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THE CONSTRUCTION AND VALIDATION OF A MEASURE
OF AMAE NETWORK
by

HIROKO MINAMI

DISSERTATION

Submitted in partial satisfaction of the requirements for the degree of

DOCTOR OF NURSING SCIENCE

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THE CONSTRUCTION AND VALIDATION OF A MEASURE OF

AMAE NETWORK

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ABSTRACT

The purpose of this study was to conceptualize, construct, and validate an instrument to measure the concept of amae network. The amae network was a synthesis of the amae theory proposed by Takeo Doi and the Western concepts of dependency, attachment, symbiosis, intimacy, social network, and social support. "Amae" is a common Japanese word which purports to explain the range of interpersonal dependency from intimacy to pathological dependency.

Based on the conceptual components of the amae network, the 30-item Amae Network Questionnaire (ANQ) was constructed. Content validity was examined by experts in Japanese culture, amae theory, and the concepts of dependency and social support. Utility of the ANQ was examined by 10 adult Japanese women. Based on these analyses, the ANQ was revised.

The ANQ was administered in conjunction with other psychometric instruments to a sample of 482 Japanese female students in classroom settings. Response to the ANQ was quite free from the influence of social desirability response biases. Both internal consistency and test-retest reliability over a ten-day interval were high. The moderate levels of concurrent validity were established by using two instruments as criteria.

Construct validity of the ANQ was examined through five different analyses and resulted in findings that: 1) the ANQ was significantly related to the attitude toward own amae; 2) an analysis of zone differences (intimate, friendship, and social obligation zones) as well as five factor analyses revealed that each zone is a distinct factor which has a unique character; 3) the overall satisfaction with the amae network (ANS) was the best predictor of emotional status, and the relationship of ANS to emotional status was partially dependent on the amae network; and 4) self-esteem was a strong predictor of emotional status and the amae network affected the way in which self-esteem related to anxiety.

In conclusion, the theoretical and statistical evidence support the claims for validity and reliability of the ANQ. The results of this study can be generalized to the extent of Japanese female students between the ages of 18 and 22.

September 28, 1982
Date

Jane S. Norbeck
Jane S. Norbeck, D.N.S., Chair

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CHAPTER I

INTRODUCTION

The purpose of this study was to conceptualize, construct, and validate an instrument to measure the concept of amae network. The amae network is a synthesis of the Japanese notion of amae and the Western concepts of dependency, attachment, symbiosis, intimacy, social network, and social support. Amae is a common Japanese word which purports to explain the range of interpersonal dependency from intimacy to pathological dependency. Amae can not be literally translated into the English language because no equivalent idiomatic expression connotes the nuances of the Japanese expression; therefore the Japanese term of amae is used in this study.

Based on his clinical and cross-cultural experience, Takeo Doi (1956, 1958, 1960a, 1960b, 1962, 1963, 1964, 1966, 1967, 1968, 1969, 1970, 1971, 1972a, 1972b, 1972c, 1975, 1979, 1981), a Japanese psychiatrist, inductively delineated the amae theory. The theory has illuminated sociopsychologic and interpersonal phenomena in adult life in Japanese society and has stimulated other social and behavioral scientists to apply the theory to their domains (e.g., Doi, Turumi, & Kadowaki, 1971; Otuka, Kawashima, & Doi, 1979). It is also speculated that amae phenomena are significantly related to the psychological well-being of Japanese adults (Doi, 1958, 1960b, 1964, 1966, 1969, 1970, 1971, 1972c, 1979).

Amae theory is a product of Doi's ambitious efforts to integrate multidimensional and complex phenomena into one theory by including instincts, needs, emotion, and behavior of the individual; interpersonal

dyadic relationships; and Japanese social system built on the social sanction toward individual and interpersonal amae phenomena (Doi, 1967, 1971, 1979, 1981).

This study adopted two properties of Doi's theory: the world of amae and a perceived amae relationship of the individual to others. The world of amae implicitly refers to Japanese social systems which have been penetrated with the psychology of amae (Doi, 1971, p. 23). Doi defines amae in the form of a verb, "amaeru," which means to "behave self-indulgently, presuming on some special relationship that exists between the two" (1973, p. 28). The goal of amae is thought to be a union of the two (Doi, 1971, 1981; Ohashi, 1980). Primary amae is a feeling derived from amae need (Doi, 1981, p. 216) and close to the concept of "passive object love" (Balint, 1952) which is speculated to be a primary need of human beings as is the amae need. Amae need is synonymously used by Doi (1970, 1979) as dependency needs. Thus an expression of amae can be defined as self-indulgent behaviors presuming on the existence of affectional ties with the other in order to fulfill an individual's dependency needs and wish for a union with the other person. The amae relationship is a phenomenon of interpersonal relationship based on the instinct, needs, and emotion of the individual's amae.

Since there is a theoretical gap between the world of amae which is concerned with the Japanese social system and the amae relationship which is a dyadic relationship, this study was an attempt to bridge that gap by proposing the concept of the amae network and operationalizing constructs of the concept. The concept of amae network is defined as an individual's perception of his or her interpersonal network which

consists of a group of people with whom one has an amae relationship. The amae relationship refers to a presumed relationship which fulfills an individual dependency need and wish for union with the other. The constructs of amae network were synthesized for this study from the following relevant concepts: 1) the structural dimension of amae network was adopted from concepts of social network and social support; 2) the functional dimension of amae network was derived from concepts of dependency, symbiosis, attachment, intimacy, and social support; and 3) the evaluative dimension was delineated from the concept of social support and amae theory.

The goals of this study were to construct an instrument to measure the individual's amae network based on the conceptual constructs derived from a literature review of amae theory and its relevant concepts as described above and to validate the instrument in terms of reliability, utility, and validity. Thus this study involved two stages: tool construction which included content validity and analysis of utility; and tool validation which included the analyses of reliabilities, response biases, concurrent validity, construct validity, and generalizability.

Significance of the Study

The potential significance of this study derives from a) a theory-testing perspective, b) a clinical implication, and c) the need for tools to measure social resources in nursing science.

The theory-testing perspective refers to verification of the concept of amae network which was synthesized broadly from Japanese theory of amae and Western concepts which were relevant to amae. Thus

this study may be useful in testing a part of Doi's amae theory and verifying cross-culturally the concepts of dependency, attachment, intimacy, symbiosis, social network, and social support.

From a more pragmatic perspective, this study may provide information on the relationship of amae network to the psychologic status of the Japanese as does the literature on social support for Western populations.

Numerous reports based on empirical studies of social support have emerged recently. There are two competing hypotheses about the relationship between properties of social support and outcome or effects of social support on the psychologic, physical, and sociologic status of individuals: a) social support serving as a moderator of stress and b) social support having a direct effect on the outcome. The moderator hypothesis has been empirically supported by studies of pregnant women (Nickollos, Cassel, & Kaplan, 1972), unemployed men (Gore, 1978, widows and widowers (Maddison & Walker, 1967), heart attack victims (Finlayson, 1976), hospitalized schizophrenics (Tolsdorf, 1976), and sufferers of anxiety (Pattison, 1979). On the other hand, a direct effect of social support on the relapse rate of schizophrenics was repeatedly supported by empirical studies (Brown, Birley, & Wing, 1972; Leff, 1976; Vaughn & Leff, 1976). Since the amae network was conceptualized to measure a collective of interpersonal relationships of Japanese, the instrument developed in this study may be useful in assisting clinicians in clarifying the psychosociologic problems of their clients in Japanese society as do the instruments to measure social support and social network.

One of the emphases of recent nursing literature is the necessity for developing valid instruments to measure nursing phenomena (e.g., Gortner, Bloch, & Phillips, 1976; Lindeman, 1980; Notter, 1970). In fact, enormous efforts to develop and validate instruments to measure various phenomena pertaining to dependency and social support which are relevant to this study have been reported in nursing literature in the U.S.A. (e.g., Benoliel, McCorkle, & Young, 1980; Brandt & Weinert, 1981; Norbeck, Lindsey, & Carrieri, 1981; Clough & Derdarian, 1980). However, there is no valid instrument to measure these concepts in Japanese nursing for the Japanese society. Thus the instrument developed in this study may be useful to study a nursing phenomenon of social resources for Japanese individuals.

CHAPTER TWO

LITERATURE REVIEW

Since the concept of amae network proposed in this study is conceptualized on the basis of a consideration of Doi's amae theory by comparing and contrasting with relevant concepts, the theoretical and empirical literature pertaining to the concepts of social network, social support, dependence, symbiosis, attachment, and intimacy are incorporated into this review of amae theory. This study adopts only a part of Doi's theory because Doi has been attempting to build a theory of metapsychology and, thus, it is impossible to develop an instrument to measure the entire phenomena of amae. The notions adopted for this study are "the world of amae" (Doi, 1967, 1971, 1981) and "amae relationships" (Doi, 1956, 1960a, 1962, 1963, 1968, 1969, 1970, 1971, 1975, 1979, 1981) which include notions of "amae need" and "wish for a union with the other." Analyses of social support and social network will be reviewed in relation to the world of amae, whereas concepts of dependence, symbiosis, attachment, intimacy, and social support will be reviewed in relation to amae relationships.

In addition, notions of social sanction, an awareness of "jibun" (a Japanese term of self), and developmental changes of amae will be discussed because they are speculated by Doi to influence the amae phenomena in adulthood.

The available instruments to measure constructs of dependence, symbiosis, attachment, intimacy, social network, and social support will be analyzed separately in the second part of this chapter.

Amae Theory and Relevant Concepts

The World of Amae

Having speculated that "amae is a key concept for the understanding not only the psychological makeup of the individual Japanese but of the structure of Japanese society as a whole" (Doi, 1978, p. 28), Doi (1967, 1971) has adopted Japanese psychosociologic terms to describe the framework of amae. Based on his description, four zones of the sociocultural framework of amae can be identified: a) blood-kin relationships called "miuchi" which means literally "inside of the body"; b) psychosociologic kinship called "miuchi-no-yona" which means individuals who are perceived as "like miuchi" by an individual; c) "giri" relationships which refer to a bond of moral and social obligation accompanied by the feelings of debt; and d) non-social involvement called "tanin" which means literally "others" or "strangers." Instead of analyzing the psychosociologic system from a formal organizational point of view, Doi analyzes it through an individual's perception. His approach to the phenomenon is very similar to the self-report method of social network and social support analyses.

Pattison and Pattison (1981) identify five zones of the social system from an individual's point of view: a) personal zone, b) intimate zone, c) effective zone, d) nominal zone, and e) extended zone. The first and second zones in both Doi and Pattison's analyses are similar except for the emphasis on the family relationship in Doi's model and on the same dwelling in Pattison's model. The third zone in Doi's model is compatible with the third to fifth zones in Pattison's model. Doi's model is concerned with the perception of social obligation of an individual, whereas Pattison's model is concerned

rather with the degree of distance in the relationships. The fifth zone in Doi's model is unique in its inclusion of a zero point for amae phenomena, whereas the Pattison model does not include a zero point for social support.

The Pattisons define the first and second zones of social relations as the "intimate psychosocial network" and propose that it presents a fundamental social unit of existence. Their idea of an intimate psychosocial network is also compatible with Doi's model. According to Doi's model, the first two zones are called "uchi" which refers to the inner, whereas the latter two are called "soto" which refers to the outer. Amae generally is observed in "uchi." A key difference between Doi's model and the Pattisons' is the role of Doi's third zone. The psychosocial mechanism which differentiates between "uchi" and "giri relationships" is the presence or degree of "enryo" which is translated as "restraint" or "holding back." There is a certain degree of "enryo" in the "giri relationships"; however, it is assumed that amae becomes a catalyst to change individuals in the third zone to the second zone by overcoming "enryo" which is considered undesirable. Therefore, it can be concluded that amae phenomena occur in the first three zones of Doi's model although most social network analyses focus on the intimate psychosocial network which is compatible with the first two zones of Doi's model (i.e., Barrera, 1981; Brandt & Weinert, 1981; Henderson, Byrne, Duncan-Jones, Adcock, Scott, & Steele, 1978; Lin, Dean, & Ensel, 1981; Norbeck, Lindsey, & Carrieri, 1981).

Amae Relationship

As described in Chapter I, Doi's definition of amae consists of notions of presumed relationship, amae needs, goal of the relationship, and self-indulgent behaviors. Amae relationship as reviewed in this section includes only the first three notions. It excludes the notion of self-indulgent behaviors because it is almost impossible to identify any behaviors which are specific to amae. For example, the following scene can be frequently observed in a Japanese home and can be interpreted as amae behavior.

A man who has taken off from his work due to a flu with slight fever and physical discomfort is demanding his wife to bring food and the newspaper to his bed although he knows that she is occupied with taking care of their one-year-old baby.

Thus, an amae relationship is defined in this study as a presumed relationship which fulfills the amae need of an individual.

Although Doi uses amae need synonymously as dependence need (1969, 1970, 1979), amae need is described rather teleologically as "wish for a union with the other" and dependence need is viewed rather as phenomenological description of responses (1979, p. 174). In this sense, Doi (1970, p. 47; 1970, p. 174) assumes that the dependence need or amae need is the primary and basic need of human beings which motivates the ego to develop meaningful object relationships. This position is considered to be different from some neo-Freudian positions and from social learning theory in which the dependence need is regarded as secondary need or drive (Bandura & Walters, 1962; Doi, 1970; Parens & Saul, 1971).

Amae need is also conceptualized as a need to be loved (Doi, 1970, p. 60) and thus it is regarded as synonymous to "passive object love" or primary love proposed by Balint (cited in Doi, 1970, 1971). Morsbach and Tyler (1976) stated that "put into Freudian parlance, amae expresses the desire 'to seek restoration of the once-lost quasi-union of mother and infant,' or 'the oceanic feelings'" (p. 130). In this sense, amae is person-oriented dependence rather than task-oriented dependence according to Bandura and Walter's distinction (1962). Thus, concepts of attachment and intimacy are relevant to amae model because both focus on enduring proximity with strong affectional bonds (Bowlby, 1978; Erikson, 1963; Sullivan, 1953)(Table 2.1). However, the phenomenon of attachment or intimacy is observed only in the relationships between an individual and a few persons. The person-oriented dependency includes more than a few in order to seek approval and help from them (Bandura & Walters, 1962); the same is true of amae relationships. What a person seeks from others is identified by Takahashi (1968) as five modes of dependence: 1) seeking physical proximity; 2) seeking attention; 3) seeking help; 4) seeking assurance; and 5) seeking psychic support.

However, the fulfillment of dependence is not the only goal of amae; it also includes carrying out one's wish for a union with the other (Ohashi, 1980, p. 423). It is practically impossible to become one with the other, but the feelings of togetherness (Okonogi, 1968), physical intimacy (Morris, 1971) and cohesion (Waring, Tillman, Frelick, Russell, & Weisz, 1980) could be increased to a certain point. In this sense, the concept of symbiosis is also relevant to amae relationships. Stierlin (1959) defines symbiosis as "a relationship of intense interdependence between two people having the potential of becoming

Table 2.1
Larger Definitions of Amae, Dependence, Symbiosis, Attachment,
Intimacy, and Social Network and Social Support

Amae (Amaeru)	Dependence	Symbiosis
Doi, 1973: "to behave self-indulgently, presuming on some special relationship that exists between the two" (p. 28). The goal of amae is to become a union of the two.	Murray, 1938: Succorance which involves demand for food, affectional nurturance, and the associated caretaking activities characterized in the mother-child relationship. Bandura & Walters, 1962: a class of responses that are capable of eliciting positive attending and ministering responses from others. Sears, 1963: one of the most significant, enduring, and pervasive qualities of human behavior. From birth to old age it influences the form of all dyadic relationships.	Mahler et al, 1975: an intrapsychic condition; a feature of primitive cognitive-affective life wherein the differentiation between self and mother has not taken place, or where regression to that self-object undifferentiated state has occurred (p. 8). Stierlin, 1959: a relationship of intense interdependence between two people, having the potential of becoming mutually beneficial or harmful or both.
Attachment	Intimacy	Social Network
Bowlby, 1978: Attachment behavior is any form of behavior that results in a person attaining or retaining proximity to some other differentiated and preferred individual, who is usually conceived as stronger and/or wiser. Gerwirtz, 1976: one individual's involvement in what is typically a two-person, sequenced, mutual-influence process in which that individual's responses have come under the control of cue stimuli provided by the appearance and responses of another person.	Erikson, 1963: the capacity to commit oneself to concrete affiliations and partnerships and to develop the ethical strength to abide by such commitments, even though they may call for significant sacrifices and compromises. Sullivan, 1953: type of situation involving two people which permits validation of all components of personal worth.	Kahn, 1978: Convoy: each person moves through the life cycle surrounded by a set of significant other people to whom that person is related by giving or receiving of social support. Mitchell, 1969: a specific set of linkages among a defined group of persons, with the additional property that the characteristics of these linkages may be used to interpret the social behavior of the persons involved.

mutually beneficial or harmful or both" (p. 143). The notions of undifferentiation between oneself and the other and disapproval of other relationships are parts of symbiosis (Summer, 1977, 1978). The notion of separation difficulty derives both from symbiosis (Summer, 1978) and attachment (Bowlby, 1978).

In summary, an amae relationship comprises both what an individual seeks from the other and what he or she seeks with the other.

It can be assumed that the world of amae is a collective of amae relationships of an individual so that the amae world provides structural characteristics of the amae phenomena and amae relationships provide information of functional characteristics. In this sense, the relationship between social network and social support has a similar pattern; that is, social network as structural and social support as functional (Hammer, 1981; Mitchell & Trickett, 1980). The similarities and differences between social network and the world of amae were analyzed in the previous section. A comparison of components of dependence with that of social support shows that they are also very similar (Table 2.2). The components of dependence are identified by analyzing what an individual seeks, whereas the components of social support are conceptualized as what an individual receives. Thus, what one receives as social support may be related to what one seeks in a dependent relationship. What is missing in both concepts of social support and dependence is a dimension of what one seeks with others in the relationship. The notion of wish for a union with the other which is speculated to be the goal of amae relationships provides an idea of what one shares with the other in the relationship as previously described.

Table 2.2
Component Characteristics of Concepts of
Dependence and Social Support

Dependence		Social Support	
Takashi, 1968	Clough & Derdarian, 1980	Weiss, 1974	Kahn, 1978
Behavior seeking for	Behavior seeking for	Provisions of social relationships including	Interpersonal transac- tions including
physical proximity	physical contact proximity	(attachment)	
attention	attention	social integration	affirmation of behaviors, perceptions, and views
help	help, physical help	sense of reliable alliance obtaining guidance	aid
assurance	recognition, praise, and approval	reassurance of worth	affect (feeling respec- ted or admired)
psychic support	(proximity)	attachment	affect (feeling liked or loved)
		opportunity for nurturance	(notion that social sup- port involves giving or receiving)

Influential Factors

Reviewing literature of amae theory reveals that there are three factors which are considered to influence or to be related to the world of amae and amae relationships. These factors are a) social sanction toward amae, b) awareness of "jibun" (self), and c) developmental changes of amae. These factors will be reviewed through incorporation with the concepts of dependency, attachment, symbiosis, social support, and social network.

Social sanction toward amae. A range of self-indulgent behavior which overtly seeks dependent relationships is accepted and institutionalized even in adulthood in Japanese society in contrast with the Western culture where independence and self-reliance are strongly expected in adult relationships (Hsu, 1961; Neki, 1973; Parens & Saul, 1971). Having compared the Japanese culture with the Western culture, Doi (1962) points out that there must be a social sanction in the Japanese society for expressing the amae behavior. He states that "it must be this social sanction that has encouraged in the Japanese language vocabulary relating to amaeru" (p. 136). Some cross-cultural studies of dependence between Japanese Americans and Caucasian Americans (Arkoff, 1959; Babcock, 1961; Furuta, 1981; Johnson, 1977; Johnson & Johnson, Note 1; Meredith, 1966) show that Japanese Americans, even second and third generations, overtly manifest more dependent behavior than Caucasian Americans. In Japanese American society, there seems to be a positive social sanction toward dependence although there is some evidence of acculturation in the second and third generations in that members hardly know the term "amae."

Is the phenomenon of amae specific to the Japanese culture? Doi (1971) speculates that amae is a universal phenomenon. Having lived in

the United States and Israel, this investigator has also observed amae phenomena in these countries more or less (Minami, Note 2, Note 3). However, the phenomena which were thought of as amae by this writer were labelled as friendship, mentorship, colleagueship, intimacy, attachment, love, pathological dependence, passive-aggression, symbiotic, and so on by people at these sites. They were not aware of the core phenomenon (amae) among these terms.

Amae phenomena receive a wide range of value reactions even in Japanese society. Some such as Doi basically have ambivalent feelings toward amae and others such as Okonogi basically have positive feelings.

Doi (1971) postulates that amae is necessary to develop an appropriate relationship between mother and child as well as that between adults at the onset of any relation, and then, that amae has to be overcome in the maturation and socialization process for the individual has to learn to accept the fact of separation and cope with the pain accompanied with separation.

Okonogi (1968) claims that amae relationships are observed in healthy or normal relationships in which one enjoys "togetherness" with the other, for amae in adulthood is a form of adaptation to the interpersonal environment in order to increase the feeling of security and satisfaction.

Thus an individual's attitude toward amae phenomena that is reflected from social sanction of the society may play an important role to determine his or her practice of amae.

Awareness of "jibun". In psychoanalytic theory, the development of ego or self is significantly related to the object-relationship. In the amae theory, the awareness of "jibun," a Japanese expression of the

self, has specific roles in the development of amae relationships. Doi elaborates "jibun" as follows:

The world of "jibun," which is very rich in its implications, has concrete connotations quite different from the abstract feel of words such as "jiga" and "jiko" that are used to translate Western concepts of "self" or "ego." It is this that makes possible phrases such as "jibun ga aru" (he has a self) or "jibun ga nai" (he has no self). (1973, p. 19)

"Jibun" is thus a personified self which can be consciously grasped by the subject as a concrete entity.

It is assumed that the human being begins to be involved with the other on the basis of one's own potential amae and then becomes aware of the existence of oneself, "jibun" (Doi, 1960a). Although the origin and developmental processes of "jibun" itself are not clear in his writing, Doi views that the awareness of "jibun" (he has a self or he has no self) is more directly related to the manifestation of amae than "jibun" itself to amae phenomena.

How do amae and awareness of "jibun" relate to each other? Ohashi, (1981) infers a dialectical relation between amae and awareness of "jibun." The awareness of "jibun" is assumed to emerge when, at the mercy of amae, one begins to observe the object separately from oneself and to realize that the object is an independent existence and different from oneself (Doi, 1960a). It is postulated that the awareness of "jibun," thus does not emerge from any of the following situations: 1) when the wish to "amaeru" has been suppressed and is unconscious; 2) when the wish to a "amaeru" has been left as it is without introspection; and 3) when amae behavior has not been effectively working in the interpersonal situations (Doi, 1960a).

On the other hand, awareness of "jibun" has a role in controlling amae behavior as Doi speculates that "a man who has a 'jibun' is capable of checking amae, while a man who is at the mercy of 'amae' has no 'jibun'" (1973, p. 19). Therefore, the mature individual who is aware of "I have a self" may engage in new relationships on the basis of amae behavior which then becomes consciously controlled by "jibun." In this sense, "jibun" is viewed as similar to Erikson's ego identity (Ohashi, 1980, p. 443). A difference between the amae model and Erikson's theory is that amae and awareness of "jibun" are conceptualized as a dialectical relation, whereas a sense of ego identity and intimacy are conceptualized as sequential in human development. In the literature of dependence, there is some empirical evidence of the relationship between dependence and ego strength, self-esteem or self-confidence. For example, Nacev (1980) studied the relationships between dependence, ego strength, and attendance in psychotherapy with 100 patients who received psychotherapy and found that there was an inverse correlation between dependence and ego strength which was independent of attendance in psychotherapy.

In the literature of social support, the role of self is not clear whether self-esteem is a rival concept explaining the adequacy of social support or whether it is an outcome of social support. Heller (1979) and Mitchell & Trickett (1980) pointed out that social competence may be a rival concept of social support. Hirsh (1980) found that self-esteem was significantly correlated with satisfaction with social support variables.

Thus the world of amae for an individual and amae relationships may be correlated with an awareness of "jibun" or self-esteem or ego

strength although the relationship between "jibun" and ego strength is unknown.

Developmental changes of amae. The amae phenomenon emerges in the first year of life and continues to be observed through the life span. Based on the clinical observation, Doi postulates that the origin of amae is the infant's desire to be close to its mother who, it has come vaguely to realize, is a separate existence from itself (1973, p. 75). Doi further infers as follows:

. . .the amae psychology works to foster a sense of oneness between mother and child. In this sense, the amae mentality could be defined as the attempt to deny the fact of separation that is such inseparable part of human existence and to obliterate the pain of separation (1973, p. 75).

In the literature of dependence, symbiosis, and attachment, the mother-child relationship is the origin of meaningful relationships in adulthood (Ainsworth, Blehar, Waters, & Wall, 1978; Gewirtz, 1972; Mahler, 1958; Pollock, 1964; Sullivan, 1953). According to Erikson's developmental theory (1963), the capacity of basic trust which is obtained in the first year of life through the mother-infant relationship becomes a base for the capacity of intimacy which is obtained in young adulthood.

However, it is unclear how amae changes over time as an individual grows (Nishizono, 1968). The relationship between amae and independence is also unclear (Nishizono, 1978), but the underlying assumption of the amae theory appears to be that independence is viewed as interdependence in adulthood which is considered to be the matured state of amae (Doi, 1979).

In regard to concepts of dependence and independence, there are different theoretical positions. First, both are viewed as developmental

goals, each of which has to be achieved at different times (Mahler, 1958). Second, the notion of independence is viewed as an altered or matured state of dependence (Eguchi, 1966). Third, concepts of independence and dependence are distinct entities so that interdependence is the manifestation of balance between them (McIntier, 1976). There are only a few studies of life-long perspectives of dependence, symbiosis, attachment, or intimacy.

Takahashi (1968a, 1968b, 1970, 1973, 1974) has examined developmental changes in objects and modes of dependent behavior for 168 college, 349 high school, and 249 junior high school female students. Her findings indicate that adolescent and young females have a strong dependency motive and that this remains constant. What changed across her samples were: 1) Objects on whom one is dependent change over time; 2) the object's roles become more clearly differentiated as one matures; and 3) the number of objects decreases as women mature. That is, the closest friend of the same sex, less important for junior high school subjects, became the most important object for high school subjects, but among college subjects it was not as important. The importance of a love object increased as subjects mature.

Kogan and Moss (1960), in their longitudinal study of 27 females and 27 males, found that passive and dependent behaviors were fairly stable for females but not for males. They explain this phenomenon as the effect of parental and peer group reactions toward passive and dependent behavior in children over the time of their developmental process in which males are punished for their dependent behavior and females are encouraged to be passive. Ferguson (1980) supports this speculation after having extensively reviewed the literature of male dependence.

Fujiwara and Kurokawa (1981) recently developed an instrument to measure the amount of amae expressed by an individual for different situations and different objects and validated it with a sample of Japanese students (n = 286). Their study resulted in findings that women expressed more amae than men.

In a longitudinal study of two samples of 534 mentally ill elderly and 600 elderly community residents, Lowenthal (1968) reported that the existence of a confidant was the one significant difference between those old people who were able to live "normally" in the community and those who landed in the psychiatric ward. The existence of a confidant provides the resource of intimacy which appears to be a critical variable for the mental health of the elderly.

These studies suggest that amae of an individual changes as the person grows and that women express their amae more openly than men at the same age.

Summary

Concepts of social network and social support are incorporated into a review of the notion of the amae world, whereas concepts of dependence, symbiosis, attachment, intimacy, and social support are incorporated into a review of amae relationships. The world of amae and amae relationships have a similar relationship between social network which provides structural information and social support which provides functional information.

Amae relationships include not only what an individual seeks from the other, but also what he or she seeks with the other. As influential factors on the world of amae and the amae relationship, social sanction

toward amae, awareness of "jibun," and developmental changes of amae are reviewed.

There is, however, a significant gap in our knowledge between the world of amae and the amae relationship. The concept of amae network proposed in this study is an attempt to bridge this conceptual gap. However, the amae theory itself does not provide properties which can be operationalized. Thus, constructs of the amae network were synthesized by reviewing the available instruments of relevant concepts of social network, social support, dependence, symbiosis, attachment, and intimacy.

Measurement of Amae and Relevant Concepts

There was no instrument to measure any aspect of amae phenomena until very recently. One instrument was used to quantify amae expressed by an individual for different situations and different objects (Fujisawa & Kurokawa, 1981). This scale was developed empirically by asking subjects to categorize 97 expressions for interpersonal relations into eight groups in which one was related to amae; then ten amae-related terms were selected. Total score for these ten items was counted as quantity of amae. Thus constructs of these terms were not conceptually or empirically identified. The reliability and validity of this scale was not reported. Since this scale is the only existing measure which directly quantifies amae, the operationalization of amae theory is just beginning.

On the other hand, new instruments to measure concepts of social network, social support, dependency, symbiosis, attachment, and intimacy have been recently emerging. These instruments are reviewed in the this

section in terms of conceptualization of constructs and reliability and validity of each tool. The relationships of the constructs derived from these concepts to amae world and amae relationship as well as the methodological problems of these instruments will be discussed in the last part of this section.

Instruments of Social Network and Social Support

A vast increase in the literature pertaining to the relationship between concepts of social network and social support and the psychological and physical health status of individuals has stimulated investigators to develop valid instruments to measure the concepts of social network and social support (Barrera, 1981; Brandt & Weinert, 1981; Hirsch, 1980; Henderson et al., 1978; Lin et al., 1981; Norbeck et al., 1981; Pattison & Pattison, 1981; Sokolovsky & Cohen, 1981).

The Pattison Psychosocial Network Inventory. This instrument has been developed by Pattison and his associates to determine the psychodynamic social system that comprises the primary social matrix of the individual (Pattison, 1977a; 1977b: Pattison, Defrancisco, Wood, Frazier, & Crowder, 1975; Pattison, Ilamas, & Hurd, 1979; Pattison & Pattison, 1981). Based on various social network functions, the investigators have identified seven components of social network based on various social network frameworks: size, relationships, contact, emotional intensity, positive and negative feelings, instrumental base, and reciprocity.

They studied different samples such as a national sample of normal population and samples of populations with psychological problems. However, there is no description of sampling methods, numbers of

subjects, or characteristics of the study populations. The data collection method was self-administered questionnaires. The validity and reliability of the instrument were not reported.

The Norbeck Social Support Questionnaire (NSSQ). The NSSQ was developed by Norbeck and her associates (1981, Note 4) using Kahn's definition of social support and his notion of "convoy" as a basis (Kahn, Note 5). The components of the instrument include three dimensions of social support: total functional consisting of affect, affirmation, and aid; total network consisting of size, duration, and frequency; and total loss, referring to recent losses of important relationships. The instrument is intended for eventual use with clinical populations.

The investigators administered this self-report questionnaire to three samples of graduate students ($n = 135$) in nursing and employed adults ($n = 136$). High test-retest reliability (.85 to .92 for functional and network items and .83 to .71 for loss items) and high level of internal consistency (.97 between the two affect items, .96 between the two affirmation items, and .89 between the two aid items) were found. The high level of inner-factor correlation among functional elements of social support, especially between affect and affirmation (range .95 to .98), may suggest that these two functions may not be distinct. Response bias of social desirability was ruled out. Concurrent validity of the NSSQ was supported by testing correlations with another social support instrument. Baseline data about amount and type of support available for adults were obtained. Evidence for construct validity of the instrument was found through comparison of the NSSQ with convergent and discriminant constructs. Predictive validity

was tested through assessing the buffering effect of social support on measures of negative mood following life stress.

