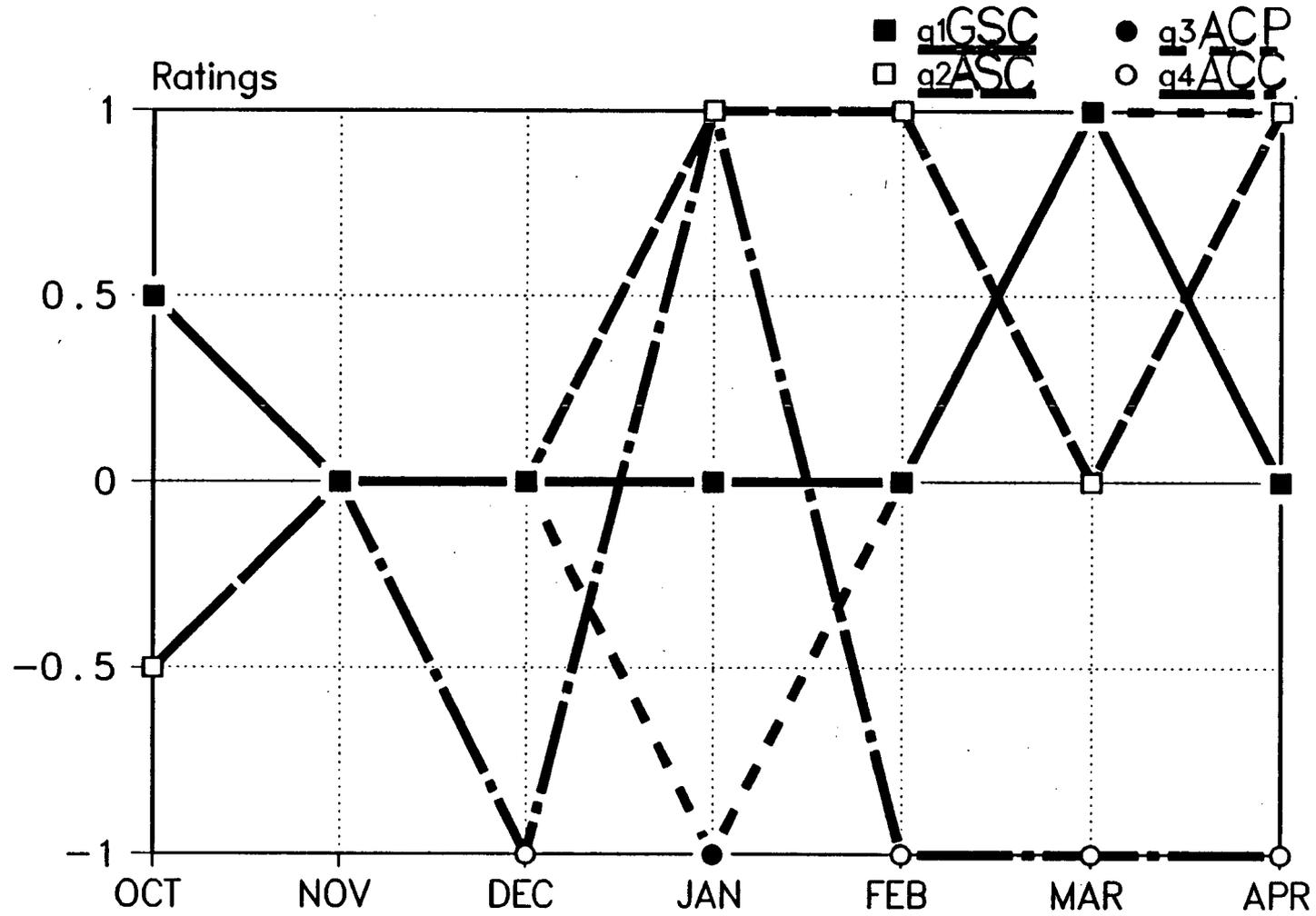
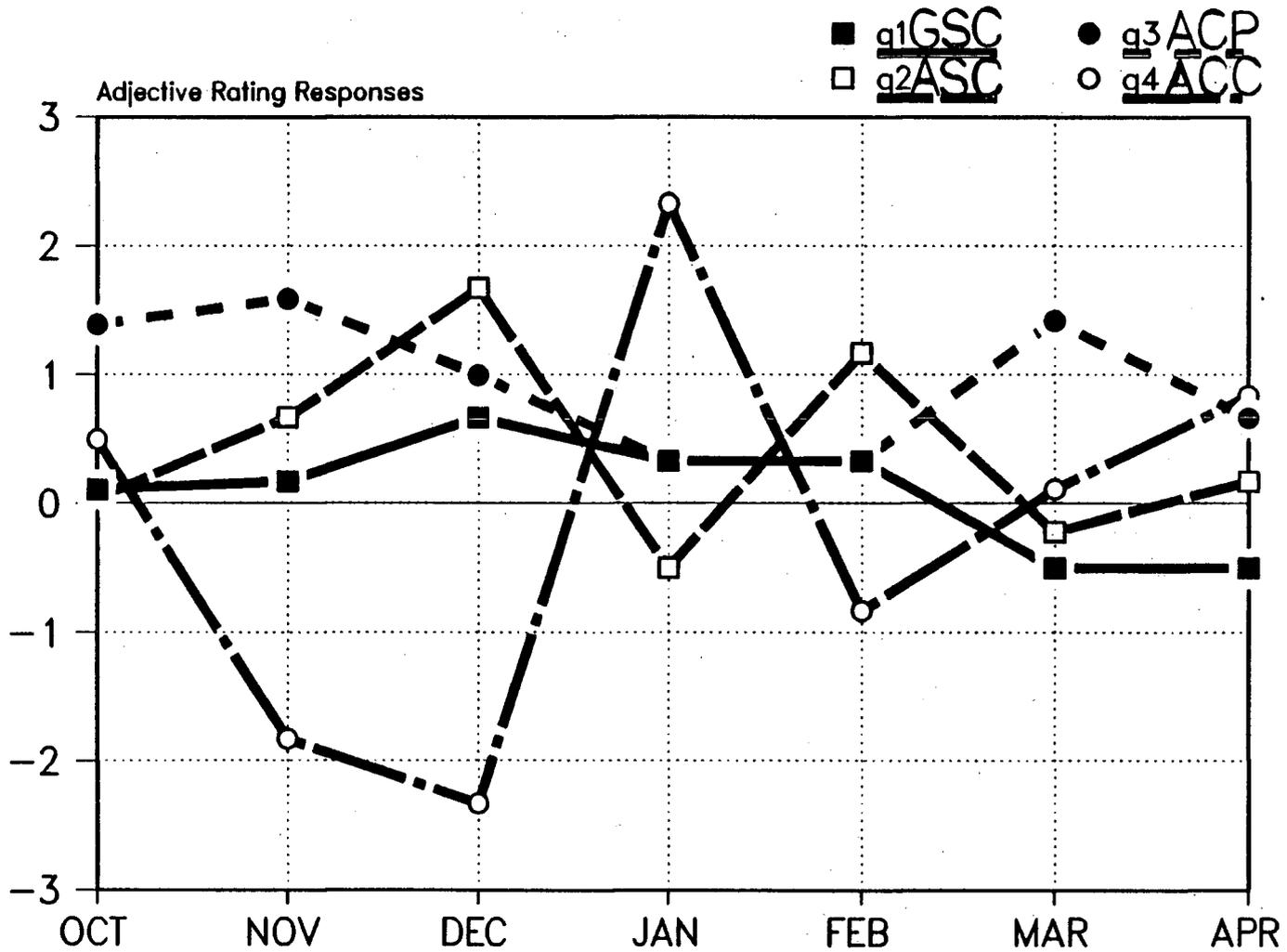
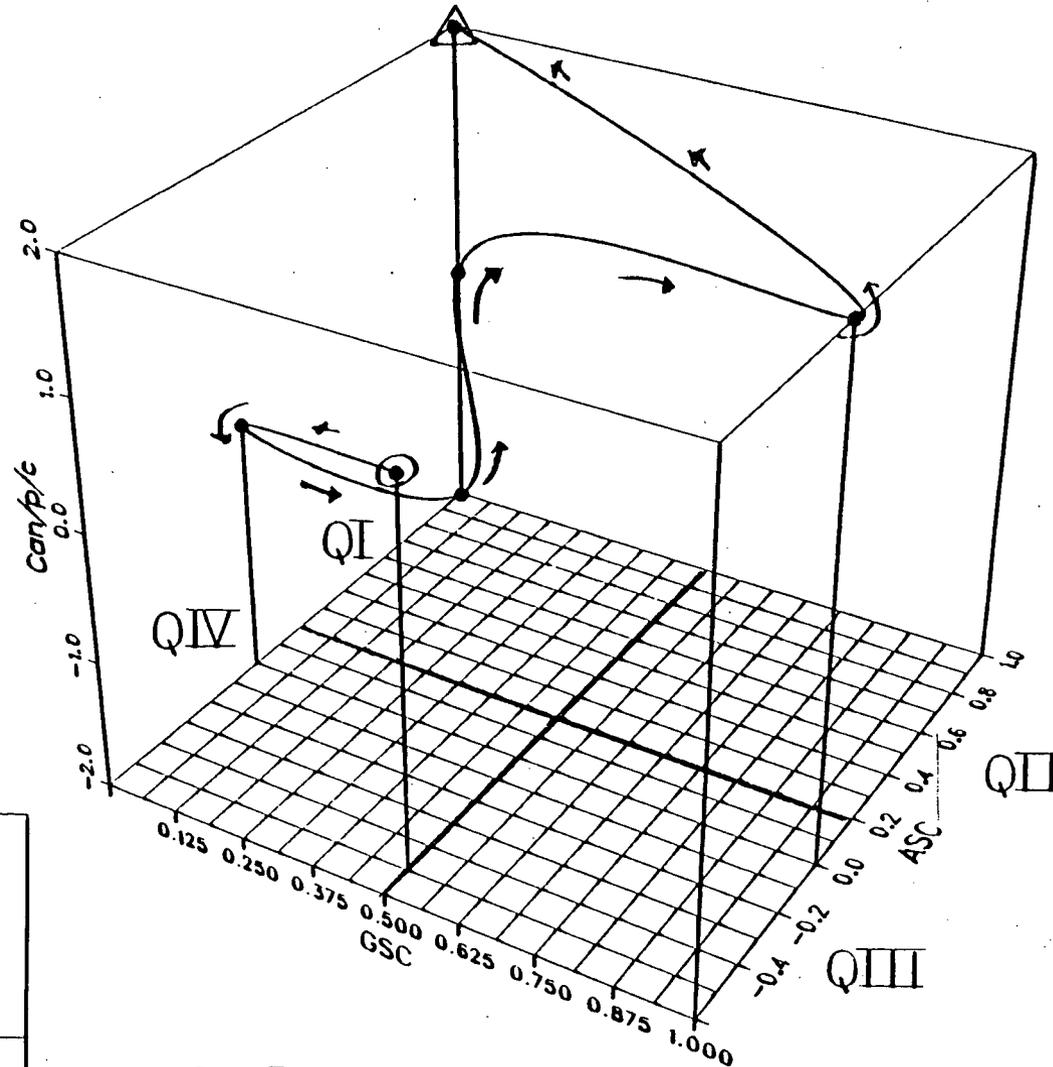


FIG.14  
Adjective Responses  
subject 5





QI GSC- ASC+	QII GSC+ ASC+
QIV GSC- ASC-	QIII GSC+ ASC-

FIG. 15 Adjustment for S5

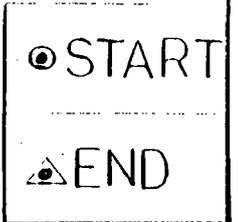


FIG.16  
Rating Responses  
subject 6

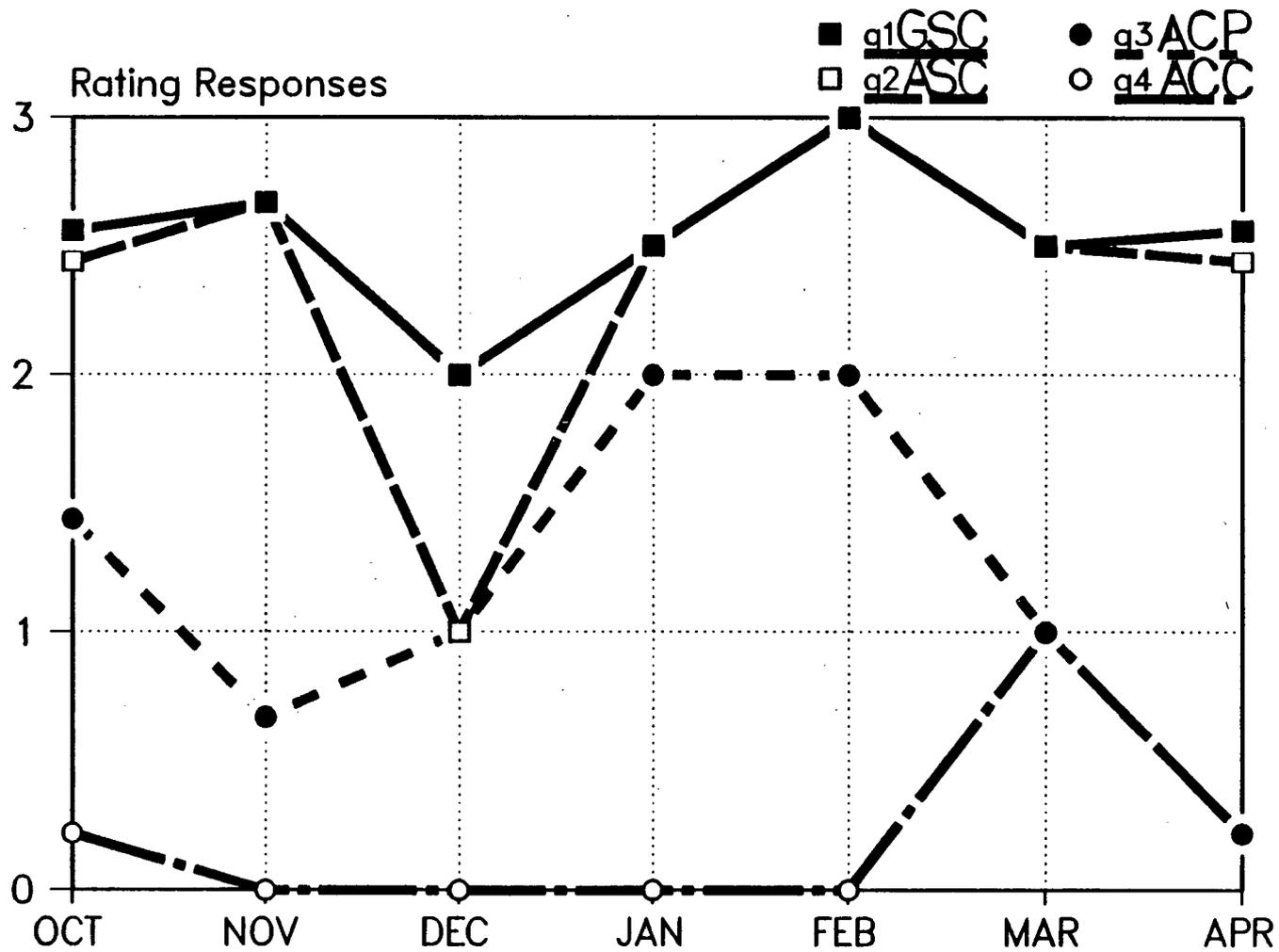
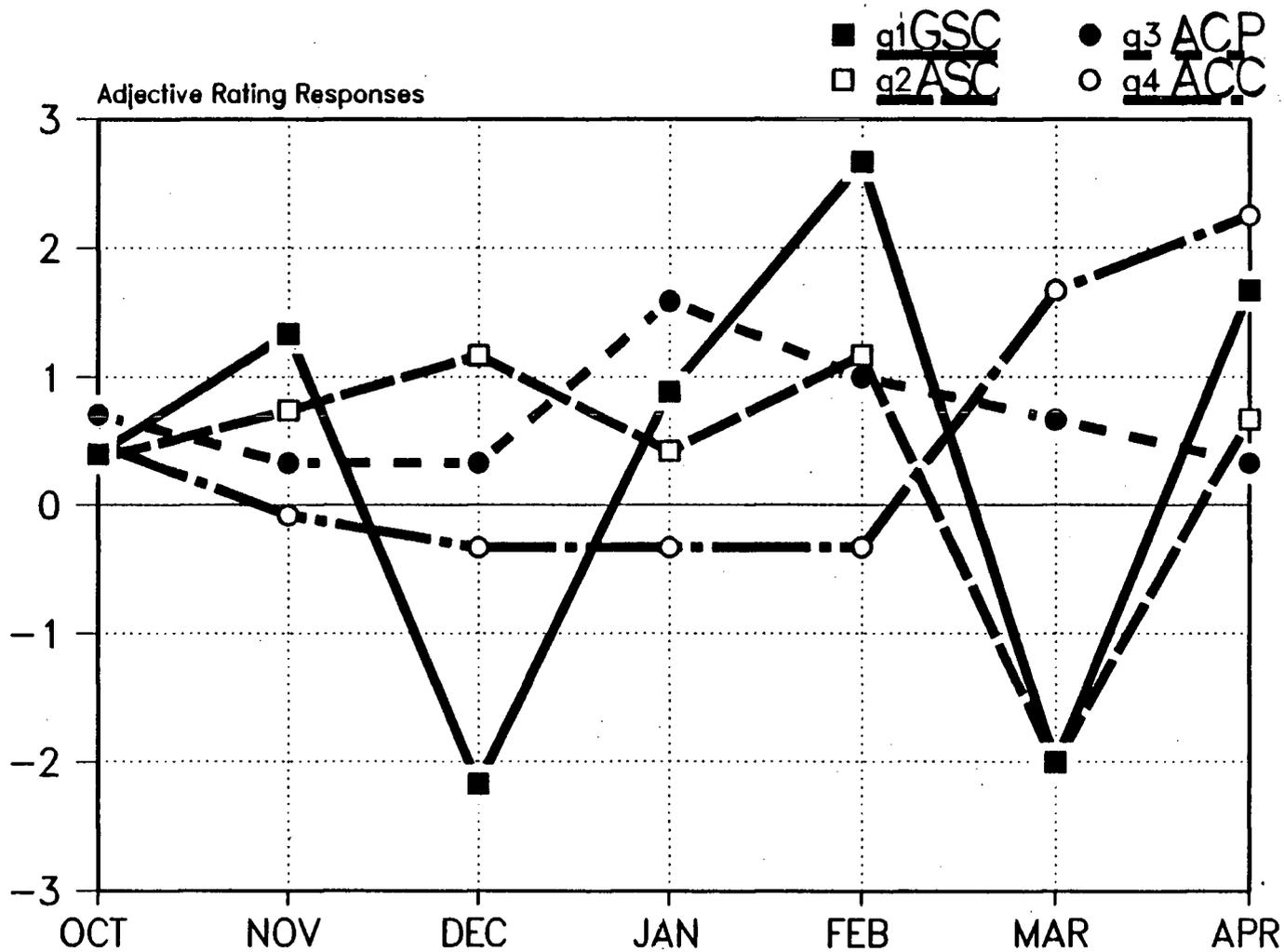
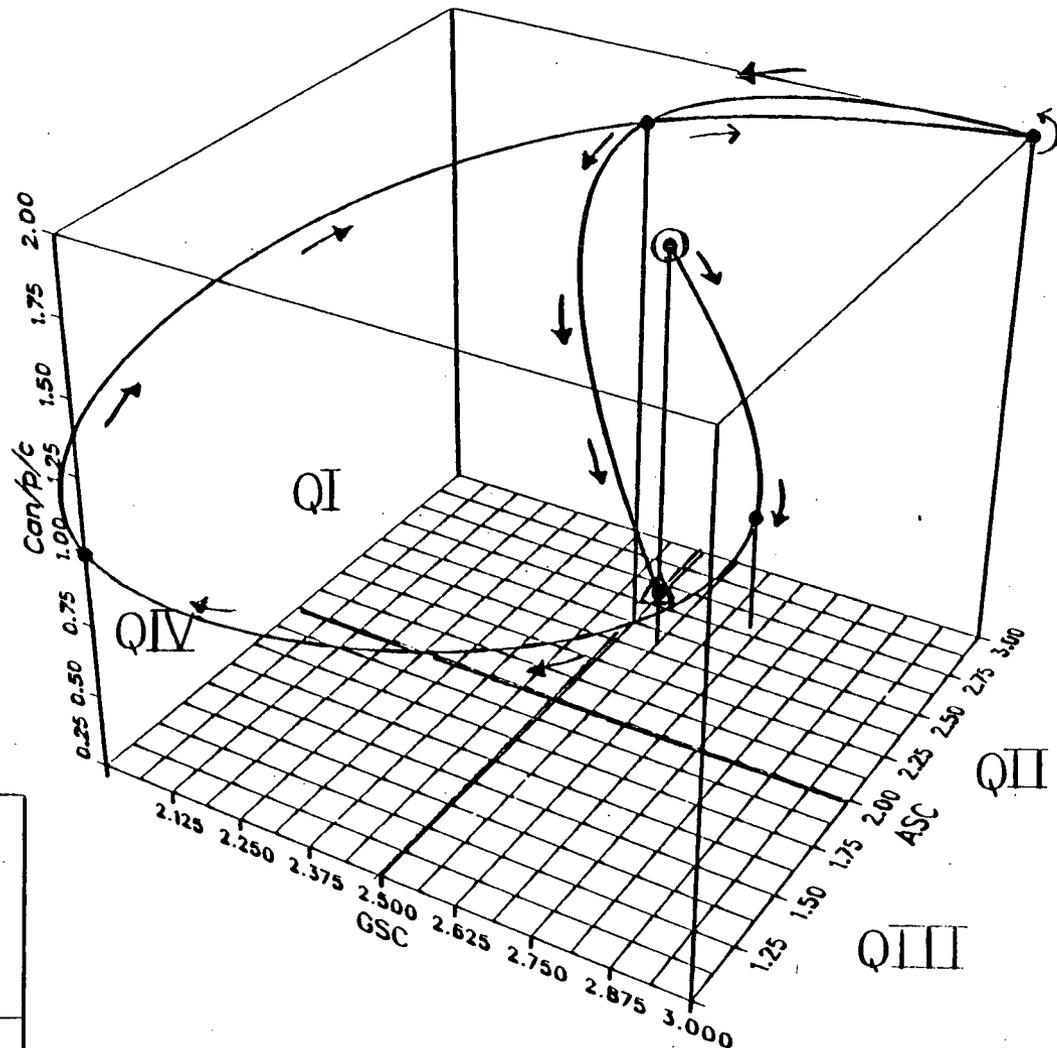