Interview Schedule for Social Interaction. Henderson and associates are working on the on-going development of an instrument to measure the concept of social support which is based on a modification of Weiss's definition of "provisions" of social relationships (Duncan-Jones, Note 6; Henderson, 1980; Henderson & Byrne, 1977; Henderson et al, 1978). This instrument consists of two dimensions: availability and adequacy of support. The components of support include social integration, attachment, reassurance of worth, reliable alliance, and frankness and confiding. The instrument was administered originally to various populations for extensive pilot studies; then it was administered to 756 respondents in the general population in Australia in 1977. The data were obtained by interview and analyzed by confirmatory factor analysis.

Reliability coefficients (Cronbach's alpha) and test-retest reliability at an interval of four months were moderate. Components in which reliability were lower than .50 in Cronbach's alpha were "availability of reassurance of worth," "availability of reliable alliance," and "adequacy of reliable alliance." The result of factor analysis indicated 1) that dimensions of availability and adequacy of attachment and social integration could be empirically distinguished, 2) that dimensions of availability and adequacy of reassurance of worth and reliable alliance could be also distinguished, 3) that dimensions of social integration, reassurance of worth, and reliable alliance could be merged into a single dimension of social integration, and 4) that the dimensions of availability were empirically quite distinct but the

dimensions of adequacy were much more highly inter-correlated, indicating that presence of a general factor of perception of the adequacy of social relationships.

The Personal Resources Questionnaire (PRQ). The PRQ was developed by Brandt and Weinert (1981) to measure the concept of social support. Their theoretical basis is a synthesis of concepts with strong emphasis on Weiss's model of social relationships. The instrument consists of two parts: Part I includes a) the type of resources available, b) the presence of a confidant, and c) satisfaction with these resources; and Part II includes items measuring intimacy, social integration, nurturance, worth, and assistance as well as Self-help Ideology items developed at Harvard University.

The instrument was administered by mail to a sample of 149 adult white middle-class spouses of individuals with multiple sclerosis. A high level of internal consistency for Part II was obtained (Cronbach's alpha .89) and moderate levels for the dimensional subscales (.61 to .77). Adequacy in content validity and a moderate level of criterion-related validity were obtained. Significant correlations between the Self-help Ideology items and Weiss's dimensions of intimacy, social integration, and assistance were found, supporting some evidence of construct validity. In the intercorrelations among Weiss's dimensions, moderate intercorrelations (range .58-.62) were obtained except in the case of nurturance; this suggests that the dimension of nurturance seems to be an independent scale but that some overlap of other scales may exist.

Natural Support Systems. Hirsch (1979, 1980, 1981) has developed an instrument to measure natural support systems based on a literature

review of social network analysis. The instrument includes scales to measure structural characteristics (size, density, and multidimensionality in friendships) and five variables of satisfactory support systems (socializing, cognitive guidance, tangible assistance, social reinforcement, and emotional support). A combination of self-report questionnaires and an in-depth interview was administered to two samples: a) 32 college students (16 males and 16 females), and b) mature female students ($n = 14$) and recent widows ($n = 20$).

Intercorrelations among the five support scales were low (.22) to moderate (.51) and those between cognitive guidance and the other four scales were low, indicating that the scale of cognitive guidance is distinct from the others.

Both structural variables and satisfaction with social support were strongly associated with other measures of social support and mental health. Density was significantly correlated with the other structural variables of size and multidimensionality. There is no report of the reliability of the instrument.

Social Support Scales. Lin, Dean, and Ensel (1981) developed an instrument which includes four groups of social support items: 1) the Madalie-Goldbourt family problem items, 2) the Lowenthal-Haven-Kaplan confidant items, 3) neighborhood and community satisfaction items, and 4) instrumental-expressive support items.

A sample of 99 adults, predominantly white women, was interviewed by using the Social Support Scales in conjunction with two instruments to measure psychiatric symptomatology, a questionnaire about selected sociodemographic variables, and an instrument to measure stressful life events. Reliability of the four groups of social support items were

computed in terms of internal consistency among items of each group. High correlations among the family problem items (.59 to .76) and among the neighborhood and community satisfaction items (.67) indicate that each group of items is homogenous. The confidant items were not found to be a unidimensional scale. A factor analysis of the instrumental-expressive items indicated five factors: monetary problems, lack of companionship, demand, communication problems, and no children. The first two factors were considered to comprise an instrumental scale and the others, an expressive scale.

Zero-order correlations between independent variables (sociodemographic variables, stressful life events, and social support scales) and the depression scale were computed and regression analyses were used to validate the scales and modeling process with the result which suggests that "objective support (income) and social support (mostly instrumental, but also satisfaction with the community and neighborhood) have a much greater effect on depression than stressful life events" (p. 83).

The Network Analysis Profile. Sokolovsky and Cohen (1981) developed the Network Analysis Profile to measure social interaction among residents in single room occupancy hotels. The instrument which consists of three basic dimensions of social networks (member attributes, linkage attributes, and network attributes) was administered by a combination of interview and participant observation. The interrater reliability was high: .83-.92, but validity of the instrument was not reported.

The strengths of the instrument are its ability to provide quantitative and qualitative data, and to include objective and

subjective information about linkages. The weakness of the instrument is its limited use to a specific setting such as single room occupancy hotels.

The Inventory of Socially Supportive Behaviors (ISSB) and The Arizona Social Support Interview Schedule (ASSIS). The ISSB was developed to measure the activities involved in the provision of support such as activities directed at assisting others in mastering emotional distress, sharing tasks, giving advice, teaching skills, and providing material aids (Barrera, 1981). The ASSIS was developed to measure social support network indices and subjects' satisfaction with and need for support. Support functions include material aid, physical assistance, intimate interaction, guidance, feedback, and social participation (Barrera, 1981; Barrera, Sandler, & Ramsay, 1981). The social support network indices make a distinction between supportive network members and those who are, in addition, sources of interpersonal conflict.

High internal consistency (Cronbach's alpha .94) and high test-retest reliability ($r = .88$, $p < .001$) of the ISSB were obtained at a two-day interval with 71 university students. The ASSIS was administered to a sample of 45 university students. Test-retest reliability (range .54-.88) and internal consistency (range .33-.52) were not as high as the ISSB, but they showed moderate levels except for internal consistency of the satisfaction measure (Cronbach's alpha = .33).

Concurrent validity of the ISSB was measured with another instrument of perceived supportiveness on a sample of 45 students and resulted in a significant but moderately low correlation between the two

instruments ($r = .36$, $p < .01$). Correlations between the ASSIS and the the ISSB were a) significant but low between total network size and ISSB ($r = .32$, $p < .05$), and b) not significant between support satisfaction or need and the ISSB. The results suggest that the ASSIS and the ISSB measure unique features of support.

In order to validate these two social support instruments, a sample of 86 pregnant adolescents were interviewed with other tools to measure demographic variables, negative life events, and maladjustment (total symptomatology, depression, anxiety, and somatization). The maladjustment scales were used as criterion variables.

Reliability of the ASSIS, especially support satisfaction (Cronbach's $\alpha = .50$) and support need (Cronbach's $\alpha = .70$), was better than the results with student populations. In relationships between social support and life events measures, support variables were at best only mildly related to each other and to stressful life events.

Zero-order correlations and multiple regression analyses between social support and adjustment scales suggested that: network size shows the stress-buffering effect of social support; drawing a distinction between the conflicted and unconflicted network members is important in relation to symptomatology; and satisfaction and need for support are the strongest predictors of symptomatology.

Instruments of Dependence

Although the importance of the concept of dependence has been acknowledged in the theoretical and clinical literature, only a few instruments to measure psychological and interpersonal dependence in

adulthood have been developed (Eguchi, 1966; Hirschfeld, Klerman, Gough, Barrett, Korchin, & Chodoff, 1977).

Most of the early scales are either a modification of existing personality inventories such as Navran's Dy Scale modified from the MMPI (1954) or use a part of existing instruments such as the Edwards Personal Preference Scale (Zuckerman, 1958), the Interpersonal Checklist (La Forge & Suczek, 1955), and the California Psychological Inventory (Gough, 1969). Projective psychological instruments such as TAT and Rorshach were also used to measure the dependence (Kogan & Mussen, 1956; Zuckerman, Levitt, & Lubin, 1961). It can be summarized that none of them adequately assesses interpersonal dependence because of their focuses on personality trait (Eguchi, 1966; Hirschfeld et al., 1977).

Recently two instruments to measure directly the phenomenon of interpersonal dependence have emerged. The following section is an analysis of these two instruments.

A Behavioral Checklist. The Behavioral Checklist, constructed to measure the fluctuations in dependence and independence in the hospital situation, was developed by Clough and Derdarian (1980) by identifying adult behaviors which fit into each component specified by Beller (1957) in defining dependence and independence in children. The tool consists of two major sections: dependence and independence. Both sections consist of five components, but only the components of dependence will be cited here: seeks physical contact, seeks proximity, seeks attention, seeks help, and seeks recognition, praise, and approval. This checklist was devised to measure, through direct observation, changes in psychological and physical dependence and independence levels of hospitalized patients.

This observational checklist was tested on an orthopedic ward using a sample of 26 patients before and after hospitalization for surgery. Interrater reliability was 95 percent among four raters and content validity was determined by experts.

The limitations of this instrument are its use of restricted hospital settings, especially pre- and postsurgical situations; there is limited information of validity and reliability of the instrument; and it is difficult to avoid biases of observers. The strengths of this instrument are these: appropriate use in clinical settings; measurement of dynamic phenomenon of fluctuations between dependence-independence; and well-delineated components.

The Measure of Interpersonal Dependence. This 48-item self-report inventory which assesses interpersonal dependency in adults has been developed by Hirschfeld and his associates (1977) on the basis of factor analysis of a 98-item tool in a preliminary inventory by using a sample of 220 college students and 180 psychiatric patients. Three components of interpersonal dependency emerged: emotional reliance on another person, lack of social self-confidence, and assertion of autonomy. Split-half reliabilities of these three components were .87, .78, and .72 respectively.

Intercorrelations among these three components were .42 ($n = 400$) between lack of social self-confidence and emotional reliance on another person, $-.23$ between emotional reliance on another person and assertion of autonomy, and $-.08$ between lack of social self-confidence and assertion of autonomy which indicate that these components seem to be relatively distinct.

Correlation among these three scales and social desirability, depression, anxiety, general neuroticism, interpersonal sensitivity, and two sociodemographic variables (age and education) resulted in modest correlations between two dependence scales (the first two scales) and other variables such as depression, anxiety, neuroticism, social desirability, and interpersonal sensitivity.

The psychiatric patients scored significantly higher ($p < .01$) on the scales for emotional reliance on another person and lack of social self-confidence, but the difference on assertion of autonomy was not significant.

In order to obtain cross-validation and scale consistency, the tool was administered to two new samples: 121 normals and 66 psychiatric outpatients. The results indicate that the instrument has a high level of reliability; a modest level of concurrent validity with other psychological instruments; distinct constructs of three scales (emotional reliance on another person which reflects both attachment and dependency, lack of social self-confidence which reflects dependency, and assertion of autonomy which denies either attachment or dependence); and validated constructs with different kinds of populations such as normal and psychiatric.

The limitations of this instrument are the lack of knowledge of the linkage or weight between these components and the strictly "within-person," but not interactional approach.

Instruments of Symbiosis

The concepts of symbiosis in human relationships had not been operationalized until Summer (1978) proposed a manual for the

measurement of symbiosis in a dyadic relationship to the degree that either party has some difficulty perceiving himself as a separate, distinct individual. Six component variables of symbiosis have been identified: undifferentiation, intrusiveness, separation difficulty, disapproval of other relationships, dependency, and injunctions.

The manual consists of two methods to collect data: projective tests by using a picture test such as TAT and Rorschach and in-depth interview of pairs of subjects.

Two studies were conducted with 1) a sample of 42 families of schizophrenics, hospitalized non-schizophrenic mental patients, and normals and 24 siblings of the index subjects, and 2) a sample of families of young schizophrenics ($n = 17$), non-schizophrenic mental patients ($n = 14$), and normals ($n = 15$). Interrater agreement was 91 percent (80.2% to 100%) for the projective tests in the first sample. The second study showed similar results of interrater reliability.

The validity of the tool was examined by comparing the scores of different populations. On mother-child dyads, the scores distinguished mothers of schizophrenics from both other groups of mothers and schizophrenics from their counterparts in both other groups. This manual is still being developed so that no further data of reliability and validity are available.

Instruments of Attachment

Since the notion of lifespan attachment has only recently been proposed (Antonucci, 1976; Bowlby, 1977), there have been only a few attempts to operationalize the concept of attachment in adulthood (Knudtson, 1976; Troll & Smith, 1976).

Troll and Smith (1976) have identified three dyadic attachment indices: contiguity which consists of residential propinquity and body contact; communication which consists of frequency of interaction, mutuality of interaction, and goals or purposes of interaction; and reactions to separation which consists of strength of affect, dreams, and forgetting.

In their pilot study to examine preliminary scales for measuring dyadic attachment and family integration, Troll and Smith (1972) studied a sample of graduate students and their kin (12 men and 12 women respondents reporting on 12 persons each). There is no report of reliability and validity of the instrument.

Instruments of Intimacy

Despite various efforts to operationalize intimacy (Lowenthal, 1976; Morris, 1971), there are only a few valid instruments to measure the concept of intimacy. Waring and his associates (Waring, McElrath, Lefcoe, & Wriz, 1981; Waring, Malrath, Mitchell, & Derry, 1981) have been developing an instrument to measure the concept of intimacy based on two studies: an unstructured interview with a sample of 50 normal adults and a standardized interview with a sample of 24 couples attending a psychiatric out-patient facility with marital and/or individual psychiatric symptoms and a control group of 24 nonclinical couples.

The results indicate that: 1) self-disclosure, expression of affection, compatibility, cohesion, identity, and the ability to resolve conflict are important aspects of intimacy; 2) sexual satisfaction is less important than previous definitions of intimacy have suggested; and

3) the perception of one's own parents' intimacy seems to influence the subject's own intimate relationships.

Summary

Instruments to measure concepts of social network, social support, dependence, symbiosis, attachment, and intimacy have just begun to be developed recently so that there is not "a valid instrument" to measure each concept. However, one can see a promising direction in the process of instrument development.

Methodological progress by using more appropriate statistical analyses and criterion measurements is noticed in reports of reliability and validity of these instruments. Samples used in these studies were varied: the single use of normal populations such as undergraduate and graduate students or of people with physical and/or psychological problems; or the use of both normal populations and people with psychological problems. There is no study which used randomization in its sampling. Although age of sample is important because of maturational differences, few studies examine the issue (i.e., Hirsch, 1979, 1980). Characteristics of "normal" populations used in these studies were homogenous in terms of age, sex, social class, ethnic background, and educational level except for the study of Henderson and his associates, and possibly Pattison's study. There has been no cross-cultural validation of the instruments discussed.

Methods of data collection also varied from a rather simple self-administered questionnaire to a combination of an extensive interview and a self-report diary of three weeks duration. In order to

use an instrument in clinical settings (a goal of this study) it is necessary to reduce the complexity of data collection.

The content of these instruments includes three dimensions: structural, functional, and evaluative. The structural dimension is seen mainly in the instruments of social network which consists of the components of size, relationship, duration, frequency of contact, density, distance, and change (Table 2.3). The components of size, duration, density, multidimensionality, and change seem to be distinct ones according to the studies (Hirsch, 1979, 1980, 1981; Lin et al., 1981; Pattison, 1977). An instrument of attachment includes distance, contact, and change (Troll & Smith, 1976).

An issue concerning the instruments to measure social network is a question of how an instrument sets up the framework of social network. As Mitchell and Trickett (1980) point out, many instruments begin to ask subjects to list people who are "important" or "significant" to them. It is unknown how the term "important" or "significant" persons affects the rest of the responses. Instead, some instruments do not ask this overall question, but ask subjects to list people who are involved with more specific events or components of support (e.g., Barrera, 1981; Brandt & Weinert, 1981; Cohen & Sokolovsky, 1981; Henderson et al., 1978). It is unknown which method is more valid.

The functional dimension includes surprisingly similar components in the instruments of dependence, symbiosis, attachment, intimacy, and social support as shown in Table 2.4a and 2.4b. These components are 1) affectional component such as intimacy, affect, attachment, and emotional support; 2) social integration such as affirmation, socializing, social participation, and sharing tasks; 3) opportunity for

Table 2.3
Structural Components in Measurements of Social Network

Pattison 1981	Norbeck et al. 1981	Hirsch 1981	Cohen & Sokolovsky 1981	Lin et al. 1981
SIZE				
size (up to 55)	size (up to 20)	size	size	(confidant to 3)
RELATIONS				
9 categories	9 categories	4 categories	3 categories	confidants
DURATION				
duration	duration		duration	durability
FREQUENCY				
contact	frequency		last saw visual contact telephone time of day visit room meet in lounge	
DENSITY				
	overall NF-F boundary		density	density directness intensity
CHANGE				
improving-worsening	recent loss		monthly-seasonal	change in confidants in the past year
multidimensionality in friendships				

Table 2.4a
Functional Components and Evaluative Dimension in Measurement
of the Concepts of Social Support

Brandt & Weinert 1981	Norbeck et al. 1981	Henderson et al. 1978	Barrera et al. 1981	Lin et al. 1981
intimacy	affect	attachment	intimate interaction	lack of companion- ship
social integration	affirmation	social integration frank and confiding	social participation	communication prob- lems
nurturance				no children
worth	affect	worth	feedback	demand
assistance	aid	reliable alliance physical assistance guidance	material aid	monetary problems
satisfaction with support*		adequacy of support components*	satisfaction with components* conflicted vs. un- conflicted*	community-neighbor- hood satisfaction*

*Evaluative dimension

Table 2.4b
Functional Components and Evaluative Dimension in Measurements of Concepts:
Dependence, Symbiosis, Attachment, and Intimacy

Clough and Derdarian (1980)	Summer (1978)	Troll & Smith (1976)	Waring et al. (1981)
(Dependence)	(Symbiosis)	(Attachment)	(Intimacy)
seek physical contact		body contact	sexuality
seek proximity	undifferentiation	residential propinquity	affection expressiveness
seek attention	intrusiveness		cohesion
seek help	dependency		conflict resolution
seek recognition, praise, and approval	injunctions	communication compatibility	identity

	separation-difficulty disapproval of other relationships	reaction to separation	autonomy

nurturance; 4) reassurance such as reassurance of worth, being respected, social reinforcement; 5) cognitive guidance, and 6) material aid. Based on previously reported studies, these components seem to be distinct.

The evaluative dimension includes "satisfaction with support," "adequacy of support," mutuality or reciprocity, positive vs. negative feelings, conflicted vs. unconflicted support members, and community-neighborhood satisfaction. These are content of the evaluative dimension which seems to have overall criterion value on the phenomena of symbiosis, attachment, intimacy, and social support (see Table 2.4a, p. 38, and 2.4b, p. 39).

Some studies indicate the importance of interaction among these three dimensions in relation to stressful life events and psychological well-being of individuals (e.g., Barrera, 1981; Henderson et al., 1978; Hirsch, 1979, 1980; Lin et al., 1981).

Thus the structural, functional, and evaluative dimensions as well as the interactions among them will be taken into consideration in developing an instrument of amae network.

CHAPTER THREE

TOOL CONSTRUCTION

Having reviewed the literature of amae theory and its relevant concepts in the previous chapter, this investigator proposed the concept of amae network by synthesizing from Japanese concepts of amae world and amae relationships and the Western concepts of dependency, attachment, symbiosis, intimacy, social network, and social support. Based on the conceptual components of the amae network, an instrument to measure the amae network was constructed and named the Amae Network Questionnaire (ANQ). The content validity of the instrument was examined by experts in Japanese culture, amae theory, concepts of dependency, and social support. The utility of the ANQ and the internal consistency of the items for each conceptual component were examined by administering the instrument by mail to ten Japanese adult women. The results of the content validity and preliminary testing of the ANQ were used to revise the ANQ. This chapter presents the process of construction of the ANQ. The first section presents the conceptual components of the amae network and their operational definitions. The ANQ is described in terms of format and content in the second section. The third and fourth sections report the process and results of content validity and preliminary testing of the ANQ. The last section describes the process of revising the ANQ.

Conceptual Components of the Amae Network

The conceptual base of this study derived from two notions of Doi's amae theory: the world of amae and amae relationships. The concept of

amae network which is proposed by this investigator in this study was an attempt to integrate these two notions of Doi's theory and to synthesize a new concept by comparing and contrasting them with relevant concepts of dependence, symbiosis, attachment, intimacy, social network, and social support as described in the previous chapter.

The amae network is defined in this study as a group of people with whom an individual presumes to have amae relationships. An amae relationship is defined as an individual's relationship to the other who is perceived as fulfilling his or her dependence needs and wish for union with the other person and his or her subjective evaluation of the relationship.

The concept of amae network was developed around three dimensions: structural, functional, and evaluative as presented in Table 3.1. The structural dimension was based on the concept of social network since Doi's notion of amae world is basically compatible with social network analysis. Components of the structural dimension of the amae network are size of the network, living distance, duration of the relationship, and frequency of contact. The functional dimension of the amae network was based on a synthesis of Doi's notions of "presuming on the special relationship between the two," "amae need," and "wish for a union with the other" with the concepts of dependence, symbiosis, attachment, intimacy, and social support. This dimension consists of two constructs which are a) "presumed relationship which fulfills dependency needs of the individual" (dependency construct) and b) "a presumed relationship which fulfills the individual's wish for a union with the other" (wish-for-oneness construct). The dependency construct consists of five components: attention, reassurance, affection, nurturance, and aid

Table 3.1
Relationship of Dimensions, Constructs, and Components
and Items of the ANQ

Dimension	Construct	Components	Number of Questions
Structural Dimension	Structure	Size of Network	1
		Living Distance	1
		Duration of the Relationship	1
		Frequency of Contact	1
Functional	Dependency	Attention	3
		Reassurance	4
		Affection	3
		Nurturance	5
		Aid	5
Dimension	Wish-for-oneness	Physical Proximity	2
		Emotional Proximity	6
		Cohesion	4
		Self-disclosure	4
Evaluative Dimension	Evaluation	Overall Satisfaction	1
		Satisfaction	4
		Psychosocial Proximity	5

which are derived from the concepts of dependence and social support. The wish-for-oneness construct consists of four components: physical proximity, emotional proximity, cohesion, and self-disclosure which were adopted from the concepts of dependency, symbiosis, attachment, and intimacy.

Apart from these three dimensions, an analysis of the notion of the amae world reveals zones which refer to the perceived distance from an individual to other persons. The zones are representative of three levels: Zone 1 (intimate zone), Zone 2 (friendship zone), and Zone 3 ("giri" [social obligation] zone). As illustrated in Figure 3.1, each zone possesses the properties of the three dimensions (structural, functional, and evaluative) of the amae network.

Figure 3.1
Relationship of Amae Network Dimensions and Zones

Zone	Amae Network Dimension		
	Structural	Functional	Evaluative
Zone 1	Zone 1-structural	Zone 1-functional	Zone 1-evaluative
Zone 2	Zone 2-structural	Zone 2-functional	Zone 2-evaluative
Zone 3	Zone 3-structural	Zone 3-functional	Zone 3-evaluative

These dimensions, constructs, and components of the amae network including the notion of zones are incorporated into an instrument named the "Amae Network Questionnaire" which was constructed by this investigator.

Attached to the Amae Network Questionnaire was the Amae Attitude Scale (AAS), also constructed by this investigator, to measure an individual's attitude toward amae phenomena. This scale was constructed to examine the construct validity of the ANQ because it was thought that

there would be a correlation between the ANQ and AAS. The AAS consists of two constructs: the individual's attitude toward one's own amae (Own Amae) and the individual's attitude toward amae in general (General Amae). The conceptual basis of this scale is the idea of social sanction for amae which was discussed in the previous chapter (see pp. 14-15).

Operational definitions of the components of the amae network are listed as follows:

Structural dimension.

Size of network: The number of people who are perceived as amae network members by an individual.

Living distance: Geographic distance from the individual to an amae network member.

Duration of the relationship: Length of time of the relationship which the individual has had with the amae network member.

Frequency of contact: The frequency of contact which the individual has had with the amae network member.

Dependency construct of the functional dimension. An individual's belief in the existence of a relationship which would provide the following components:

Attention: The amae network member's sensitivity to and concern for the individual.

Reassurance: The feelings of being accepted and approved by the amae network member.

Affection: The feelings of being like or cared for by the amae network member.

Nurturance: The feelings of being protected and encouragement for the individual's growth by the amae network member.

Aid: The availability of provision for economic and physical help as well as cognitive guidance.

Wish-for-oneness construct of the functional dimension. The individual's belief in the existence of the relationship which would provide the following components:

Physical proximity: The experience or possibility of mutual experience of body contacts such as holding hands or touching shoulders.

Emotional proximity: The experience of feeling togetherness and enjoyment of being together or sharing time.

Cohesion: The experience of commitment to the relationship.

Self-disclosure: The sharing of personal feelings and beliefs.

Evaluative dimension. The adequacy of provision for the following:

Satisfaction: The individual's and dissatisfaction satisfaction with the relationship.

Psychosocial proximity: The individual possibility or actual experience of "amaeru" and "enryo" (holding back or restraint).

Overall satisfaction: Overall satisfaction of the individual with the amae network as a whole.

Zones.

Zone 1: The amae network members who are perceived as close "miuchi" (blood kinship) or those who are perceived as "miuchi" without blood relationships.

Zone 2: Amae network members who are perceived as not-so-close "miuchi" (blood kinship) or as friends by the individual.

Zone 3: Amae network members whose relationships are mainly based on giri (social obligation).

Amae attitude.

Own amae: The individual's attitude toward his or her own amae behavior.

General amae: The individual's attitude toward amae in general.

Description of the ANQ and the AAS

Based on the conceptual components of the amae network and the individual's attitude toward amae phenomena, the Amae Network Questionnaire and the Amae Attitude Scale were constructed to present a complex test in a simplified form to respondents for self-administration.

The Amae Network Questionnaire (ANQ)

The basic idea of the format for the ANQ was adopted from the previous work of the Norbeck Social Support Questionnaire (Norbeck et al., 1981). For the ANQ, the subject is first asked to complete a card by recalling "all persons who encounter with you often in your life or who are important to you." In listing these network members, the subject uses only his or her usual calling name such as nickname, initial, or first or last name and may list up to 20 persons. To assure confidentiality, this card is detached from the questionnaire and is not

handed in when the subject completes the ANQ. An example of the network list is provided in the instructions on the first page of the ANQ.

After listing the network members, the subject is directed to turn the first page. On the next and succeeding pages four questions are presented, and numbered spaces for ratings correspond horizontally with the entries on the network list as illustrated in Figure 3.2. In each question, the respondent is asked to rate each of the network members on a Likert scale. The questions and Likert scales are presented in Table 3.2.

Based on the operational definition of each component of the amae network, at least one question was written for the component by selecting the closest Japanese term to the operational definition. A question was developed to measure each component of the structural dimension. Twenty questions were developed to measure the components of the dependency construct and sixteen questions were developed to measure the components of the wish-for-oneness construct. The evaluative dimension consisted of nine questions. The notion of zone was measured by calculating scores obtained from responses for questions of psychological proximity which were parts of the evaluative dimension. The relationship of constructs, components, and number of questions of the ANQ are presented in Table 3.1 (see p. 43).

The Amae Attitude Scale (AAS)

The AAS has a seven-point Likert format and is composed of 20 items rated from 7 (strongly agree) to 1 (strongly disagree). Since the AAS has two constructs (Own Amae and General Amae) as described in the previous section, each construct has ten items which are presented in Table 3.3.

Figure 3.2
Sample Page from the ANQ

(Are numbers on the card arranged to match numbers on the answer sheet?)

Please answer each question for each person by using the following numbers:

1 = not at all, 2	Calling Name*	4 = quite a bit, 5 = a great deal
Question 5:	Please list all persons with whom you associate in everyday life and/or who are important to you.	Question 7; Question 8:
Do you usually feel this person is concerned about you? How much do you feel so?		Is it important for you to get attention from this person? How much do you so? Do you usually feel this person accepts you as you are? How much do you feel so?
1. _____	1. _____	1. _____
2. _____	2. _____	2. _____
3. _____	3. _____	3. _____
4. _____	4. _____	4. _____
5. _____	5. _____	5. _____
6. _____	6. _____	6. _____
7. _____	7. _____	7. _____
8. _____	8. _____	8. _____
9. _____	9. _____	9. _____
10. _____	10. _____	10. _____
11. _____	11. _____	11. _____
12. _____	12. _____	12. _____
13. _____	13. _____	13. _____
14. _____	14. _____	14. _____
15. _____	15. _____	15. _____
16. _____	16. _____	16. _____
17. _____	17. _____	17. _____
18. _____	18. _____	18. _____
19. _____	19. _____	19. _____
20. _____	20. _____	20. _____

*This is a card detached from the ANQ and placed next to each question when a subject responds to the question.

Table 3.2
Questions for Rating¹ Amae Network Members on the ANQ

Question Number	Question (Amae Network Component)
1.	Please indicate the kind of relationship you have with each person whom you listed on the card. (Size of network).
2.	Does this person live in your household now? (Living distance)
3.	How long have you known this person? (Duration of relationship)
4.	How frequently do you have contact with this person? (Frequency of contact)
5.	Do you usually feel this person is concerned about you? How much do you feel so? (Attention)
6.	Do you usually feel this person is sensitive to your feelings? How much do you feel so? (Attention)
7.	Is it important for you to get attention from this person? How much do you feel so? (Attention)
8.	Do you usually feel this person accepts you as you are? How much do you feel so? (Reassurance)
9.	Do you usually feel this person acknowledges your work? How much do you feel so? (Reassurance)
10.	Do you usually feel this person allows you to behave as you want? How much do you feel so? (Reassurance)
11.	Do you feel it is important for you to get approval from this person? How much do you feel so? (Reassurance)
12.	Do you usually feel this person likes you? How much do you feel so? (Affection)
13.	Do you usually feel this person thinks of you as important? How much do you feel so? (Affection)
14.	Do you feel it is important for your to be liked by this person? How much do you feel so? (Affection)
15.	Do you think this person has helped you to grow? How much do you feel so? (Nurturance)
16.	Do you think this person is helpful in your accomplishing work or study? How much do you feel so? (Nurturance)
17.	Do you usually feel this person encourages you to grow? How much do you feel so? (Nurturance)
18.	Do you feel this person would protect you from making mistakes in your life? How much do you feel so? (Nurturance)
19.	Do you think this person is your role model in your life? How much do you feel so? (Nurturance)
20.	Do you think this person would help you economically when you were in trouble? How much do you think so? (Aid)
21.	Do you think this person would take care of your daily living activities when you had to be in bed for a week? How much do you think so? (Aid)
22.	Do you think this person would help you in daily living activities when you had to be in bed for three months due to illness? (Aid)
23.	Do you think this person would help you in making an important decision related to your personal life? How much do you think so? (Aid)
24.	Do you think this person would help you in making an important decision in your work or study? How much do you think so? (Aid)
25.	How much do you touch the body of this person (like holding hands, patting on the shoulder, etc.)? (Physical proximity)
26.	Do you like to hold hands or pat on the shoulder with this person? How much do you feel so? (Physical proximity)
27.	Do you ever feel you and this person share the feeling of togetherness? How much do you feel so? (Emotional proximity)
28.	Do you usually spend time together with this person? How much do you do so? (Emotional proximity)
29.	Do you like to be together with this person? How much do you feel so? (Emotional proximity)
30.	How often does it happen that you and this person spend time longer than planned or expected? (Emotional proximity)
31.	Do you usually feel comfortable when you are together? How much do you feel so? (Emotional proximity)
32.	Do you usually feel secure to be with this person? How much do you feel so? (Emotional proximity)
33.	Do you feel you have an obligation ("on" or "giri") to this person? How much do you feel so? (Cohesion)
34.	Do you feel like getting out of the relationship with this person? How much do you feel so? (Cohesion)
35.	Do you want to keep the relationship with this person? How much do you feel so? (Cohesion)
36.	Do you think you are loyal to the relationship with this person? How much do you feel so? (Cohesion)
37.	Do you feel you can talk about yourself to this person? How much do you feel so? (Self-disclosure)
38.	Do you usually feel this person understands about you? How much do you feel so? (Self-disclosure)
39.	Do you feel this person knows you well? How much do you feel so? (Self-disclosure)
40.	Do you share your feelings, thoughts, or beliefs with this person? How much do you do so? (Self-disclosure)
41.	Are you satisfied with the relationship with this person? How much do you feel so? (Satisfaction)
42.	Do you get tired of the relationship with this person? How much do you feel so? (Satisfaction)
43.	Do you get irritated with this person? How much do you feel so? (Satisfaction)
44.	Do you usually enjoy your relationship with this person? How much do you feel so? (Satisfaction)
45.	Do you usually feel you can amaeru to this person? How much do you feel so? (Psychosocial proximity)
46.	Are you in amae on this person now? How much do you feel so? (Psychosocial proximity)
47.	Is this person usually amae on you? How much do you feel so? (Psychosocial proximity)
48.	Do you feel you have "enryo" (feelings of holding back) or "kigane" (restraint) toward this person? How much do you feel so? (Psychosocial proximity)
49.	Do you feel this person has "enryo" or "kigane" toward you? How much do you feel so? (Psychosocial proximity)
50.	Are you satisfied with your relationships with these people as a whole? How much do you feel so? (Overall satisfaction)

¹ Ratings were based on a five-point rating scale specified for each question, except for Question 1 which asked a subject to specify oneself; Question 2 which had a dichotomous scale of yes and no; Question 3 which ranged from 1 (less than 6 months) to 5 (more than 5 years); Question 4 which ranged from 1 (once a year or less) to 5 (daily); and Question 5 to 50 which ranged from 1 (not at all) to 5 (a great deal). Question 50 was not applied for every network member but for the amae network as a whole.