FIG.17  
Adjective Responses  
subject 6





QI GSC - ASC +	QII GSC + ASC +
QIV GSC - ASC -	QIII GSC + ASC -

FIG. 18 Adjustment for S6

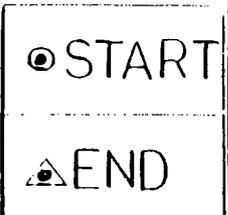


FIG.19  
Rating Responses  
subject 7

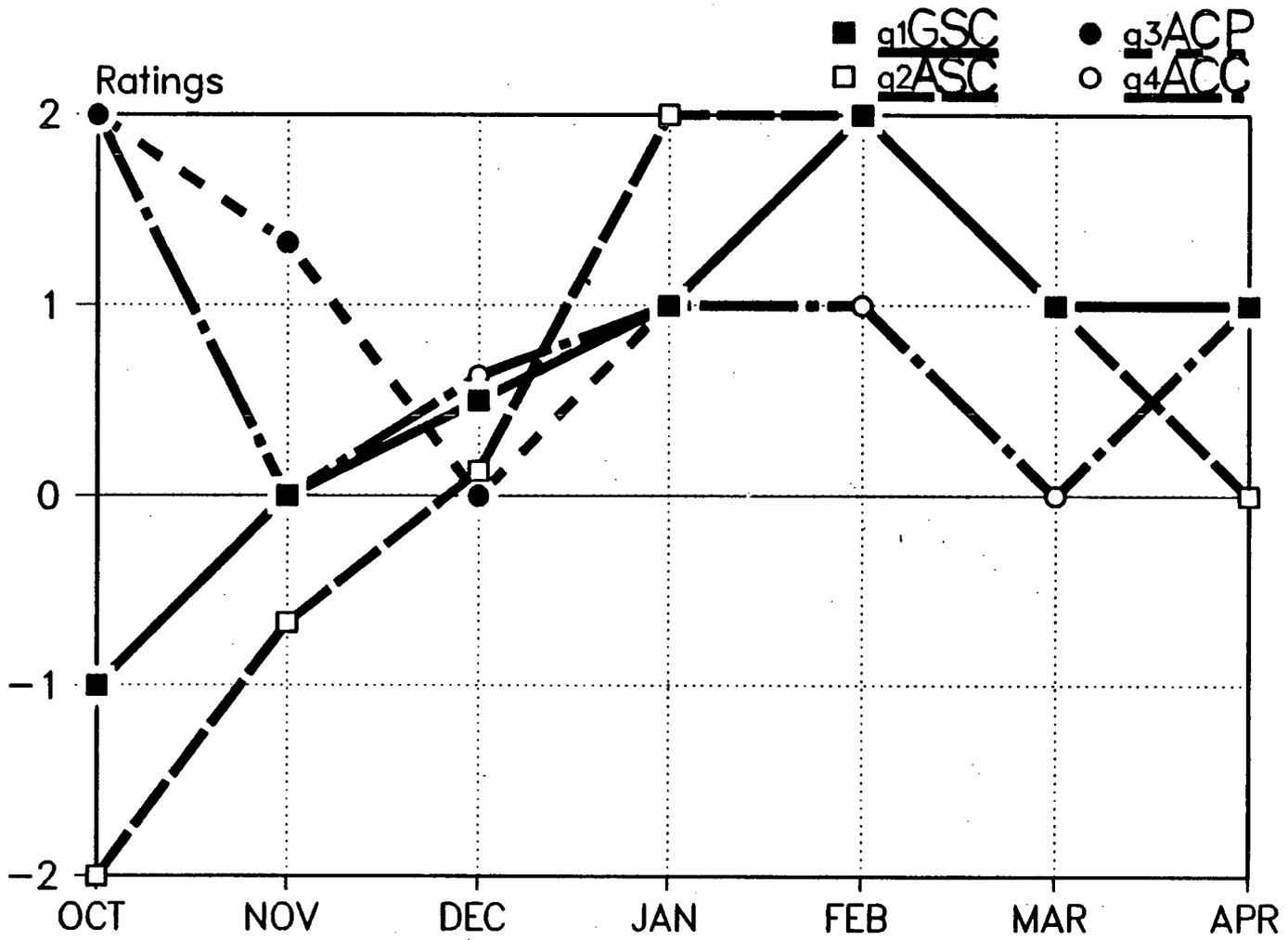
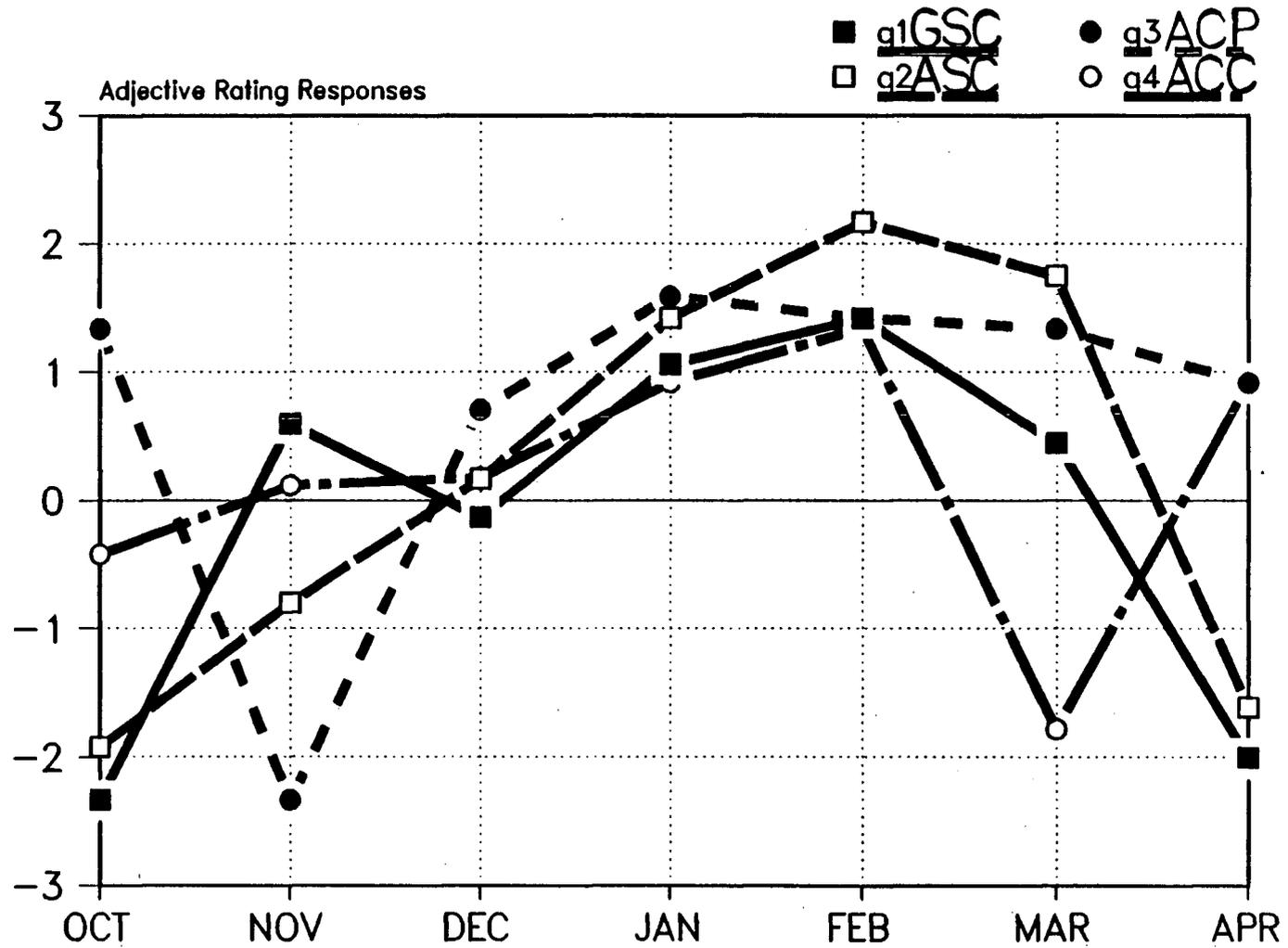
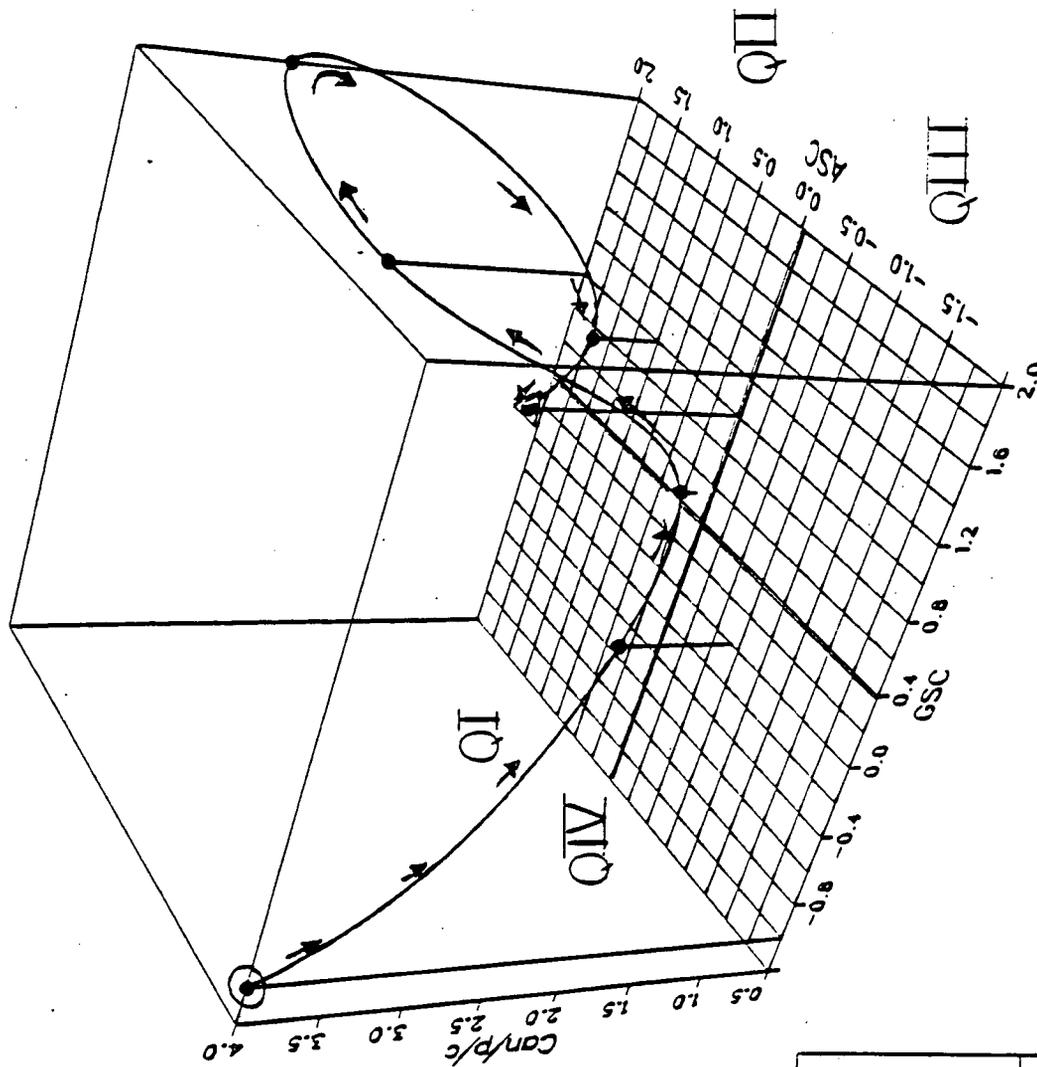