Table 3.3
Items for Ratings on the Amae Attitude Scale

Ratings were based on a 7-point rating scale, ranged from 1 (strongly disagree) to 7 (strongly agree).

Item Number	Statement
1.	One can amaeru only in childhood. (GA) ¹
2.	One's amae will easily cause mistakes in his/her work or study. (GA)
3.	Amae makes interpersonal relationships smooth. (GA)
4.	I am rather "amai" (indulgent) with myself. (GA)
5.	I am rather "amai" to others. (OA)
6.	Women amaeru more than men. (GA)
7.	Men amaeru more than women. (GA)
8.	I amaeru to others more than usual. (OA)
9.	I tend to be amaerareru (passive voice of amaeru) by others. (OA)
10.	I amaeru rather too much. (OA)
11.	I amaeru depending on the person. (OA)
12.	It is rather difficult for me to amaeru to "miuchi" (blook-kin). (OA)
13.	I often amaeru to my "miuchi." (OA)
14.	I sometimes amaeru to rather "tanin" (stranger). (OA)
15.	It is good to see two persons who amaeru to each other. (GA)
16.	Adults are usually out of amae. (GA)
17.	I am not aware of my amae when I amaeru to others. (OA)
18.	People are not aware of their own amae in general. (GA)
19.	Amae makes one selfish. (GA)
20.	One has to go beyond one's own amae as one matures. (GA)

¹(GA) refers to General Amae.

(OA) refers to Own Amae.

Content Validity

A test has validity if it measures what it proposes to measure (Allen & Yen , 1979, p. 95). Content validity is one of three major types of validity including criterion-related validity and construct validity which will be examined in Chapter IV. Nunnally and Durham (1975) state that ". . .inevitably content validity rests mainly upon appeals to reason regarding the adequacy with which important content has been sampled and on the adequacy with which the content has been case in the form of test items" (p. 295). There are two types of content validity: face validity which "is established when a person examines the test and concludes that it measures the relevant trait" and logical or sampling validity which "involves the careful definition of the domain of behaviors to be measured by a test and the logical design of items to cover all the important areas of this domain" (Allen & Yen, 1979, p. 96). Content validity of the Amae Network Questionnaire was examined by experts in the fields of Japanese culture, amae theory, concepts of dependency, and social support.

Objectives

Content validity of the ANQ was examined by addressing the following three questions:

Question 1: Does the ANQ appeal to reason regarding the adequacy of important content which has appeared?

Question 2: Does the content of amae network adequately appear on the items of the ANQ?

Question 3: Which items adequately represent the conceptual component as intended?

Since the questions for the structural dimension of the amae network were worded in a straight forward manner based on operational definitions, these four items were excluded from this analysis. Therefore, only the items for the functional and evaluative dimensions were examined in this analysis except for the overall satisfaction item in the evaluative dimension which was excluded. The items which would obtain reasonable agreement on the adequate conceptual component were planned to be adopted in the revised ANQ.

Procedure

Content validity of the ANQ involved two types of analysis: face validity and sampling validity. Face validity was examined by experts in the fields of amae theory and Japanese culture, while sampling validity was analyzed by experts in amae theory, dependency, and social support, areas from which major components of the amae network were derived. The first group of experts including two anthropologists who are well-known experts in Japanese culture and one psychiatrist who has expertise in amae theory were approached by this investigator and asked to examine the ANQ for face validity. They received an abstract of the research proposal of this study in addition to the copies of the ANQ. The second group of experts included one psychologist whose expertise was in the concept of dependency, one psychiatrist whose expertise was in Japanese families, and another six psychiatrists whose expertise was in amae theory or who had written at least one article pertaining to the notion of amae. All were Japanese. In addition, a nurse faculty member from the UCSF School of Nursing whose expertise was in social support and five candidates for degrees in Doctor of Nursing Science whose

interest was in social network and social support were approached by this investigator and asked to examine the ANQ for adequacy of sampling validity. Japanese experts received a list of randomly arranged questions of the ANQ in Japanese and a table of conceptual components with space for answers, and they were asked to match the questions of the ANQ with the conceptual components. Two Japanese experts responded to the request. One withdrew from participation in the study because of time constraints on another enterprise. One could not respond due to his death. And four did not respond at all. All the experts in social network and social support responded to the requests.

Results

Two experts who thoroughly examined the face validity of the ANQ concluded that the concept of amae network was logically derived from the relevant concepts and the ANQ appeared to measure the relevant traits of the amae network. Therefore, the face validity of the ANQ was established.

In terms of the sampling validity of the ANQ items, eight experts including one in the concept of dependency, one in amae theory, and six in social support responded to the requests by matching the ANQ items with the conceptual components of amae network. Compared with the conceptual intention of this investigator, the psychiatrist whose expertise was in amae theory agreed with 20 items out of 45, while the psychologist whose expertise was in dependency agreed on only 14 items. The experts in social support received a list of 40 items excluding five items which were bound in the Japanese language. The nurse who had also developed an instrument to measure the concept of social support agreed

on 30 items. Since the ANQ was constructed in Japanese, the judgement made by each of the Japanese experts was weighed equal to the judgement made by more than four of six experts in social support. Social support experts group agreed upon 21 items of 40 in the list. The items that obtained full agreement from three groups of experts were five, while all the five items that were examined only by Japanese experts obtained agreement from both. Thus ten items of 45 obtained full agreement. The items that obtained agreement from two groups of experts were nine, while the items that obtained agreement from only one person or group were ten. Therefore, 29 out of 45 items had agreement from at least one expert or group of experts, indicating a promising direction since the revised ANQ was planned to have 25 or fewer items for the functional and evaluative dimensions.

However, sixteen items did not receive any agreement from these experts. These items were Questions 5, 8, 10, 13, 16, 18, 27, 28, 29, 30, 31, 32, 34, 35, 38, and 39 and were excluded or modified for the revised ANQ.

In terms of the validity of the conceptual components, the only component that obtained agreement on less than half of the items was the component of emotional proximity. Thus the sampling validity of the ANQ was concluded as reasonably adequate. In regard to the component of emotional proximity, the result was very poor. In fact, none of the six items were considered to relate directly to emotional proximity. Most experts regarded these items as psychosocial proximity or satisfaction indices. This result prompted the speculation of two possibilities: First, the terms "psychosocial proximity" and "emotional proximity" were difficult to differentiate. Second, the Japanese expression "omou" used

for "to feel" was not adequate because this term could also be interpreted "to think." In fact, the amae theory expert labelled 20 items either as psychosocial proximity or satisfaction items. Both were components of the evaluative dimension. Therefore, this result suggested that the concept of psychosocial proximity needed to change and the use of the Japanese term "Omou" had to be rethought.

In summary, the face validity of the ANQ was established by two experts. Sampling validity of the ANQ resulted in a promising direction by indicating more than two-thirds of the items could be used for the revised ANQ. In terms of the conceptual components of the amae network which exclude the structural dimension, all but one component had more than two items that were identified as adequate by these experts. The component of emotional proximity that had six items did not get any agreement from the experts. The reasons this component had no agreement were speculated and suggestions were made for revising the instrument.

Preliminary Testing of the ANQ

Preliminary testing of the original ANQ was done with a small sample of Japanese women in order to examine the level of utility of the tool and to analyze the internal consistency among the items within the conceptual components.

Objectives

The aims of this analysis were to examine the level of utility of the instrument and to examine the internal consistency of the items within the conceptual components. The purpose of this analysis was to refine the ANQ by increasing the feasibility of administration,

minimizing the measurement error and selecting homogenous items for a the conceptual component. The level of utility was examined in terms of the following questions:

1. How long does a subject take to complete the ANQ?
2. How difficult or easy is it for subjects to understand the ANQ?
3. Are there any words or terms used in the ANQ that are too difficult for people in general to understand?

Questions 2 and 3 were related to the level of ambiguity and misunderstanding in words used, content of items, and the format of the ANQ.

The internal consistency was analyzed by computing the correlations among items of the conceptual components of the amae network. The results of this analysis were designed to be used for revising the ANQ.

Process of Data Collection

A convenience sample was obtained from 14 Japanese women living in the U.S.A. who were acquaintances of this investigator. Verbal consent was obtained from all subjects who then received a packet of instruments by mail. In addition to the ANQ, the subjects were asked to respond to a five-item self-report which included questions concerning length of time spent in completing the ANQ and the degree of difficulty or ease in understanding words used, content of items, and the format of the ANQ (Appendix A).

Ten of the 14 subjects completed the questionnaire and returned it to the investigator by mail. Since these subjects were acquaintances of this investigator, no demographic information was requested in order to

assure anonymity of the subjects. Subjects who were approached were heterogeneous in terms of age, social class, length of stay in the U.S.A., marital status, and geographical location of hometown except for the fact that they were all Japanese women who grew up in Japan at least until high school age. Some of them were in their early twenties while a few were more than 55 years old. A few had been in this country for less than six months, while some had been away from Japan for more than five years. In order to get a large variation of responses for this preliminary analysis, this heterogeneous sample was chosen.

Results

Since this analysis had two objectives, the results are reported separately.

Utility. The average length of time spent completing the ANQ was 109 minutes (range 45 to 270 minutes). Seven subjects completed it within 100 minutes. Subjective feelings toward the length of time required varied from "not so long" to "too long." These comments did not relate to the actual time spent as reported by the subjects. A subject who spent more than four hours felt it was "not so long," while another who spent less time felt it was "too long." Five subjects felt the tool was "a little long," while two felt it was "too long." Thus the 50-item ANQ needed to be shortened as was expected.

Half of the subjects thought the form was "easy" or "not so difficult" while the other half thought it was "a little difficult." Since the subjects in this analysis did not get verbal explanations of the questionnaire, they did not have an opportunity for clarification by

question. Therefore, the result suggested that a verbal explanation prior to administration of the questionnaire might help subjects understand the format more clearly.

Most of the subjects were puzzled by the similarity of some items and could not differentiate one from another. Some of these items were from the same conceptual component and others were from different components. The items that derived from a single component and troubled the subjects were: Question 38 ("Do you usually feel this person understands about you?") and Question 39 ("Do you feel this person knows you well?"); Question 13 ("Do you usually feel this person thinks of you as important?") and Question 12 ("Do you usually feel this person likes you?"); Question 15 ("Do you think this person has helped you to grow?") and Question 16 ("Do you think this person is helpful in your accomplishing work or study?"). The items from different conceptual components that troubled subjects were: Question 26 ("Do you like to hold hands or pat on the shoulders with this person?") and Question 31 ("Do you usually feel comfortable when you are together?"); Question 8 ("Do you usually feel this person accepts you as you are?") and Question 38 ("Do you usually feel this person understands about you?"); and Question 5 ("Do you usually feel this person is concerned about you?") and Question 9 ("Do you usually feel this person acknowledges your work?"). Thus, the result of this analysis helped to exclude some items which seemed to cause subjects trouble in differentiating the components of the amae network.

One subject pointed out that Questions 19, 28, and 38 were not relevant if children of the subject were included in the list of network members.

In terms of wording, it was pointed out that the terms "accept," "sensitive," and "loyalty" were difficult and more professional in the Japanese language.

In summary, the 50-item ANQ was considered to be long. When the ANQ was shortened, the items with similar content and those with terms difficult for subjects were excluded.

Internal Consistency of the Items

Internal consistency of the items within the same component of the amae network was examined by computing a Pearson correlation coefficient matrix of the items. Since the components of the structural dimension of the amae network had only one item per component and the component of overall satisfaction had only one item, these items were excluded from this analysis.

Table 3.4 presents a matrix of dependency items. Pearson correlation coefficients were examined for each component with a criterion of at least .75 for each pair. The items of attention had high correlations among them as did the items of affection. One item of reassurance (Question 9) had lower correlations with other items as did Question 18 of nurturance. Among the aid items, Question 20 did not have high correlation with any other items, while each pair between 21 and 22 as well as between 23 and 24 had relatively high correlations. Thus, among the dependency items, Questions 9, 18, and 20 had to be reconsidered.

Table 3.5 presents a matrix of wish-for-oneness items. All but the conceptual components had relatively high correlations among items for each component. However, the cohesion items were not related to each other at all. Thus it was suggested that these items be reconsidered.

Table 3.4
Pearson Correlations among Items of
Dependency Components
(n = 10)

Attention

Item	5	6	7
5	1.0		
6	.94	1.0	
7	.81	.80	1.0

Reassurance

Item	8	9	10	11
8	1.0			
9	.64	1.0		
10	.74	.38	1.0	
11	.91	.51	.88	1.0

Affection

Item	12	13	14
12	1.0		
13	.93	1.0	
14	.86	.87	1.0

Nurturance

Item	15	16	17	18	19
15	1.0				
16	.82	1.0			
17	.88	.90	1.0		
18	.63	.89	.74	1.0	
19	.86	.87	.86	.80	1.0

Aid

Item	20	21	22	23	24
20	1.0				
21	.29	1.0			
22	.39	.87	1.0		
23	.56	.71	.66	1.0	
24	.62	.56	.55	.97	1.0

Table 3.5
Pearson Correlations among Items of
Wish-for-oneness Components
(n = 10)

Physical Proximity

Item	25	26
25	1.0	
26	.76	1.0

Emotional Proximity

Item	27	28	29	30	31	32
27	1.0					
28	.89	1.0				
29	.81	.75	1.0			
30	.84	.70	.74	1.0		
31	.90	.78	.94	.84	1.0	
32	.94	.83	.89	.87	.94	1.0

Cohesion

Item	33	34	35	36
33	1.0			
34	.38	1.0		
35	.52	.05	1.0	
36	.31	-.14	.49	1.0

Self-disclosure

Item	37	38	39	40
37	1.0			
38	.83	1.0		
39	.73	.82	1.0	
40	.62	.74	.85	1.0

Table 3.6 presents a matrix of two groups of the evaluative dimension. The first group was the component of satisfaction and the second group was the component of psychosocial proximity. Among the satisfaction items, Questions 41 and 44 measured "satisfaction," and Questions 42 and 43 measured "dissatisfaction." Each pair had a high level of correlation. Among the psychosocial proximity items, Questions 45, 46, and 47 were supposed to measure "amaeru" and Questions 48 and 49 were intended to measure "enryo." Items within each component had relatively high correlations except for enryo items. Thus it was suggested that the enryo items needed to be modified for the revised ANQ.

In terms of zone differentiation, Questions 45 and 49 were designed to measure the different zones in addition to measuring psychosocial proximity. However, the results of the preliminary examination indicated that these items measured rather indirect phenomenon of zone. Thus it was suggested that another way to measure the zones needed to be devised.

In summary, the preliminary analysis of the ANQ with ten Japanese adult women indicated that 1) length of time spent on filling out the ANQ was generally too long; 2) some items confused subjects and the content of some items was difficult to understand; and 3) there were items that were very similar to each other and the subjects were confused by these minor differences. The results suggested that the items that measured the zone differences were not adequate and that adequate items needed to be devised for the revised ANQ. Having taken the small size of the sample into consideration, the results of this

Table 3.6
Pearson Correlations among the Items of
Evaluative Components
(n = 10)

Satisfaction

Items	41	42	43	44
41	1.0			
42	.09	1.0		
43	.37	.78	1.0	
44	.91	.22	.42	1.0

Items 41 and 44 are satisfaction items while Items 42 and 43 are dissatisfaction items.

Psychosocial Proximity

Item	45	46	47	48	49
45	1.0				
46	.84	1.0			
47	.61	.85	1.0		
48	.42	.14	-.07	1.0	
49	.76	.55	.25	.64	1.0

Items 45, 46, and 47 above are "amaeru" items while Items 48 and 49 are "enryo" items.

analysis were not considered at all conclusive; however, it did provide some suggestions to this investigator for refining the ANQ.

Tool Refinement

Based on the results of content validity and the preliminary analysis of the tool, the ANQ was revised by discarding and modifying some original items and adding new items. However, the format of the ANQ was not changed although it was recognized that some people might have problems understanding it. Instead, it was decided that a verbal explanation of the format would be provided prior to administration of the ANQ. Major goals of tool refinement were: 1) to decrease the length of time needed for filling out the ANQ to about 40 minutes; 2) to exclude or modify those items having poor results in content validity and preliminary analysis; and 3) to create an item to measure different zones. How the ANQ was refined to reach these goals will be described in this section.

The length of time for completing the ANQ was planned to be about 40 minutes. Since the subjects in the preliminary analysis received the original ANQ and filled it out in their home, it was speculated that the subjects spent more time in filling out the questionnaire than subjects would spend in the future when responding in the presence of the investigator. Thus the new ANQ was planned to contain two-thirds of the items of the original ANQ. Thus 31 items were selected as presented in Table 3.8. (The ANQ in Japanese is attached to Appendix B.)

Among the original ANQ items, 19 were discarded and 14 were revised. Sixteen original items were retained. The items which were discarded were: 1) those with low content validity as reported by

experts of amae theory, concepts of dependency and social support; and 2) duplicative items that troubled the subjects during preliminary data collection. The items that were modified were those considered to be difficult to understand by the subjects during the preliminary analysis and by the Japanese experts. The component of "psychosocial proximity" was changed into more direct expressions of "amae" and "enryo." The item of living distance was changed from a dichotomous scale (yes or no) to a five-point Lykert scale.

A new item was added to the ANQ in order to measure the zones. Question 1 requires a subject to categorize the network members into five groups: a = miuchi (blood kin without having any enryo [holding back]); b = tanin (blood kin, but having miuchi-like relationships); c = miuchi, but having some enryo; d = tanin with some enryo, but having friendship; and e = mainly giri (social obligatory) relationship.

The relationship of the conceptual components of the amae network to the new items of the ANQ are presented in Table 3.8. The validation of the new ANQ will be reported in Chapter 4.

Table 3.7
Revised ANQ Items¹

Question Number	Question (Conceptual Component)
1.	Which category does each person whom you have listed on your card fit in terms of your relationship to him or her? (Zones and size)
2.	How far does this person live from your place? (Living distance)
3.	How long have you known this person? (Duration of relationship)
4.	How frequently do you have contact with this person? (Frequency of contact)
5.	Is this person sensitively aware of your feelings? How much is it so? (Attention)
6.	How much do you feel this person is concerned with you? (Attention)
7.	Does this person usually acknowledge your work? How much is it so? (Reassurance)
8.	How much does this person trust you and allow you to behave as you want? How much is it so? (Reassurance)
9.	Does this person like you? How much is it so? (Affection)
10.	Is it important for you to be liked by this person? How much is it so? (Affection)
11.	Does this person watch carefully your growth and development? How much is it so? (Nurturance)
12.	Is this person happy to see your development and success as if they were a part of his or her own? How much is it so? (Nurturance)
13.	Will this person be reliable for you when you are economically in trouble? How much is it so? (Aid)
14.	How much do you think this person would take care of your daily living activities when you had to be in bed for a week? (Aid)
15.	Do you think this person would take care of your daily living activities when you had to be in bed for three months due to some illness? How much do you think so? (Aid)
16.	Do you think this person will help you in making an important decision related to your study or work? How much do you think so? (Aid)
17.	Do you sometimes touch the body of this person (holding hands, patting on the shoulder, hugging, etc.)? How much is it so? (Physical proximity)
18.	Do you ever share the feeling of togetherness with this person? How much is it so? (Emotional proximity)
19.	Does it ever happen that you forget time while you are with this person? How much is it so? (Emotional proximity)
20.	Do you ever feel as if you were suffocated and thus wished to get out of the relationship with this person? How much is it so? (Cohesion)
21.	Are you going to keep this relationship seriously for a long time? How much is it so? (Cohesion)
22.	Do you talk openly about your personal feelings or secrets to this person? How much is it so? (Self-disclosure)
23.	Do you share your thoughts, beliefs, or future plans with this person? How much is it so? (Self-disclosure)
24.	Are you satisfied with your relationship with this person? How much is it so? (Satisfaction)
25.	Do you sometimes get tired of your relationship with this person? How much is it so? (Satisfaction)
26.	Do you feel this relationship comforts you and gives you security? How much is it so? (Satisfaction)
27.	Can you amaeru to this person? How much is it so? (Amae)
28.	Do you usually amaeru to this person? How much is it so? (Amae)
29.	Do you have "enryo" (holding back) or "kigane" (restraint) with this person? How much is it so? (Enryo)
30.	What is your relationship to this person?
31.	Are you satisfied with your relationships with these people as a whole? How much is it so? (Overall satisfaction)

¹ Ratings were based on a five-point rating scale specified for each question. Question 1 ranged from 1 (mainly giri relation) to 5 (miuchi without having any enryo); Question 2 ranged from 1 (living farther than two hours by public transportation) to 5 (living in the same household); Question 3 ranged from 1 (less than six months) to 5 (more than five years); Question 4 ranged from 1 (once a year or less) to 5 (daily); Questions 5 through 29 and 31 ranged from 1 (not at all) to 5 (a great deal); and Question 30 did not have a category of choices.

Table 3.8
Relationship of Dimensions, Constructs, and Components
of the Amae Network to the ANQ Items

Dimension	Construct	Components	Question Number
Structural	Total	Size of Network (Zones)	1
		Living Distance	2
Dimension	Structure	Duration of the Relationship	3
		Frequency of Contact	4
Functional	Dependency	Attention	5,6
		Reassurance	7,8
		Affection	9,10
		Nurturance	11,12
		Aid	13-16
Dimension	Wish-for-oneness	Physical Proximity	17
		Emotional Proximity	18,19
		Cohesion	20,21
		Self-disclosure	22,23
Evaluative Dimension	Evaluation	Satisfaction	24-26
		Amae	27-28
		Enryo	29
		Overall Satisfaction	31

CHAPTER IV

TOOL VALIDATION

The final goal of this study was to validate the Amae Network Questionnaire (ANQ) which was constructed by this investigator to measure the concept of amae network. The initial instrument of the ANQ was refined based on the content validity testing and an examination of the utility as reported in the previous chapter. This chapter is a report of further validation of the ANQ which included examination and exploration of response biases, reliability, concurrent validity, construct validity, and generalizability of the the tool. The ANQ was administered to 482 Japanese female students simultaneously with other psychometric instruments which measured convergent and discriminant phenomena of the amae network.

The first section of this chapter will describe the objectives and hypotheses of this study. The methodology of this study will be reported in the following section. Since the validation of the ANQ involved a series of analyses which were quite independent of each other, findings and discussion in the third section of this chapter will be divided into seven subsections: 1) characteristics of the subjects, 2) initial data analyses, 3) response biases, 4) reliability, 5) concurrent validity, 6) construct validity, and 7) generalizability. These findings and discussion will be summarized in the last section of this chapter.

Objectives and Hypotheses

The purpose of the series of analyses carried out in this study was

to explore and examine the reliability, concurrent validity, construct validity, and generalizability of the Amae Network Questionnaire. Objectives or hypotheses related to these analyses are described separately in the following subsections.

Response-set Bias

Because of the need to rule out response-set biases which prevent accurate measures of the target attribute, it is necessary to explore the extent to which a self-report measure of amae network is influenced by the subject's tendency to respond in a direction which is socially desirable.

Objective 1: The extent to which the ANQ is related to the social desirability scale will be estimated.

Reliability

In order to eliminate random errors of measurement, the reliability of an instrument is estimated in terms of the degree of consistency (Polit & Hungler, 1978, p. 425) or the degree of repeatability (Nunnally, 1967, p. 172). The reliability of the ANQ will be estimated in terms of internal consistency and stability as described in the following:

Objective 2: The internal consistency of the ANQ will be above 0.75.

Objective 3: The stability of the ANQ will be above 0.75.

For exploring test-retest reliability (stability), the interval of ten days will be selected to reduce carryover effects and the degree of actual change in the socio-psychological situation over time on a subject's response.

Concurrent Validity

Concurrent validity is a type of criterion-related validity which emphasizes establishing the relationship between the instrument developed by the investigator and some other suitable criterion measures. Qualities desired in a criterion measure are identified as: 1) relevance, 2) freedom from bias, 3) reliability, and 4) availability (Thorndike & Hagen, 1977). The Norbeck Social Support Questionnaire (NSSQ) was chosen as a criterion measure for the ANQ because the NSSQ met all four qualities above (see pp. 23-24). The Dependency Scale which was constructed and validated by Takahashi was chosen because it was conceptually relevant to the ANQ and available to this study. The hypotheses to be tested were the following:

Hypothesis 1: The structural variables of the ANQ will be positively and significantly related to the network subscales of the NSSQ.

Hypothesis 2: The functional variables of the ANQ, especially attention, reassurance, and aid will be positively and significantly correlated with social support subscales of affect, affirmation, and aid of the NSSQ.

Hypothesis 3: The ANQ functional variables of attention, reassurance, affection, aid, and physical proximity will be significantly but moderately correlated with five modes of the Dependency Scale.

Construct Validity

Construct validity refers to "the degree to which it measures the theoretical construct or trait that it was designated to measure" (Allen and Yen, 1979, p. 108). Thus construct validity is "a matter of degree rather than an all-or-none property (Nunnally & Durham, 1975, p. 75), which is in a sense a never-ending process (Polit & Hungler, 1978, p. 441). However, the exploration of construct validity is crucial because the main issue of validating an instrument is whether or not the construct validity of the instrument is supported by evidence. This study explored the construct validity of the ANQ through two type of approaches: hypotheses testing based on the theoretical predictions and factor analyses as described below:

Hypothesis 4: The amae network will be significantly related to the individual's attitude toward amae phenomena.

Hypothesis 5: Individuals listed in one zone will provide different characteristics of the amae network than individuals who are listed in another zone.

This hypothesis is further specified as follows:

Hypothesis 5a: The size of network in Zone 2 will be the largest while Zone 1 will have a significantly larger size of network than Zone 3.

Hypothesis 5b: Zone 1 will have the highest scores on every construct and variable of amae network except for the negatively connotated variables and constructs. As above, Zone 2 will have significantly higher scores on the same variables and constructs than Zone 3.

Hypothesis 5c: Zone 3 will have the largest scores on all negatively connotated variables and constructs. Zone 2 will have significantly higher scores than Zone 1 on these constructs and variables.

Hypothesis 6: The adequacy of amae network will be the best predictor for emotional status of an individual, but the effectiveness of adequacy of amae network on the emotional status will depend on the availability of the amae network.

This hypothesis is specified further as follows:

Hypothesis 6a: The overall satisfaction with amae network (ANS) will be significantly related to emotional status (state anxiety, trait anxiety, and emotional stability).

Hypothesis 6b: The evaluative dimension of the amae network will be significantly related to emotional status of the individual above and beyond the variance of ANS.

Hypothesis 6c: The effectiveness of ANS on emotional status will not depend on the structural dimension of the amae network.

Hypothesis 6d: The effectiveness of ANS on emotional status will depend on the functional dimension of the amae network.

Hypothesis 7: Self-esteem will be significantly related to emotional status of an individual, but quality of the amae network will affect the relationship of self-esteem to emotional status.

Factor Analyses. Based on the conceptual structure of amae network, five factor analyses will be conducted in order to explore the numbers of factors derived from the data and to compare them with conceptual constructs.

Objective 4: Number of factors will be explored for total amae network scores, each of three zone scores, and zone-differentiated scores.

Objective 5: The extent to which the factors derived from the data are congruent with the conceptual constructs of amae network will be examined.

Objective 6: The structure of each amae network zone will be analyzed to see if each is unique.

Generalizability

The extent to which validation of the ANQ conducted in this study is generalizable will be explored by meeting the following objectives.

Objective 7: Whether or not characteristics of hometown of the individual affect the scores for amae network constructs will be explored.

Objective 8: Whether or not people in different educational programs respond differently to the ANQ will be examined.

Objective 9: Whether or not the length of attendance at a school in which a subject is studying affects the scores for amae network constructs will be explored.

Methodology

The methodology used in this study was tool validation techniques designed to establish test-retest reliability, internal consistency, concurrent validity, construct validity, and generalizability. The testing of this tool, the Amae Network Questionnaire (ANQ) involved 482 Japanese female students as subjects.

In order to obtain a large enough sample while limiting the total testing time for each subject to less than one and one-half hours, the subjects were recruited from six groups: four from nursing junior colleges and two from a university. Previously established psychologic instruments were used to meet objectives and to test hypotheses in this study. This section explains the sample selection, instruments used, data collection procedure, and data analysis procedures.

Sample

The sample was derived from a population of Japanese female students who were enrolled in one of four schools. These four schools were selected by using the following criteria:

1. Nursing junior colleges which are not located in the three biggest cities in Japan, or
2. A university which has a nursing department and a literature department.
3. Schools in which the faculty gave consent for this investigator to recruit subjects for this study.

Six groups of subjects were recruited from these four schools to meet the following criteria:

1. Three groups of subjects who have been enrolled in one of four nursing junior colleges for more than one year.
2. One group of subjects who have just entered one of the above mentioned nursing junior colleges.
3. Two groups of university subjects: one group from the nursing department and one from the literature department.

Since this investigator did not have demographic data on the subjects, variables of age and sex were not controlled prior to this study by assuming the homogenousness of each group. Originally 492 subjects from the total of six groups participated in this study, but ten were excluded from the analyses because they did not meet the criteria of 1) age (between 18 and 22 years), and 2) sex/nationality (female Japanese students). Of the ten excluded subjects, two were male students and eight were female students over 22 years old. Rationale for excluding these subjects was to keep the sample as homogenous as possible. Number of subjects in each group was: A group = 79; B group = 88; C group = 77; D group = 68; E group = 85; and F group = 85. The groups A through D were from nursing junior colleges and the groups E and F were from a university nursing department and literature department respectively.