FIG.20  
 Adjective Responses  
 subject 7





QI	QII	QIII
GSC-	GSC+	GSC+
ASC+	ASC+	ASC-
QIV	GSC-	ASC-
GSC-		
ASC-		

FIG.2.1 Adjustment for S7

START

END

FIG.22  
Rating Responses  
subject 8

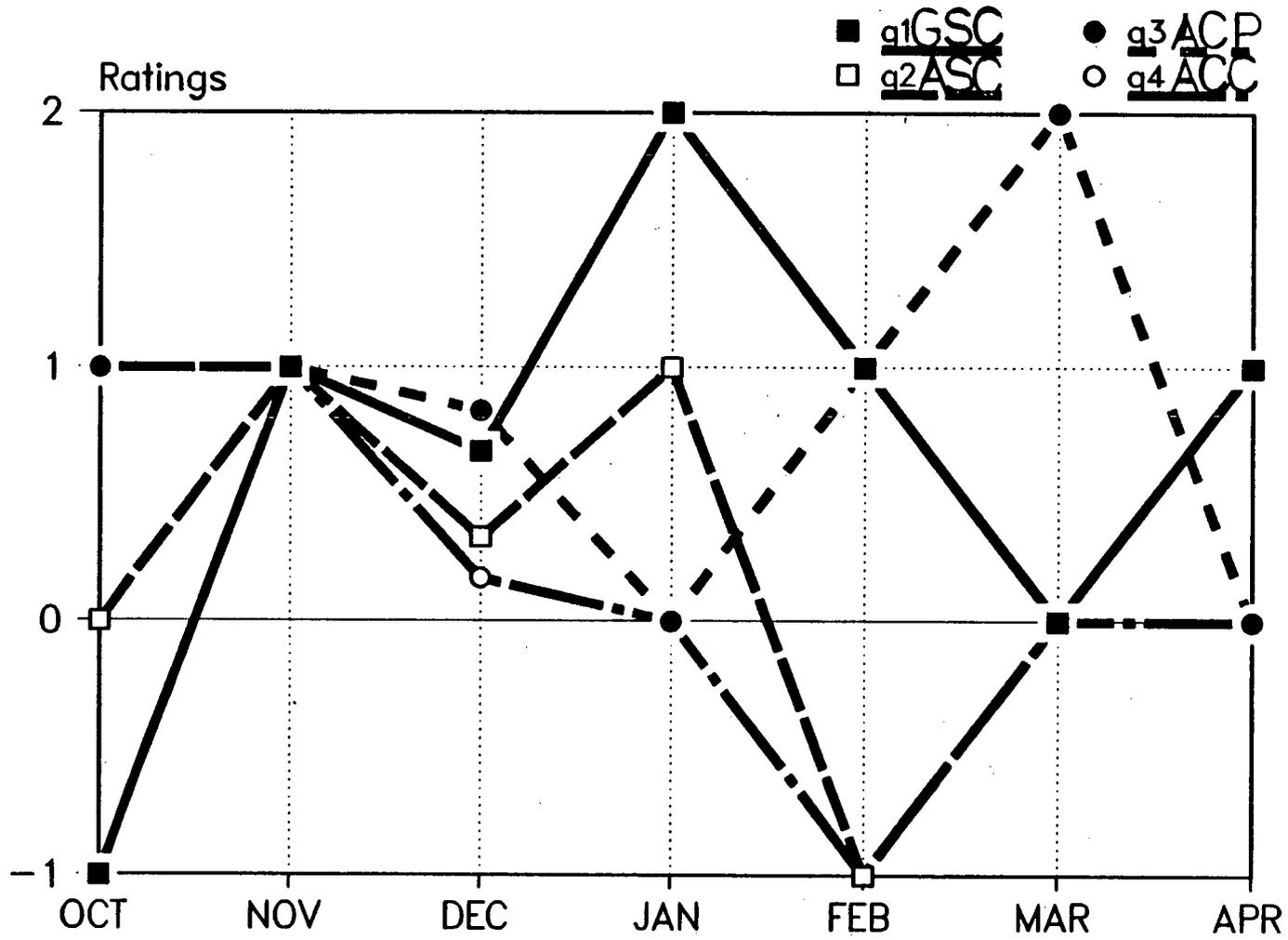
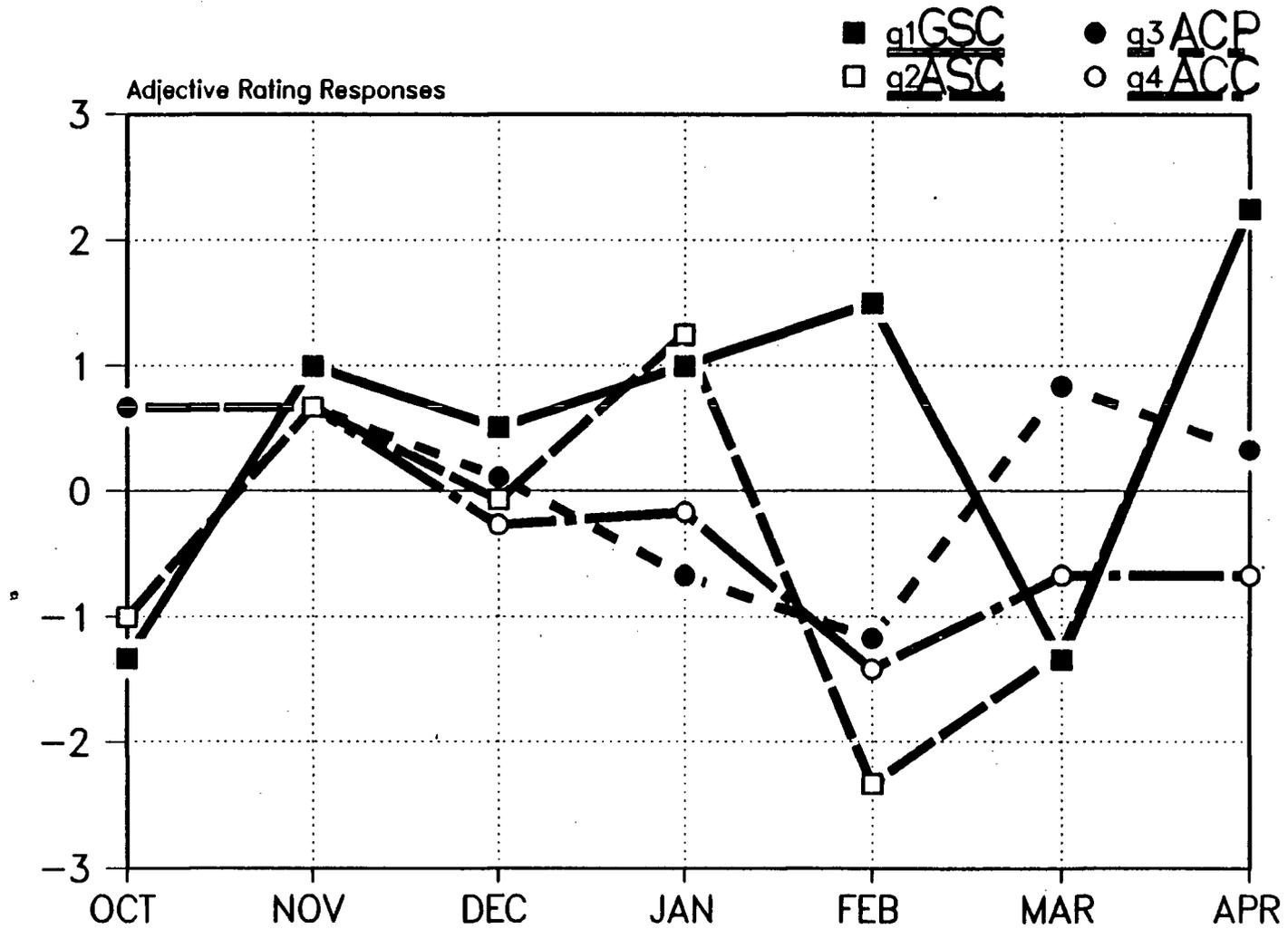


FIG.23  
Adjective Responses  
subject 8



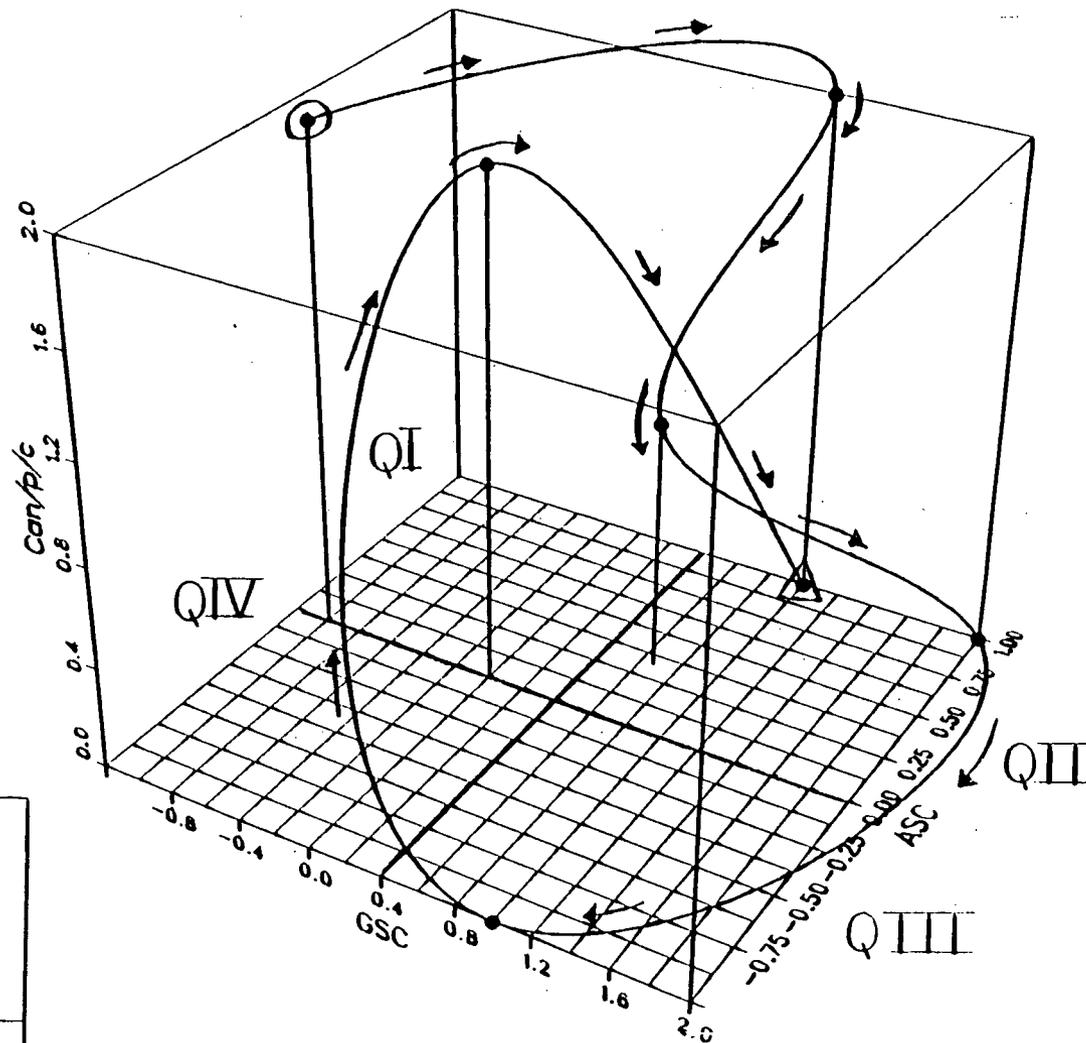


FIG.24 Adjustment for S8

QI GSC- ASC+	QII GSC+ ASC+
QIV GSC - ASC -	QIII GSC+ ASC-

● START

▲ END

FIG. 25  
Rating Responses  
subject 9

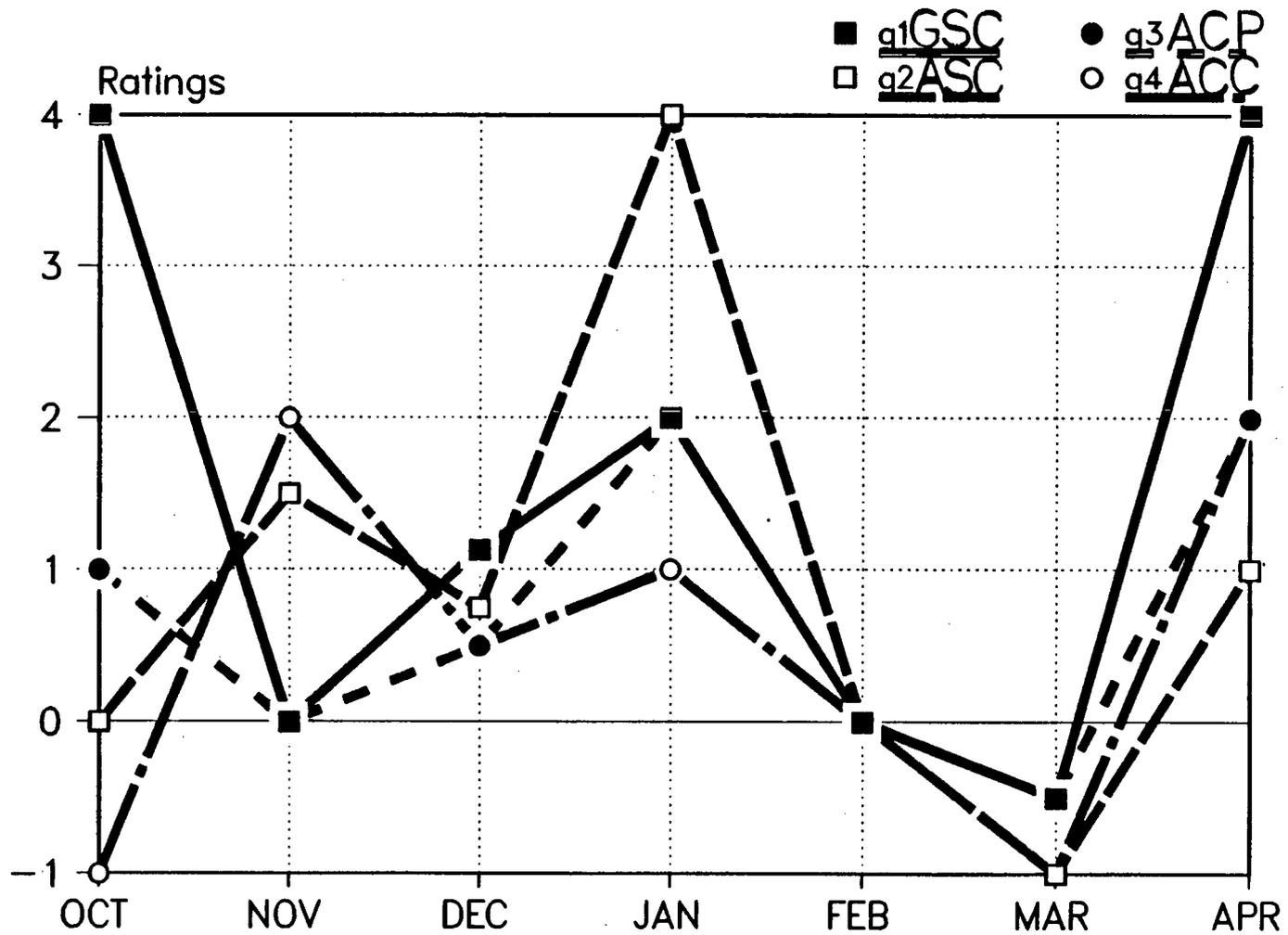
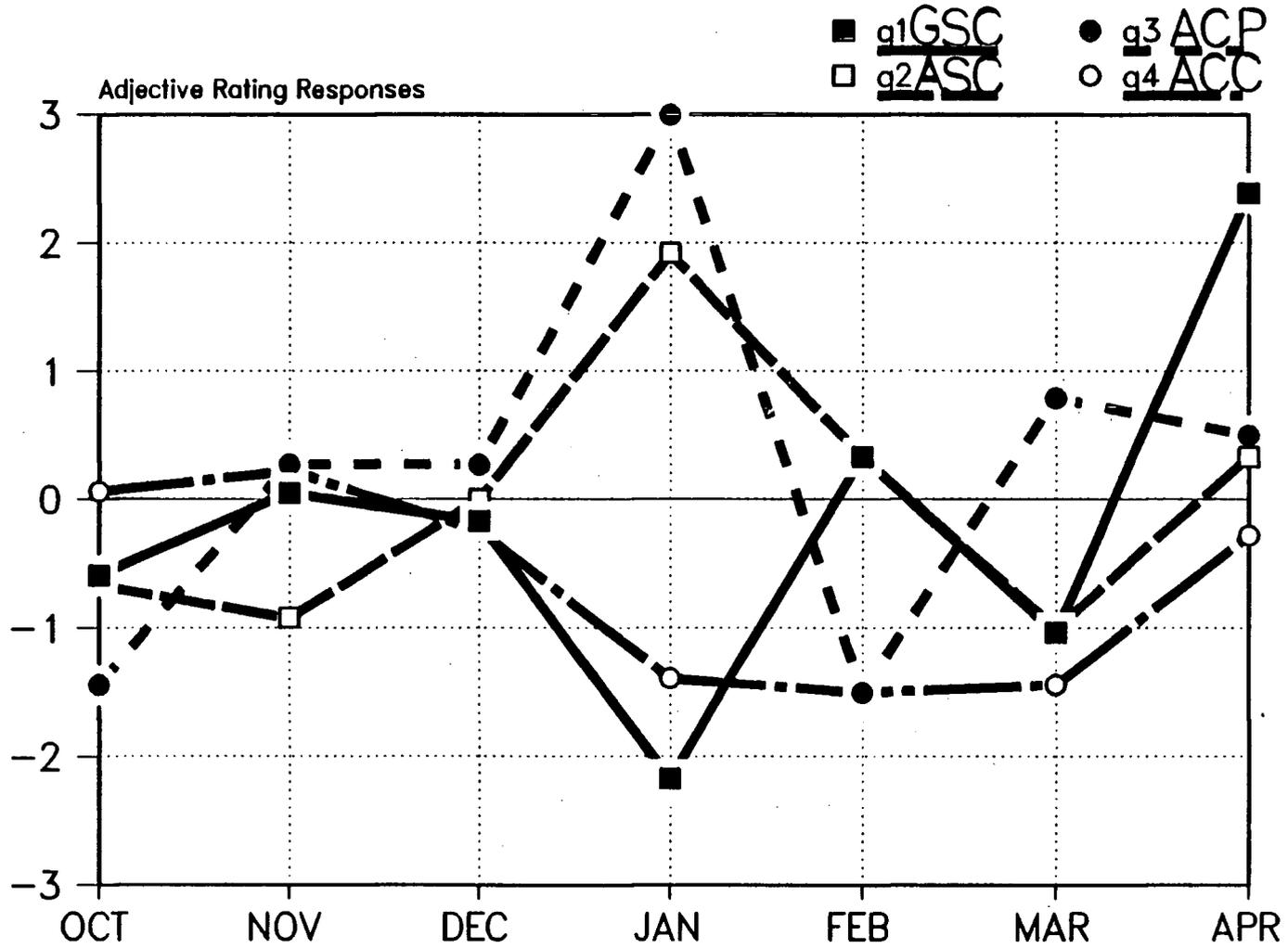
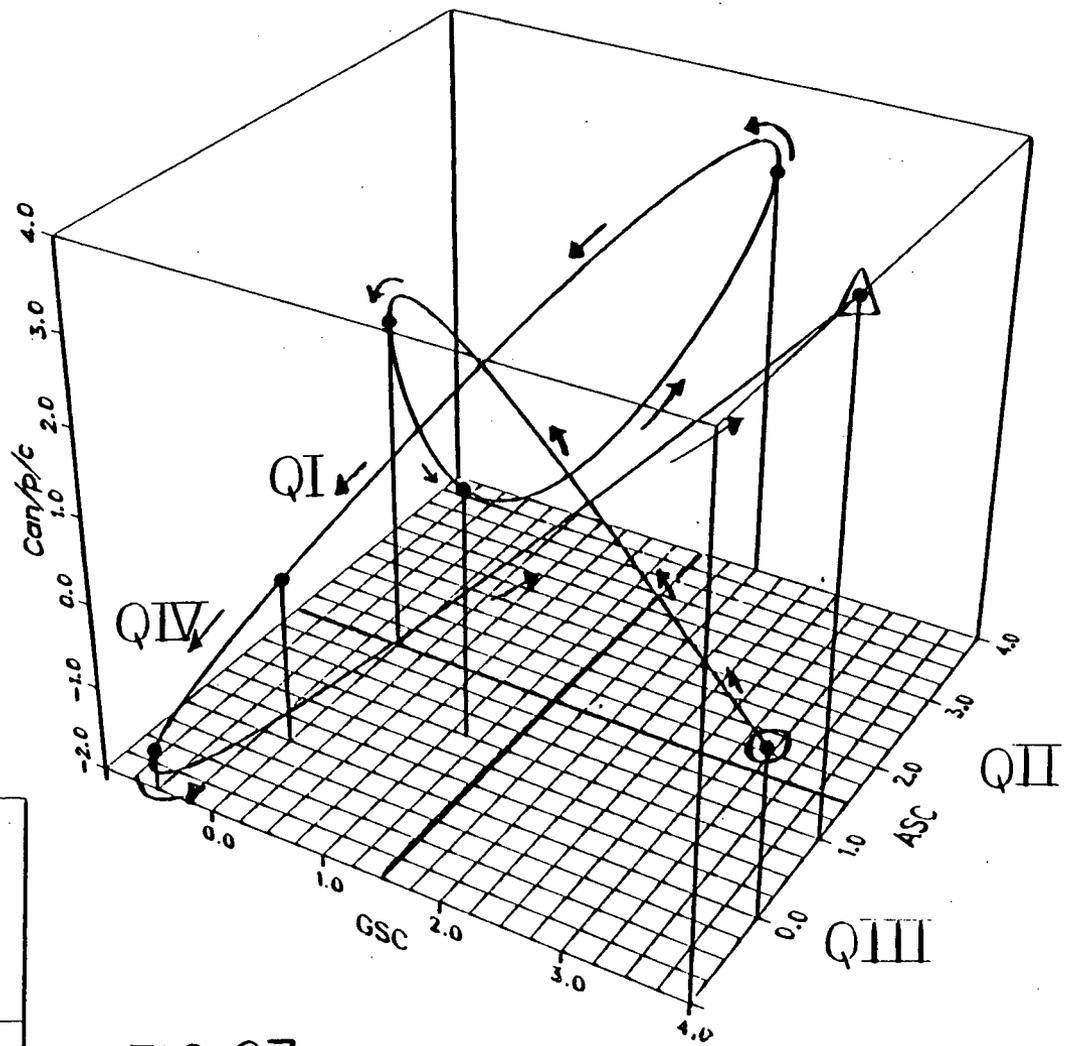


FIG. 26  
Adjective Responses  
subject 9





QI GSC- ASC+	QII GSC+ ASC+
QIV GSC - ASC -	QIII GSC+ ASC-

FIG.27 Adjustment for S9



FIG. 28  
Rating Responses  
subject 10

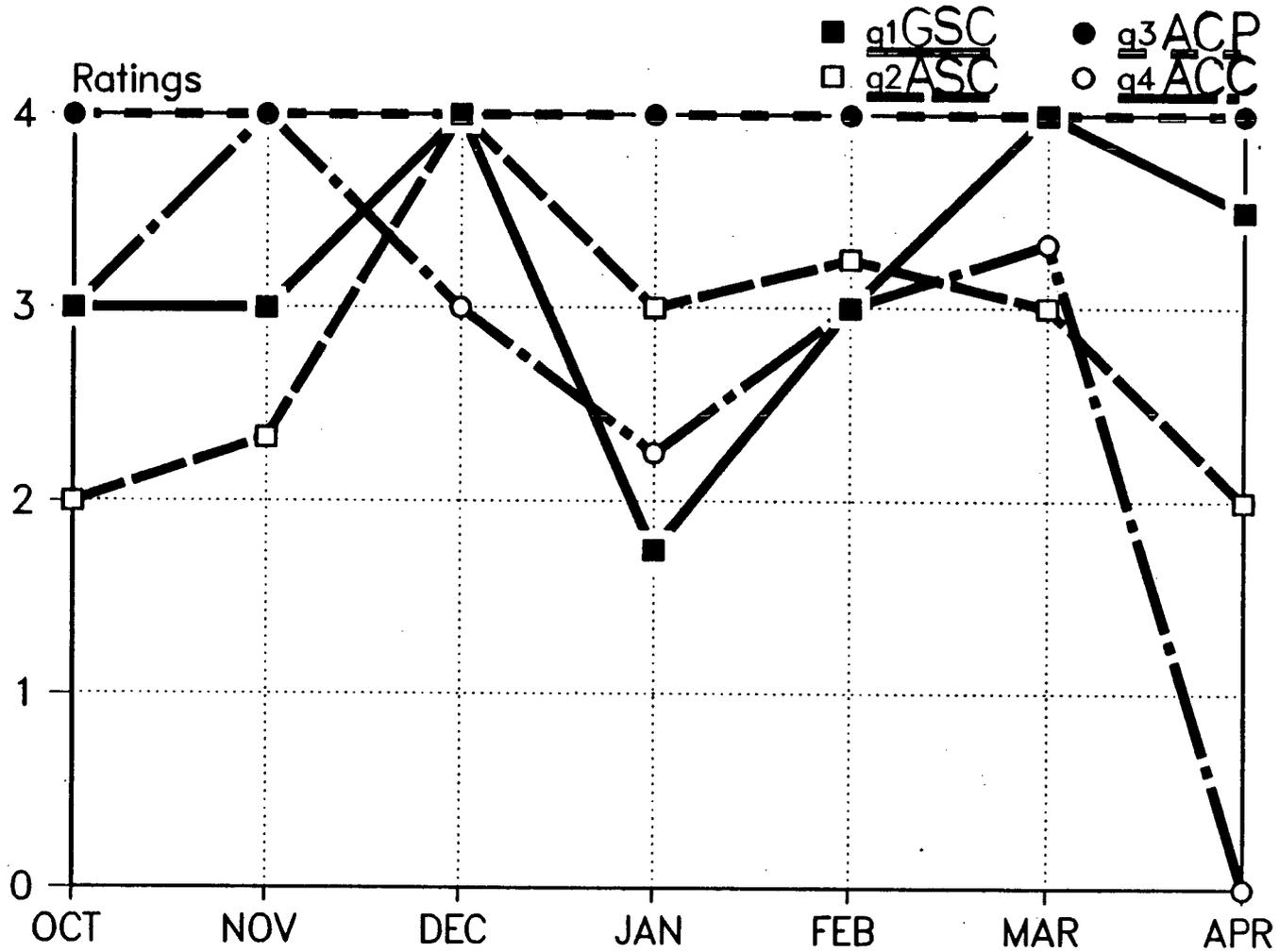
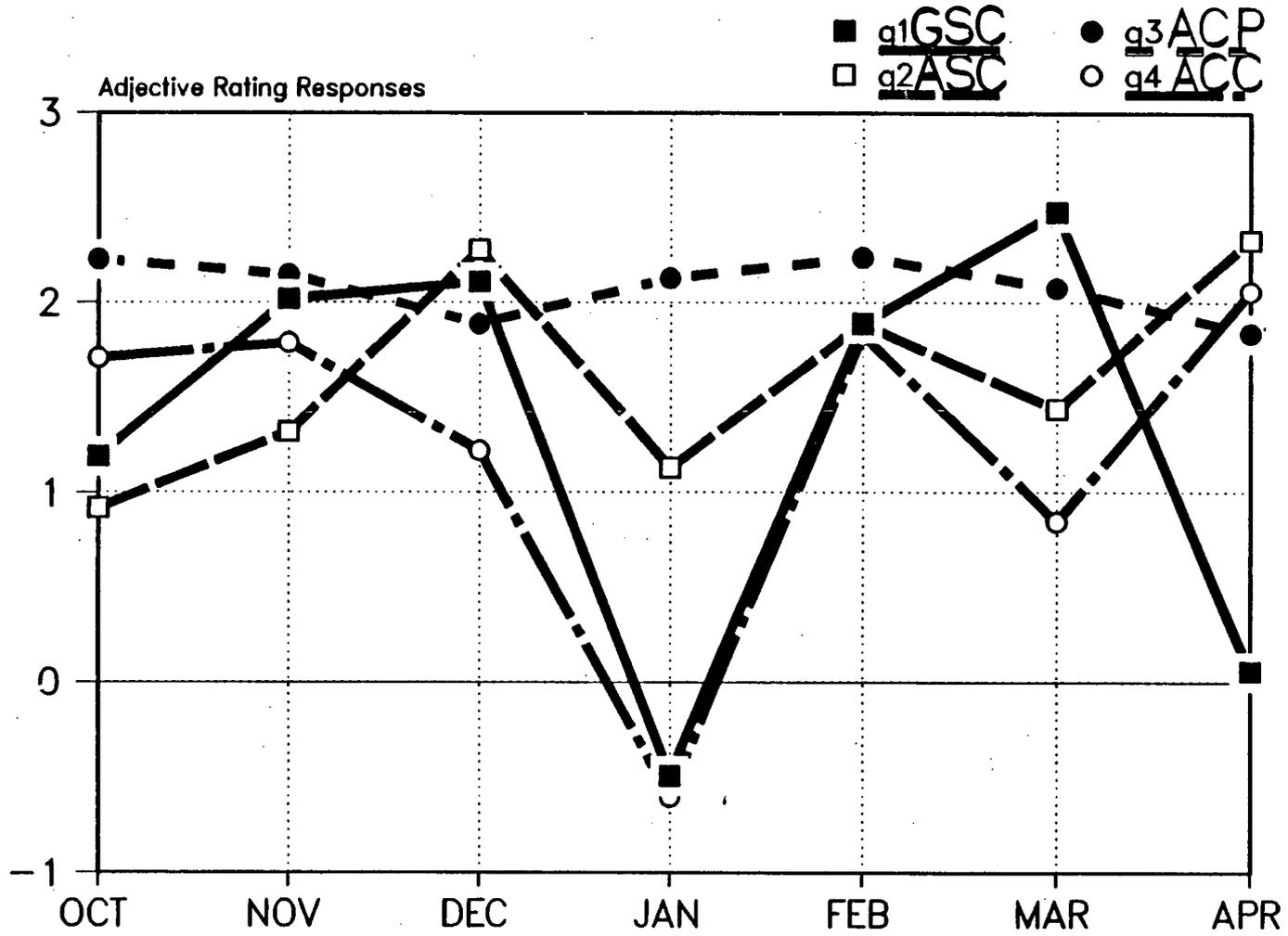