Rationale for the sample size was based on the requirement for factor analysis because it required the largest sample of analyses used in this study. Since factor analysis requires at least ten subjects per variable to conserve power (Nunnally, 1978, p. 276), and the ANQ consisted of 30 items, the sample size needed for this study was a minimum of 300. Thus the sample recruited was sufficiently large.

Instruments

The ANQ was administered in conjunction with other psychometric instruments and a demographic data sheet. Instruments used in this study were the following in addition to the ANQ which was described in the previous chapter.

The Marlowe-Crowne Social Desirability Scale (SDS). The SDS is a 33-item self-report which was initially constructed as a control for response set and has had considerable use in the decade since its publication (Crowne & Marlowe, 1960). The test-retest reliability was high (.88) over a one-month interval with 57 college students, and internal consistency was .88. The validity of the scale was supported by the confirmation of several hypotheses in experimental settings (Crowne & Marlowe, 1964). The Japanese version of the SDS was tested with a small sample of bilinguals and women who spoke only Japanese (Nojima, Note 7).

This tool was used in this study to assess the response bias related to the social desirability of the ANQ (Objective 1). (Appendix C)

The Norbeck Social Support Questionnaire (NSSQ). The NSSQ has been constructed to measure three functional properties of social support (affect, affirmation, and aid), three network properties (size of network, duration of relationships, and frequency of contact) and recent losses of important relationships (Norbeck et al., 1981). The NSSQ is a nine-item self-report that allows subjects to list all people who are important to them and to respond to each item by each person in the list. The instrument has been administered to different groups of people including graduate students ($n = 135$) and employed adults

($n = 36$) (Norbeck et al., 1981, Note 4). The tool established high levels of test-retest reliability and internal consistency, ruled out a social desirability response bias, and provided evidence for concurrent validity with another social support questionnaire. Baseline data about amount and type of support available for adults were obtained. Evidence for construct validity of the instrument was found through comparing convergent and discriminant constructs to the NSSQ. Predictive validity was tested through assessing the buffering effect of social support on measures of negative mood following life stress (see also pp. 23-24).

The NSSQ was used to estimate the concurrent validity of the ANQ (Hypotheses 1 and 2). The NSSQ has been translated into Japanese and tested on a small sample of bilinguals (Minami, Note 9). (Appendix D)

Dependence Scale. The Dependence Scale was used in a self-report questionnaire developed by Takahashi (1968a, 1968b, 1970, 1974). The reliability of this tool is unknown. There is evidence of construct validity from cross-sectional studies among different age groups of young women. This scale was constructed in Japanese.

This scale was used in this study to establish concurrent validity of the functional dimension of the ANQ (Hypothesis 3). (Appendix E)

The Amai Attitude Scale (AAS). The AAS was constructed by this investigator to measure individual attitudes toward multidimensional phenomena of amae in Japanese society. Reliability and response bias of the AAS were tested in this study.

The AAS was used to assess the construct validity of the ANQ in this study (Hypothesis 4). (Appendix B: also see p. 51)

The Rosenberg Self-esteem Scale (RSE). The RSE is a ten-item self-report measure of the self-acceptance aspect of self-esteem.

Reliability over a two-week period was .85 and concurrent validity with other self-esteem measure averages .57 (Robinson and Shaver, 1973). The Japanese version of the RSE has been tested in various groups of students with findings indicating some evidence of construct validity (Suga, 1979). The correlations with an emotional stability scale and with social adaptability of the Y-G were positive while correlations with an anxiety scale were negative.

This scale was used in this study to explore the construct validity (Hypothesis 7). (Appendix F)

The Spielberger State-Trait Anxiety Inventory (STAI). The STAI is a widely used 40-item self-report measure of trait anxiety (how anxious one generally feels) and state anxiety (how anxious one feels at a particular moment) (Spielberger, Gorsuch, & Lushene, 1970). The Japanese version of STAI has been tested in various samples (Nakasato & Minaguchi, 1976; Toyama, 1976). The test-retest reliability of the STAI A-trait is high (range of .71 at the three-month interval to .80 at the one-hour interval), but stability for the A-state scale tends to be low as would be expected. Internal consistency of the A-state scale was .92. Tests of concurrent validity with established anxiety measures have been consistently high with both college students and anxiety neurotics. Construct validation has been done by using diazepam and an experimental movie. The ability of the STAI to discriminate between state versus trait anxiety has been frequently reported in the Japanese population.

This tool was used to measure state and trait anxiety as indicators of the emotional status of individuals for testing hypotheses (Hypotheses 6 and 7). (Appendix G)

The Yatabe-Guilford Personality Inventory (Y-G). The Y-G is a 120-item self-report questionnaire which measures 12 personality traits and is analyzed as having six factors (emotional stability, social adaptability, activity, impulsiveness, intraversion, and initiative). This tool has been widely used in various populations in Japan. The internal consistency is high (range .80 - .90) and test-retest reliability is moderate to high. Factor analyses were done with various samples with findings indicating good evidence of construct validity. The effects of social desirability bias on the scores have been examined (Tsujioka, 1954; Tsujioka, Sonohara, & Yatabe, 1957; Tsujioka & Fujimura, 1975a, 1975b, 1976).

This tool was used in this study to measure the emotional stability as an indicator of the emotional status of the individual for testing hypotheses (Hypotheses 6 and 7). (Appendix H)

Demographic Data Sheet. Demographic data were provided by the subjects themselves in responding to the Demographic Data Sheet which was constructed by this investigator. These data represented age, educational level in years, work experience in years, marital status (single, married, divorced/widowed), hometown (one of the biggest cities, middle-size city, local city, remote area, other), and length of attendance at the present school. (Appendix I)

Data Collection Procedure

Following approval of the study protocol by the UCSF Committee on Human Research, a convenient sample of five nursing junior colleges and a university were contacted by this investigator by letters explaining the purpose and content of the study, procedure of data collection, and

risk to and benefits for the subjects participating in this study. A consent form was enclosed in the letter to get agreement from faculty at each school to allow this investigator to recruit subjects for this study. Agreeing to participate in the study, faculty of four nursing junior colleges returned the consent forms. Verbal consent for recruitment of subjects from the nursing and literature departments was obtained by the investigator from the faculty of the university.

Data were collected during April, 1982. Emphasizing the voluntary nature of participation in this study, faculty in each school verbally announced the opportunity for students to take part. The faculty also set up the dates for this investigator to administer the questionnaires to subjects. Prior to administration of the instruments, this investigator explained the study and again emphasized the voluntary nature of participation. Each group of subjects received a packet of questionnaires unique to that particular group. (Table 4.1, presents a list of questionnaires which were administered to each group.) Two groups of subjects participated in the study twice: one for test-retest reliability of the ANQ and the other for examination of concurrent validity of the ANQ with the NSSQ. The first group was administered the ANQ twice at an interval of ten days. The second group was administered the ANQ first with the NSSQ being administered a week later due to the similarity of the formats and some content of these two instruments which made simultaneous administration unwise.

Data Analysis

Data were analyzed with the Statistical Package for Social Science (SPSS) (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). Statistical

Table 4.1
Outline of Tools Administration

Tool	Time in minutes	Group					Number of Subjects Administered
		A	B	C	D	E F	
1. Amae Network Questionnaire (ANQ) including Amae Attitude Scale (AAS)	40-50	x	x	x	x	x	482
2. Demographic Data Sheet	5	x	x	x	x	x	482
3. Retest on the ANQ and AAS	40-50					x	79
4. Norbeck Social Support Questionnaire	15-20				x		68
5. Dependency Scale	15-20			x			73
6. Marlowe-Crowne Test of Social Desirability	10					x	79
7. Yatabe-Guilford Personality	10-15	x	x		x	x	320
8. Spielberger State-Trait Anxiety Scale	15-20	x	x		x	x	320
9. Rosenberg Self-esteem	5-10	x	x		x	x	320
Total Time		75- 100	75- 100	60- 75	90- 120	125- 160	45- 55
Number of Subjects		79	88	77	68	85	85

Note: Groups D and E were tested twice.

techniques used in this study are explained separately for each purpose of the study.

Preliminary analysis. Data were first examined about the characteristics of subjects. Means and standard deviations of nominal demographic variables (age, educational level, and work experience) were computed and group differences in these variables were tested by analysis of variance. The Tukey's Studentized Range Test was used to compute significance of group differences when ANOVA indicated a significant group difference. The group differences in marital status and hometown items were computed by Chi-square tests.

Means and standard deviations of scores for all items of the ANQ were computed. Each item on the ANQ was scored on Zone 1, Zone 2, Zone 3, and Total Score. The Pearson correlation coefficients were computed to assess intercorrelations among the total scores of the ANQ items. Intercorrelations among the amae network variables were also computed using Pearson correlation coefficients.

Response biases. The Pearson correlation coefficients were computed to assess the correlations between variables of the ANQ and scores for the social desirability measure.

Reliability. Internal consistency was computed using the Cronbach alpha. Test-retest reliability of all the ANQ items was assessed by the Pearson correlation coefficients.

Concurrent validity. Concurrent validity of the ANQ with the NSSQ was estimated by computing the correction for attenuation after computing the Pearson correlation coefficients between variables of the ANQ and the subscales of the NSSQ. Concurrent validity of the ANQ with the Dependency Scale was estimated by computing the Pearson correlation

coefficients between variables of the ANQ and modes of the Dependency Scale.

Construct validity. Construct validity of the ANQ was assessed through five different analyses as follows:

Analysis 1. Effects of the individual attitude toward amae phenomena on the amae network were assessed by computing the validity coefficients between the ANQ and scores for the Amae Attitude Scale (AAS).

Analysis 2. Zone differences on the amae network were tested by paired t-tests for all amae network variables and constructs between zones.

Analysis 3. Relationship of overall satisfaction with the amae network of an individual and amae network constructs to emotional status of the individual were tested by multiple regression analysis.

Analysis 4. Relationship of self-esteem and amae network to emotional status of the individual was also tested by multiple regression analysis.

Factor analysis. Principal components factor analysis with Varimax rotation was used to explore the number and kinds of factors derived from the data. Five factor analyses were computed for the data: total amae network, Zone 1, Zone 2, Zone 3, and zone differentiated amae network scores.

Generalizability. Group differences and hometown differences in the amae network constructs were computed by using analysis of variance. The Tukey's Studentized Range Test was used to test specific group difference when overall F test was significant.

Findings and Discussion

Validation of the Amae Network Questionnaire (ANQ) involved seven different analyses: 1) characteristics of the subjects, 2) initial data analysis, 3) response biases, 4) reliability, 5) concurrent validity, 6) construct validity, and 7) generalizability. Since these analyses are quite independent from each other, both findings and discussion will be presented for each analysis. Limitations in interpreting the results are also included in these subsections.

Demographic Characteristics of Subjects

The total sample consisted of 482 Japanese female students whose ages ranged from 18 to 22 years. Demographic characteristics of these subjects were compared among four groups from nursing junior colleges, one group from a university nursing department and one group from a university literature department. Sample size, means, and standard deviations for age, educational level, and work experience as well as percentages for marital status and hometown are presented in Table 4.2 for the six groups.

Mean age of total subjects was 19.35 years ($SD = 0.965$). Age of subjects differed significantly among groups ($p < .001$). Tukey's studentized range test showed that subjects in group A were significantly younger than the others. This group consisted of first-year students in a nursing college which was chosen on purpose to determine the generalizability of the ANQ. Tukey's studentized range test also showed that subjects in group F, students of the literature department, were significantly younger than nursing students except for group A. Although there was a statistical significance among the groups

Table 4.2
Demographic Characteristics of the Sample and the
Significance of Difference Between Groups

Characteristics	A	B	C	D	E	F	Test	P
<u>Number of Subjects</u>	79	88	77	68	85	85		
<u>Age</u>								
Mean (years)	18.14	19.47	20.12	19.69	19.64	19.11	$F(5,475) = 65.59$	.000
SD	0.35	0.79	0.84	0.70	1.12	0.35		
<u>Educational Level</u>								
Mean (years)	13.01	13.73	13.86	13.63	13.52	13.27	$F(5,474) = 16.135$	.000
SD	0.11	0.65	0.60	0.67	1.16	0.45		
<u>Work Experience</u>								
Mean (years)	0.00	1.01	1.15	0.24	0.11	0.00	$F(5,475) = 2.285$	.045
SD	0.00	0.25	0.16	0.03	0.01	0.00		
<u>Marital Status*</u>								
Single	100	98.86	97.40	100	98.82	98.82	$\chi^2(5) = 3.41$	.64
Married	0.00	0.14	0.60	0.00	0.18	0.18		
<u>Hometown*</u>								
Big city	3.80	3.41	24.68	5.88	2.38	2.35	$\chi^2(20) = 94.50$	.000
Middle-size city	27.85	27.27	27.27	5.88	8.33	5.88		
Town or small city	50.63	45.45	35.06	55.88	60.71	58.82		
Village	13.92	22.73	10.39	26.47	21.43	25.88		
Others	3.80	1.14	2.60	5.88	7.14	7.06		

Note: *Numbers refer to column percents.

- Group A - first year students of a nursing junior college.
Group B - second and third year students of above college.
Group C - second and third year students of a nursing junior college.
Group D - second and third year students of a nursing junior college.
Group E - nursing students of a university.
Group F - literature students of same university as above.

due in part to the large sample size, the magnitude of the difference was judged to be not theoretically meaningful. Hence, the groups were collapsed for further analysis.

The mean educational level in the total sample was 13.5 years with a standard deviation of 0.74 (range of 12-15 years). Educational level of subjects also differed significantly among groups ($p < .001$). Tukey's studentized range test showed that the subjects in group A had significantly lower educational levels than other nursing groups and the subjects in group F also had significantly lower educational levels than groups B, C, and D. This significant difference coincided with the age differences among groups. However, means and standard deviations of educational level indicate that group differences are within one year on the mean and within one standard deviation, thus minor. Therefore, the data on educational level were collapsed for the group category for all subsequent analyses.

Mean of work experience was .077 years with .643 standard deviation. Although a significant work experience difference was found between the groups ($p < .05$), the group differences were again minor. A large percentage (97.5) of the total sample had no work experience, anyway. Thus work experience was not examined for all subsequent analyses.

A large proportion of the subjects were never married (477 out of 482) and only five were married. No marital status difference was found among these groups ($\chi^2 = 3.41$ with 5 degrees of freedom). Thus, marital status differences were not examined for all subsequent analyses.

The distribution of subjects by their hometowns is also presented in Table 4.2 for the six groups. The Chi-square test showed that there

was a strong relationship between school differences and hometown differences ($p < .001$). Subjects in groups A, B, and C were from more urbanized cities than subjects in groups D, E, and F. This is due to the location of the schools. Thus, hometown difference was examined in the last section of this chapter discussing generalizability. In order to conserve the power of analysis, the hometown categories were collapsed from five categories to three: urban area (big city or middle size city), suburban area (small city or town), and remote area (village or others).

In summary, subjects in this study are homogeneous in terms of age, educational level, work experience, and marital status. They were mostly unmarried female students whose ages ranged from 18 to 22 years, whose mean educational level was around 13 years, and whose work experience was nil. Demographic characteristics of school and hometown were examined later to analyze the generalizability of the ANQ.

Initial Data Analyses

Scores obtained from 482 students were preliminarily analyzed in order to explore means and standard deviations of total scores and zone differentiated scores for all the ANQ terms as well as to examine the interrelationships among the ANQ items based on the total scores.

The means, standard deviations, and ranges of scores for the ANQ items are presented in Table 4.3a and 4.3b for three zones. Zones were determined by subject responses to Question 1, "Which category does each person whom you have listed on your card fit in terms of your relationship to him or her?" This question is followed by five possible responses a = miuchi (blood kin, without having any enryo--holding

Table 4.3a
Means and Standard Deviations of Structural and Dependency
Items of the ANQ for Three Zones
($n = 482$)

Item	Total		Zone 1		Zone 2		Zone 3	
	M	SD	M	SD	M	SD	M	SD
Size	18.57	2.74	7.35	3.57	9.99	3.65	1.19	1.64
Living Distance	40.54	11.67	18.02	10.77	20.11	8.75	2.52	3.76
Duration of Relationships	74.36	13.41	33.20	15.43	37.16	15.51	4.13	5.89
Frequency of Contact	62.51	13.09	26.90	13.42	32.39	14.37	3.37	5.28
Attention 1	36.41	11.53	17.79	10.62	17.66	9.03	1.04	1.94
Attention 2	41.79	11.31	21.75	11.13	18.85	8.92	1.28	2.24
Reassurance 1	40.97	12.88	19.60	11.48	19.84	9.65	1.80	3.08
Reassurance 2	46.44	12.97	21.66	11.92	22.90	10.69	2.09	3.36
Affection 1	49.00	12.48	23.40	12.32	23.66	10.33	2.05	3.14
Affection 2	57.17	13.76	25.70	12.90	29.05	13.20	2.65	4.08
Nurturance 1	44.92	13.51	22.93	11.18	20.47	10.81	1.80	2.98
Nurturance 2	48.51	13.71	24.21	12.02	22.60	11.36	1.85	2.91
Aid 1	29.10	12.77	17.26	9.35	11.34	8.78	0.68	1.71
Aid 2	30.62	15.06	17.28	10.27	12.73	10.21	0.65	1.62
Aid 3	37.12	13.50	20.66	10.12	15.61	10.08	0.91	2.09
Aid 4	36.81	13.81	18.40	10.82	17.32	9.82	1.26	2.33

Table 4.3b
Means and Standard Deviations of Wish-for-oneness and Evaluative
Items of the ANQ for Three Zones
($n = 482$)

Item	Total		Zone 1		Zone 2		Zone 3	
	M	SD	M	SD	M	SD	M	SD
Physical Proximity	28.14	15.01	14.95	10.48	12.49	9.14	0.59	2.31
Emotional Proximity 1	37.85	12.11	18.10	10.86	18.67	9.11	1.13	2.02
Emotional Proximity 2	38.90	15.23	18.06	12.03	19.86	10.97	1.17	2.55
Cohesion 1	11.83	9.95	3.83	5.07	6.51	6.29	1.63	3.05
Cohesion 2	50.08	13.31	25.49	12.82	23.10	11.52	1.61	3.37
Self-disclosure 1	33.36	12.96	16.32	10.54	16.31	9.45	0.71	1.65
Self-disclosure 2	35.14	13.18	17.74	10.68	16.67	9.60	0.72	1.55
Evaluation 1	46.99	13.87	21.70	12.07	23.10	11.51	2.12	3.79
Evaluation 2	12.76	9.78	4.89	5.15	6.79	6.50	1.37	2.69
Evaluation 3	45.05	13.99	21.30	11.94	22.12	11.00	1.59	2.73
Amae 1	35.61	13.57	18.74	10.15	16.14	10.45	0.84	1.94
Amae 2	30.71	14.14	16.89	9.76	13.26	9.79	0.76	1.81
Enryo	22.81	11.03	4.58	4.58	15.20	8.55	2.98	4.39
Overall satisfaction	3.39	.77	-	-	-	-	-	-

back); b = tanin (non-blood kin, but having miuchi-like relationship); c = miuchi but having some enryo; d = tanin with some enryo, but having friendship; and e = mainly giri relation (social obligatory relationship). The categories a and b above were collapsed into zone 1, c and d into zone 2, and e into zone 3. Means and standard deviations of zone scores indicate that amae network mainly consists of zones 1 (intimate relations) and zone 2 (friendship relations). The size of zone 3, that is, numbers of people who listed zone 3, was small (mean = 1.19 persons) compared with zone 1 (mean = 7.34) and zone 2 (mean = 9.99). Therefore, all other scores on zone 3 are much smaller than those for zones 1 and 2. These zone scores were used for analysis of construct validity and factor analysis in the later sections of this chapter.

Intercorrelations among the total scores of the ANQ items (except for the item of overall satisfaction) are presented in Tables 4.4a-d separately for four constructs: the structural dimension, dependency and wish-for-oneness constructs from the functional dimension and the evaluative dimension.

Among the structural items (Table 4.4a), strong correlations were found between size and duration (.77), between size and frequency of contact (.67), and between living distance and frequency of contact (.63), while weak to moderate correlations were found between size and living distance (.48), between living distance and duration of the relationship (.33), and between duration of the relationship and frequency of contact (.36). All were significant relationships ($p < .001$).

Table 4.4a
Pearson Correlation Coefficients[¶] for all
Pairs of Structural Items
(n = 449)

	Size	Distance	Duration
Size	1.00		
Distance	.48	1.00	
Duration	.77	.33	1.00
Frequency	.67	.63	.35

[¶]All $p < .001$ based on a two-tailed test.

Among the dependency items (Table 4.4b), the items of attention, reassurance, affection, and nurturance were strongly related to each other (range, .61 to .79), except for a moderate relationship between two attention items and the item of affection 2(.54 and .59). All these dependency items had weak to moderate relationships to four aid items (range, .31 to .57) except for a strong correlation between nurturance items and aid 4(.65). Among aid items, moderate to strong correlations were found (range, .55 to .77). All correlations among dependency items were significant ($p < .001$). Since the dependency variables, except for the aid variable, have two items and the two items for each variable (e.g., affection, reassurance, attention, and nurturance) were strongly related (range, .68 to .79), the two were collapsed into a single variable for subsequent analyses except when analysis of items was necessary. Since the correlations of aid items were also moderate to strong, these four items were also collapsed into a single variable similar to the other dependency variables.

Table 4.4b
Pearson Correlation Coefficients[¶] for all Pairs of
Dependency Items
($\bar{n} = 449$)

	1	2	3	4	5	6	7	8	9	10	11
1. Attention 1	1.00										
2. Attention 2	.74 [§]	1.00									
3. Reassurance 1	.65	.70	1.00								
4. Reassurance 2	.63	.63	.68 [§]	1.00							
5. Affection 1	.63	.68	.69	.66	1.00						
6. Affection 2	.54	.59	.61	.61	.69 [§]	1.00					
7. Nurturance 1	.63	.68	.67	.61	.61	.65	1.00				
8. Nurturance 2	.61	.65	.64	.61	.62	.66	.79 [§]	1.00			
9. Aid 1	.48	.54	.46	.42	.42	.43	.53	.49	1.00		
10. Aid 2	.46	.48	.43	.31	.35	.36	.50	.48	.54 [§]	1.00	
11. Aid 3	.49	.55	.51	.43	.45	.51	.56	.57	.60 [§]	.71 [§]	1.00
12. Aid 4	.56	.55	.56	.50	.49	.56	.65	.65	.58 [§]	.57 [§]	.63 [§]

[¶]All $p < .001$ based on a two-tailed test.

[§]presents a correlation between items of a variable

Table 4.4c
Pearson Correlation Coefficients[¶] for all
Pairs of Wish-for-Oneness Items
(n = 449)

	1	2	3	4	5	6
1. Physical prox- imity	1.00					
2. Emotional prox- imity 1	.55	1.00				
3. Emotional prox- imity 2	.53	.70 [§]	1.00			
4. Cohesion 1	-.02*	-.07*	-.14*	1.00		
5. Cohesion 2	.41	.60	.58	-.11 [§] *	1.00	
6. Self- disclosure 1	.46	.66	.63	-.46	.56	1.00
7. Self- disclosure 2	.47	.66	.66	.03*	.54	.76 [§]

Note: [¶]All significance levels are based on a two-tailed test.

* $p < .05$.

All correlations except * are $p < .001$.

[§]Present a correlation between items of a variable.

Among the wish-for-oneness items (Table 4.4c), no relationship was found between cohesion 1 and all other items, including cohesion 2 (range, -0.14 to .03). Thus, this item was treated alone as a single variable named "negative cohesion" for all subsequent analyses. Based on the strong correlations between the two items of emotional proximity (.70) and self-disclosure (.76), these items were collapsed into a single variable for subsequent analyses, except when analysis of items was necessary. Other than the correlations between items within the same variables, items of emotional proximity and self-disclosure were strongly related (range, .63 to .66), and physical proximity and

Table 4.4d
Pearson Correlation Coefficients[¶] for all
Pairs of Evaluative Items
(n = 449)

	Evaluation 1	Evaluation 2	Evaluation 3	Amae 1	Amae 2
Evaluation 1	1.00				
Evaluation 2	-.19* [§]	1.00			
Evaluation 3	.61 [§]	-.12* [§]	1.00		
Amae 1	.51	-.01*	.61	1.00	
Amae 2	.35	.10*	.49	.69 [§]	1.00
Enryo	-.11*	.42	-.04*	-.12*	-.04*

Note: [¶]All significance levels are based on a two-tailed test.

*p < .05.

All correlations except star sign are p < .001.

[§]Presents a correlation between items of a variable.

"positive cohesion" 2 were moderately related to each other and also to emotional proximity and self-disclosure (range, .41 to .60).

Among the evaluative items (Table 4.4d), the items of evaluation 2 and enryo had no relationships to other items (range, -.19 to -.01), except between themselves (.42). Thus, these two items were treated separately as two single variables (overloading and enryo) for all subsequent analyses. Since strong correlations were found between evaluation 1 and 3 (.61) and between amae 1 and amae 2 (.69), these items were collapsed separately into two single variables named "satisfaction-comfort" and "amae" for subsequent analyses, except when analysis of items was necessary.

Intercorrelations among these amae network variables are presented in Table 4.5. Since the intercorrelations among evaluative variables indicate that there are two groups of variables, variables of

Table 4.5
Intercorrelations among Amse Network Variables
($n = 451$)

A N Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 Overall Satisfaction	1.00																		
2 Size of Network	.09	1.00																	
3 Living Distance	.10*	.48	1.00																
4 Duration of Relationship	.09	.77	.33	1.00															
5 Frequency of Contact	.15	.67	.63	.35	1.00														
6 Attention	.31	.52	.22	.39	.42	1.00													
7 Reassurance	.27	.58	.24	.42	.41	.76	1.00												
8 Affection	.25	.67	.29	.53	.48	.71	.76	1.00											
9 Nurture	.24	.56	.26	.48	.40	.73	.73	.73	1.00										
10 Aid	.23	.42	.16	.35	.31	.65	.59	.58	.70	1.00									
11 Physical Proximity	.29	.49	.21	.21	.29	.54	.44	.48	.44	.50	1.00								
12 Emotional Proximity	.27	.49	.22	.35	.36	.73	.64	.66	.68	.66	.58	1.00							
13 Negative Cohesion	.16	.18	.08	.12	.09	.05	.04	.03	.01	.05	.02	.12	1.00						
14 Positive Cohesion	.26	.54	.20	.49	.36	.59	.61	.68	.65	.59	.41	.64	.11*	1.00					
15 Self-disclosure	.26	.44	.14	.33	.32	.69	.63	.62	.70	.68	.49	.76	.05	.59	1.00				
16 Satisfaction-Comfort	.37	.59	.27	.45	.44	.66	.68	.73	.68	.60	.50	.72	.13	.68	.69	1.00			
17 Overloading	.19	.19	.10	.14	.14	.02	.05	.00	.01	.02	.00	.04	.61	.08	.03	.18	1.00		
18 Amse	.22	.39	.19	.25	.37	.56	.51	.57	.57	.58	.49	.61	.05	.48	.66	.59	.04	1.00	
19 Enryo	.26	.30	.14	.21	.23	.10*	.02	.01	.00	.12*	.14	.13	.41	.08	.12	.08	.42	.09	1.00

Note: * $p < .05$, $p < .01$, and $p < .001$. All significance levels are based on a two-tailed test.

satisfaction-comfort and amae ($r = .59$) were treated as the construct of positive evaluation and variables of overloading and enryo ($r = .42$) were treated as the construct of negative evaluation for subsequent analyses.

In summary, the following variables were computed for subsequent analyses: a) structural variables (size of network, living distance, duration of the relationship, and frequency of contact); b) dependency variables (attention, reassurance, affection, nurturance, and aid); c) wish-for-oneness variables (physical proximity, emotional proximity, negative cohesion, positive cohesion, and self-disclosure); d) positive evaluative variables (satisfaction-comfort and amae); and e) negative evaluative variables (overloading and enryo) (Table 4.6). In addition, a variable of overall satisfaction is included in the ANQ. Table 4.7 presents the means and standard deviations of all variables of the ANQ.

Response Biases

Since response-set biases can interfere with accurate measurement of the target attribute (Polit & Hunger, 1978, p. 423), the extent to which a self-report measure of amae network is influenced by a subject's tendency to respond in a direction which is socially desirable is of first concern to the investigator (Objective 1). For this purpose, the Japanese translation of the Marlowe-Crowne Test of Social Desirability (Nojima, Note 7) was administered concurrently with the ANQ to 79 subjects from group E, a group of university nursing students. Correlations between variables of the ANQ and social desirability scores are presented in Table 4.8. Eight of the 19 variables of the ANQ were not significantly related to the social desirability measure (range, .02

Table 4.6
Amae Network Dimensions, Constructs, Variables, and Items

A N Dimension	A N Construct	A N Variables	Number of Items
Structural Dimension	Total Structure	Size of Network	1
		Living Distance	1
		Duration of the Relationship	1
		Frequency of Contact	1
Functional	Dependency	Attention	2
		Reassurance	2
		Affection	2
		Nurturance	2
		Aid	4
Dimension	Wish-for-oneness	Physical Proximity	1
		Emotional Proximity	2
		Negative Cohesion	1
		Positive Cohesion	1
		Self-disclosure	2
Evaluative Dimension	Positive Evaluation	Satisfaction-Comfort	2
		Amae	2
	Negative Evaluation	Overloading	1
		Enryo	1
		Overall Satisfaction	1

Table 4.7
Means and Standard Deviations of the ANQ Variable Scores
(n = 482)

Variable	Mean	S.D.
Overall satisfaction	3.39	0.77
Size of network	18.56	2.75
Living distance	40.54	11.67
Duration of relationship	74.35	13.41
Frequency of contact	62.51	13.09
Attention	78.19	21.28
Reassurance	87.31	23.72
Affection	106.17	24.07
Nurturance	93.43	25.75
Aid	133.59	46.49
Physical proximity	28.14	15.01
Emotional proximity	76.75	25.17
Negative cohesion	11.83	9.95
Positive cohesion	50.08	13.31
Self-disclosure	68.49	24.43
Satisfaction-comfort	91.76	25.29
Overloading	12.76	9.77
Amae	65.91	25.93
Enryo	22.81	11.03

Table 4.8
 Pearson Correlation Coefficients between the
 ANQ Variables and Social Desirability Measure
 ($n = 79$)

Variable	r	p [¶]
Overall satisfaction	.23	.045
Size of network	.12	NS
Living distance	-.06	NS
Duration of relationship	.08	NS
Frequency of contact	.02	NS
Attention	.37	.001
Reassurance	.24	.036
Affection	.25	.024
Nurturance	.29	.01
Aid	.29	.01
Physical proximity	.17	NS
Emotional proximity	.14	NS
Negative cohesion	-.34	.002
Positive cohesion	.18	NS
Self-disclosure	.29	.01
Overloading	-.38	.000
Satisfaction-comfort	.32	.004
Amae	.14	NS
Enryo	-.35	.002

[¶]All significance levels are based on a two-tailed test.

to .23). They were all structural variables (size, living distance, duration, and frequency of contact), three of the wish-for-oneness variables (physical proximity, emotional proximity, and positive cohesion), and only one evaluative variable (amae).

All dependency variables, all but one evaluative variables, and two wish-for-oneness variables were significantly related to the social desirability measure. Especially three negatively stated variables (negative cohesion, overloading, and enryo) were all significantly related to the socially desirable biases. However, the magnitudes of correlations were weak ranging from .23 to $-.38$.

The results suggest that response to the structural variables are quite free from the influence of social desirability response biases but that responses to the functional and evaluative variables are mostly influenced by the social desirability response biases. However, the magnitude of response biases is rather small.

Reliability

Reliability of the ANQ was examined in terms of internal consistency first and then in terms of stability. Since internal consistency of a measure concerns the sampling of situational factors associated with the administration of items, which is the major source of measurement error, Nunnally (1978, p. 230) suggested that coefficient alphas should be obtained before any types of reliability estimates. Cronbach alphas were computed by using all responses of 482 subjects excluding missing data (Table 4.9). An internal consistency reliability coefficient of .95 was obtained for the 29-item ANQ. Thus Objective 2, "The internal consistency of the ANQ will be above .75" was met in this

Table 4.9
Internal Consistency for the ANQ
Using Cronbach's alpha
(n = 482)

Construct	Reliability Coefficients alpha	Number of Items
Total ANQ	.95	29
Constructs		
Structural Dimension	.70	4
Functional Dimension		
Dependency	.94	12
Wish-for-oneness	.84	7
Evaluative Dimension	.66	6

study. The reliability coefficients for the constructs of amae network ranged from .66 to .94. The results indicate that there is good internal consistency in the total ANQ and high to average internal consistency for the individual constructs. This suggests that the total ANQ should be used in order to keep measurement error at a minimum. Especially structural and evaluative dimension scales should not be used separately from the total ANQ until they will be further tested either by increasing numbers of items and/or revising the scores of negatively stated items (i.e., negative cohesion, overloading, and enryo).

In order to estimate the degree of repeatability of the measure, the ANQ was administered to 85 subjects in group E initially, and 74 of these subjects participated in the retest ten days later. The interval of ten days was selected to reduce carry-over effects and the degree of actual change in the social situation over time on a subject's response. Pearson correlation coefficient between scores of test and retest for

Table 4.10
 Test-retest Correlations¹ for Items of the ANQ
 (n = 74)

Item	r*
Overall satisfaction	.71
Size of network	.85
Living distance	.74
Duration of contact	.77
Frequency of contact	.79
Attention 1	.73
Attention 2	.69
Reassurance 1	.69
Reassurance 2	.72
Affection 1	.71
Affection 2	.70
Nurturance 1	.79
Nurturance 2	.77
Aid 1	.76
Aid 2	.75
Aid 3	.73
Aid 4	.75
Physical Proximity	.61
Emotional proximity 1	.72
Emotional proximity 2	.65
Cohesion 1	.44
Cohesion 2	.71
Self-disclosure 1	.69
Self-disclosure 2	.79
Evaluation 1	.58
Evaluation 2	.60
Evaluation 3	.65
Amae 1	.74
Amae 2	.76
Enryo	.57

Note: ¹ All significance levels are based on a two-tailed test.
 *All $p < .001$

all items of the ANQ are presented in Table 4.10. Each of the structural items (size of network, living distance, duration of the relationship, and frequency of contact) and each of the dependency items (attention, reassurance, affection, nurturance, and aid) had a strong relationship between responses in the initial test and the retest (range, .69 to .85). The wish-for-oneness items and evaluative items obtained moderate levels of test-retest reliability (range, .44 to .79). Three items which are expressed negatively (negative cohesion, overloading, and enryo) and other evaluative items had relatively lower test-retest reliability (range, .45 to .60). However, two amae items of the evaluative dimension obtained relatively high test-retest reliability measures (range, .74 to .75). Test-retest reliability for the total scores of the ANQ was very high with the correlation coefficient of 0.87. Thus Objective 3, "The stability of the ANQ will be above .75 was met in this study.

Since there is no consensus on what is the minimum reliability that is acceptable and "the appraisal of any new procedure must always be in terms of other procedures with which it is in competition" (Thorndike & Hagen, 1977, pp. 93-94), the results obtained for the ANQ have to be compared with other instruments in which test-retest reliability have been reported. However, there is no other instrument which measures the amae network. The structural construct of ANQ is very similar to the NSSQ which also measures network properties. The test-retest reliability of network subscales of the NSSQ was reported to be very high (range, .92 at the interval of one week [n = 67] to .68 - .75 at the interval of seven months [n = 44]) (Norbeck et al., 1981, Note 4). The result of this study is lower than NSSQ studies. However,

test-retest reliability is affected by situational factors. The ANQ was administered to students just returning from spring vacation or entering a new school. They were in their transit period. Having considered this fact and the differences between the two instruments, the test-retest reliability of the structural, dependency, and amae items may be concluded to be relatively high. Besides, Doi (1971) claims that amae relationships tend to be unstable and ambivalent because of the unrealistic goal of the relationship, that is, oneness with another. Relatively lower test-retest reliability of wish-for-oneness and evaluative items may be a reflection of the nature of the phenomenon. Another problem of reliability is concerned with the spread of variance of scores (Isaach & Michael, 1981, p. 123). Three negatively stated items had the lowest variance of scores (see Table 4.3b), except for size of network, which led to the relatively lower test-retest reliability. Since the majority of responses to these items were either 0 (not at all) or 1 (a little), these two items might have forced the subjects to choose responses from a narrow range of scores. Thus, this suggests that the ANQ should be used for examining group phenomena rather than individual phenomena by using groups of substantial size (Thorndike & Hagen, 1977, p. 94) until further testing and modification of this tool can be conducted.

Concurrent Validity

Concurrent validity of the ANQ was examined by using two other instruments as criteria and by administering them together with the ANQ to two groups of subjects. The NSSQ was selected to estimate the degree to which the ANQ coincides with the measure of network and a part of the

functional variables, whereas the Dependency Scale was chosen to determine the degree to which functional and wish-for-oneness variables of the ANQ were correlated with the dependency modes of the Dependency Scale. The hypotheses to be tested were the following:

Hypothesis 1: The structural variables of the ANQ will be positively and significantly related to the network subscales of the Norbeck Social Support Questionnaire.

Hypothesis 2: The functional variables, especially attention, reassurance, and aid of the ANQ, will be positively and significantly correlated with social support subscales of affect, affirmation, and aid of the NSSQ.

Hypothesis 3: The ANQ functional variables of attention, reassurance, affection, aid, and physical proximity will be significantly but moderately correlated with five modes of the Dependency Scale.

The NSSQ was administered to 68 subjects of group D one week later after the ANQ was administered to the same subjects. Since the two instruments have similar formats, one week was selected to reduce the carry-over effects of the ANQ on the responses of the NSSQ and also to minimize the degree of change in the social situations of the respondents for the two instruments over time. Thus, the magnitudes of correlations between the ANQ variables and NSSQ subscales were expected to be lower than the results of test-retest reliability, but still significantly high. Table 4.11 presents the correlation among the ANQ variables and the NSSQ subscales. Since both instruments had relatively high reliability (Norbeck et al., 1981, Note 4) the correction for attenuation was computed (Table 4.12). Structural variables of the ANQ

Table 4.11
 Inter correlations Between the ANQ Variables¹
 and the NSSQ Subscales[§]
 (n = 68)

Structural Variables of the ANQ and Network Subscales of the NSSQ

Variable or Scale	r [§]
Size of network	.67
Duration of the relationship	.69
Frequency of contact	.61

¹All significance levels are based on a two-tailed test.
[§]p < .01

Functional Variables of ANQ and Functional Subscales of NSSQ

ANQ Variables	NSSQ Subscales		
	affect	affirmation	aid
Attention	.32 [§]	.35 [§]	.31 [§]
Reassurance	.40 [§]	.44 [¶]	.37 [§]
Affection	.37 [¶]	.39 [§]	.37 [§]
Nurturance	.25*	.26*	.27*
Aid	.20	.18	.29 [¶]
Physical proximity	.14	.18	.13
Emotional proximity	.32 [§]	.36 [§]	.35 [§]
Negative cohesion	.11	.13	.14
Positive cohesion	.27*	.20	.25*
Self-disclosure	.36 [§]	.39 [§]	.41 [§]

Note: ¹All significance levels are based on a two-tailed test.
 *p < .05
[§]p < .01
[¶]Presents a correlation between same notions of the two instruments.

Table 4.12
The Correction for Attenuation of the Correlations
Between the ANQ Variables and the NSSQ Subscales

Variables or Scales	Reliability Coefficients ₁ of the ANQ ¹	Reliability Coefficients ₂ of the NSSQ	Validity Coefficients ₃	Correction for Attenuation ⁴
Size	.85	.92	.67	.76
Duration	.77	.92	.69	.80
Frequency	.79	.92	.61	.72
Affection	.71	.89	.37	.47
Reassurance and/or Affirmation	.71	.88	.44	.56
Aid	.75	.86	.29	.36

¹See Table 4.9.

²Cited from Norbeck et al., 1981, p. 267.

³See Table 4.10.

⁴The equation used for this computation is:
$$r_{TxTy} = \frac{r_{xy}}{\sqrt{r_{xx} r_{yy}}}$$

, where r_{TxTy} is the correction between the true score for x and the true score for y; r_{xy} is the correlation of observed scores x and y; and r_{xx} and r_{yy} are the reliabilities of x and y.

(Allen & Yen, 1979, p. 98)

and network subscales of the NSSQ were strongly related to each other; therefore, Hypothesis 1 was accepted. Although the two instruments had a slightly different set of subject instruction ("...list each significant person in your life on the right. Consider all the persons who provide personal support for you or who are important to you now," in the NSSQ and "recall all the persons who encounter with you often in your life or who are important to you," in the ANQ), the number of persons in the network, duration of the relationship, and frequency of contact between these instruments were highly correlated. This suggests that the structural variables of the ANQ are parallels to the network subscales of the NSSQ.

The dependency variables of the ANQ (affection, reassurance, and aid) were significantly but moderately correlated to the social support subscales of affect, affirmation, and aid. This suggests that the two instruments define these notions differently, but there is some evidence of parallels between affection and affect, reassurance and affirmation, and the two aids. Thus, Hypothesis 2 was partly accepted because the correlations between the two instruments were significant on the same notions, but the magnitudes of the correlations were not too high. Other than the same notions, there were some significant but weak to moderate correlations between the functional variables of the ANQ and social support subscales of the NSSQ. The variables of attention, reassurance, affection, and self-disclosure were significantly but moderately correlated with all the subscales of social support (range, .31 to .44). It is speculated that very high correlations among social support subscales (Norbeck et al, 1981, p. 267) and very high intercorrelations among dependency variables are (see page 93) are

reflected in these results. The notion of aid, however, had different responses between the two instruments. The aid subscale of the NSSQ had higher correlations with attention, reassurance, affection, and self-disclosure of the ANQ than with the aid variable of the ANQ, whereas the aid variable of the ANQ did not obtain significant relationships with the social support subscales of affect and affirmation. It is speculated that the aid variable of the ANQ measures a distinct phenomenon from the other variables but that the aid subscale of the NSSQ measures the phenomenon shared with other notions. However, the magnitudes of the correlations and the number of subjects who responded for both instruments were small so that further testing of both instruments on a larger sample as well as different types of samples will be necessary to make specific conclusions.

Hypothesis 3 explored the degree of association on the notions of physical proximity, attention, aid, and affection between the ANQ and a previously existing instrument named the "Dependency Scale." Both instruments were constructed partially on the basis of reviewing the concept of dependency (Takahashi, 1968) (see Chapters II and III of this dissertation). Thus, it was expected that these instruments might share in measuring the common phenomenon between them. However, the formats of the two instruments are different. Dependency Scale is based on rating for six categories of persons around an individual (i.e., father, mother, closest sister or brother, intimate same-sex friend, intimate opposite-sex friend, and most respected person), while the ANQ is based on rating for the persons who are chosen and listed by the subjects. This difference was expected to reflect on the magnitudes of the correlations between the two instruments.

Table 4.13
Pearson Correlation Coefficients¹ Between Functional Variables
of the ANQ and Dependency Modes of the Dependency Scale
($\bar{n} = 73$)

ANQ Variables	Dependency Modes			
	Physical Proximity	Attention	Help	Assurance
Attention	.23*	.19 [§]	.17	.10
Reassurance	.27*	.33**	.26*	.19 [§]
Affection	.32**	.36**	.33**	.31**
Nurturance	.26*	.27*	.26*	.19
Aid	.28*	.18	.18 [§]	.19
Dependency	.33**	.30**	.28*	.24*
Physical proximity	.39** [§]	.27*	.30**	.25*
Emotional proximity	.34**	.26*	.31**	.27*
Negative cohesion	.08	.09	.10	.14
Positive cohesion	.46**	.37**	.40**	.41**
Self-disclosure	.23	.30*	.28*	.20
Wish-for-oneness	.42**	.37**	.39**	.34**
Amae	.41**	.37**	.34**	.34**

Note: ¹ All significance levels are based on a two-tailed test.

* $p < .05$

** $p < .01$

[§] Same notion for both measures

Table 4.13 presents the correlations between the variables of the ANQ and the modes of the Dependency Scale. The variables of physical proximity and affection had significant and moderate levels of association with the dependency modes of physical proximity ($r = .39$) and psychic/spiritual support ($r = .41$), which were as expected by this investigator. However, three other variables (attention, reassurance, and aid) were not significantly related to the corresponding dependency modes of attention, assurance, and help (range, .18 to .19). Thus Hypothesis 3 was only partially accepted. The lack of association on the three variables is speculated by this investigator to be a reflection of the main difference between the two instruments. The ANQ is designed to measure the actual relationships perceived by the subjects while the Dependency Scale is designed to measure the degree of needs or wishes or subjects for dependent relationships. The ANQ is to measure the outcome of relationships which are based on the dependency needs of the subject, but the Dependency Scale is to measure the subject's wish for present and/or future relationships on the basis of dependency needs of the subject. No association on certain variables between the two tools should be interpreted as no correlations between the actual relationships and wishes for the relationship even on the basis of dependency needs. However, other than these same notions of the two instruments, there were significant and moderate levels of correlation between variables of the ANQ and the dependency modes. All the dependency modes were significantly and weakly to moderately related to the ANQ variables of affection, physical and emotion proximity, positive cohesion, and amae as well as to the wish-for-oneness construct. The significant correlations in these variables between the

Table 4.14
 Pearson Correlation Coefficients¹
 for Five Modes of Dependency Scale
 (n = 77)

	Physical Proximity	Attention	Help	Assurance
Physical Proximity	1.00			
Attention	.81	1.00		
Help	.83	.90	1.00	
Assurance	.81	.78	.86	1.00
Psychic/spiritual support	.86	.85	.87	.90

Note: ¹ All pairs of correlations are significant ($p < .001$) based on a two-tailed test.

two instruments follow the characteristics of the Dependency Scale. Table 4.14 presents the intercorrelations of five dependency modes based on the same sample in this study. All pairs of correlations were significantly high (range, .78 to .90), suggesting that all the dependency modes measure very similar phenomena rather than a distinct phenomenon for each mode. Thus, the shared phenomena of these modes is speculated by this investigator to roughly parallel the phenomenon of the core part of Amai, that is, the construct of wish-for-oneness defined in this study. Since there is no previous report of the interrelationships of these dependency modes or of the reliability of the scale, it is impossible to determine the magnitudes of true correlations between the two scales.

Construct Validity

The main issue of validating an instrument is whether or not the construct validity of the instrument is supported by evidence. This study explored the construct validity of the ANQ through two types of approaches: 1) theoretical approaches which examined both the relationships between the ANQ and other concepts as well as relationships among the ANQ notions based on theoretical prediction (i.e., Hopkins & Standly, 1981; Thorndike and Hagen, 1977; Cronbach, 1970; Nunnally, 1967; Polit & Hungler, 1978; Allen & Yen, 1979); 2) statistical approaches including factor analysis (Allen & Yen, 1979; Nunnally, 1978). The first part of this section presents and discusses the results of theoretical approaches while the second part of this section presents and discusses the results of statistical approaches.

Theoretical approaches. This study included five broad hypotheses to test the construct validity based on the theoretical predictions. These hypotheses were tested under four major analyses. Thus, the results of testing hypotheses will be reported and discussed under four subsections: 1) effects of attitude toward amae on the amae network; 2) the differences in quality and quantity of amae network between different zones; 3) the relationships of overall satisfaction with amae network and amae network constructs to emotional status; and 4) the relationships of self-esteem and amae network to emotional status.

Analysis 1. Effects of the individual attitude toward amae phenomena on the amae network. It was speculated that an individual's practice of amae would be influenced by social sanction toward amae phenomena in the community in which that person lived (e.g., Doi, 1971). In this study, social sanction toward amae phenomena was operationalized as individual attitude toward amae phenomena by assuming that the individual's attitude is a reflection of social norm. Thus the hypothesis to be tested was "the amae network would be significantly related to the individual's attitude toward amae phenomena" (Hypothesis 4).

Since there was no previously established tool to measure how an individual feels or thinks of amae phenomena, this investigator developed a scale to measure these thoughts and feelings. This scale is called the Amae Attitude Scale (AAS). The AAS was attached to the ANQ of this study. No reliability or validity measures were performed on the AAS prior to its use in this study. Thus test-retest reliability and response bias for the AAS were simultaneously tested when the validity testing was carried on with subjects of Group E ($n = 85$). An

interval of ten days was chosen to estimate the test-retest reliability of the AAS as was true also for the ANQ. The Marlowe-Crowne Test of Social Desirability was administered concurrently with the ANQ and the AAS to test whether or not responses by subjects on both parts may have been influenced by social desirability.

Means and standard deviations for all questions of the AAS are presented in Table 4.15. The test-retest reliability of the AAS computed as a whole was 0.63 ($p < .001$) with 74 subjects completing both tests. The AAS is divided into two parts: attitude toward amae in general (General Amae) has ten items and attitude toward one's own amae (Own Amae) has nine items. The test-retest reliability of the General Amae was moderate (0.54 with $p < .000$), while the Own Amae had a high level of repetition (0.71 with $p < .000$). The test-retest reliabilities for all questions of the AAS were also computed (Table 4.16). Eight items obtained a 0.60 or higher correlation between the testing and retesting--two General Amae items and six Own Amae items.

The response bias of the AAS was tested by computing the Pearson Correlation Coefficients between scores for all items of the AAS and for the social desirability measure (Table 4.15). Sixteen of the 19 AAS items had no relation to the social desirability measure. Items 3, 10, and 19 had a significant relationship to the social desirability measure ($p < .05$), but the magnitude of these correlations were minor (range, 0.24 to 0.26). Thus the results indicate that the AAS is most likely not influenced by the response bias.

Based on these results, validity correlation coefficients between the amae network and individuals' attitudes toward amae phenomena were computed (Table 4.17). Among the amae network constructs, the Total

Table 4.15
Means and Standard Deviations of Amae Attitude Scale (AAS)
($\underline{n} = 85$) and Pearson Correlations Coefficients between
the AAS and the Social Desirability Measure ($\underline{n} = 78$)

Number and Label of the of the AAS	mean	SD	Social Desirability $\underline{r}$
<u>Attitude toward Amae in General</u>			
1. Duration of amae	4.58	1.51	-.18
2. Effect on job performance	3.32	1.37	-.04
3. Interpersonal smoothing	4.46	1.37	-.26*
6. Presence of persons who let the other amaeru	3.81	1.52	-.20
7. Men more than women	3.90	1.17	-.17
15. Acceptance of other amae relationships	4.13	1.28	-.22
16. Amae in adulthood	4.24	1.10	.03
18. Awareness of amae in general	4.43	1.46	-.07
19. Non-prone to selfishness	3.67	1.29	.24*
20. No necessity to overcome amae	3.39	1.35	.03
<u>Attitude toward Own Amae</u>			
4. Amae for jibun (self)	5.06	1.43	-.15
5. Amae for the other	4.31	1.34	.22
8. More amaeru on the other	4.40	1.64	-.04
9. Others more amaeru on me	3.96	1.23	-.13
10. No "amaesugi" (over-behaving amae)	3.96	1.67	.25*
11. Depending on who he/she is	6.29	0.80	-.04
13. More amaeru on "miuchi"	4.61	1.60	-.10
14. Amaeru even on strangers	4.11	1.95	-.06
17. Awareness of own amae	4.14	1.61	-.16

Note: All significance levels are based on a two-tailed test.

* $p \leq .05$

Table 4.16
Pearson Correlation Coefficients among Aase Attitude Questions¹ (n = 84)
and Their Test-Retest Reliabilities^{1,2} (n = 74)

	Attitude Toward Aase in General										Attitude Toward One's Own Aase									
	Q01	Q02	Q03	Q06	Q07	Q15	Q16	Q18	Q19	Q20	Q17	Q04	Q05	Q08	Q09	Q10	Q11	Q13	Q14	
Q01	(75) [¶]																			
Q02	32 [§]	(58) [¶]																		
Q03	19	13	(52) [¶]																	
Q06	00	-06	06	(57) [¶]																
Q07	07	07	15	-17	(48) [¶]															
Q15	01	11	38 [¶]	08	05	(62) [¶]														
Q16	41 [¶]	23*	05	-17	-02	12	(34) [§]													
Q18	-13	-11	-21	09	-12	-17	-21	(48) [¶]												
Q19	25*	54 [¶]	18	02	-12	33 [§]	43 [¶]	-15	(40) [§]											
Q20	47 [¶]	35 [¶]	16	01	-04	13	35 [¶]	-27*	54 [¶]	(43) [¶]										
Q17	-01	00	12	19	08	-04	-32 [§]	39 [¶]	-25*	-19	(43) [¶]									
Q04	20	-07	14	-10	13	05	-06	-04	-22*	-01	22*	(69) [¶]								
Q05	-23*	-04	03	-01	23*	07	-27*	05	-11	-17	17	06	(64) [¶]							
Q08	15	00	05	00	07	00	-01	-01	-13	05	20	42 [¶]	02	(74) [¶]						
Q09	-03	10	03	-09	31 [§]	-01	-14	-08	-03	08	12	11	22*	-20	(56) [¶]					
Q10	-17	07	-16	01	-20	04	-01	17	22*	-05	-23*	-54 [¶]	-01	-70 [¶]	03	(81) [¶]				
Q11	-04	-10	-13	11	21	-06	-01	-02	-13	-19	07	-09	21	15	21	-11	(38) [¶]			
Q13	-07	05	07	15	-17	-15	-16	-08	-02	-04	17	25*	12	20	01	-26*	04	(69) [¶]		
Q14	19	-03	31 [§]	02	24*	16	09	-15	04	23*	-02	10	09	41 [¶]	01	-38 [¶]	10	12	(74) [¶]	

Note: ¹All significant levels are based on a two-tailed test. All Decimal points are not reported.

²All parentheses present a test-retest reliability.

*p < .05

§ p < .01

¶ p < .001

Table 4.17
Correlations between Amae Network Variables and
Amae Attitude Scale
(n = 84)

AN Variable	Attitude toward Amae Correlations		
	General Amae	Own Amae	Total
Overall Satisfaction	.07	.18	.17
Size of Network	-.01	.30 ^{\$}	.18
Living Distance	.05	.21	.17
Duration of Relationship	.01	.12	.08 ^{\$}
Frequency of Contact	.15	.31 ^{\$}	.31 ^{\$}
Attention	.06	.15	.14
Reassurance	.00	.15	.09
Affection	-.05	.20	.09
Nurturance	.03	.10	.09
Aid	-.11	.17	.03
Physical Proximity	.12	.20	.22*
Emotional Proximity	-.04	.33 ^{\$}	.18
Negative Cohesion	.06	-.10	-.02
Positive Cohesion	.00	.25*	.15
Self-disclosure	.02	.24*	.16
Satisfaction-Comfort	.00	.27*	.17
Overloading	.07	-.01 [¶]	.04 ^{\$}
Amae	.15	.35 [¶]	.33 ^{\$}
Enryo	-.05	-.12	-.11
<u>AN Constructs</u>			
Total Structure	.08	.28*	.23*
Dependency	-.03	.18 ^{\$}	.09
Wish-for-oneness	-.03	.30 [¶]	.21 ^{\$}
Positive Evaluation	.08	.35 [¶]	.29 ^{\$}
Negative Evaluation	.02	-.08	-.04

Note: All significance levels are based on a two-tailed test.

* $p \geq .05$
^{\$} $p \geq .01$
[¶] $p \geq .001$

Structure and Positive Evaluation were significantly related to the total score of the AAS, although the magnitudes of the correlations were not too high. The Functional Dimension and Negative Evaluation were not related to the total score of the AAS. When parts of the AAS were separately computed, the Own Amae was significantly related to the seven amae network variables, but the General Amae was related to none of the amae network variables. That is, the amae network appeared to be more related to the attitude toward one's own amae than to the attitude toward amae in general. Dependency variables were unrelated to both the General Amae and the Own Amae parts of the AAS. Thus Hypothesis 4 was only partially accepted.

It is interesting to note why the Negative Evaluation was not related to the AAS and why the Dependency was not related to the AAS while the Wish-for-oneness was. First of all, the AAS was not tested in terms of any validity so that lack of validity might have influenced the lower levels of correlation between the ANQ and AAS. Second, since the attitude toward amae is an indirect measure of social sanction toward amae phenomena, the indirect measurement factor may have contributed in part to the lower correlations. Third, all three negatively stated amae network items are conceptually unrelated to the individual's attitude toward amae, so that no correlations were found in this study. Fourth, the Dependency variables which measure what and how much one gets from others may not be directly related to how one feels and thinks of his or her amae behavior or the amae behaviors of others. On the other hand, the Wish-for-oneness variables which measure more what and how much one shares with others may be more directly related to how much one is willing to accept the amae phenomena.

In summary, the conceptual indirectness between the amae network constructs such as Dependency or Negative Evaluation and the attitude toward amae as well as the operational indirectness between the individual's attitude toward amae and social sanction toward amae were speculated to have resulted in the partial rejection of Hypothesis 4.

In view of the above, it may be beneficial to question why the Own Amae results indicated a significant relationship to three of the five amae network constructs. In order to examine which AAS questions were related to which amae network variables, the Pearson correlation coefficients between the amae network variables and the AAS items were computed (Table 4.18). For this analysis, eight AAS items which had more than 0.60 test-retest reliability were chosen. Of these, only two were from the General Amae section (Question 01 and 15). Unreliability of the majority of the General Amae items could be speculated to result in no relationship of the General Amae to the ANQ. Among amae network variables, the variable of Amae was significantly related to the six AAS questions. The variable of Amae measures directly how much one thinks one can and actually does practice amae on one's network members. The Own Amae portion of the AAS measures how much one views oneself as practicing amae. The results indicate that the more one accepts oneself as practicing amae, the more one actually does and can practice amae with others. Among the General Amae questions of the AAS, only Question 15 ("I rather enjoy to see two persons who are practicing mutual-amae") was positively and significantly related to the amae network variables of Attention, Physical Proximity, Satisfaction-Comfort, and Amae, but inversely and significantly related to the variable of Enryo. Although Question 15 does not ask about the individual's own amae behavior, it

Table 4.18
Pearson Correlation Coefficients between Amae Network Variables
and Selected Amae Attitude Question ($\bar{n} = 84$)

A N Variable	Selected Amae Attitude Questions									
	Q01	Q04	Q05	Q08	Q10	Q13	Q14	Q15	Total	
Overall Satisfaction	-.04	-.10	.15	.05	.03	.13	.09	.16	.16	
Size of Network	.03	.12	.10	.17	-.18	.11	.28 [§]	-.01	.23*	
Living Distance	-.02	.09	-.04	.07	-.17	.23*	.26*	.07	.18	
Duration of Relationship	.05	.06	.08	.10	-.09	.07	.08	-.04	.11	
Frequency of Contact	.11	.12	.04	.11	-.22*	.14	.29 [§]	.07	.24*	
Attention	-.03	.02	.08	.06	-.08	.06	.31 [§]	.28*	.25*	
Reassurance	-.07	-.04	.10	.04	-.07	.14	.24*	.11	.17	
Affection	-.01	.00	.10	.06	-.11	.12	.26*	.11	.17	
Nurturance	-.06	-.03	.03	.13	-.12	.12	.34 [§]	.16	.22*	
Aid	-.14	.19	.04	.22*	-.23*	.09	.30 [§]	.13	.22*	
Physical Proximity	.05	.25*	.09	.05	-.05	.05	.24*	.28 [§]	.33 [§]	
Emotional Proximity	-.17	.06	.18	.01	-.14	.22*	.40 [¶]	.15	.27*	
Negative Cohesion	.13	.02	-.11	-.03	-.11	-.10	-.17	-.12	-.18	
Positive Cohesion	-.06	.13	.24*	.09	-.11	.12	.23*	.10	.26*	
Self-disclosure	-.09	.08	.13	.05	-.13	.08	.39 [¶]	.20	.26*	
Satisfaction-Comfort	-.09	.07	.12	.08	-.01	.14	.27*	.22*	.28 [§]	
Overloading	.21	.03	-.12	-.03	-.18	-.01	-.06	-.11	-.10	
Amae	.01	.21*	-.03	.30 [§]	-.39 [¶]	.28 [§]	.48 [¶]	.24*	.41 [¶]	
Enryo	.11	-.07	-.11	-.03	-.14	-.10	-.01	-.27*	-.20	

Note: ¹ All significant levels are based on a two-tailed test.

* $p > .05$

[§] $p > .01$

[¶] $p > .001$

does question the degree of emotional involvement with the amae behaviors of others which makes it the closest to the Own Amae questions among the General Amae portion of the AAS. The results indicate that the more one accepts the amae behaviors of others, the more one is ready to open communication with others to get attention and to share physical closeness, so that the more one practices amae and gets satisfaction and comfort from the relationship, the less one practices enryo.

The Aid of the amae network variable was significantly related to Question 08 ("I do amaeru on the other more than others do") and to Question 10 ("I know I sometimes over-practice amae") which were scored inversely. The results indicate that the more a person practices amae, the more one gets help from others.

The most striking results of this analysis reflected the relationships of Question 14 of the AAS to the amae network variables. This question asks how much an individual agrees with the statement, "I do sometimes practice amae even to strangers." Responses to this question were significantly related to 14 amae network variables. The results indicated that the more one practices amae with a variety of people including strangers, the more one obtains higher scores on the amae network. According to Doi (1975, p. 176), one succeeds and gets satisfaction in practicing amae only when "one's amae is regarded and accepted by the other." Because amae is dependent on the reaction of the other person, one may feel vulnerable and become cautious when entering into encounters with strangers. However, if one assumes that even strangers would accept his or her amae behavior, one will perceive less vulnerability in the practice of amae. Thus one can and does practice more amae with a greater variety of people and receives more of

what one has sought in the relationships. The assumption of higher or more stable levels of acceptability of amae by others can be speculated to be a reflection of high tolerance for amae phenomena in a society. Therefore, to what extent one perceives the existence of high tolerance toward amae will affect the characteristics of the network and the degree to which one receives from others (Dependency), how much one shares with others (Wish-for-oneness), and how much one positively evaluates relationships with others (Positive Evaluation).

In summary, the variable of Amae was directly related to the AAS while Aid was also significantly related to the degree of agreement with the actual phenomena of amae. The high tolerance toward amae behaviors of others was also related to some amae network variables. The degree of the individual's perception for security with a variety of people including strangers was strongly related to the amae network. Although Hypothesis 4 was only partially accepted in this study, the improvement of the amae attitude measure will enlighten investigators about additional constructs of amae networks in the future.

Analysis 2: Zone differences on the Amae Network. The concept of the amae network is primarily constructed from two intersecting notions: that of amae network dimensions which include Structural Dimension, Functional Dimension, and Evaluative Dimension, and that of the Amae Network Zone which includes three zones--intimate relationship zone (Zone 1), friendship zone (Zone 2), and "giri" zone (Zone 3). These two notions were speculated to interact with each other in this study; that is, individuals listed in one zone will provide different characteristics of amae network than individuals who are listed in another zone (Hypothesis 5).