FIG.29  
 Adjective Responses  
 subject 10



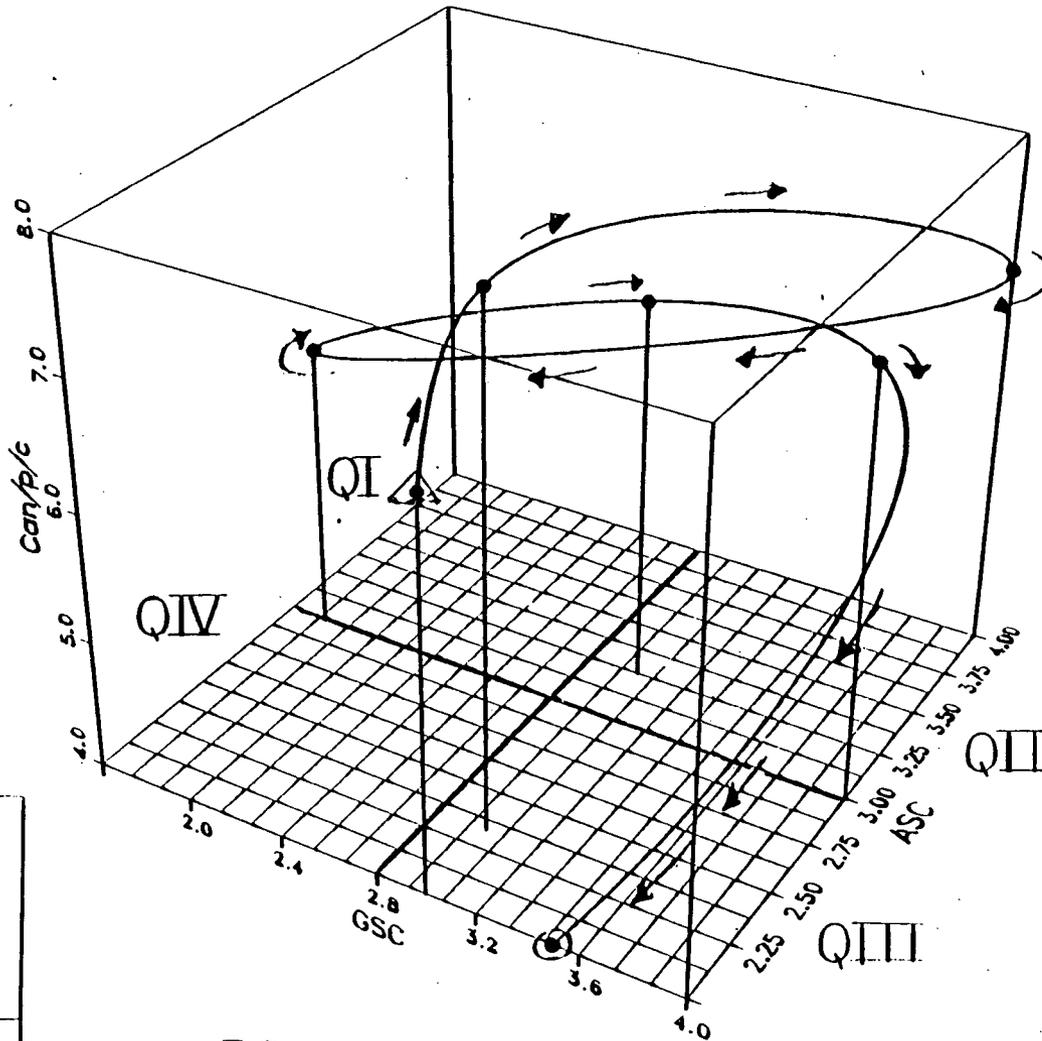


FIG.30 Adjustment for S10

QI GSC- ASC+	QII GSC+ ASC+
QIV GSC - ASC -	QIII GSC+ ASC-

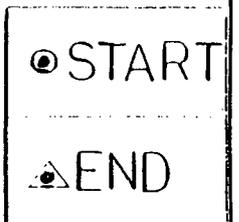


FIG.31  
Rating Responses  
subject 11

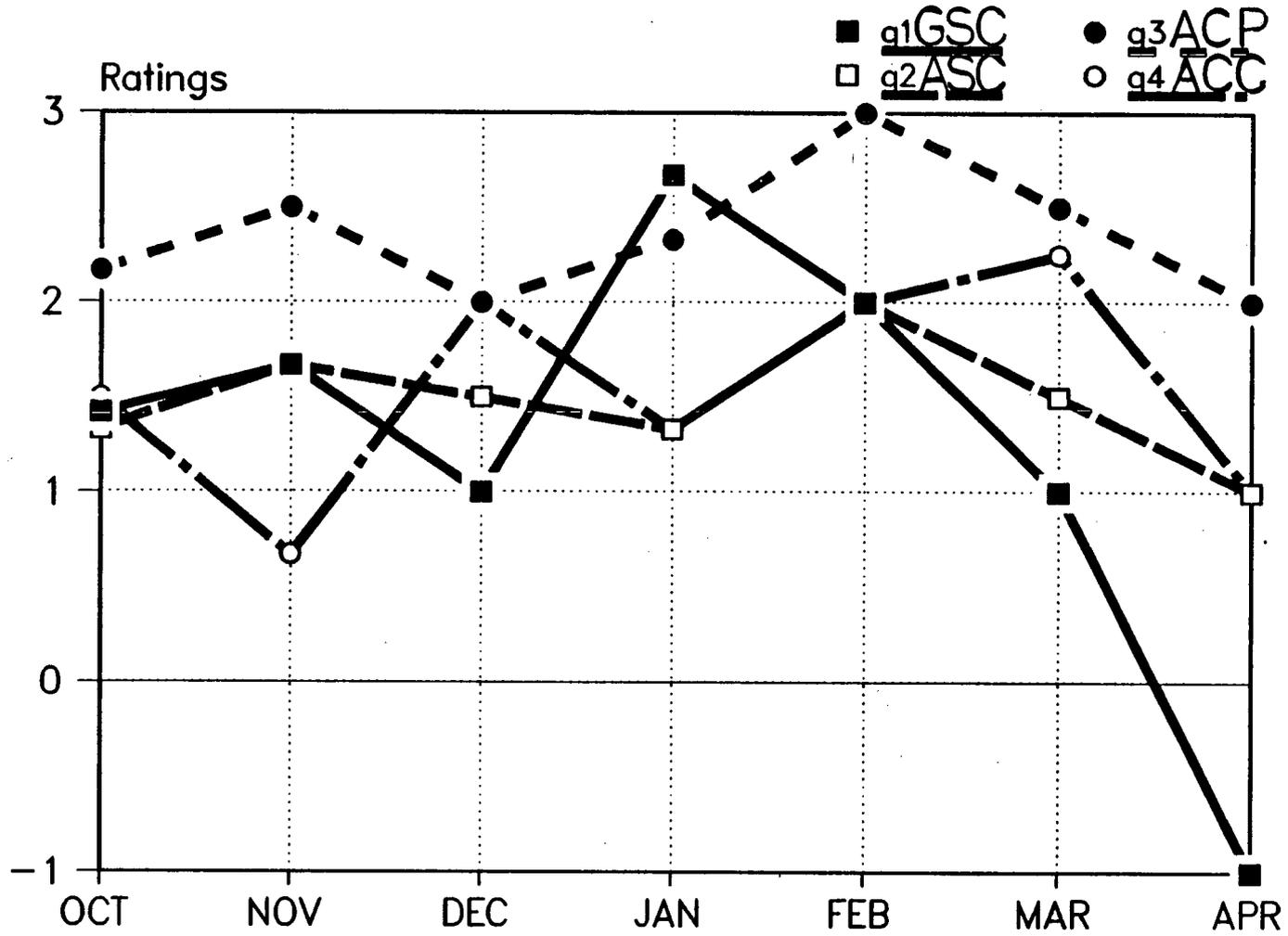
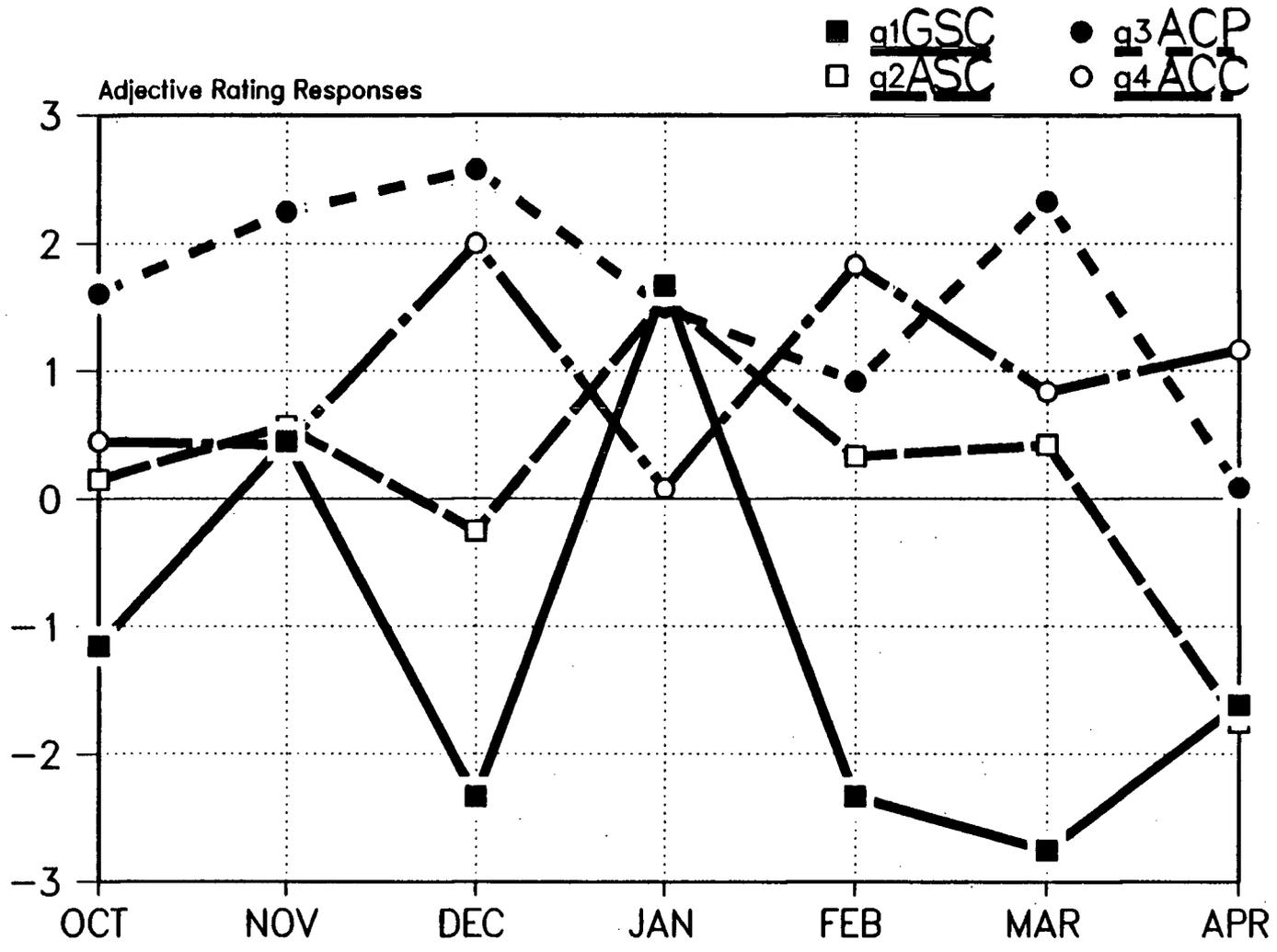


FIG.32  
 Adjective Responses  
 subject 11



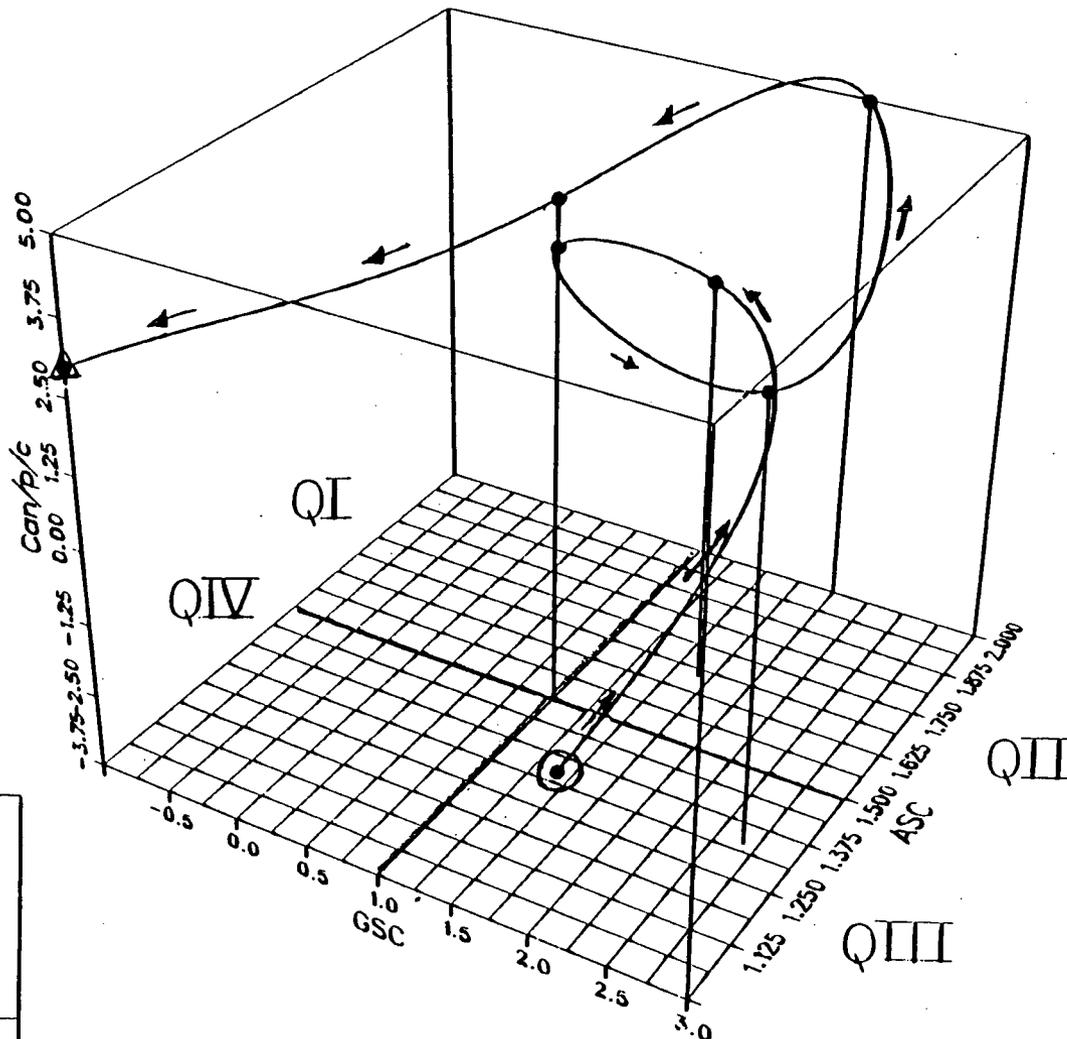


FIG.33 Adjustment for S11

QI GSC- ASC+	QII GSC+ ASC+
QIV GSC - ASC -	QIII GSC+ ASC-

● START
▲ END

FIG.34  
Rating Responses  
subject 12

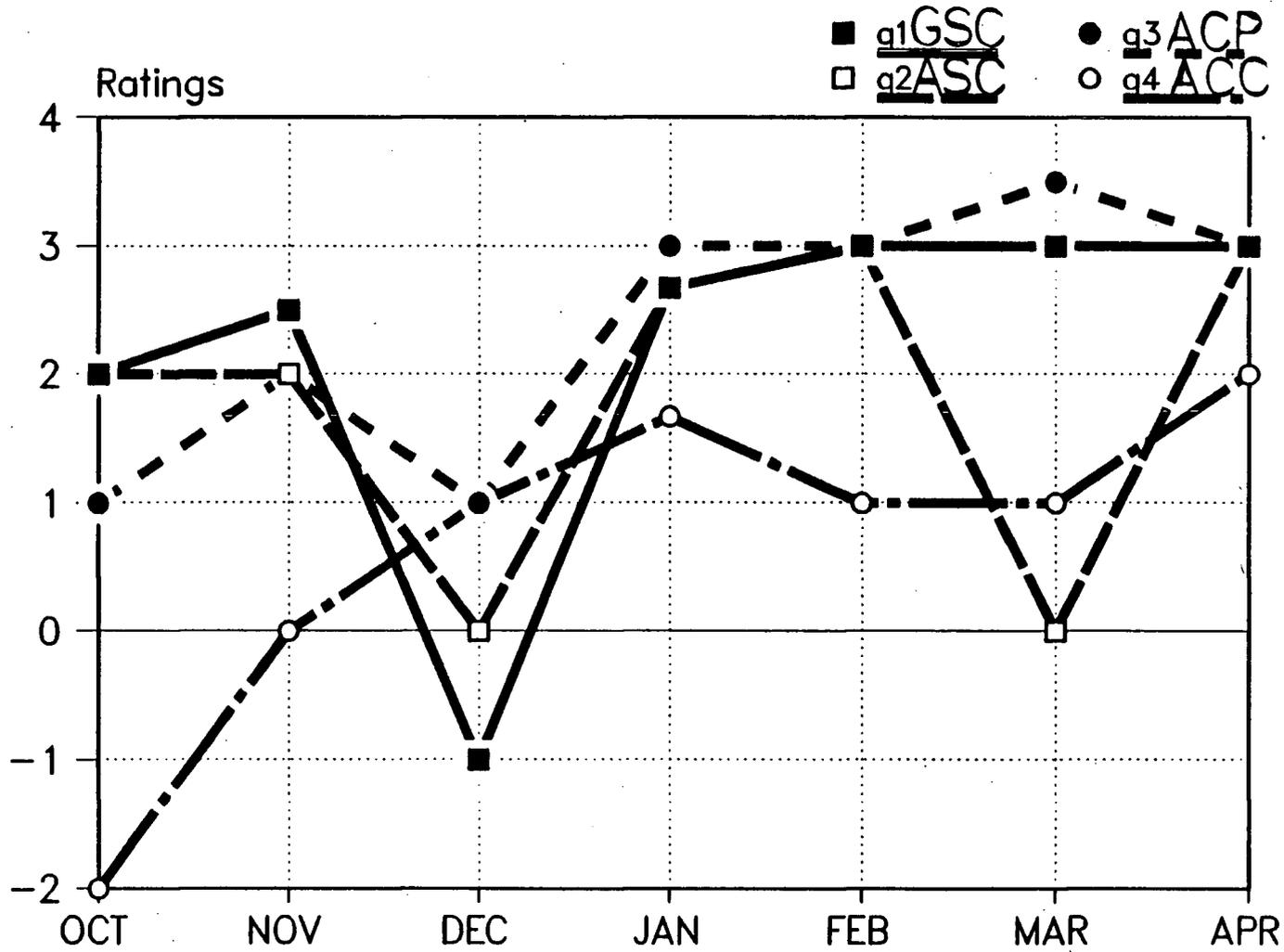
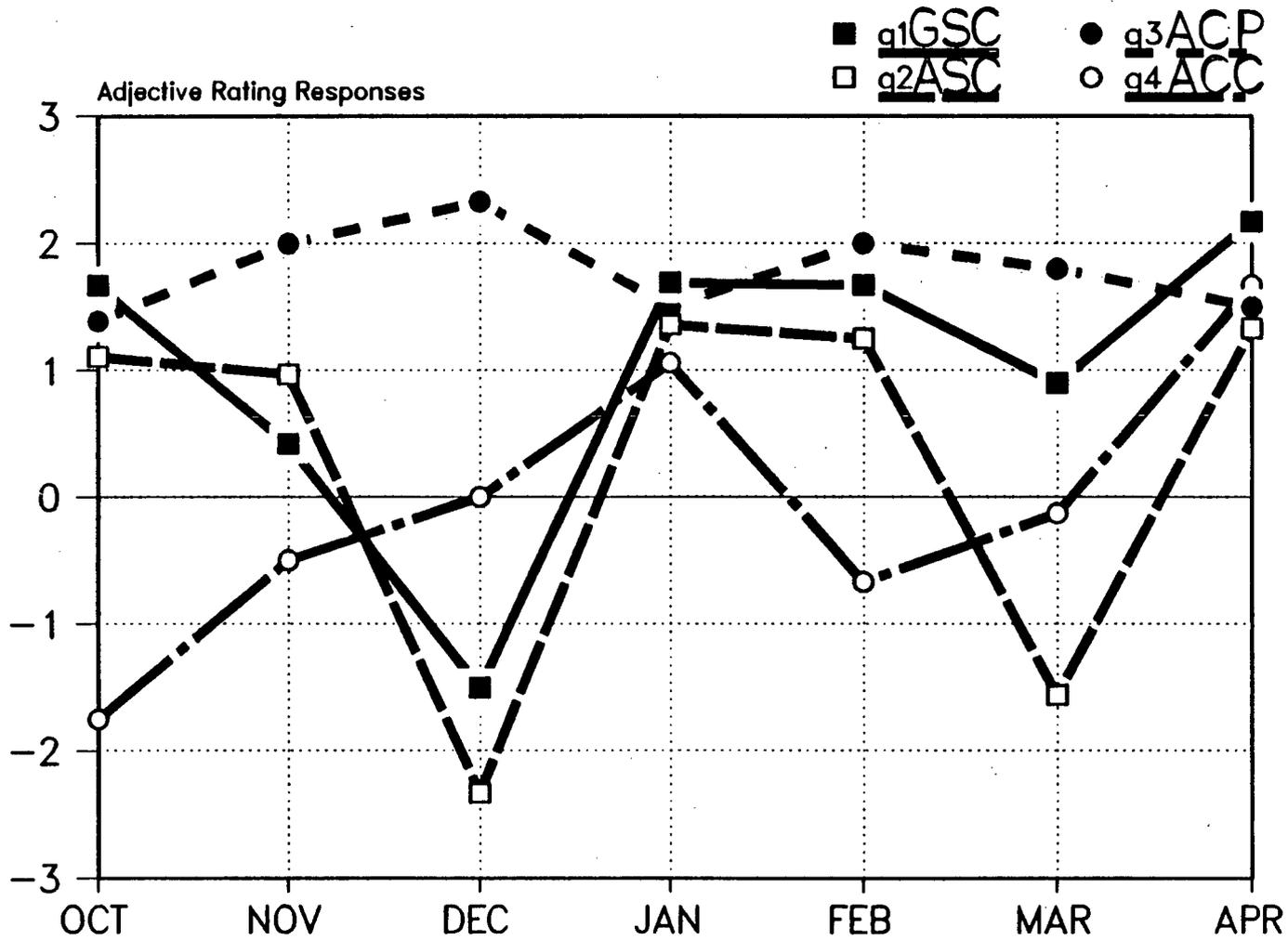