One way to validate the constructs of a concept is to use known groups which have obviously different characteristics related to the particular constructs (Allen & Yen, 1979; Thorndike & Hagen, 1977). In this analysis, the zone differences were used as group differences to predict differences in amae network constructs and variables among these three zones. Thus Hypothesis 5 which is a broad hypothesis was specified further as follows:

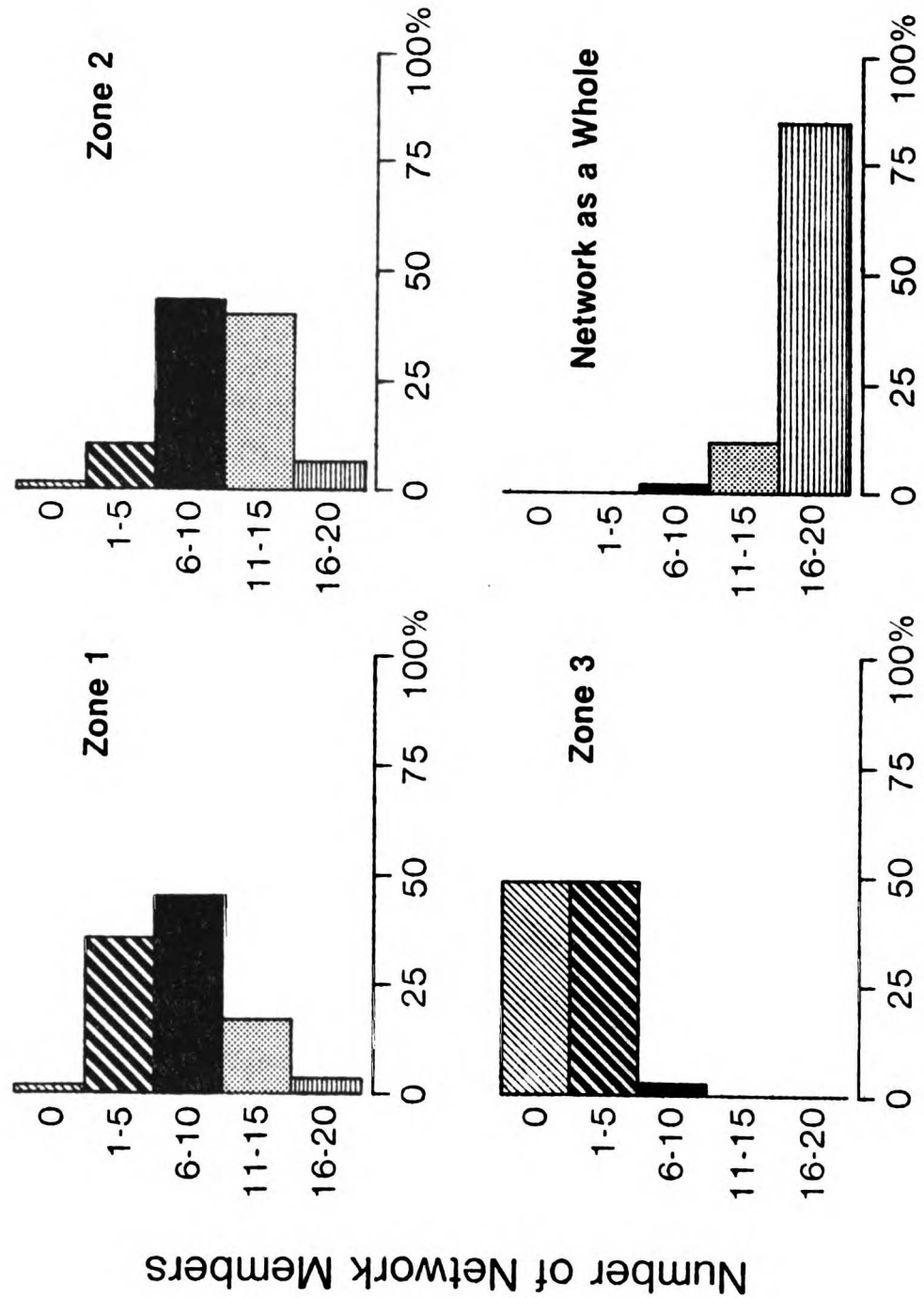
Hypothesis 5a: The size of network in Zone 2 will be the largest, while Zone 1 will have a significantly larger size of network than Zone 3.

Hypothesis 5b: Zone 1 will have the highest scores on every construct and variable of amae network except for the negatively connotated variables and constructs. As above, Zone 2 will have significantly higher scores on the same variables and constructs than Zone 3.

Hypothesis 5c: Zone 3 will have the largest scores on all negatively connotated variables and construct. Zone 2 will have significantly higher scores than Zone 1 on these variables and construct.

Figure 4.1 presents the relative frequencies of network size of each zone. More than 85% of the subjects listed more than 16 individuals in their networks. Previous studies indicated that normal populations generally listed 15 to 20 people as network members (e.g., Pattison, 1975; Tolsdorf, 1976). Thus this study is consistent with these previous studies. Figure 4.1 also shows that Zone 2 had a shift toward the larger size more often than Zone 1 did. The t-test for the

Figure 4.1
Relative Frequencies of Network Size
of Three Zones and Network as a Whole
(n=482)



size difference between Zones 1 and 2 resulted in findings that Zone 2 was significantly larger than Zone 1 ($t = 8.83$, $p < .001$, $df = 481$) (Table 4.19).

Nearly half of the subjects (48.96%) listed no one in Zone 3 while the rest had less than five individuals in the same zone. It is obvious that Zone 1 had a significantly larger network than Zone 3 ($t = 18.33$; $p < .001$; $df = 245$) even when these two zones were compared excluding subjects who did not list anyone in Zone 3. Therefore, Hypothesis 5a was accepted in this analysis.

To determine the quality of amae independent of network size, the average ratings for individual network members were computed by dividing the mean score of a variable by the number in the zone. This computation was done for all zones separately. Means and standard deviations of all variables which are independent of network size are presented in Table 4.20. The scores for the amae network constructs are the sum of the relevant variables. The average ratings for Zone 3 were computed by using subjects who listed at least one person in that zone.

Table 4.19 presents the results of paired t-tests for all amae network variables and constructs between zones. These results showed that both Hypothesis 5b and 5c were accepted with only a few variables being exceptional. In regard to Hypothesis 5c, Zone 3 consistently had significantly higher scores on all three variables and the construct in which the negatively connotated items were located. These variables were: 1) Negative Cohesion which asks, "Do you ever feel that you were suffocated by this relationship and wanted to leave it if possible? If so, how much do you feel so?"; 2) Over-loading which asks, "Do you get tired with this relationship? How much do you feel so?"; and 3) Enryo

Table 4.19
Paired t-Tests for the Amae Network Variables
among Zones 1, 2, and 3

AN Variable	Zone 1 vs. Zone 2 ¹		Zone 1 vs. Zone 3 ²		Zone 2 vs. Zone 3 ²	
	t value	p ³	t value	p ³	t value	p ³
Size of Network	-8.83	.000	18.33	.000	32.05	.000
Living Distance	-2.88	.004	17.90	.000	27.45	.000
Duration of Relationship	-3.17	.002	22.47	.000	29.48	.000
Frequency of Contact	-4.93	.000	20.34	.000	28.06	.000
Attention	2.01	.046	25.47	.000	31.88	.000
Reassurance	-1.08	NS	21.98	.000	29.28	.000
Affection	-2.11	.035	23.38	.000	31.89	.000
Nurturance	2.48	.014	26.85	.000	27.42	.000
Aid	7.00	.000	28.39	.000	25.37	.000
Physical Proximity	4.05	.000	19.75	.000	19.75	.000
Emotional Proximity	-1.83	NS	22.06	.000	30.32	.000
Negative Cohesion	-8.56	.000	1.23	NS	8.75	.000
Positive Cohesion	2.56	.011	25.15	.000	28.48	.000
Self-disclosure	0.57	NS	23.12	.000	27.86	.000
Satisfaction-comfort	-1.59	NS	22.16	.000	29.77	.000
Overloading	-5.60	.000	6.69	.000	10.98	.000
Amae	4.77	.000	24.97	.000	24.26	.000
Enryo	-24.50	.000	-3.21	.002	16.93	.000
AN Construct						
Total Structure	-4.47	.000	22.19	.000	31.61	.000
Dependency	5.59	.000	26.56	.000	31.56	.000
Wish-for-oneness ⁴	0.69	NS	24.47	.000	31.05	.000
Positive Evaluation	1.24	NS	24.20	.000	29.56	.000
Negative Evaluation	-18.85	.000	1.64	NS	16.76	.000

Note: ¹n = 482

²n = 243

³n = 243

⁴All significance levels are based on a two-tailed test.

Excluded negative Cohesion.

Table 4.20
Means and Standard Deviations of Amae Network Variable Scores
Independent of Network Size for the Three Zones

AN Variables	Zone 1 (n = 478)		Zone 2 (n = 478)		Zone 3 (n = 246)	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Living Distance ^a	2.55	1.51	2.02	0.51	2.11	0.06
Duration of Relationship ^b	4.61	0.56	3.68	0.71	3.54	1.15
Frequency of Contact ^c	3.73	0.86	3.23	0.78	2.75	1.25
Attention ^d	2.69	0.58	1.84	0.56	0.98	0.62
Reassurance ^d	2.79	0.63	2.15	0.60	1.68	0.85
Affection ^d	3.34	0.55	2.63	0.59	1.99	0.70
Nurturance ^d	3.26	0.56	2.17	0.75	1.57	0.89
Aid ^d	2.57	0.63	1.43	0.67	0.74	0.63
Physical Proximity ^d	2.03	0.97	1.25	0.78	0.52	1.43
Emotional Proximity ^d	2.40	0.74	1.93	0.64	0.96	0.77
Negative Cohesion ^d	0.56	0.66	0.65	0.55	1.38	1.34
Positive Cohesion ^d	3.49	0.67	2.30	0.76	1.35	1.53
Self-disclosure ^d	2.29	0.75	1.68	0.91	0.62	0.68
Satisfaction-Comfort ^d	2.92	0.66	2.28	0.72	1.60	1.45
Overloading ^d	0.70	0.66	0.73	1.07	1.18	1.24
Amae ^d	2.49	0.76	1.48	0.76	0.64	0.71
Enryo ^d	0.64	0.60	1.55	0.79	2.53	1.00
AN Construct ^e						
Total Structure ^f	10.89	2.01	8.93	1.10	8.39	1.95
Dependency	14.64	2.33	10.23	2.59	6.96	2.72
Wish-for-oneness ^g	10.76	2.22	7.16	2.26	3.46	3.67
Positive Evaluation	5.41	1.23	3.76	1.30	2.23	1.84
Negative Evaluation	1.35	1.01	2.28	1.67	3.72	1.78

Note: ^aBased on ratings for each network member on a five-point scale ranging from 5 (living in the same household) to 1 (living farther than two hours by public transportation).

^bBased on ratings for each network member on a five-point scale ranging from 5 (more than five years) to 1 (less than six months).

^cBased on ratings for each network member on a five-point scale ranging from 5 (daily) to 1 (once a year or less).

^dBased on ratings for each network member on a five-point scale ranging from 4 (a great deal) to 0 (not at all).

^eBased on total scores for variables within a construct.

^fExcluded scores for Size of Network.

^gExcluded scores for Negative Cohesion.

which asks, "Do you have enryo (holding-back) or "kigane" (feeling of restraint) toward this person? How much do you feel so?" The construct of Negative Evaluation is the sum of 2 and 3 above. Zone 1 had the significantly lowest scores on these variables and constructs except for Over-loading. However, the means of this variable for both zones were so small (between "not at all" and "a little") that the relationships to the individuals who were listed in these zones were evaluated as "not over-loading."

In regard to Hypothesis 5b, Zone 1 had consistently higher scores on every variable and construct except for the negatively connotated ones. The differences between Zones 1 and 2 and between Zones 1 and 3 were all significant. Zone 2 had significantly higher scores on all but one of the variables and constructs over Zone 3. The variable of Living Distance resulted in no difference between Zones 2 and 3.

What do these results imply about the relationship of individuals in the different zones to the nature of amae relationships? The results of this analysis indicate that Zone 1 conforms to the notion of "uchi" (inner) pointed out by Doi (1967, 1971) as well as to the notion of "small group in the Japanese society" proposed by Nakane (1978). Nakane describes the culture-bound characteristics of the "small group in Japanese society" as 1) high frequency of contact with other members of the group, 2) high level of stability in the relationships with members, 3) two to ten members (ideally five to seven), 4) sharing a common "field" which makes communication tight and intimate, and 5) existence of a specific and unique atmosphere among the members. Since the ANQ does not intend to measure the nature of interrelations among the network members, the results of this analysis do not provide information

about whether members listed in Zone 1 shared this common field and unique atmosphere with each other. However, the structural characteristics of Zone 1 in this study appeared to comprise the rest of the characteristics of "the small group in Japanese society."

Then, what does "the small group" provide an individual who belongs to this group? Nakane (1978) claims that "this specific and unique atmosphere of the small group is essential to the existence of a Japanese as the air to human body" (p. 28) since the group provides multipurpose roles for the individual. For example, colleagues who belong to the small group even provide family functions for the members of the group. Thus the small group provides all necessary functions. The results of this analysis indicate that individuals who were listed in Zone 1 provided the highest scores on every attribute derived from dependency needs and wish-for-oneness with others. If the individuals in Zone 1 have so many different functions, then what might make Zone 1 so different from the other zones? Doi (1967, 1971) argues that the differences between "uchi" and "soto" (outer) are levels of amae and enryo. Amae is very common and essential among people within "uchi" and enryo is high among people who are related to each other based mainly on "giri" (social obligation). Nakane (1978) claims that the specific and unique atmosphere is the presumption for amae behaviors among members of a small group. The analysis of the Evaluative Dimension in this study appeared to confirm these arguments. Subjects in this study were aware that they could and did amaeru significantly more on the individuals in Zone 1 than on those in other zones. The subjects felt more comfortable and secure and were more satisfied with the individuals in Zone 1 than with those in the other zones. Subjects also had less enryo and

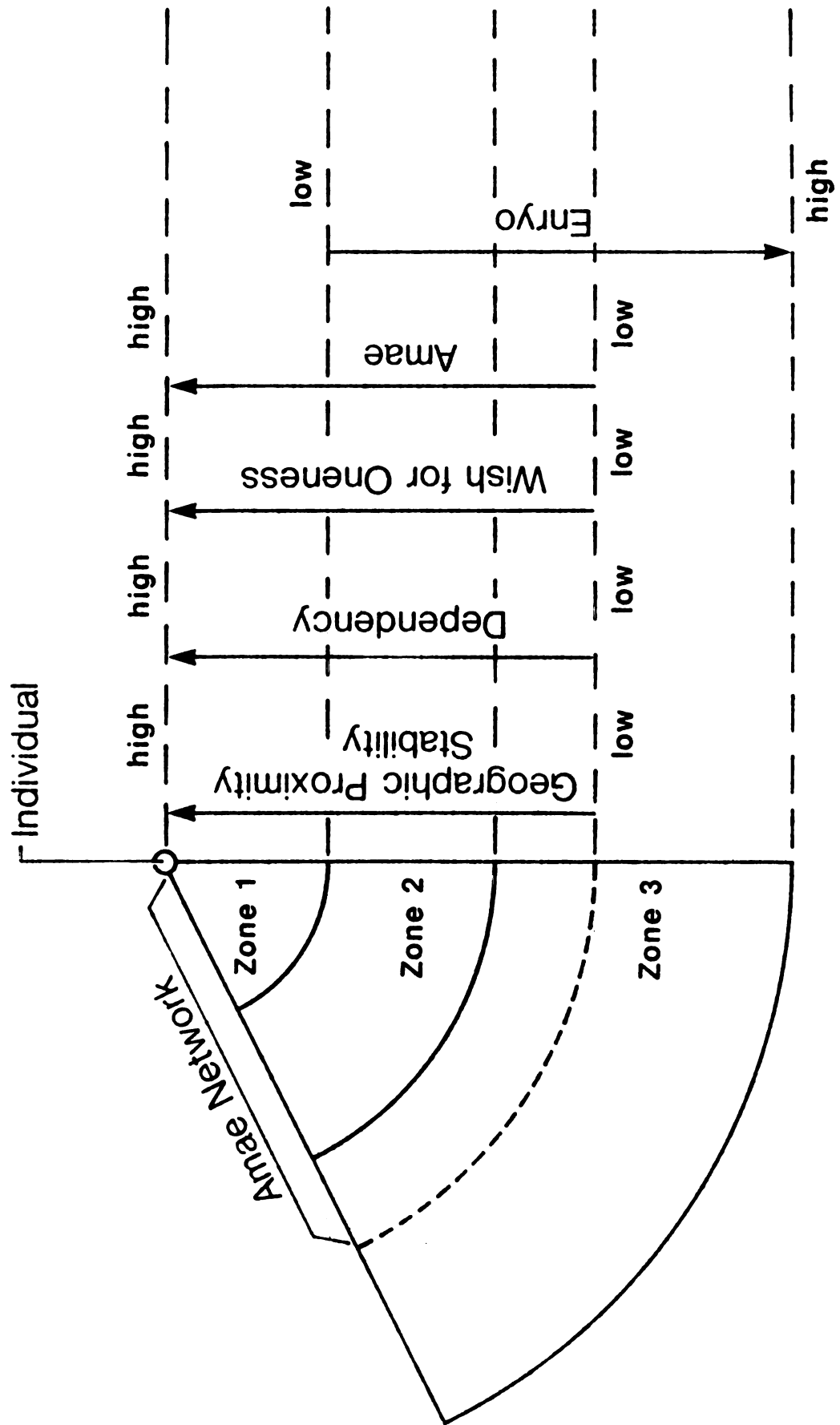
feelings of over-loading with these individuals in Zone 1 than those of the other zones.

What is the role of Zone 2 which is conceptualized as the friendship zone in this study? According to Nakane, it is necessary to have relationships other than those within the small group to maintain mental health of the individuals and to keep up social and professional lives, but the relationships outside the small group are more unstable and may be easily affected by social situations. The scores on the Structural Dimension for Zone 2 indicated that this zone is larger in size but less tangible and stable than Zone 1. The scores of the Functional Dimension for Zone 2 indicate that the friendship zone provides less quality of attribute derived from dependency needs and wish for becoming one with others than the intimate zone.

Zone 3 is mainly obligatory relationships. Nearly half of the subjects in this study did not list anyone in this zone. Two reasons for this might be speculated: First, the majority of the subjects listed more than 16 individuals as amae network members and thus used up space for those individuals belonging in Zone 1 and Zone 2. In fact, a student approached this investigator after listing 20 people and said that she had forgotten to include her mother and father. Second, the format of the ANQ may have contributed to this imbalance. Individuals who might belong in Zone 3 but were not included might not be considered as "frequent encountering in daily life and important persons" by the subjects. On the other hand, another question arises: Why did half of the subjects include individuals who would usually be considered belonging in Zone 3 as members of the amae network? This analysis resulted in findings indicating that there is no difference in Living

Distance between Zone 2 and Zone 3. The trend was for individuals listed in Zone 3 to be closer in Living Distance than those listed in Zone 2. This result indicates that geographic proximity may be a key factor for inclusion of individuals from Zone 3 in the amae network. The mean of duration of relationships in Zone 3 indicates that individuals listed in Zone 3 were from relationships sustained for more than one year. However, the major characteristics of the relationships in Zone 3 are feelings of over-cohesion, over-loading, and enryo. Thus the relationships in Zone 3 are strenuous to subjects. Despite this strenuousness, why were these individuals included in the list of members of the amae networks by these subjects? Doi (1973) hypothesized the relationship between "giri" and amae by adopting another Japanese concept, "ninjo." He stated, ". . .one might replace amae by the more abstract term 'dependence,' and say that 'ninjo' welcomes dependence whereas 'giri' binds human beings in a dependent relationship" (1973, p. 35). The "ninjo" is "a set of emotions that are especially familiar to the Japanese" (p. 33) and means "specifically knowing how to amaeru properly and how to respond to the call of 'amaeru' in the others" (Doi, 1967, p. 330). According to Doi, the relationship between amae and "ninjo" is not specific enough to operationalize. To this investigator, "ninjo" is a set of emotions to fulfill the dependency needs but not necessary to fulfill the wish for oneness. Although the mean scores for Dependency Construct in this analysis were low, individuals who were included in the amae network might be different on the Dependency variables from those who belong to Zone 3 but were included in the network by subjects. However, this is mere speculation and further investigations are necessary to test whether it is true.

Figure 4.2
Relationship of Zones to Amae Network



In summary, Zone 1 had distinct functions in the amae network from other zones. Zone 2 had significantly lower scores than Zone 1 but had significantly higher scores than Zone 3. The reasons why certain subjects of this study included individuals ordinarily listed in Zone 3 in the amae network were speculated by the investigator to be as follows: geographic proximity, more than one-year duration of relationship, and lower yet existing functions to fulfill dependency needs. These speculations are illustrated in Figure 4.2.

Analysis 3: Relationship of Overall Satisfaction with Amae Network and the Amae Network Constructs to Emotional Status of an Individual.

The ANQ consists of five amae network constructs (Total Structure derived from the Structural Dimension, Dependency and Wish-for-oneness derived from the Functional Dimension, and Positive Evaluation and Negative Evaluation derived from the Evaluative Dimension) plus a variable named Overall Satisfaction with the Amae Network (ANS). This analysis examined the validity of the ANS and these amae network constructs related to emotional status of an individual. Two basic questions in this analysis were the following:

1. How is the ANS related to the emotional status of the individual?
2. How are the amae network constructs related to emotional status of the individual above and beyond the relationship of the ANS to emotional status?

Conceptually the ANQ measures two broad notions: 1) the adequacy of amae network as measured by the ANS and the Evaluative Dimension, and 2) availability of the amae network as measured by the Structural and Functional Dimensions. Thus a broader hypothesis (Hypothesis 6) to be tested in this analysis was "the adequacy of the amae network will be the best predictor for emotional status of the individual, but the effectiveness of that adequacy on emotional status will depend as well on the availability of the amae network." The more specific hypotheses were the following:

Hypothesis 6a: The ANS will be significantly related to emotional status of the individual. Emotional status will be

measured by Spielberger's State-trait Anxiety Inventory for state and trait anxiety and by the Yatabe-Guilford Personality Inventory for emotional stability.

Hypothesis 6b: The Evaluative Dimension of the amae network will be significantly related to the emotional status of the individual above and beyond the variance of ANS.

Hypothesis 6c: The effectiveness of the ANS on emotional status will not depend on the Structural Dimension of the amae network.

Hypothesis 6d: The effectiveness of the ANS on emotional status will depend on the Functional Dimension of the amae network.

In order to test these hypotheses, multiple regression analyses were conducted to compute the following:

1. The relationship of the ANS and the Evaluative Variables to emotional status of the individual (Hypotheses 6a and 6b).
2. The relationship of the ANS and the Structural Variables to emotional status of the individual (Hypothesis 6c).
3. The relationship of the ANS and the Dependency Variables to emotional status of the individual (Hypothesis 6d).
4. The relationship of the ANS and the Wish-for-oneness Variables to emotional status of the individual (Hypothesis 6d).

In order to partial out the variance of the ANS first and then the other main effects, a hierarchical approach was used in all analyses. Since the results of these analyses indicated that even less than 2% of the variance could make a significant level of contribution, the value of

meaningful levels of variance were established by examining the power as a function of sample size, effect size, and p value (Cohen & Cohen, 1965; Cohen, 1978). When the F test resulted in a significant level, the power of the test was examined by using criteria of power greater than .80 and $p < .05$. Effect size was calculated by the shrunken R^2 based on the variance obtained from these analyses. Thus whether the variance obtained from each contribution was sufficiently large enough to be considered a meaningful contribution was examined. When the F test resulted in a significant level but the variance obtained from the analysis was not sufficiently large in terms of power, the result was concluded to be a tendency.

The result of the first analysis to test hypothesis 6a is presented in table 4.21 which includes three separate analyses for State Anxiety, Trait Anxiety, and Emotional Stability. Since the ANS had significant effects on all indicators of emotional status of the individual, Hypothesis 6a was accepted indicating that ANS is the best predictor of the emotional status of the individual. However, the Evaluative Variables did not have significant effects on emotional status above and beyond the variance of ANS except in the case of Overloading on Emotional Stability. Thus Hypothesis 6b, "the Evaluative Dimension of the amae network will be significantly related to emotional status of the individual above and beyond the variance of the ANS" was rejected with one exception. These results conform to the previous studies. Hirsh (1980) found that satisfaction with one's social network was significantly related to mental status of the subjects which is congruent with the first part of this analysis. Henderson and associates (1978) also found that the dimensions of adequacy of social

Table 4.21
Relationship of Overall Satisfaction and Evaluative Variables
of the Amae Network to Emotional Status

Source	Emotional Status											
	State Anxiety						Trait Anxiety					
	df	$I_{R^2}^*$	F	P	df		$I_{R^2}^*$	F	P	df	$I_{R^2}^*$	F
Main Effects	5	.108	7.25	.001**	5		.151	10.60	.001**	5	.124	8.73
Overall												
Satisfaction (ANS)	1	.084	28.22	.001**	1		.125	44.14	.001	1	.072	25.27
Satisfaction-Comfort	1	.001	0.41	NS	1		.009	3.33	NS	1	.009	3.25
Over-loading	1	.008	2.73	NS	1		.005	1.80	NS	1	.023	8.23
Amae	1	.006	1.85	NS	1		.001	0.52	NS	1	.009	3.29
Enryo	1	.009	3.25	NS	1		.009	3.18	NS	1	.010	3.59
Interactions	4	.045	3.74	.01	4		.054	4.71	.005**	4	.060	5.28
ANS X Satisfaction-Comfort	1	.009	3.00	NS	1		.002	0.53	NS	1	.002	0.64
ANS X Over-loading	1	.018	5.93	.01	1		.020	6.91	.01	1	.021	7.40
ANS X Amae	1	.015	5.18	.01	1		.021	7.38	.01	1	.012	4.21
ANS X Enryo	1	.003	0.84	NS	1		.011	3.99	.05	1	.025	8.89
Entire Model	9	.153	5.69	.001**	9		.204	7.98	.001**	9	.184	7.20
Error	284	.847			280		.796			288	.816	

Note: * I_{R^2} refers to increment in R^2 .

**Power > .80 with α level of .05.

support appeared to be highly intercorrelated by indicating the presence of a general factor of perceived adequacy of social relationships. Their result is also congruent with the second part of this analysis.

Hypothesis 6c tested the interaction effects of the ANS and the Structural Dimension on emotional status of the individual. Table 4.22 presents the results of three multiple regression analyses. Since there was not significant interaction effect of the ANS and the Structural Variables on the three indicators of emotional status, Hypothesis 6c was accepted indicating that the effectiveness of the ANS on emotional status is independent of the Structural Dimension.

In order to test Hypothesis 6d, the interactional effects of the ANS and the Functional Dimension on emotional status were examined. Since the Functional Dimension consisted of two constructs, two separate analyses were done to compute first the multiple regression of the ANS and the Dependency Construct on emotional status and second the ANS and the Wish-for-oneness Construct on emotional status. Table 4.23 presents the results of the Dependency Construct on three indicators of emotional status. A significant interactional effect of the ANS and the Dependency Variables was found on State and Trait Anxiety, but not on Emotional Stability. These interaction effects accounted for 6.2% of the variance on State Anxiety and 7.6% on Trait Anxiety.

The interactional effects of the ANS and the Wish-for-oneness Construct on emotional status are presented in Table 4.24 with the results of three multiple regression analyses at once. Only Emotional Stability was significantly accounted for by an interaction of the ANS and the Wish-for-oneness Variables. Trait Anxiety also tended to be influenced by the interaction between the ANS and the Wish-for-oneness

Table 4.22
Relationship of Amae Network Satisfaction and Structural Variables
of the Amae Network to Emotional Status

Source	Emotional Status									
	State Anxiety					Trait Anxiety				
	df	I ² _R	F	P	df	I ² _R	F	P	df	I ² _R
Main Effects	5	.100	6.16	.05	5	.151	9.81	.01**	5	.095
Overall										
Satisfaction (ANS)	1	.082	25.28	.001**	1	.125	40.67	.001**	1	.072
Size of Network	1	.000	0.11	NS	1	.014	4.61	.05	1	.002
Living Distance	1	.001	0.39	NS	1	.000	0.01	NS	1	.000
Duration of Relation.	1	.016	4.91	.05	1	.012	3.76	NS	1	.021
Frequency of Contact	1	.000	0.12	NS	1	.000	0.00	NS	1	.000
Interactions	4	.014	1.12	NS	4	.006	0.52	NS	4	.020
ANS X Size	1	.001	0.26	NS	1	.001	0.36	NS	1	.000
ANS X Distance	1	.006	1.73	NS	1	.000	0.02	NS	1	.001
ANS X Duration	1	.008	2.48	NS	1	.004	1.46	NS	1	.002
ANS X Frequency	1	.000	0.00	NS	1	.001	0.25	NS	1	.017
Entire Model	9	.114	3.92	.01	9	.157	5.68	.01	9	.115
Error	274	.886			274	.843			274	.885

Note: *I²_R refers to increment in R².

**Power > .80 with a level of .05.

Table 4.24
Relationship of Amae Network Satisfaction and Wish-for-oneness Variables
of the Amae Network to Emotional Status Among Japanese Female Students

Source	Emotional Status									
	State Anxiety					Trait Anxiety				
	df	$I_{R^2}^*$	F	P	df	$I_{R^2}^*$	F	P	df	$I_{R^2}^*$
Main Effects	6	.117	6.52	.001**	6	.150	8.64	.001**	6	.110
Overall										
Satisfaction (ANQ)	1	.084	28.16	.001**	1	.125	43.36	.001**	1	.072
Physical Proximity	1	.001	0.20	NS	1	.001	0.48	NS	1	.003
Emotional Proximity	1	.002	0.82	NS	1	.007	2.54	NS	1	.006
Negative Cohesion	1	.015	4.97	.05	1	.013	4.52	.05	1	.018
Positive Cohesion	1	.003	1.08	NS	1	.003	0.96	NS	1	.007
Self-disclosure	1	.012	3.89	.05	1	.000	0.00	NS	1	.004
Interactions	5	.034	2.28	NS	5	.040	2.74	.025	5	.056
ANS X Physical Prox.	1	.001	0.24	NS	1	.000	0.01	NS	1	.007
ANS X Emotional Prox.	1	.002	0.73	NS	1	.004	1.39	NS	1	.002
ANS X Negative Cohes.	1	.017	5.70	.025	1	.010	3.59	NS	1	.022
ANS X Positive Cohes.	1	.012	4.01	.05	1	.024	8.40	.005**	1	.017
ANS X Self-disclosure	1	.002	0.71	NS	1	.001	0.29	NS	1	.008
Entire Model	11	.151	4.59	.001**	11	.190	5.96	.001**	11	.165
Error	284	.849			280	.810			288	.835

Note: $*I_{R^2}$ refers to increment in R^2 .

**Power > .80 with α level of .05.

Construct. There were no interactional effects of these two on State Anxiety.

These results partially supported Hypothesis 6d by indicating that the Dependency Construct affected the relationship of the ANS to the level of anxiety of the individual and that the Wish-for-oneness Construct affected the relationship of the ANS to Emotional Stability. That is, effects or perceived adequacy of the amae network (measured by the ANS) on emotional status were quite dependent on the availability of the amae network (measured by the Functional Dimension).

In summary, the perceived adequacy of the amae network was the best predictor of emotional status of the individual indicating that the ANS measured a distinct phenomenon. However, the effects of the perceived adequacy of the amae network depended as well on the availability of the amae network. The Dependency Construct especially appeared to be more influenced than the Wish-for-oneness Construct.

Analysis 4: Relationship of Self-esteem and the Amae Network to Emotional Status.

This analysis examined the relationship of self-esteem and amae network to the emotional status of the individual. A basic question was whether the amae network was a determinant of self-esteem of an individual or a product of self-esteem. In the social network and social support literature, an individual's capacity to socialize with other people has been viewed as a plausible rival concept to that of social support (e.g., Heller, 1979; Mitchell & Trickett, 1980). This analysis in which self-esteem was viewed as the basis for social competence explores the relationship between individual quantity and quality of the amae network. Simple correlation between self-esteem and

the amae network does not respond to this question as Campbell and Stanley (1963) pointed out in saying that naturalistic and correlational nature of the data do not allow for the rejection of important plausible rival hypotheses. To examine the function of the two concepts, the relationship of self-esteem and the amae network to the emotional status of Japanese female students was analyzed by computing multiple regression coefficients. The basic hypothesis was that self-esteem would be significantly related to the emotional status of the individual but that quality of the amae network would affect the relationship of self-esteem to the emotional status (Hypothesis 7).

Self-esteem was measured by the Rosenberg Self-esteem Scale. The approach to interpret the result of the F-test was consistent with the approach used in Analysis 3 by conserving power of .80 as minimum at the α level of .05. Table 4.25 presents the relationship of self-esteem and amae network constructs to the emotional status of the Japanese female student. The self-esteem was first entered into the multiple regression analyses and then amae network constructs were hierarchically entered since some of the amae network constructs were highly correlated with each other. The interactions were entered last.

Self-esteem was significantly related to all indicators of emotional status [$F(1,293) = 81.46$, $p < .001$ for state anxiety; $F(1,288) = 182.10$, $p < .001$ for trait anxiety; and $F(1,296) = 113.56$, $p < .001$ for emotional stability]. The variance accounted for by self-esteem alone was 20% for state anxiety, 33.5% for trait anxiety, and 25.3% for emotional stability, each of which was very high. Thus the first part of Hypothesis 8 was accepted.

The second part of Hypothesis 8 was to test self-esteem by ANS constructs interaction affection the emotional status of the subjects.

Table 4.25
Relationship of Self-esteem and Amae Network
Constructs to Emotional Status

Source	State Anxiety			Emotional Status			Emotional Stability		
	Anxiety			Anxiety			Stability		
	df	I ² _R	F	df	I ² _R	F	df	I ² _R	F
Main Effects	6	.247	16.76	6	.407	36.91	6	.332	24.86
Self-esteem (SE)	1	.200	81.46	1	.339	182.10	1	.253	113.56
Total Structure	1	.010	3.88	1	.027	14.88	1	.013	5.62
Dependency	1	.001	0.49	1	.015	8.02	1	.000	0.00
Wish-for-oneness	1	.004	1.48	1	.001	0.72	1	.000	0.00
Positive Evaluation	1	.001	0.33	1	.002	0.99	1	.007	3.33
Negative Evaluation	1	.032	12.90	1	.027	14.74	1	.050	22.36
Interactions	5	.034	2.79	5	.064	6.99	5	.009	0.85
SE X Structure	1	.007	2.78	1	.001	9.71	1	.000	0.18
SE X Dependency	1	.003	1.07	1	.009	5.14	1	.002	0.81
SE X Oneness	1	.019	7.68	1	.048	26.38	1	.006	2.88
SE X Positive Eval.	1	.006	2.30	1	.004	2.42	1	.001	0.27
SE X Negative Eval.	1	.000	0.14	1	.001	0.30	1	.000	0.10
Entire Model	11	.281	10.41	11	.471	23.31	11	.341	13.95
Error	293	.791		288	.529		296	.659	

Note: *I²_R refers to Increment in R².

**Power > .80 at the α level of .05.

There was a significant interaction effect on trait anxiety [$F(5,288) = 6.99, p < .001$] while state anxiety appeared to be affected by self-esteem by amae network interaction [$F(5,293) = 2.79, p < .025$]. Thus the second part of Hypothesis 7 was only partially accepted. That is, self-esteem was a strong predictor for emotional status of Japanese female students, and the amae network constructs affected the relationship of self-esteem to state and trait anxiety but not to emotional stability.

In order to further explore in what ways the amae network affected emotional status above and beyond the variance accounted for by self-esteem, the relationship of self-esteem and each construct of the amae network to emotional status were computed separately (see Tables 4.26 through 4.29). Table 4.26 presents the relationship of self-esteem and structural variables (size of network, living distance, duration of relationship, and frequency of contact) to emotional status of Japanese female students. Above and beyond the variance accounted for by self-esteem, size of network was significantly related to trait anxiety [$F(1,234) = 11.61, p < .001$], and duration of relationship was related to state anxiety [$F(1,299) = 9.96, p < .005$] as well as to emotional stability [$F(1,302) = 14.25, p < .001$]. The duration of relationship also appeared to be related to trait anxiety. Thus this analysis indicates that the duration of relationships is the best predictor for state anxiety and emotional stability when the variance accounted for by self-esteem is partialled out. For trait anxiety, the size of network is the best predictor when the variance of self-esteem is controlled. There were interactional effects of self-esteem with these structural variables on emotional status. Interactions of self-esteem with

Table 4.26
Relationship of Self-esteem and Structural Variables of Amae Network
to Emotional Status

Source	Emotional Status									
	State Anxiety					Trait Anxiety				
	df	I ² _R	F	P		df	I ² _R	F	P	
Main Effects	5	.230	19.14	.001**		5	.375	40.30	.001**	
Self-esteem (SE)	1	.200	83.31	.001**		1	.335	179.78	.001**	
Size of Network	1	.002	0.73	NS		1	.022	11.61	.001**	
Living Distance	1	.002	1.03	NS		1	.000	0.02	NS	
Duration of Relation.	1	.024	9.96	.005**		1	.014	7.54	.01	
Frequency of Contact	1	.002	0.67	NS		1	.005	2.58	NS	
Interactions	4	.053	5.50	.001**		4	.078	10.49	.001**	
SE X Size	1	.004	1.48	NS		1	.001	0.28	NS	
SE X Distance	1	.000	0.17	NS		1	.013	6.82	.025	
SE X Duration	1	.020	8.34	.005		1	.048	26.02	.001**	
SE X Frequency	1	.029	12.03	.001**		1	.016	8.82	.005	
Entire Model	9	.282	13.08	.001**		9	.453	27.05	.001**	
Error	299	.718				294	.547			
										302

Note: *I²_R refers to increment in R².

**Power > .80 with α level of .05.

frequency of contact were significantly affecting both state anxiety and emotional stability [$F(1,299) = 12.03$, $p < .001$ for state anxiety and $F(1,302) = 10.23$, $p < .005$ for emotional stability]. On the other hand, the effect of self-esteem on trait anxiety was affected by the duration of the relationship [$F(1,294) = 26.02$, $p < .001$].

In terms of the relationship of self-esteem and dependency variables (attention, reassurance, affection, nurturance, and aid) to emotional status among the subjects (Table 4.27), only attention was significantly related to two indicators of emotional status [$F(1,299) = 24.94$, $p < .001$ for trait anxiety and $F(1,300) = 12.30$, $p < .001$ for emotional stability]. Interactions of self-esteem with the dependency construct as a whole were significantly affecting only emotional stability [$F(5,300) = 6.11$, $p < .001$] and appeared to also affect state and trait anxiety [$F(5,297) = 2.57$, $p < .05$ for state anxiety and $F(5,299) = 3.88$, $p < .005$ for trait anxiety]. An interaction of self-esteem with nurturance significantly affected both trait anxiety and emotional stability [$F(1,299) = 15.87$, $p < .001$ for trait anxiety and $F(1,300) = 26.54$, $p < .001$ for emotional stability]. This analysis indicates that attention is the best predictor among dependency variables for both trait anxiety and emotional stability and that the effect of self-esteem on these indicators of emotional status also depends on nurturance. State anxiety was not affected by any dependency variables when the variance of self-esteem was partialled out.

Table 4.28 presents the relationship of self-esteem and wish-for-oneness variables (physical proximity, emotional proximity, negative cohesion, positive cohesion, and self-disclosure) to emotional status of

Table 4.27
Relationship of Self-esteem and Dependency Variables
to Emotional Status

Source	Emotional Status											
	State Anxiety				Trait Anxiety				Emotional Stability			
	df	I ² _R	F	P	df	I ² _R	F	P	df	I ² _R	F	P
Main Effects	6	.211	13.81	.001**	6	.384	33.18	.001**	6	.285	21.97	.001**
Self-esteem (SE)	1	.200	78.51	.001**	1	.335	173.10	.001**	1	.253	116.83	.001**
Attention	1	.002	0.61	NS	1	.048	24.94	.001**	1	.027	12.30	.001**
Reassurance	1	.006	2.34	NS	1	.000	0.10	NS	1	.001	0.54	NS
Affection	1	.003	1.00	NS	1	.000	0.01	NS	1	.001	0.41	NS
Nurturance	1	.001	0.28	NS	1	.001	0.73	NS	1	.001	0.29	NS
Aid	1	.000	0.14	NS	1	.000	0.19	NS	1	.003	1.43	NS
Interactions	5	.033	2.57	.05	5	.038	3.88	.005	5	.066	6.11	.001**
SE X Attention	1	.005	1.78	NS	1	.003	1.48	NS	1	.004	1.68	NS
SE X Reassurance	1	.009	3.51	NS	1	.004	1.85	NS	1	.001	0.39	NS
SE X Affection	1	.004	1.60	NS	1	.000	0.10	NS	1	.000	0.13	NS
SE X Nurturance	1	.007	2.66	NS	1	.031	15.87	.001**	1	.057	26.54	.001**
SE X Aid	1	.008	3.31	NS	1	.000	0.12	NS	1	.004	1.81	NS
Entire Model	11	.244	8.70	.001**	11	.422	19.86	.001**	11	.351	14.76	.001**
Error	297	.756			299	.578			300	.649		

Note: *I_R² refers to increment in R².

**Power > .80 with α level of .05.

Table 4.28
Relationship of Self-esteem and Wish-for-oneness Variables
to Emotional Status

Source	State Anxiety						Emotional Status					
	State Anxiety			Trait Anxiety			Emotional Stability					
	df	I ² _R	F	P	df	I ² _R	F	P	df	I ² _R	F	P
Main Effects	6	.245	16.94	.001**	6	.379	32.96	.001**	6	.303	23.31	.001**
Self-esteem (SE)	1	.200	82.80	.001**	1	.335	174.73	.001**	1	.253	116.54	.001**
Physical Proximity	1	.007	2.77	NS	1	.011	5.78	.025	1	.011	4.90	.05
Emotional Proximity	1	.007	3.03	NS	1	.017	8.72	.005	1	.012	5.38	.025
Negative Cohesion	1	.016	6.51	.025	1	.013	6.95	.005	1	.016	7.43	.01
Positive Cohesion	1	.003	1.19	NS	1	.003	1.55	NS	1	.007	3.02	NS
Self-disclosure	1	.013	5.36	.025	1	.000	0.02	NS	1	.006	2.56	NS
Interactions	5	.040	3.31	.01	5	.064	6.72	.001**	5	.049	4.47	.001**
SE X Physical Prox.	1	.000	0.13	NS	1	.002	1.03	NS	1	.004	1.79	NS
SE X Emotional Prox.	1	.004	1.47	NS	1	.004	2.06	NS	1	.012	5.70	.025
SE X Negative Cohesion	1	.000	0.20	NS	1	.004	1.94	NS	1	.000	0.01	NS
SE X Positive Cohesion	1	.009	3.77	NS	1	.016	8.35	.005	1	.002	1.12	NS
SE X Self-disclosure	1	.026	10.95	.001**	1	.039	20.24	.001**	1	.030	13.76	.001**
Entire Model	11	.285	10.74	.001**	11	.443	21.03	.001**	11	.352	14.75	.001**
Error	296	.715			291	.557			299	.648		

Note: *I²_R refers to increment in R².

**Power > .80 with α level of .05.

Japanese female students. There was no single variable significantly related to emotional status of the subjects when the variance of self-esteem was partialled out. Both physical proximity and emotional proximity appeared to affect trait anxiety and emotional stability above and beyond the variance of self-esteem. Negative cohesion, on the other hand, seemed to affect all the indicators of emotional status when the variance of self-esteem was partialled out. Interactions of self-esteem with the wish-for-oneness variables significantly affected both trait anxiety and emotional stability [$F(5,291) = 6.72, p < .001$ for trait anxiety and $F(5,299) = 4.47, p < .001$ for emotional stability], and also appeared to affect state anxiety. The effects of self-esteem on all indicators of emotional status were significantly influenced by the variable of self-disclosure [$F(1,296) = 10.95, p < .001$ for state anxiety, $F(1,291) = 20.24, p < .001$ for trait anxiety, and $F(1,299) = 13.76, p < .001$ for emotional stability]. Positive cohesion also appeared to affect the relationship of self-esteem to trait anxiety. This analysis indicates that the wish-for-oneness variables appear to affect emotional status of the subjects when self-esteem is controlled and that self-disclosure influences the relationship of self-esteem to emotional status.

In terms of the relationship of self-esteem and evaluative variables (satisfaction-comfort, overloading, amae, and enryo) to the emotional status of Japanese female students (Table 4.29) only the variable of satisfaction-comfort had a significant relationship to trait anxiety [$F(1,291) = 13.96, p < .001$] and appeared to affect both state anxiety and emotional stability above and beyond the variance accounted for by self-esteem. The effect of self-esteem on state anxiety was

Table 4.29
Relationship of Self-esteem and Evaluative Variables
to Emotional Status

Source	Emotional Status							
	State Anxiety				Trait Anxiety			
	df	I ² _R	F	P	df	I ² _R	F	P
Main Effects	5	.232	19.52	.001**	5	.376	36.68	.001**
Self-esteem (SE)	1	.200	84.09	.001**	1	.335	162.93	.001**
Satisfaction-Comfort	1	.010	4.17	.05	1	.029	13.96	.001**
Over-loading	1	.009	3.68	NS	1	.005	2.45	NS
Amae	1	.005	2.04	NS	1	.001	0.54	NS
Enryo	1	.009	3.62	NS	1	.007	3.51	NS
Interactions	4	.064	6.76	.001**	4	.026	3.18	.05
SE X Positive Eval.	1	.003	1.24	NS	1	.001	0.44	NS
SE X Negative Eval.	1	.009	3.89	.05	1	.004	1.86	NS
SE X Amae	1	.005	2.00	NS	1	.019	9.46	.005
SE X Enryo	1	.047	19.92	.001**	1	.002	0.95	NS
Entire Model	9	.296	13.85	.001**	9	.403	21.79	.001**
Error	296	.704			291	.597		
					299	.686		

Note: *I_R² refers to increment in R².

**Power > .80 with α level of .05.

influenced by the variable of enryo [$F(1,296) = 19.92, p < .001$] whereas the variable of amae appeared to affect the relationship of self-esteem to trait anxiety. There was no interactional effect of self-esteem and evaluative variables on emotional stability. Thus this analysis indicates that the variables of satisfaction-comfort and overloading may affect the emotional status of the subjects when the variance of self-esteem is partialled out and that amae and enryo which did not have main effects on emotional status may have interactional effects with self-esteem on the different aspects of emotional status.

Among amae network variables, those which had main effects on emotional status of the subjects and those which had interactional effects with self-esteem on the emotional status above and beyond the variance of self-esteem are summarized in Table 4.30. Those analyses described above indicate that the two concepts of self-esteem and amae network seem to have unique contributions to the emotional status of the individual. That is, social competence measured by self-esteem may not be a rival concept for the amae network or social network but may measure a distinct phenomenon which is different from what the amae network or social network measures. However, the final conclusion has to be held since self-esteem may not be the best operationalization of social competence.

The rationale for entering self-esteem first in the hierarchical multiple regression stems from the adoption of Erikson's developmental theory (1973). In this theory, an individual's capacity to engage in intimate relationships was speculated to develop after the self identity was somehow established. In this study, self-esteem was viewed as a property of self identity while the amae network was a collection of

Table 4.30
Main and Interactional Effects of Amae Network Variables
on Emotional Status above and beyond the Variance Accounted for
by Self-esteem

MAIN EFFECTS			
	State Anxiety	Trait Anxiety	Emotional Stability
Structural Variables	Duration of the Relationship	Size of Network (Duration of the Relationship)	Duration of the Relationship
Dependency Variables		Attention	Attention
Wish-for-oneness Variables	(Negative Cohesion) (Self-disclosure)	(Physical Proximity) (Emotional Proximity) (Negative Cohesion)	(Physical Proximity) (Emotional Proximity) (Negative Cohesion)
Evaluative Variables	(Satisfaction-Comfort)	(Satisfaction-Comfort)	(Satisfaction-Comfort)
INTERACTIONAL EFFECTS OF SELF-ESTEEM WITH			
Structural Variables	(Duration of the Relationship) (Frequency of Contact)	(Living Distance) Duration of the Relationship (Frequency of Contact)	(Duration of the Relationship) Frequency of Contact
Dependency Variables		Nurturance	Nurturance
Wish-for-oneness Variables	Self-disclosure	(Positive Cohesion) Self-disclosure	(Emotional Proximity) Self-disclosure
Evaluative Variables	(Overloading) Enryo	(Amae)	

Note: Variable in a parenthesis has power > .80 at the α level of .05.

intimate relationships for the individual. Thus the hierarchical multiple regression using self-esteem as the first entering variable was to test Erikson's sequential concepts of self identity and intimacy, and the results of this analysis appear to be congruent with his theory. The extremely high variance accounted for by self-esteem with the relatively lower variance accounted for by the amae network may be due to developmental stages of the subjects who were university or college students whose ages were between 18 and 22 years. These subjects were speculated by this investigator to be in a transitional process between the middle of establishing identity and the beginning stage of intimacy. However, self-esteem is not an exact measure of self identity. Thus a final conclusion has to be held until further study of this population in the different developmental stages by using the adequate measure self identity.

How can these results be interpreted from the perspective of amae? The relationship between amae and "jibun" (a Japanese concept of self [see p. 15-18]) is speculated to be dynamic and dialectic. Doi (1971, 1979) repeatedly claimed that "jibun" emerges from the amae relationships and that this "jibun," in turn, controls the amae relationships which then again help the "jibun" to emerge at the conscious level. The mental health of an individual is determined by the quality and quantity of amae experiences as well as by the awareness of "jibun" which enables the person to engage in and control amae relationships with others. In this sense, both amae and "jibun" have unique contributions to the mental health of the individual.

At the same time these two concepts interact with each other in their relation to mental health. As Ohashi (1980) defines "jibun" as

positive feelings toward the self, "jibun" was operationalized in this study as self-esteem. Thus this analysis explored both main effects of self-esteem and the amae network and the interactional effects of both measurements on emotional status of the subjects. The results of this analysis are also congruent with the speculation made by Doi and Ohashi.

However, the subjects were limited to a relatively homogeneous age group of women. In order to make any conclusive statements about the relationship of "jibun" and amae to mental health, further investigations are necessary to test different age groups, male subjects, and various levels of mental health status.

Factor Analyses

The Amae Network Questionnaire is constructed in three dimensions which are further divided into five constructs as presented in Table 4.6 (p. 98). These constructs consist of 19 variables which are operationalized into 30 items.

On the other hand, the ANQ scores are divided into five different categories based on the notion of amae network zones: Total Amae Network, Zone 1, Zone 2, Zone 3, and Zone-differentiated Amae Network. The first category (Total Amae Network) is the sum of all three zones for each item. Each zone score is the total score obtained from people listed in that particular zone. The Zone-differentiated Amae Network includes three zone scores for each item of the ANQ.

Based on the conceptual structure of amae network, five factor analyses were conducted in order to explore the numbers of factors derived from the data and to compare them with conceptual constructs.

Objective 4: Number of factors will be explored for total amae network scores, each of three zone scores, and zone-differentiated scores.

Objective 5: To the extent to which the factors derived from the data are congruent with the conceptual constructs of amae will be examined.

Objective 6: The structure of each amae network zone will be analyzed to see whether each is unique.

Principal-components factor analysis was chosen to explore "the number and kinds of factors which might be derivable from a collection of variables" (Nunnally, 1970, p. 331) through statistically optimizing some aspect of the raw data. The eigenvalue-one procedure was chosen to select the number of factors for rotation for the next step since the data for this study met a criterion proposed by Comrey (1978). He states:

It is my conclusion that the eigenvalue-one procedure should not be used unless the variables in the matrix are all good, reliable, continuous measures that correlate substantially with each other, leading to rather high true commonalities for all variables. In this case, the distortion introduced by the eigenvalue-one procedure is less likely to represent a problem. (p. 652)

The commonalities are presented in Tables 4.31 through 4.35. The reliability of the ANQ variables was already discussed elsewhere in this chapter. Based on this information about the data, the factors over eigenvalue-one were rotated. The Varimax method was selected to obtain an orthogonal rotation of factors since this method works well when the principal-components method of condensation is used for a large-scale problem (at least 20 variables) in the exploratory factor analysis (Nunnally, 1978, p. 385). Thus the principal-components factor analysis

Table 4.31
Principal Components with Varimax Rotation
for the Total Amae Network Scores
(n = 482)

ANQ Item	Factor					h ²
	1	2	3	4	5	
Size of network	55			69		83
Living distance				65		46
Duration of relationship	48			46		67
Frequency of contact				70		65
Attention 1	64					67
Attention 2	68					71
Reassurance 1	74					67
Reassurance 2	72					62
Affection 1	73					68
Affection 2	64					71
Nurturance 1	66					72
Nurturance 2	64					72
Aid 1		57				52
Aid 2		73				59
Aid 3		75				66
Aid 4		55				64
Physical proximity			45			45
Emotional proximity 1	57		45			68
Emotional proximity 2	47		48			64
Negative cohesion					77	49
Positive cohesion	59					62
Self-disclosure 1	49		51			68
Self-disclosure 2	50		53			70
Satisfaction	52					55
Overloading					77	48
Comfort	61					68
Amae 1			67			67
Amae 2			64			55
Enryo					55	41
Eigenvalue	13.53	2.58	1.67	1.12	1.03	
Percentage of Variance	46.6	8.9	5.8	3.9	3.6	
Cumulative Percentage of Variance	46.6	55.5	61.3	65.2	68.7	

Note: Only loadings > .45 are reported. Decimal points not printed.

Table 4.32
Principal Components with Varimax Rotation
for the Amae Network Zone 1 Scores
(n = 482)

ANQ Item	Factor		h ²
	1	2	
Size of network	90		97
Living distance	61		68
Duration of relationship	84		93
Frequency of contact	82		88
Attention 1	92		89
Attention 2	93		92
Reassurance 1	90		88
Reassurance 2	92		90
Affection 1	92		92
Affection 2	92		93
Nurturance 1	93		92
Nurturance 2	92		93
Aid 1	77		71
Aid 2	82		80
Aid 3	88		87
Aid 4	89		84
Physical proximity	77		68
Emotional proximity 1	92		89
Emotional proximity 2	89		84
Negative cohesion		70	47
Positive cohesion	90		90
Self-disclosure 1	92		88
Self-disclosure 2	89		87
Satisfaction	93		88
Overloading		78	52
Comfort	92		86
Amae 1	88		85
Amae 2	77		77
Enryo		55	38
Eigenvalue	21.19	1.95	
Percentage of Variance	73.1	6.7	
Cumulative Percentage of Variance	73.1	79.8	

Note: Only loadings > .45 are reported. Decimal points not printed.

Table 4.33
Principal Components with Varimax Rotation
for the Amae Network Zone 2 Scores
(n = 482)

ANQ Item	Factor			h ²
	1	2	3	
Size of network		85		94
Living distance		70		75
Duration of relationship		76		85
Frequency of contact	68	68		83
Attention 1	69	50		78
Attention 2	66	52		78
Reassurance 1	60	61		79
Reassurance 2	57	63		75
Affection 1	56	67		81
Affection 2	58	68		83
Nurturance 1	69	45		79
Nurturance 2	67	49		78
Aid 1	70			57
Aid 2	69			62
Aid 3	75			72
Aid 4	75			71
Physical proximity	59			52
Emotional proximity 1	70	52		78
Emotional proximity 2	67	50		75
Negative cohesion			79	57
Positive cohesion	64	59		78
Self-disclosure 1	75			76
Self-disclosure 2	72			77
Satisfaction	50	69		73
Overloading			77	53
Comfort	66	59		80
Amae 1	70			71
Amae 2	65			62
Enryo		56	46	54
Eigenvalue	17.56	2.10	1.36	
Percentage of Variance	60.6	7.2	4.7	
Cumulative Percentage of Variance	60.6	67.8	72.5	

Note: Only loadings > .45 are reported. Decimal points not printed.

Table 4.34
Principal Components with Varimax Rotation
for the Amae Network Zone 3 Scores
($n = 482$)

ANQ Item	Factor				h^2
	1	2	3	4	
Size of network	81				98
Living distance	79				91
Duration of relationship	75				93
Frequency of contact	74				91
Attention 1	51	54			81
Attention 2	56	51			82
Reassurance 1	66	53			87
Reassurance 2	78				83
Affection 1	77				89
Affection 2	81				92
Nurturance 1	60	59			87
Nurturance 2	63	56			88
Aid 1		56			70
Aid 2		63			64
Aid 3		57			78
Aid 4	48	66			77
Physical proximity			86		79
Emotional proximity 1	62	54			86
Emotional proximity 2			62		75
Negative cohesion				72	81
Positive cohesion	55		64		84
Self-disclosure 1		46	70		80
Self-disclosure 2		71			75
Satisfaction	65		57		80
Overloading				72	77
Comfort	62		59		86
Amae 1			69		79
Amae 2		46			66
Enryo		74		46	90
Eigenvalue	18.33	2.00	1.39	1.20	
Percentage of Variance	63.2	6.9	4.8	4.1	
Cumulative Percentage of Variance	63.2	70.1	74.9	79.0	

Note: Only loadings > .45 are reported. Decimal points not printed.

Table 4.35
Principal Components with Varimax Rotation
for Zone-differentiated ANQ Item Scores
(n = 482)

	Factor									
	1	2	3	4	5	6	7	8	9	h ²
Zone 1										
Size of network	88									95
Living distance	61									52
Duration of relationship	84									89
Frequency of contact	80									83
Attention 1	90									87
Attention 2	91									90
Reassurance 1	89									85
Reassurance 2	90									89
Affection 1	90									90
Affection 2	91									92
Nurturance 1	93									92
Nurturance 2	91									91
Aid 1	76									63
Aid 2	83									76
Aid 3	88									84
Aid 4	88									81
Physical proximity	77									62
Emotional proximity 1	91									87
Emotional proximity 2	88									81
Negative cohesion						67				50
Positive cohesion	88									87
Self-disclosure 1	89									82
Self-disclosure 2	89									82
Satisfaction	89									87
Overloading						75				64
Comfort	90									86
Amae 1	88									82
Amae 2	79									70
Enryo						50				37
Zone 2										
Size of network			75							90
Living distance			62							68
Duration of relationship			66							74
Frequency of contact			68							73
Attention 1			84							75
Attention 2			82							74
Reassurance 1			83							77
Reassurance 2			81							74
Affection 1			82							77
Affection 2			84							82
Nurturance 1			82							72
Nurturance 2			83							73
Aid 1			67							58
Aid 2			62				47			63
Aid 3			73				40			72
Aid 4			81							71
Physical proximity			68							48
Emotional proximity 1			86							78
Emotional proximity 2			86							72
Negative cohesion					75					67
Positive cohesion			83							77
Self-disclosure 1			81							72
Self-disclosure 2			82							73
Satisfaction			77							69
Overloading					69					58
Comfort			86							80
Amae 1			77							69
Amae 2			69						34	65
Enryo					45					55
Zone 3										
Size of network			92							97
Living distance			85							89
Duration of relationship			86							87
Frequency of contact			86							85
Attention 1			80							68
Attention 2			82							71
Reassurance 1			89							82
Reassurance 2			83							75
Affection 1			90							86
Affection 2			92							90
Nurturance 1			90							84
Nurturance 2			92							86
Aid 1			64				31			53
Aid 2			61				37			54
Aid 3			74							65
Aid 4			80							73
Physical proximity				82						85
Emotional proximity 1			86							79
Emotional proximity 2			66							64
Negative cohesion			63					51		74
Positive cohesion			73							79
Self-disclosure 1			64		55					76
Self-disclosure 2			69						36	67
Satisfaction			74							76
Overloading			60					43		64
Comfort			83							81
Amae 1			68		52					78
Amae 2			62						33	51
Enryo			83						34	87

Note: Decimal points are not reported.

Only loadings > .50 are reported for Factors 1 to 4.

Only loadings > .45 are reported for Factors 5 and 6.

Only loadings > .30 are reported for Factors 7 to 9.

with the Varimax rotation was computed separately for five sets of data: a) Total Amae Network, b) Zone 1, c) Zone 2, d) Zone 3, and e) Zone-differentiated Amae Network. These five analyses will be presented and discussed separately in the following subsections.

Total Amae Network. Table 4.31 presents the summary table for the Total Amae Network. The five-factor-solution accounted for 68.7% of variance. Since the first factor accounted for 46.6% of variance, this factor was the general factor for this data. Since the second factor loaded on on aid items, it was labelled as "practical help factor." The third factor loaded on most of the wish-for-oneness items except for cohesion items as well as positive evaluation items and was labelled as "emotional sharing factor." The fourth factor loaded only on structural items and was thus labelled as "network factor." The last factor heavily loaded on the negatively stated items only and was thus labelled as "negative amae factor."

The first four factors are more or less congruent with the conceptual constructs. Among the items loaded on the general amae network factor, the dependency items loaded most heavily (.60) except for aid items. This result suggests that the construct of dependency may consist of two factors: emotional dependency and tangible dependency. Among the positive evaluation items, satisfaction-comfort items loaded on the first factor while the amae items loaded more on the third factor. This result suggests that the positive evaluation may not be a distinct factor. Among the wish-for-oneness items, the positive cohesion items loaded more on the first factor than on the third factor suggesting that this variable may belong more to the emotional dependency than to the wish-for-oneness construct. All structural items

loaded on the fourth factor indicating that the structural construct is a distinct construct. The construct of negative evaluation appeared to be a distinct construct although the number of items is small. The negative cohesion may belong rather to the negative evaluation. However, these three items may not be "good" because their communalities are relatively low. Other than these three, the items of living distance and physical proximity also had lower communalities.

Zone 1. Table 4.32 presents the summary of factor analysis for Zone 1. The two-factor-solution accounted for 79.8% of variance. Except for the three negatively stated items, all items in this zone heavily loaded only on one factor, "general zone 1 factor." Three negatively stated items which had lower communalities loaded on the second factor, "negative amae in zone 1." The results indicate that people listed in this zone provide every amae property for a subject.

Zone 2. Table 4.33 presents the summary of factor analysis for Zone 2. The three-factor-solution accounted for 72.5% of variance. Factor 1 itself accounted for 60.6% of variance and thus is called "general amae relationships in zone 2." This factor appears to be congruent with the notion of zone 2 which was conceptualized as the friendship zone. Having taken the age of the subjects into consideration, the amae relationships with one's friends seem to be goal-oriented as in getting practical benefits (attention, aid, and nurturance items) and seeking experiences of being "together" (emotional proximity and self-disclosure items). Factor 2 most heavily loaded on network items followed by affection and reassurance items and is thus

called the "network in zone 2" factor. Evaluative items were not distinct from others. Factor 3 was the "negative amae" factor, the same as Total Amae Network and Zone 1.