FIG.35  
Adjective Responses  
subject 12



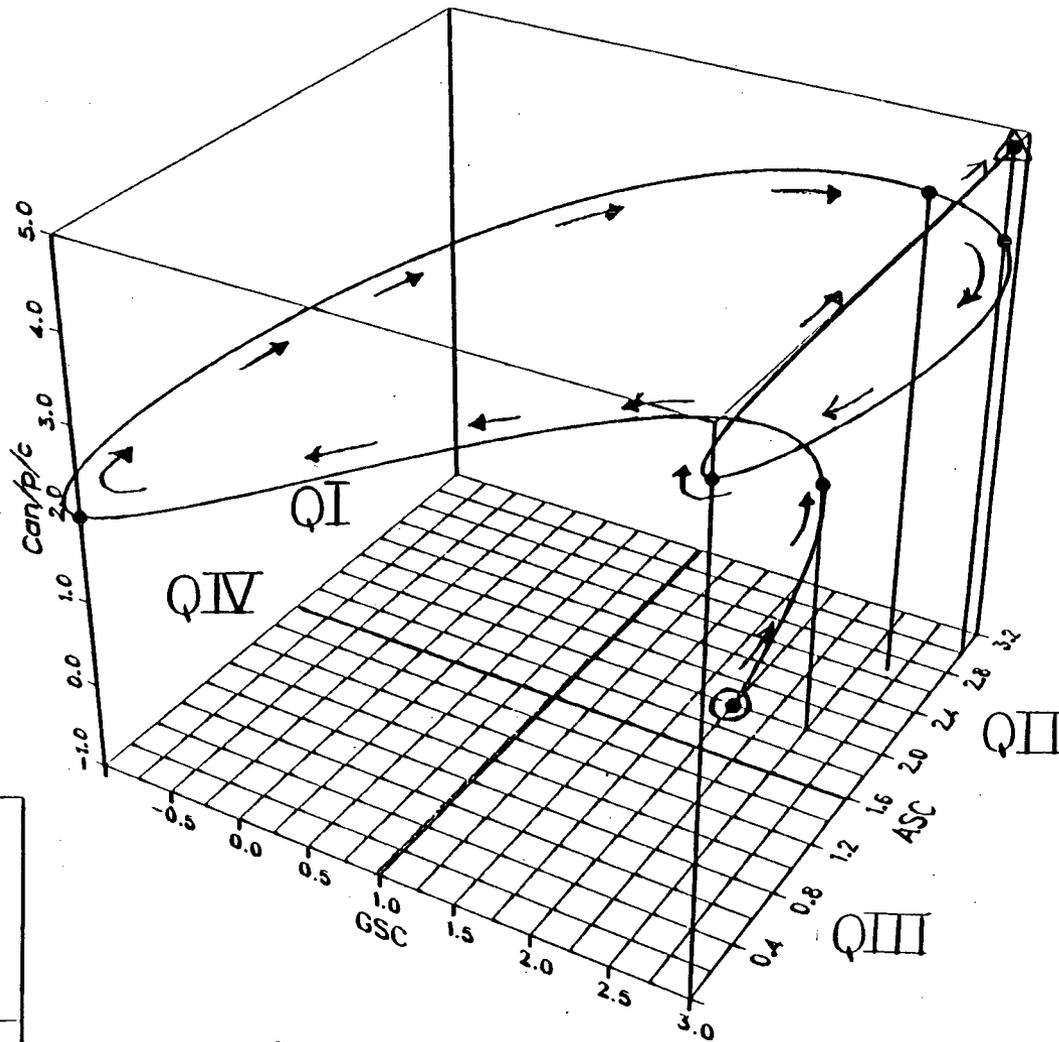


FIG. 36 Adjustment for S12

QI GSC- ASC+	QII GSC+ ASC+
QIV GSC - ASC -	QIII GSC+ ASC-

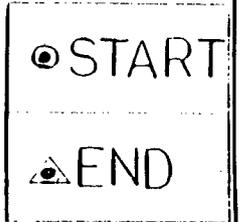


FIG. 37  
Rating Responses  
subject 13

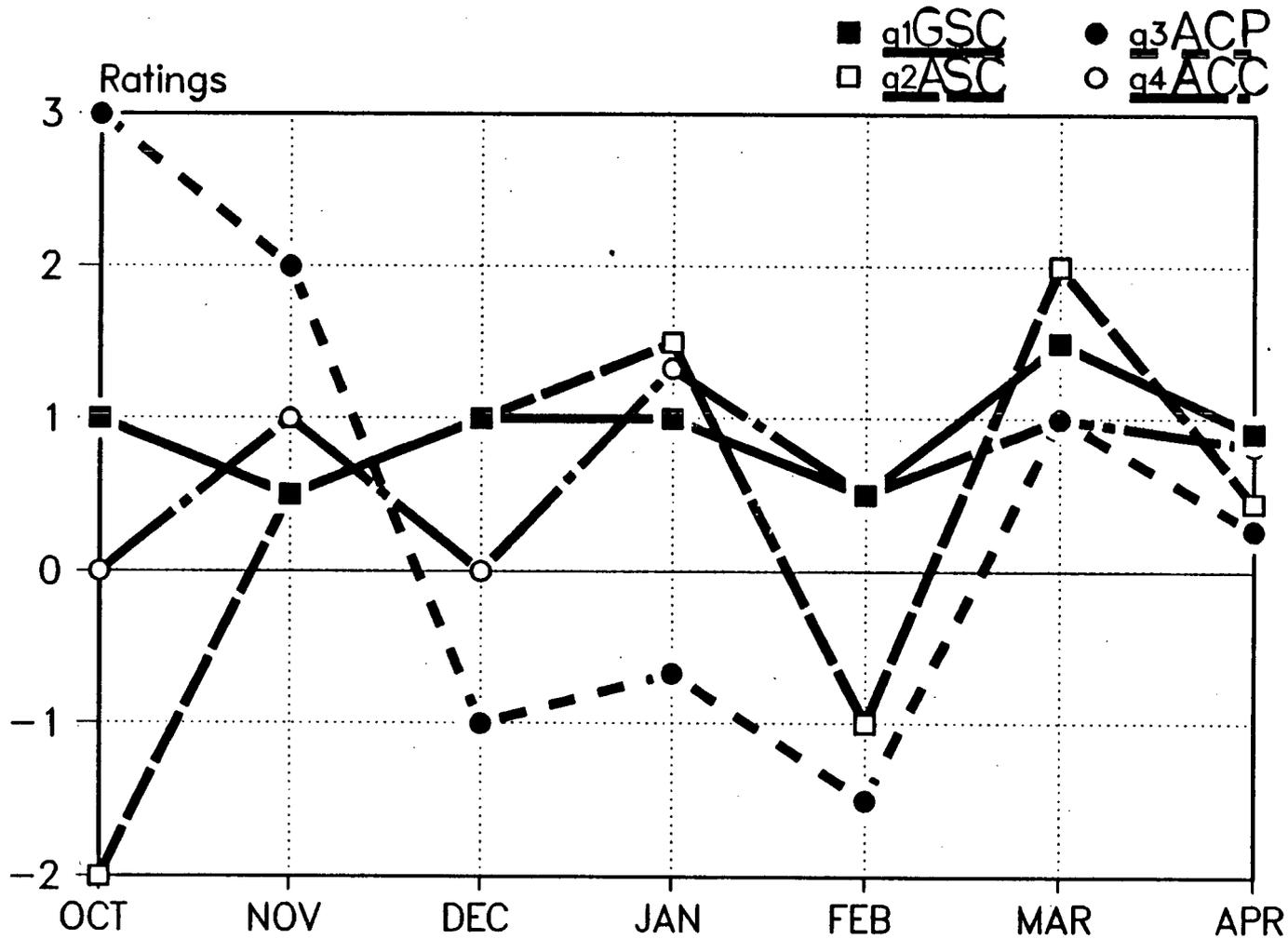
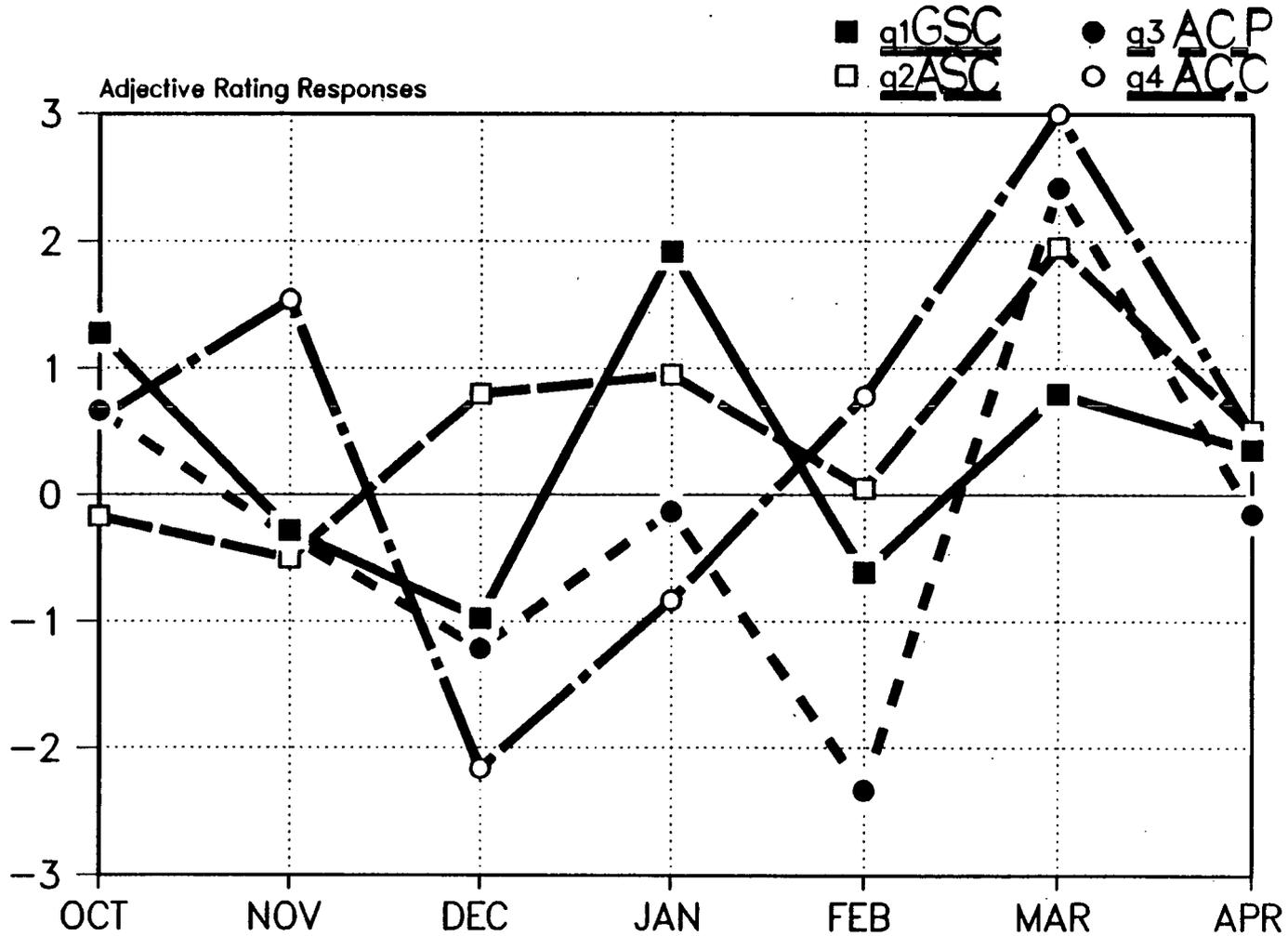


FIG.38  
 Adjective Responses  
 subject 13



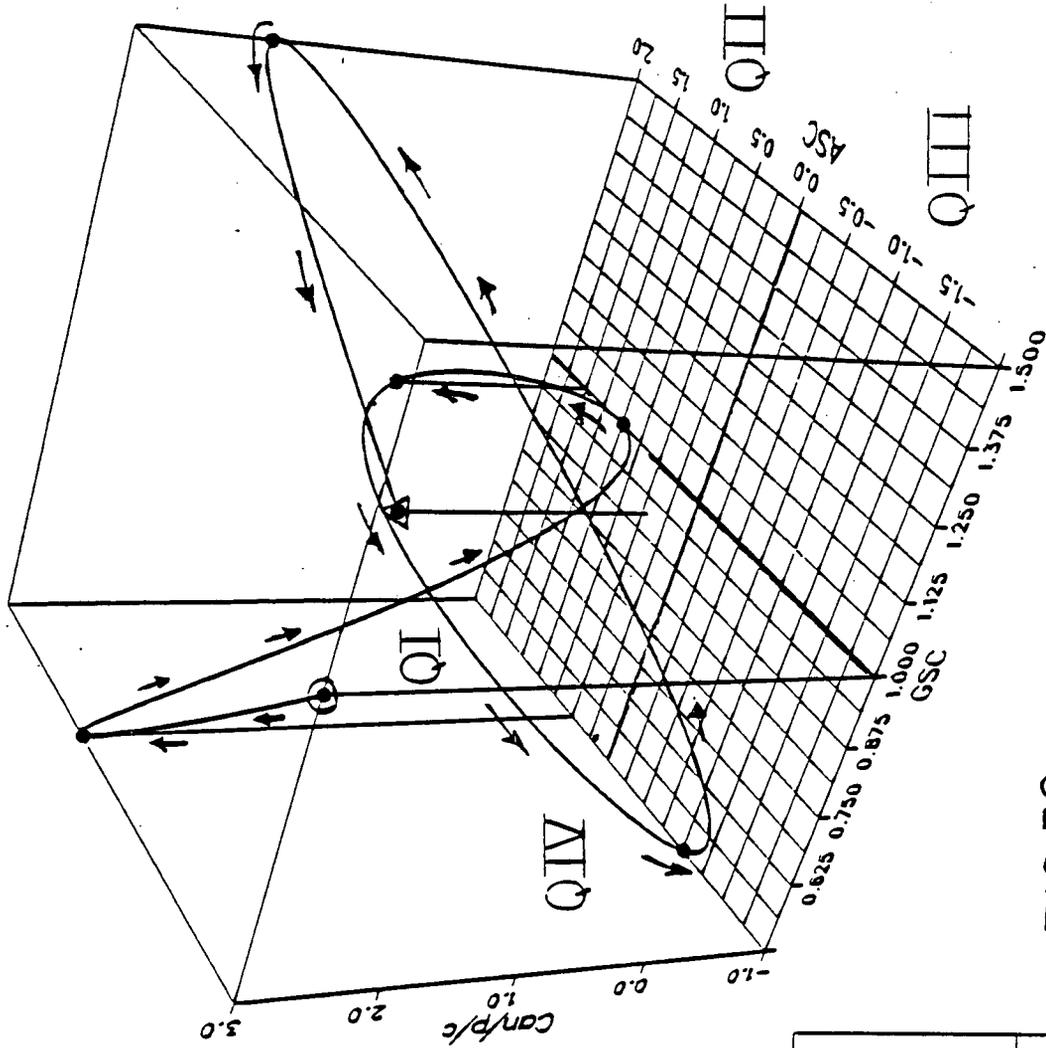


FIG.39 Adjustment for S13

◎ START

▲ END

QI	QII
GSC-	GSC+
ASC+	ASC+
QIV	QIII
GSC-	GSC+
ASC-	ASC-

**FIG.40**

ADJUSTMENT PATTERN FOR EASTERN FOREIGN STUDENTS (RATINGS)

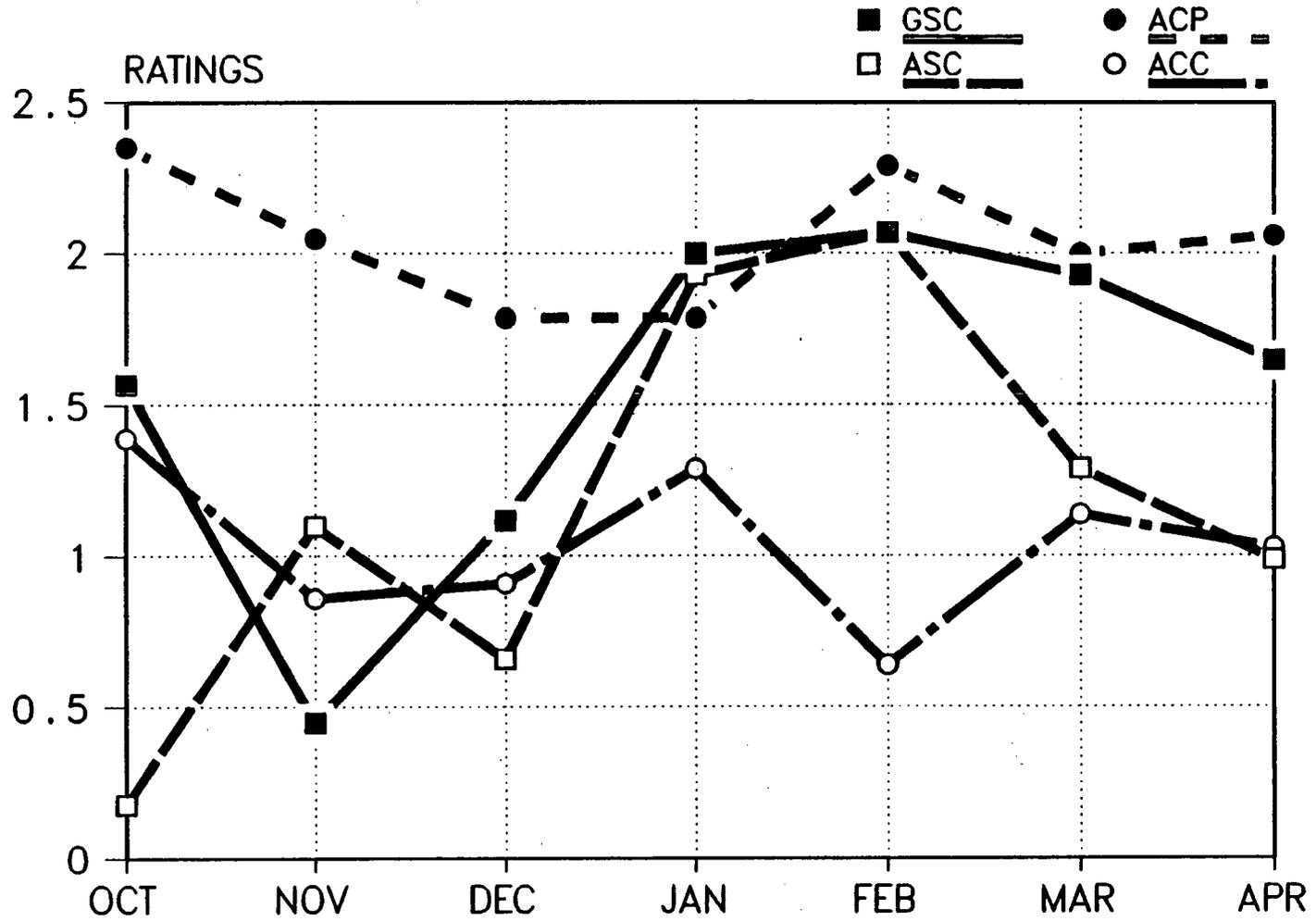
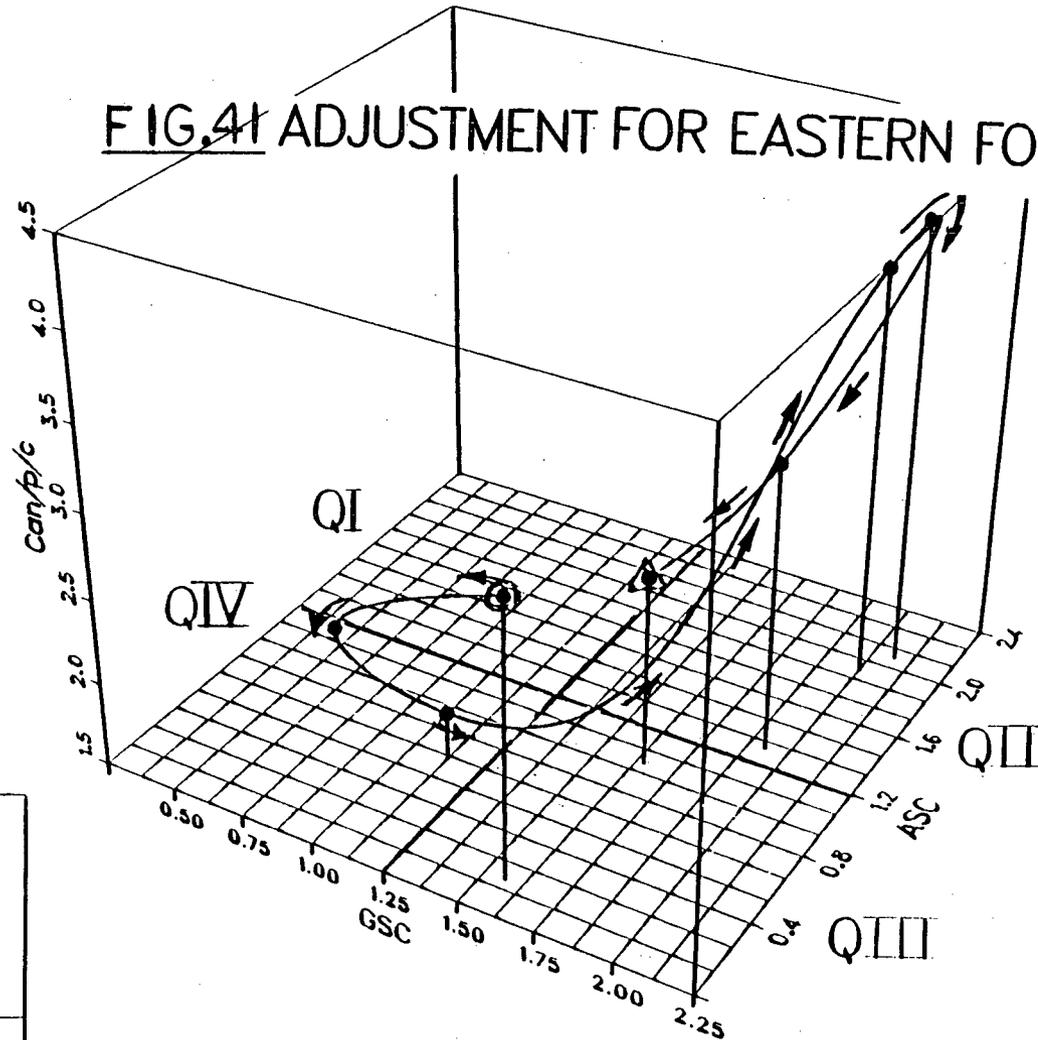


FIG.41 ADJUSTMENT FOR EASTERN FOREIGN STUDENTS



QI GSC- ASC+	QII GSC+ ASC+
QIV GSC - ASC -	QIII GSC+ ASC-

● START  
▲ END

**FIG.42**

ADJUSTMENT PATTERN FOR WESTERN FOREIGN STUDENTS (RATINGS)

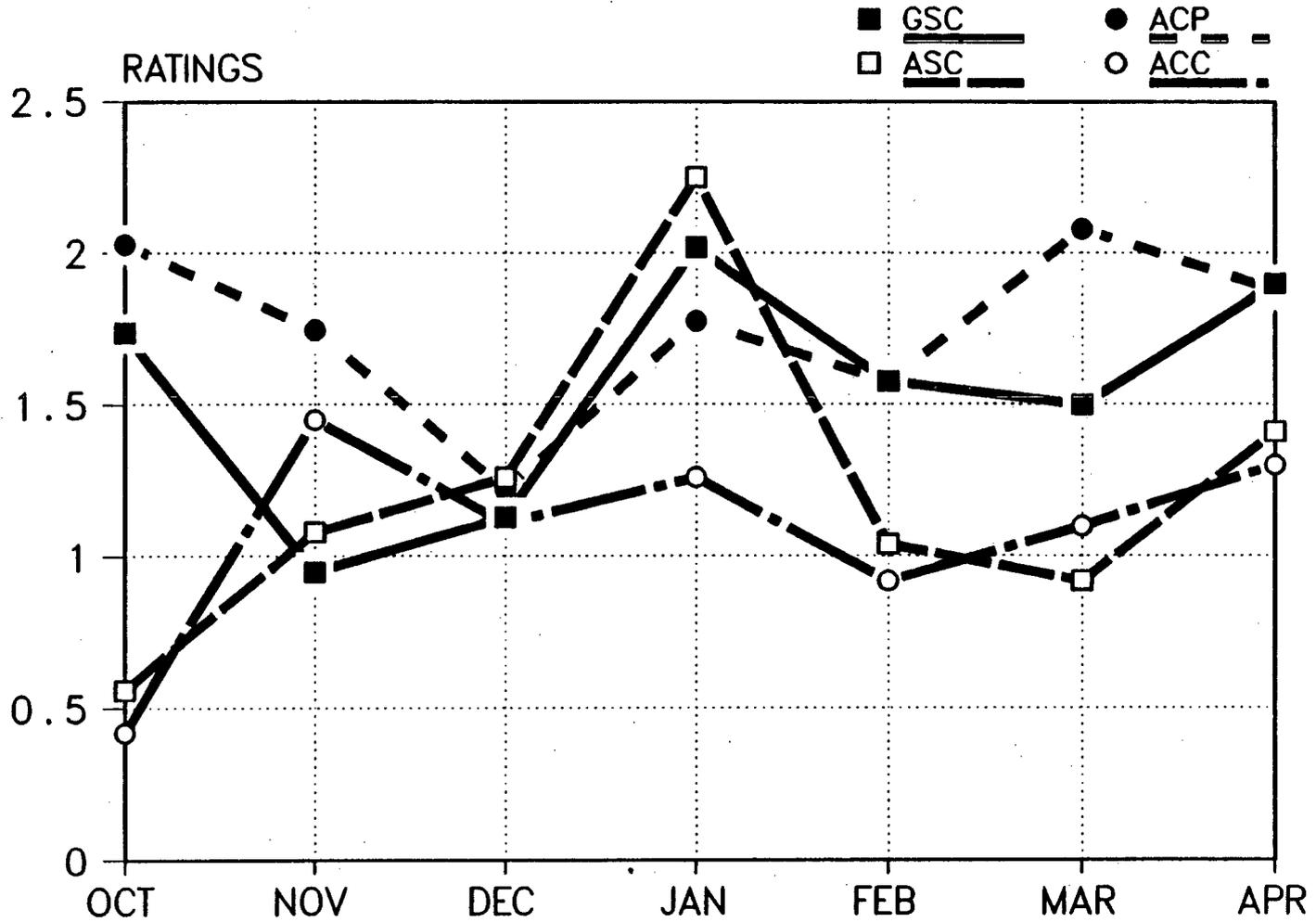
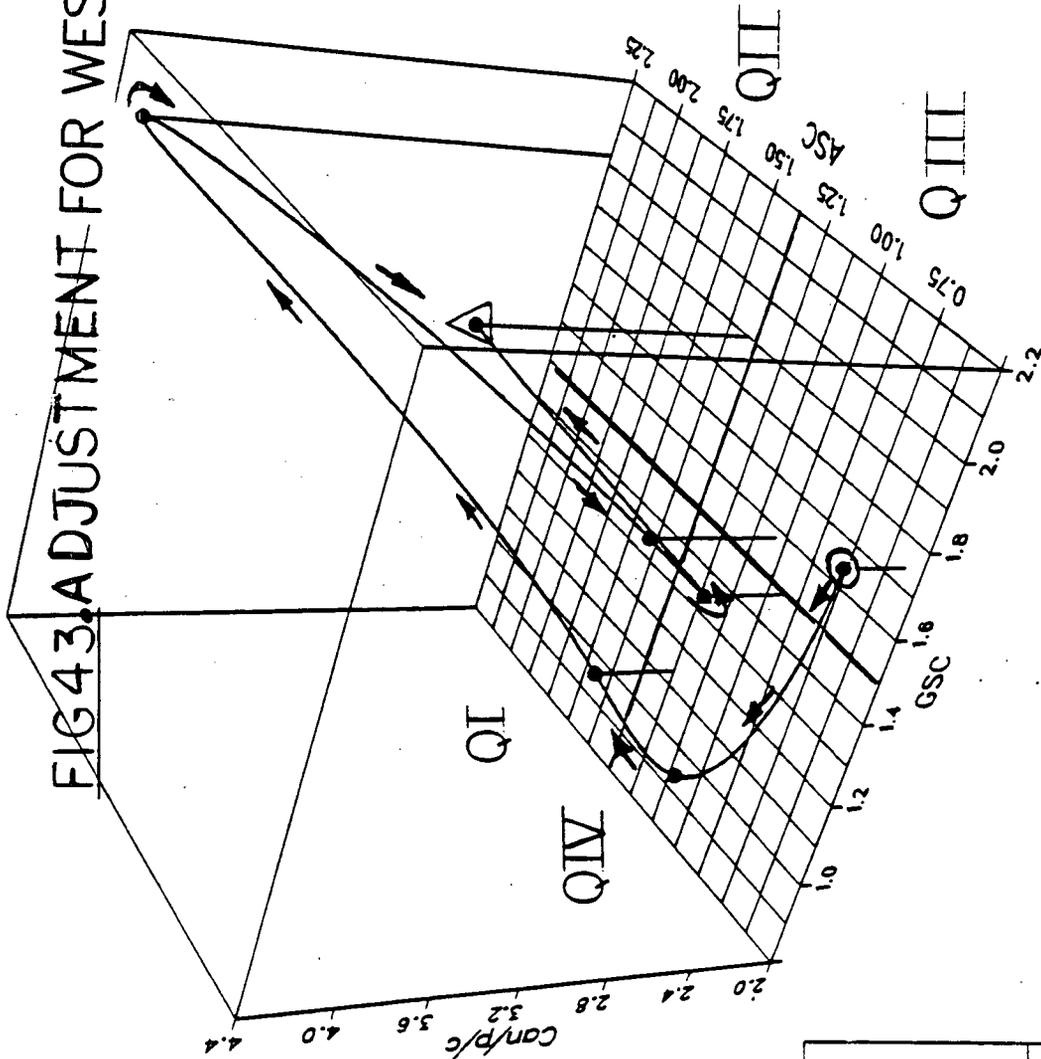


FIG 43. ADJUSTMENT FOR WESTERN STUDENTS



QI	QII
GSC-	GSC+
ASC+	ASC+
QIV	QIII
GSC-	GSC+
ASC-	ASC-

● START
◄ END

FIG.44

ADJUSTMENT PATTERN FOR FEMALE FOREIGN STUDENTS (RATINGS)

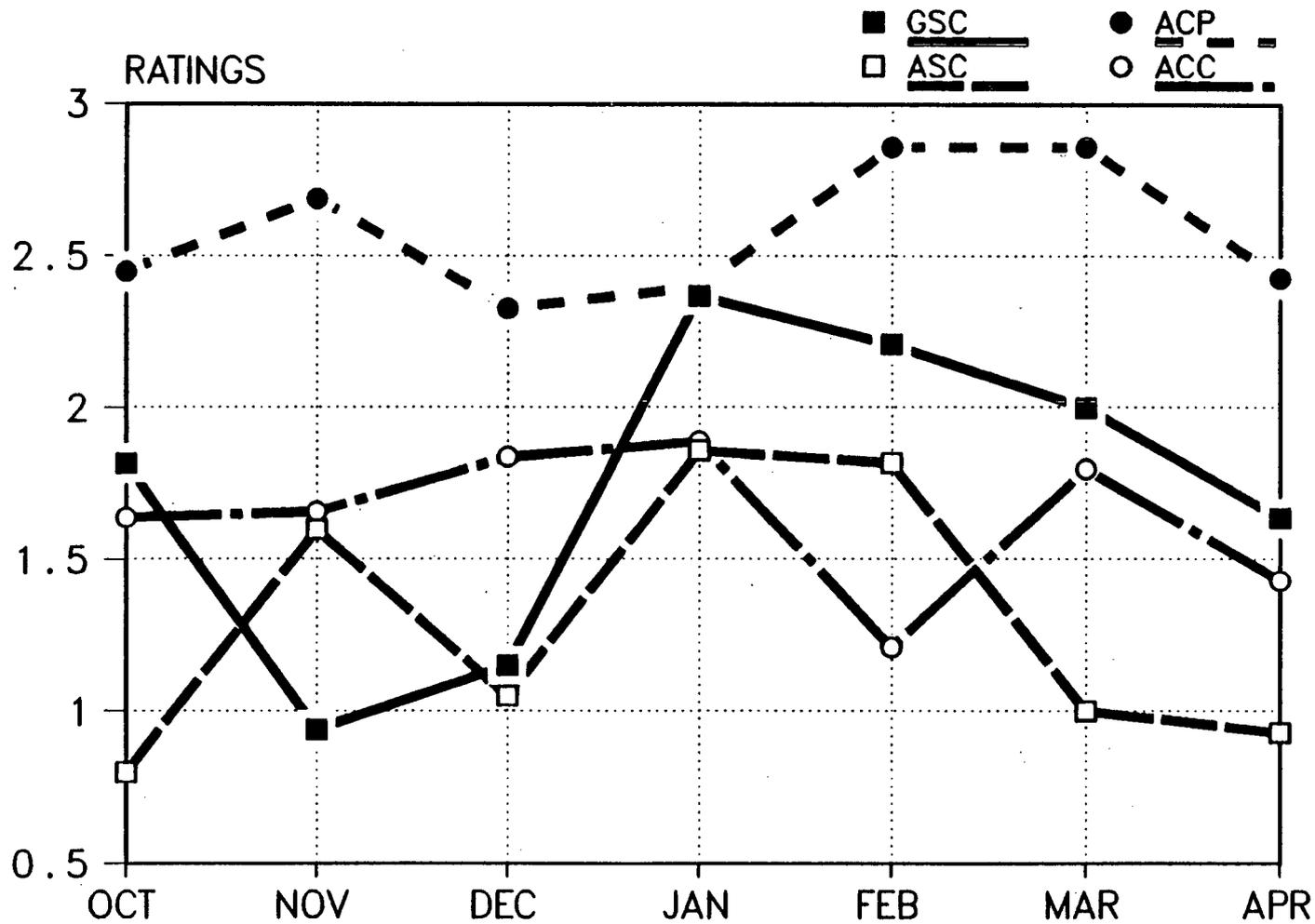
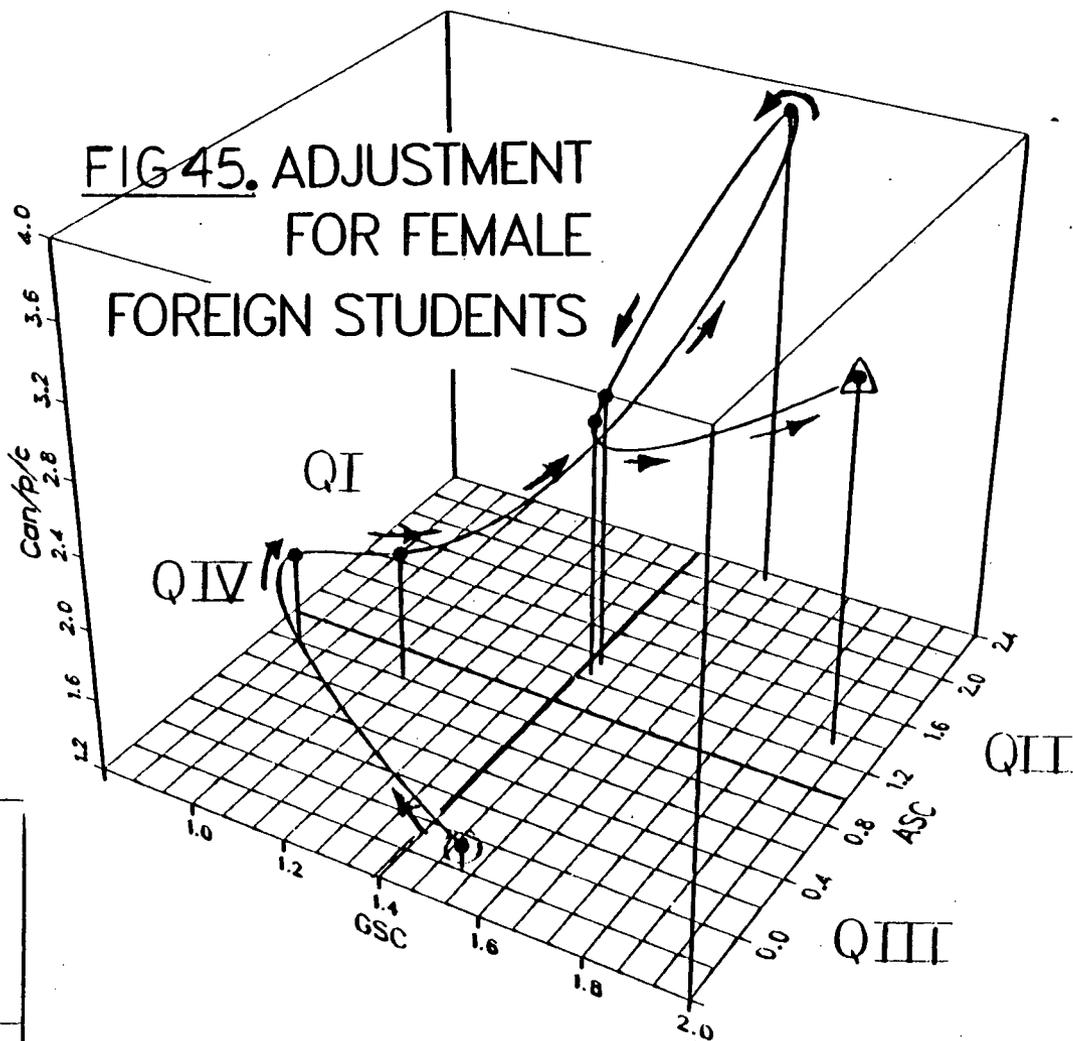


FIG 45. ADJUSTMENT  
FOR FEMALE  
FOREIGN STUDENTS



QI GSC- ASC+	QII GSC+ ASC+
QIV GSC - ASC -	QIII GSC+ ASC-

● START  
▲ END

**FIG.46**

ADJUSTMENT PATTERN FOR MALE FOREIGN STUDENTS (RATINGS)

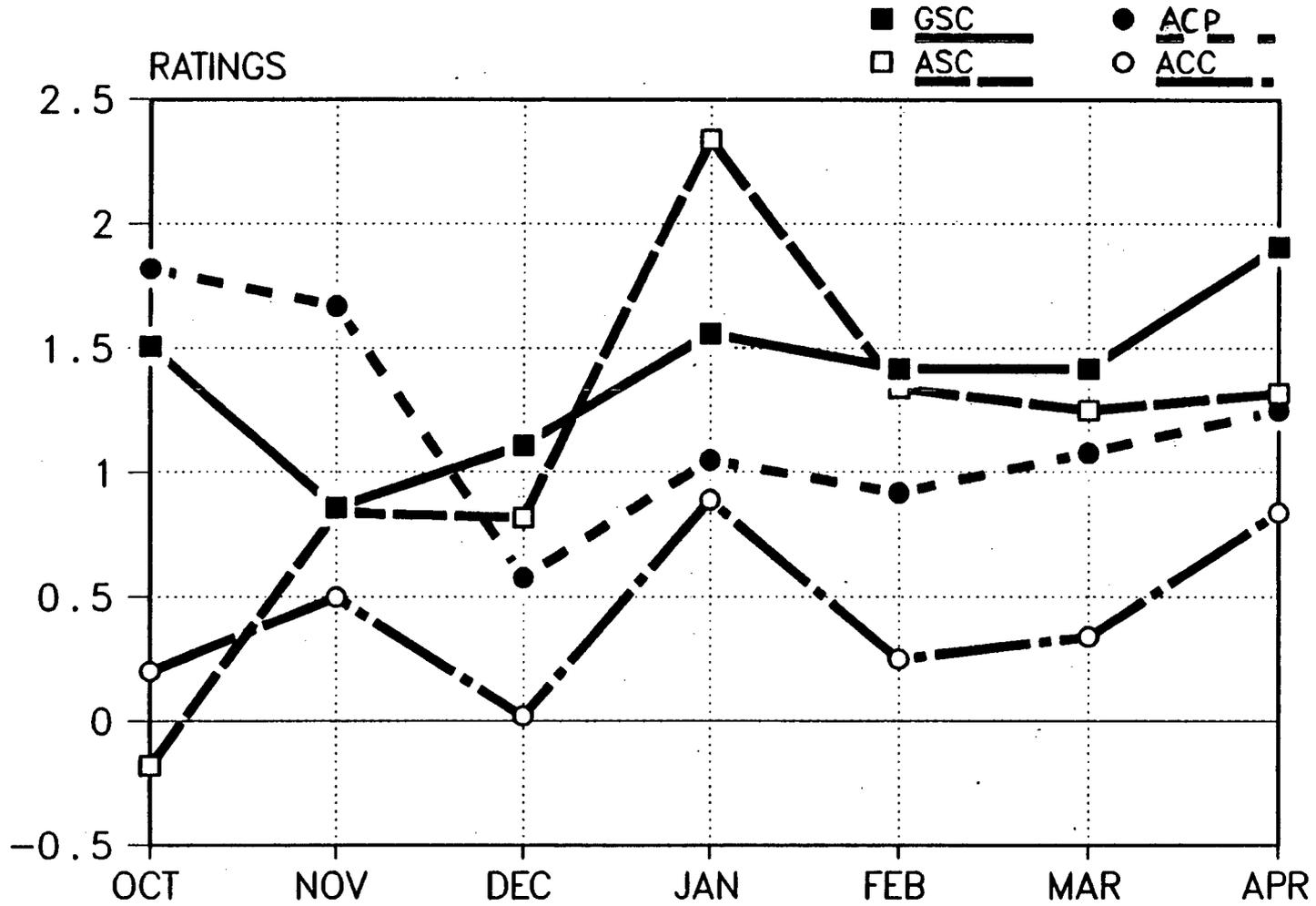
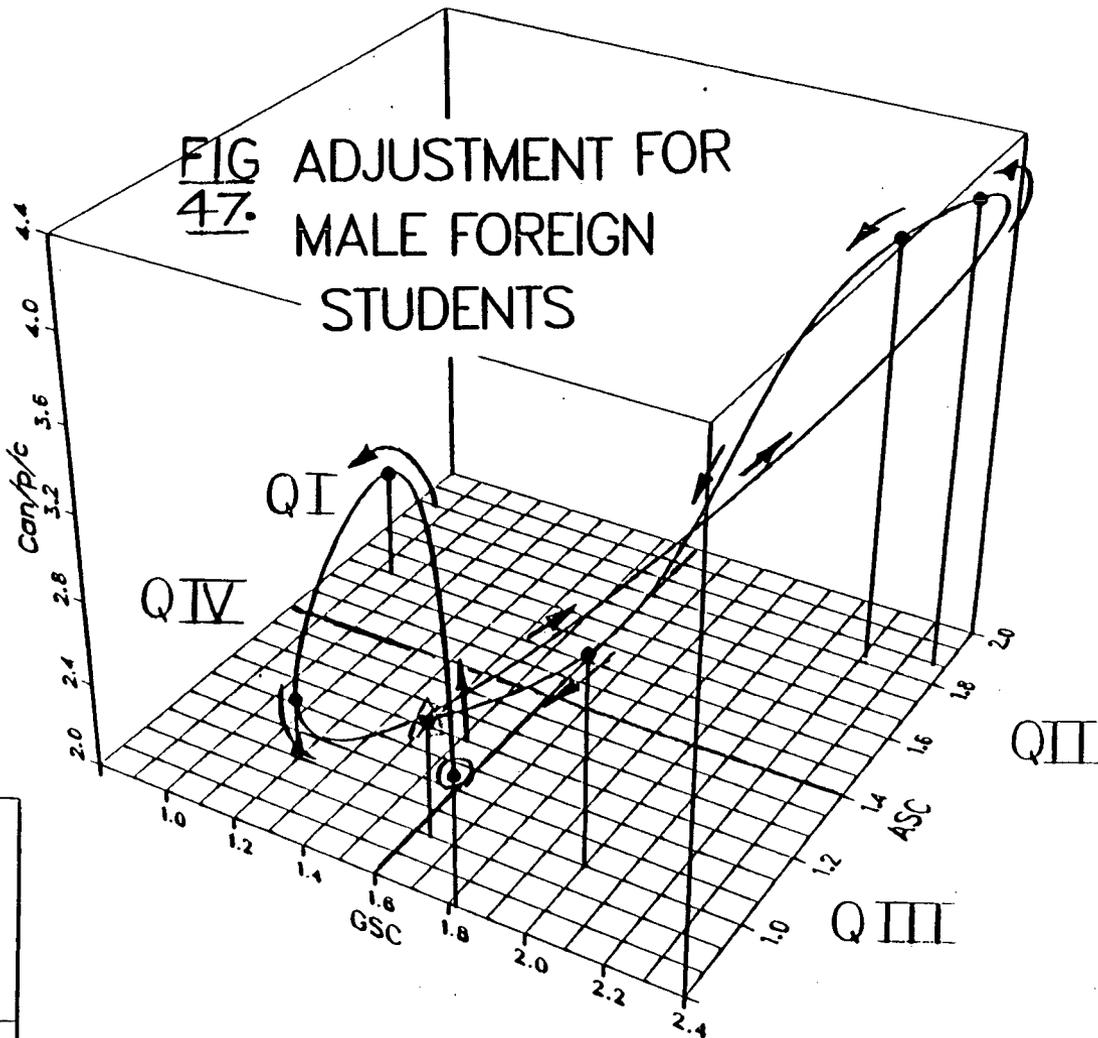


FIG 47. ADJUSTMENT FOR MALE FOREIGN STUDENTS

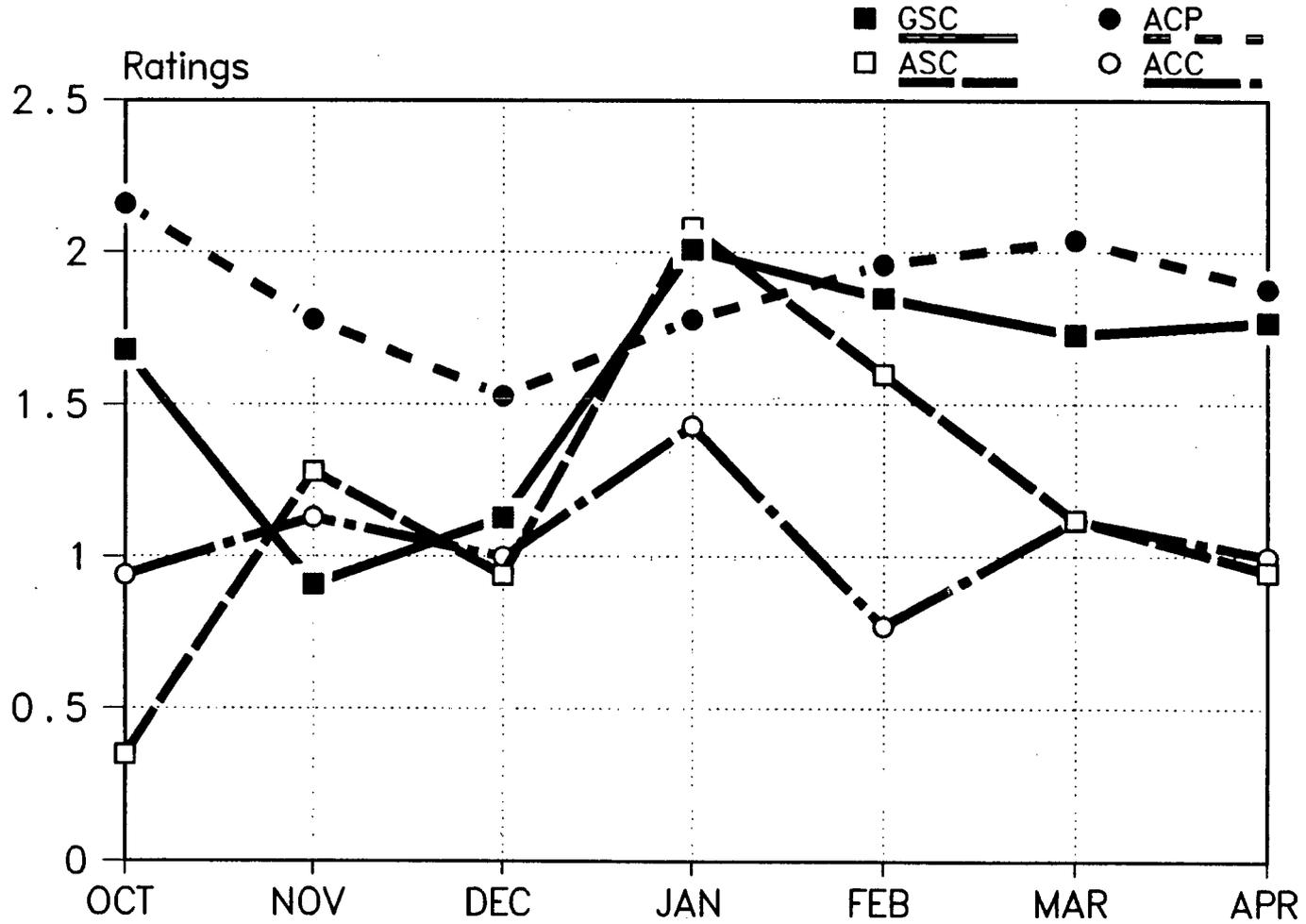


QI GSC- ASC+	QII GSC+ ASC+
QIV GSC - ASC -	QIII GSC+ ASC-

● START  
▲ END

FIG.48

Adjustment Patterns for All Foreign Students



## Appendix VII

### Interviews

The interview lasted anywhere between 15 minutes to 1 hour. These rules were followed:

- 1) The four indices of adjustment (GSC, ASC, ACP, ACC) were used to guide the interview. A maximum of 15 minutes was allocated for discussion of each index. The objective was to find any changes in adjustment with respect to the four indices. The u-curve pattern was tested here.
- 2) Data obtained from the graphs and other analyses would be used to guide in the interviewing of the subject. For example, the reasons for any abrupt changes in graphs, or peculiar numbers in the correlations, would be explored.
- 3) Finally, relationships between GSC and ASC, and ACP and ACC were explored.

## Appendix VIII

Correllations

Correllations were used to assist in the exploration of the relationships between the general and academic self-concepts, and the relationship of those two elements to attitude towards Canadians and attitude towards Canadian culture and society. Various other combinations were analyzed amongst the variables specified. In this step of the analyses, correlations were tested amongst the factors specified by the hypothesis. A computer program, Minitab, was used to test those correlations. Since the numbers of research participants were small, the threshold point for statistically significant correllations had to be set to at least .5.

The correllations were tested according to such a table, for every subject and for "eastern" (6 subjects) and "western" (7 subjects) students. The same procedure was applied for male versus female students.

Gsc	Gsc	Gsc	Asc	Asc	Tsc	Tsc	Tpc	Tpc
and								
Asc	Acp	Acc	Acp	Acc	Acp	Acc	Gsc	Asc

-----  
sn  
-----

sn = a particular subject

The terms are defined as follows:

Gsc: General self-concept

Asc: Academic self-concept

Acp: Attitudes about Canadians

Acc: Attitudes about Canadian culture

Tsc: Total self-concept (collapsed ratings of Gsc and Asc)

Tpc: Total attitudes about people and culture (collapsed ratings for attitudes about people and culture)

Since each subject gave a varying number of data points, we are simply looking for correlations within each subject. Note that this differs from the the analysis of one group of students versus the other; eastern students versus western. Here, we considered the mean rating per month for each subject, as to have a standard number of data points. The ratings given by all subjects were averaged for every month of the study.

Finally the same procedure was applied with collapsing the ratings for the general and academic self concepts and combining them into a category called the "total self-concept". The total self-concept was then correlated with attitude towards Canadians and attitude towards the Canadian culture. The objective of this procedure was to have another way of analyzing the self-concept with the other variables specified.

## Appendix IX

Definition of Terms

**Attitude:** An attitude is our evaluative (positive/negative) feelings toward particular targets such as people, places, ideas, etc (Bem, 1970).

**ACC:** Attitude(s) toward Canadian culture. The evaluative (positive/negative) feelings toward Canadian culture.

**ACP:** Attitude(s) about Canadian people. The evaluative (positive/negative) feelings toward Canadian people.

**ASC:** Academic self-concept. Tied to Ishiyama's self-validation model (1987, 1988) and defined by one's "competance and autonomy" in academic studies.

**Culture Shock:** Oberg's (1960) notion that entering a new culture is a potentially confusing and disorienting experience.

**Eastern Student:** Any student coming from non-European/non-White/non-Anglo-Saxon countries.

**GSC:** General self-concept. GSC is that entity surrounding the five thematic components of Ishiyama's self-validation model (1987, 1988): (1) security, comfort, support, (2) self-worth and self-acceptance, (3) competance and autonomy (4) identity and belonging (5) love, fulfillment and meaning in life.

**Competence and Autonomy:** The third component of the self-validation model (Ishiyama, 1987, 1988) concerned with the areas and

the degree of competence and autonomy experienced in various dimensions of life (i.e., social, vocational, intellectual, physical, financial, etc).

**Identity and Belonging:** The fourth component of the self-validation model (Ishiyama, 1987, 1988) concerned with identity and sense of belonging. In this dimension, how one defines oneself (in terms of work, sexuality, appearance, intellectually, etc.) is closely related to the society and/or culture at large.

**International Student: (Also Foreign Student).** Any person coming as a foreigner to study in a Canadian educational institution or university.

**Love, Fulfillment,**

**and Meaning in Life:** The fifth component of the self-validation model (Ishiyama, 1987, 1988). This dimension is concerned with the central theme in human existence, a holistic dimension of love, fulfillment, and meaning in life. The quality of life is emphasized here.

**Security, Comfort, and Support:** The first component of the

self-validation model (Ishiyama, 1987, 1988) is concerned with the feelings of physical and emotional security and comfort, protectedness, familiarity with the environment, predictability, and social support, among others.

**Self-Worth and Self- Acceptance:** The second component of the self-validation model (Ishiyama, 1987, 1988) concerns itself with the individual's sense of mastery and confidence in specific areas of creativity/talents and general skills for effective communication, self-expression, communication, relationship building and problem-solving.

**Self-Validation:** As defined by Ishiyama (1987, 1988) "...is the process of restoring and re-inforcing the sense of self-worth, meaning in life, and personal identity and competence

through a variety of activities and interactions with the natural and social environments, and transcending these qualities to a spiritual level" (p.7).

**U-Curve Hypothesis:** the u-curve hypothesis (Deutsch & Won, 1963; Dubois, 1956; Gullahorn & Gullahorn, 1963; Jacobson, 1963; Lysgaard, 1955; Sellitz & Cook, 1962; Sewell, Morris & Davidson, 1954), explained the process of cross-cultural adjustment as having three distinct phases: the first being elation and positive feelings towards the host culture followed by negativity, depression and confusion, then finally giving way to the initial feelings of optimism.

**Western Student:** A student coming from Europe or any other white dominated/Anglo-Saxon country (i.e. Australia).