In summary, the factor analysis for Zone 2 indicates that there are three distinct factors: amae relationships in the friendship zone, network characters in Zone 2, and negative amae. The first two factors are congruent with the conceptual framework of this study.

Zone 3. Table 4.34 presents the summary of factor analysis for Zone 3. The four-factor- solution accounted for 79.0% of variance. Factor 1 was most heavily loaded on network and emotional dependency items as well as the enryo item. The characteristics of this factor correspond with Factor 2 in Zone 2 except for the enryo item. It is worth noting that the enryo item became a part of the general factor in this zone. This is due to conceptualization of this zone as the "giri" (social obligation) relationships which are characterized by feelings of "enryo." Factor 2 loaded on the items related to practical help or benefits which corresponds with Factor 1 in Zone 2. Factor 3 loaded on the wish-for-oneness items and comfort and amae items and is called "emotional sharing" factor. This result is particularly interesting since it may explain why certain giri relationships are included in the amae relationship. As Doi (1971) claims one function of amae works as a trigger in order to involve certain giri relationships into amae relationships. This analysis is congruent with Doi's idea. Factor 4 was the "negative amae" factor which was the same as other zones.

In summary, these four factors illuminate the characteristics of this zone by delineating the factors "network/emotional dependency,"

"practical benefits orientation," "emotional sharing," and "negative amae" from the data of Zone 3.

Zone-differentiated Amae Network. Table 4.35 presents nine factors derived from the data of zone-differentiated amae network to which all zone scores were entered. Eigenvalue-one value of these factors are presented in Table 4.36. The first three factors were major factors which accounted for 66.5% of variance. These three factors represent general factors in three zones: Zone 1, Zone 3, and Zone 2, respectively. Since the main concern of this analysis was to explore whether or not each zone was distinct from other zones, results of this analysis were satisfactory because they conformed to the conceptual distinctions among the three zones.

Factors 5, 6, and 8 were "negative amae" factors for the three zones: "negative amae in zone 2," "negative amae in zone 1," and "negative amae in zone 3," respectively. Factors 4 and 9 were factors of "amae feelings in giri relationships" although Factor 9 had weak evidence in terms of low levels of loadings. Factor 7 was a factor of "help from friends and acquaintances." In combination these nine factors accounted for 78.3%.

Therefore, this factor analysis indicates that each of three zones had a distinct general factor and a negative amae factor. Additionally, core properties of amae in giri relationships appeared to comprise one factor while aid in zones 2 and 3 formed another factor.

Summary. In order to respond to the questions raised from this analysis, the amae network constructs were compared with the components

Table 4.36
Eigenvalues for Nine Factors Derived from the
Data of Zone-differentiated Amae Network

	1	2	3	4	5	6	7	8	9
Eigenvalue	29.51	19.19	9.17	2.58	1.00	1.63	1.44	1.35	1.23
Percent of Variance	33.9	22.1	10.5	3.0	2.3	1.9	1.7	1.6	1.4
Cumulative Percentage	33.9	56.0	66.5	69.5	71.8	73.7	75.3	76.9	78.3

derived from the factor analysis (Table 4.37). Amae network as a whole (Total Amae Network) mathematically consisted of five factors: network factor, emotional dependency factor, practical help factor, emotional sharing factor, and negative amae factor. The network factor was identical to the corresponding conceptual construct, total structure. The conceptual construct of dependency was divided into two factors: emotional dependency and practical help. The conceptual construct of wish-for-oneness was nearly congruent with the factor of emotional sharing except for the cohesion items. Positive cohesion appeared to belong to the dependency construct while negative cohesion mathematically belonged to the negative evaluation construct. Positive evaluation was not a distinct factor but belonged to the dependency and wish-for-oneness by splitting items into two groups: Satisfaction-comfort to the dependency items and amae items to wish-for-oneness. Negative cohesion was a distinct factor by including negative cohesion.

Factor analyses for three zones showed that each zone had a different component structure. As amae decreased from Zone 1 to Zone 3, the components of amae network became more differentiated by increasing the number of factors.

The factor analysis of Zone-differentiated Amae Network data distinguished three zones as distinct factors which were congruent with the conceptual constructs of amae network zones.

Throughout all analyses, three negatively stated items formed a factor called "negative amae." However, these items had lower reliability and lower commonalities in the factor analyses. Thus the nature of these items should be reconsidered in the future.

Table 4.37
A Comparison between Conceptual Constructs and
Principal Components of Amae Network

Conceptual Constructs	Total Amae Network	Zone 1	Zone 2	Zone 3	Zone-differentiated
Structural Construct	4. Network		2. Network	1. Network/ Emotional Dependency	
Dependency Construct	1. Emotional Dependency	1. General Zone 1	1. General Amae Re- lationship		
Wish-for-oneness Construct	2. Practical Help			2. Practical Benefit- oriented	
Positive Evaluation Construct	3. Emotional Sharing			3. Emotional Sharing	
Negative Evaluation Construct	5. Negative Amae	2. Negative Amae	3. Negative Amae	4. Negative Amae	
Zone 1					1. General Zone 1 6. Negative Amae: Zone 1
Zone 2					3. General Zone 2 5. Negative Amae: Zone 2 7. Help from friends and acquaintances
Zone 3					2. General Zone 3 8. Negative Amae: Zone 3 4 & 9. Amae feelings in girl re- lationships

Generalizability

Although the results of this study support the construct validity of the ANQ, these findings await cross cultural validation before confidence can be placed in the structure of the instrument. The sample, though sufficiently large, represented only young female Japanese students. It is necessary to administer the ANQ to other subject groups to explore the stability of the construct structure of subject groups. This analysis did, however, explore differences within these sample groups.

Analyses reported in this section were attempts to examine whether the results of this study reported in previous sections of this chapter could be generalized to other populations to the extent that they are composed of Japanese female students between the ages of 18 and 22. Generalizability was explored through the following objectives:

Objective 7: Whether characteristics of hometowns of individual subjects affect the scores for amae network constructs will be explored.

Objective 8: Whether people in different education programs respond differently to the ANQ will be examined.

Objective 9: Whether the length of attendance at a school in which a subject is studying affects the scores for amae network constructs will be explored.

Analysis of variance was computed for testing the relationships of hometown differences and group differences to amae network constructs (Table 4.38). In regard to the effects of hometown difference on the amae network, analyses of variance of amae network showed that there was no effect for any construct. That is, whether subjects grew up in an

Table 4.38
Analyses of Variance of Amaze Network Constructs
by Groups and Hometowns
($n = 482$)

	<u>M</u>	<u>SD</u>	<u>F</u> ^a	<u>P</u>	Adjusted for Inde- pendents ^b	$\sqrt{\frac{F}{Nn}} Q_{\alpha, r}$		<u>M</u>	<u>SD</u>	<u>F</u> ^a	<u>P</u>	Adjusted for Inde- pendents ^b	$\sqrt{\frac{F}{Nn}} Q_{\alpha, r}$
Structural Construct							Positive Evaluation						
Group ^d A	202.81	29.45			-1.16		Group ^d A	159.32	40.70				
B	198.15	26.16			2.11		B	158.75	41.54				
C	199.18	23.66	8.68	.00	1.53	5.87	C	159.58	40.16	0.73	NS		
D	209.10	37.76	(5,463)		4.89		D	162.34	54.42	(5,463)			
E	190.52	30.65			-2.60		E	157.24	49.03				
F	178.66	37.64			-3.81		F	149.14	49.14				
Hometown ^e 1	200.65	28.72					Hometown ^e 1	163.29	43.17				
2	194.93	32.89	0.52	NS			2	158.87	46.14	1.80	NS		
3	192.98	34.93	(2,463)				3	150.55	47.77	(2,463)			
Group x Hometown			3.71	NS			Group x Hometown			0.80	NS		
			(10,463)							(10,463)			
Dependency Construct							Negative Evaluation						
Group ^d A	523.78	117.65					Group ^d A	31.94	17.72			-3.43	
B	502.30	112.46					B	40.17	17.76			4.84	
C	490.47	108.97	1.43	NS			C	35.03	15.57	2.54	.03	-0.21	8.01
D	504.12	123.79	(5,463)				D	33.51	14.50	(5,463)		-1.90	
E	499.26	124.33					E	37.68	19.40			1.92	
F	474.18	138.93					F	33.42	18.72			-2.02	
Hometown ^e 1	502.88	115.13					Hometown ^e 1	35.16	17.31				
2	497.62	119.63	0.02	NS			2	35.65	18.17	0.11	NS		
3	497.01	133.54	(2,463)				3	35.01	16.80	(2,463)			
Group x Hometown			0.62	NS			Group x Hometown			0.89	NS		
			(10,463)							(10,463)			
Wish-for-oneness													
Construct													
Group ^d A	243.06	61.22	1.87	NS									
B	247.45	64.04	(5,463)										
C	226.46	61.03											
D	239.34	72.86											
E	233.81	62.84											
F	221.56	70.84											
Hometown ^e 1	238.35	64.57											
2	234.78	63.26	0.12	NS									
3	233.18	72.52	(2,463)										
Group x Hometown			0.66	NS									
			(10,463)										

Note: ^aNumber in parenthesis is the degree of freedom.

^bIt is reported only when p value is significant.

^cIt is calculated for the Tukey's Studentized Range Test for the level of .05 where

S^2 = residual M.S.

P_r = df for S^2

k = number of groups

N = Mean of sample Size in each group

$Q_{\alpha, r}$ = from statistical tables for $\alpha = .05$.

^dSample size in each group is:

Group A = 79

B = 88

C = 77

D = 68

E = 84 (1 missing)

F = 75

^eHometown 1 = 116

2 = 246

3 = 119

urban area or a rural area does not affect the quantity or quality of amae network for Japanese female students.

In regard to the effects of the education program and length of attendance in schools on the amae network, group differences were found on two amae network constructs: structural construct [$F(5,463) = 8.68$, $p < .05$] and negative evaluation [$F(5,463) = 2.54$, $p < .05$]. Other constructs such as dependency, wish-for-oneness, and positive evaluation were not significantly affected by group differences.

The Tukey's Studentized Range Test was computed to examine the nature of school differences for structural and negative evaluative constructs. Subjects in the literature program had significantly lower scores on the structural construct than those in the nursing junior colleges ($p < .05$). There was no difference on this score between nursing students and literature students in a four-year university. In addition, new students did not have scores significantly different from senior students. In order to examine further the characteristics of group differences, analyses of variance of structural variables by hometown and group were computed as presented in Table 4.39.

Significant effects of group differences were observed on all structural variables. Based upon the Tukey's Studentized Range Test for every structural variable, the literature students had significantly lower scores than the nursing students in the two junior colleges ($p < .05$). Although there was no significant difference on three variables between the nursing students and the literature students who all attended the same four-year university, the literature students tended to have lower scores than nursing students on these variables (size of network, living distance, and frequency of contact) and the

Table 4.39
Means, Standard Deviations, Analyses of Variance of Structural Variables
by Groups and Hometowns
(n = 482)

Size of Network		M	SD	F ^a	p	Adjusted for Inde- pendents	$\sqrt{\frac{Sp^2}{Nn}}$
Group ^d							
A	19.20	2.08				0.64	
B	19.01	2.01				0.45	
C	18.77	2.16	4.84	.00		0.30	1.24
D	18.74	3.11	(5,462)			0.14	
E	18.38	2.92				-0.24	
F	17.39	3.52				-1.21	
Hometown ^e							
1	18.67	2.28					
2	18.56	2.81	0.15	NS			
3	18.46	3.02	(2,462)				
Group x Hometown				0.64	NS		
			(10,462)				
Duration of Relationship							
Group ^d							
A	77.61	13.49				3.20	
B	72.31	12.14				-2.09	
C	76.23	9.84	7.13	.00		1.80	5.87
D	76.88	14.29	(5,462)			2.58	
E	76.47	12.33				2.20	
F	67.61	15.25				-6.68	
Hometown ^e							
1	75.36	12.16					
2	74.31	13.48	0.07	NS			
3	73.49	14.49	(2,462)				
Group x Hometown				1.58	NS		
			(10,462)				
Frequency of Contact							
Group ^d							
A	61.34	13.41					
B	64.63	11.45					
C	64.05	9.88	4.90	.00			
D	67.40	15.59	(5,462)				
E	59.95	12.20					
F	58.69	14.06					
Hometown ^e							
1	63.22	12.35					
2	62.20	13.13	0.01	NS			
3	62.48	13.83	(2,462)				
Group x Hometown				1.22	NS		
			(10,462)				

Note: ^aNumber in parenthesis is the degree of freedom.

^bIt is reported only when p value is significant.

^cIt is calculated for the Tukey's Studentized Range Test for the level of .05 where

S^2 = residual M.S.

Pr = df for Sp^2

k = number of groups

N_n = Mean of sample Size in each group

^d Q_{pr} = from statistical tables for $\alpha = .05$.

^eSample size in each group is:

Group A = 79

B = 88

C = 77

D = 68

E = 84 (1 missing)

F = 75

^eHometown 1 = 116

2 = 246

3 = 119

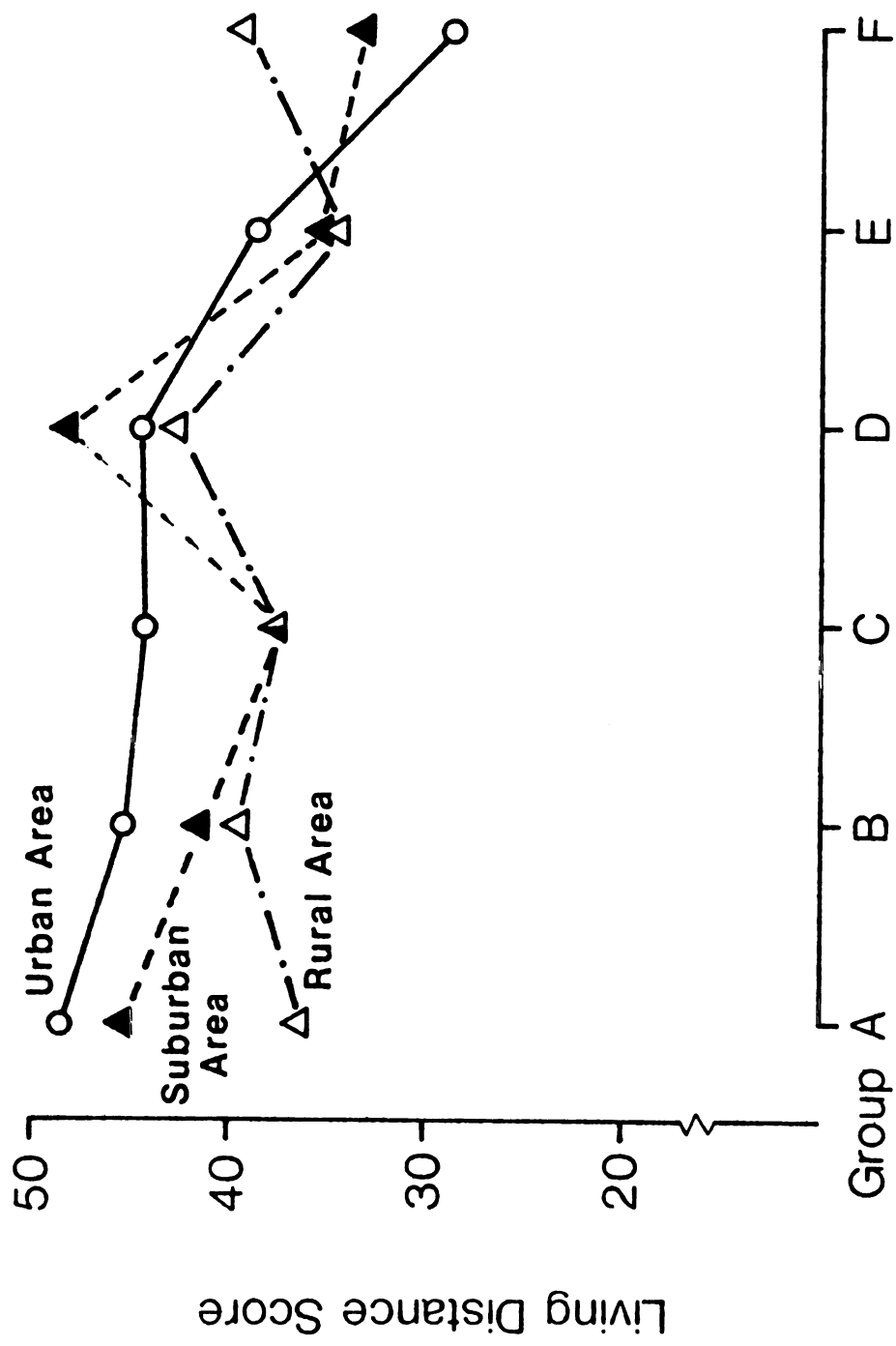
^fTwo cases are missing in these analyses

literature students obtained significantly lower scores on the variable of duration of relationships than the nursing students ($p < .05$). Thus, the structural construct of amae network may be influenced by the majors in education of the subjects. However, this is not conclusive. The socialization of nursing students may have provided increased amae support and may be reflected in the scores.

For example, the variable of living distance had an interesting result in the analysis of variance (see Table 4.39).

Two independent variables (group and hometown) had significant effects [$F(5,462) = 13.14$, $p < .01$] for group and $F(2,462) = 4.63$, $p < .01$ for hometown] on the scores for living distance. The effect of group on the living distance was significantly affected by hometown difference [$F(10,462) = 2.64$, $p < .01$]. The Tukey's Studentized Range Test was computed separately for each category of hometown. Among students who were socialized in the urban area, the literature students had significantly lower scores than all nursing junior college students ($p < .05$). However, there was no significant difference between nursing students and literature students who were socialized in the sub-urban area. The university students, including nursing and literature students, obtained significantly lower scores than a group of nursing students (Group D). Among students who grew up in rural areas, there was no significant difference among the groups. Figure 4.3 presents the relationship of hometown and group to the living distance score. The differences among the groups appears to depend on how homogeneous a group is in terms of from where the students came. The university (Groups E and F) recruited at least half of the students from prefectures other than the prefecture where the university is located.

Figure 4.3
Relationship of Groups and
Hometowns to Living Distance Scores



Note: The higher the Living Distance Scores is, the closer the geographic distance between subjects and people listed for a area network.

Additionally, the location of the university is more than two hours by public transportation from any other prefecture. Students in Group D were recruited mostly from the same prefecture in which the college is located. Additionally, all nursing junior colleges are located quite near one of the big cities.

Thus the significant difference between the literature students and the nursing students in junior colleges may not be due to their majors in education, but may be due rather to the distance students are from their hometowns. In fact, the nursing students in the four-year program had significantly lower scores on the living distance variable than other the other three nursing student groups from junior colleges ($p < .05$).

In summary, the scores for the structural variables of the ANQ may be influenced by differences in educational programs, distance from subjects' hometowns, or both.

In terms of the negative evaluation in which significant differences among groups were found, the Tukey's Studentized Range Test was computed to find out which pairs of groups had significant differences. New students had significantly lower scores than students who had been in the same school for more than one year ($p < .05$). The literature students did not have significantly lower or higher scores than nursing students on this construct. Since the construct of negative evaluation consists of two variables (overloading and enryo), analyses of variance were computed for these variables (Table 4.40). Only analysis of variance for the overloading variable showed significant effects of group difference on this construct [$F(5,477) = 2.79, p < .05$]. The Tukey's Studentized Range Test was

Table 4.40
Means, Standard Deviations, Analyses of Variance of Negative Evaluation
by Groups and Hometowns
(n = 482)

		Adjusted for Index pendents ^b		Adjusted for Index pendents ^b		Adjusted for Index pendents ^b		Adjusted for Index pendents ^b	
		M	SD	F ^a	P	M	SD	F ^a	P
Overloading									
Group ^d	A	11.11	9.37						
	B	15.23	10.41			-1.62	20.82	11.69	
	C	11.55	8.60			2.48	25.43	10.18	
	D	12.50	8.65	2.79	0.02	-1.18	23.48	10.34	2.01 NS
	E	14.56	11.73	(5,461)	f	-0.27	21.41	10.03	(5,461)
	F	11.26	8.54			1.79	23.12	11.13	
Hometown ^e	1	12.56	9.21			-1.51	22.16	12.16	
	2	12.69	10.10				22.59	11.07	
	3	13.07	9.74	0.04	NS		23.11	11.26	0.55 NS
Group x Hometown				1.06	NS		22.18	10.35	(2,461)
				(10,461)	f			0.91	NS
								(10,462)	f

Note: ^aNumber in parenthesis is the degree of freedom.

^bIt is reported only when p value is significant.

^cIt is calculated for the Tukey's Studentized Range Test for the level of .05 where

S^2 = residual M.S.

P_r = df for Sp^2

k = number of groups

$\bar{N}_i$ = Mean of sample Size in each group

Q_k = from statistical tables for $\alpha = .05$.

^dSample size in each group is:

Group A = 79
B = 88
C = 77
D = 68
E = 84 (1 missing)
F = 75

^eHometown 1 = 116
2 = 246
3 = 119

^fThree cases are missing in this analysis.

computed to find which pairs of groups had significant differences between them. No pair of groups showed any significant difference in the α level of 0.05. New students (Group A) tended to have lower scores than older students (Group B) in the same school on this variable. It is not clear why the subjects in Group B had higher scores on the overloading than any other group.

In summary, whether the subjects grew up in urban areas or in rural areas did not affect the scores for any constructs of the amae network. Whether subjects were new to the school did not meaningfully affect the scores for any construct of amae network. Scores for the structural construct of amae network appeared to be influenced by differences in the educational program to which subjects belonged, the distance subjects were from their hometowns, or both. The difference in educational program did not influence the scores for the functional and evaluative constructs of amae network. Overall, the results of this study reported in previous sections can be generalized to the extent that a population is composed of subjects who are Japanese female students between the ages of 18 and 22.

Summary

The 482 Japanese female students recruited from six groups of four schools were homogenous in terms of age, educational level, work experience, and marital status. There were mostly unmarried female students whose ages ranged from 18 to 22 years, whose mean educational level was about 13 years, and whose work experience was nil.

Means and standard deviations of total scores and zone-differentiated scores for all the ANQ items were analyzed and

intercorrelations among the ANQ items of total scores were examined in the initial data analyses. Based on these analyses, the 19 amae network variables derived from five amae network constructs were identified as shown in Table 4.6 (see page 98).

The extent to which a self-report measure of amae network is influenced by a subject's tendency to respond in a direction which is socially desirable was explored ($n = 79$). The results suggest that response to the structural variables are quite free from the influences of social desirability response biases but that responses to the functional and evaluative variables are slightly influenced by the social desirability response biases. However, the magnitude of this response bias is very small.

The results of Cronbach's alphas ($n = 482$) indicate that there is good internal consistency in the total ANQ and high to average internal consistency for the individual constructs. Test-retest reliabilities of the ANQ items over the ten-day interval ($n = 74$) resulted in acceptable scores for all the ANQ items ($r = .87$) and for structural and dependency items (range .69 to .85). However the wish-for-oneness and evaluative items obtained moderate levels of test-retest reliabilities (range .44 to .79). At this time the ANQ could be used for examining group phenomena rather than individual phenomena by using groups of substantial size until further testing and modification of this tool can be conducted. Concurrent validity of the ANQ was examined by using two instruments as criteria: the Norbeck Social Support Questionnaire for examining the amae network variables of size of network, duration of relationship, frequency of contact, reassurance, affection, and aid; and the Dependency Scale for examining dependency variables and physical

proximity of the amae network. The NSSQ was administered to 68 subjects while the Dependency Scale was given to 73 subjects. The Pearson correlations coefficients between the corresponding variables of the ANQ and the NSSQ indicate that 1) structural variables of the ANQ are parallels to the network subscales of the NSSQ and 2) the dependency variables of the ANQ are significantly related to the social support variables of the NSSQ, but the two instruments appear to measure somewhat different phenomena. Differences in these two instruments were discussed. Having derived from the same notions of dependency, the validity coefficients of the ANQ variables (physical proximity, attention, reassurance, affection, and aid) with the corresponding variables of the Dependency Scale were computed. The variables of physical proximity and affection of the ANQ obtained significant and moderate levels of concurrent validity with the Dependency Scale. However, three other variables of the ANQ (attention, reassurance, and aid) were not significantly related to the corresponding dependency modes. Conceptual and methodological differences between these two instruments were discussed.

Construct validity of the ANQ was explored through two approaches: theoretical and statistical. Theoretical approaches included: 1) testing the effects of attitude toward amae on the amae network; 2) exploring the differences in quality and quantity of amae network between different zones; and 3) analyzing the relationships of overall satisfaction with amae network and amae network constructs to emotional status; and 4) examining the relationships of self-esteem and amae network to emotional status. The statistical approaches included factor analyses of scores: Total Score, Zone 1, Zone 2, Zone 3, and Zone-differentiated Score of the amae network.

Whether social sanction toward amae (operationalized as attitude toward amae) was significantly related to the amae network was tested by administering the ANQ and the Amae Attitude Scale (AAS) to a group of 85 students. The AAS was constructed also by this investigator and examined for test-retest reliability and response biases in this study. The AAS was free of response biases in terms of social desirability and had a moderate level of test-retest reliability. The validity of the AAS was not explored here. The results of validity correlation coefficients between the ANQ and the AAS indicated that among the amae network constructs the total structure and positive evaluation were significantly related to the score of the AAS but that the functional dimension and negative evaluation were not related to the total score of the AAS. When parts of the AAS were separately computed, "the attitude toward own amae" was significantly related to the seven amae network variables but "the attitude toward amae in general" was not related to any of the amae network variables. The variable of amae was directly related to the AAS while aid was also significantly related to the degree of agreement with the actual practice of amae. The high tolerance toward amae behaviors of others was also related to some amae network variables. The degree of the individual's perception of security with a variety of people including strangers was strongly related to the amae network.

The amae network differences according to the zone differences were examined by using paired t-tests ($n = 482$). Zone 2 (friendship zone) had the largest size of network among the three zones. However, Zone 1 (intimate zone) obtained higher scores than the other two zones on every variable and construct of the amae network except for the three

negatively stated items. Zone 3 (giri zone) had significantly higher scores than the other two zones on these negatively stated items. These results appeared to confirm the notions proposed by Doi (1967, 1971) and Nakane (1978). The differences in the functions of these zones were discussed.

The perceived adequacy of amae network (operationalized as "overall satisfaction" and evaluative dimension) and the availability of amae network (operationalized as structural and functional dimensions) as predictors of the emotional status of subjects were examined by using multiple regression coefficient analyses. An anxiety scale and a psychological inventory were administered simultaneously with the ANQ. Overall satisfaction was the best predictor of emotional status of the subjects while other variables of the evaluative dimension were not related to emotional status above or beyond the variance of the overall satisfaction with one's own amae network. The relationship of overall satisfaction to emotional status was dependent on the availability of amae network, especially measured by the functional dimension. The effects of overall satisfaction on emotional status were influenced more by the dependency construct than the wish-for-oneness construct.

The results of multiple regression coefficients indicated that self-esteem was a strong predictor of emotional status among Japanese students ($n = 311$) and amae network constructs affected the way which self-esteem related to state and trait anxiety but not to emotional stability. Further analyses of the relationships of self-esteem and amae network variables to emotional status indicate that the two concepts of self-esteem and amae network seem to have unique contributions to the emotional status of individuals, suggesting further

that social competence measured by self-esteem may not be a rival concept for the social network as the literature indicates. The results of these analyses were discussed from the view of Erikson's theory as well as Doi's amae theory. Limitations of these analyses were also discussed.

Five factor analyses were computed by using the principal components method with Varimax rotation. The total amae network scores consisted of five factors: Emotional Dependency, Practical Help, Emotional Sharing, Network, and Negative Amae. Zone 1 consisted of only two factors: General Zone 1 and Negative Amae; Zone 2 consisted of three factors: General Amae Relationship, Network, and Negative Amae; Zone 3 consisted of four factors: Network/Emotional Dependency, Practical Benefit Oriented, Emotional Sharing, and Negative Amae. When all the zone scores were entered into the analysis nine factors were obtained: General Zone 1, General Zone 2, General Zone 3, Amae in Zone 3, Negative Amae in Zone 1, Negative Amae in Zone 2, Negative Amae in Zone 3, Aids in Zones 2 and 3, and Amae in Zones 2 and 3. The conceptual construct of Total Structure was identical to the statistical factor identified in this analysis. The conceptual construct of Dependency appeared to consist of two factors: Emotional Dependency and Practical Help. The conceptual construct of wish-for-oneness was nearly congruent with the factor of Emotional Sharing except for the cohesion items. Positive cohesion appeared to belong to the construct of dependency while negative cohesion tended to belong to the negative evaluation. Positive evaluation was not a distinct factor but belonged to both dependency (satisfaction-comfort) and wish-for-oneness (amae). Negative evaluation became a distinct factor by including negative

cohesion. In regard to the notion of amae network zones, the results of these analyses indicate that each zone is a distinct factor which has a unique character. As overall, these factor analyses confirmed the conceptual constructs of amae network and the notion of amae network zones.

It is especially necessary to mention the problems of the three negatively stated items (negative cohesion, overloading, and enryo). These items consistently obtained extremely lower scores with less variance than did the other items. Although the magnitude was not large, they were significantly related to the response bias scale. The test-retest reliabilities were relatively lower than other items. The factor analyses resulted in lower commonalities than others. On the other hand, results of construct validity tests indicate the meaningful functions of these items in the relation to the amae theory. Thus, the nature of these items should be re-examined in future research.

Generalizability of the results of this study was examined through exploration of the effects on the amae network of hometown differences, educational program differences, and length of attendance at the schools. Analyses of variance resulted in no effect on any amae network construct of hometown differences and length of attendance. Scores for the structural construct of amae network appeared to be influenced by educational program differences and distance from the subjects' hometowns. Educational program difference did not influence the scores of the functional or evaluative constructs of the amae network. Therefore, the results of this study can be generalized to the extent that the population is composed of Japanese female students between the ages of 18 and 22.

In conclusion, the theoretical and statistical evidence support the claims for validity and reliability of the Amae Network Questionnaire.

CHAPTER V
IMPLICATIONS OF THE STUDY
AND
RECOMMENDATIONS FOR FUTURE STUDY

Implications of the Study

Having been supported by theoretical and statistical evidence in this study, it is concluded that the Amae Network Questionnaire is a reliable and valid instrument for measuring the concept of the amae network. The implication of this finding is three-fold: 1) verification of the concept of amae network and amae theory; 2) provision of knowledge in social resources for nursing science; and 3) provision of a measure for clinical practice.

Verification of Concepts of Amae

The findings of this study imply that the concept of amae network can be empirically demonstrated although some reservations are justified until the findings are validated in different populations. Since the concept of the amae network was synthesized by comparing and contrasting the notions of amae with relevant concepts of dependency, attachment, intimacy, symbiosis, social network, and social support, the verification of the concept of the amae network implies that these concepts involved may be supported by empirical evidence. The notions of the amae world and amae relationships proposed by Doi (1956, 1958, 1960a, b, 1962, 1963, 1964, 1966, 1967, 1968, 1969, 1970, 1971, 1972a, b, c, 1975, 1979, 1981) appear to be verified in this study. The most striking results of this study are related to the notion of zones and

their functions and are supported by factor analyses and t-tests for zone differences. Individuals who are considered in "uchi" (the inner world or intimate zone) appear to have distinct functions different than those individuals considered to be "soto" (the outer world or giri or stranger relationship) by the individual as Doi (1971) speculated. Doi's idea of social sanction toward amae phenomena among Japanese people also appears to be verified by this study. The notion of wish for a union with the other that has been speculated as the goal of the amae relationship by Doi (1971, 1981) is strongly supported by the findings of this study. This result further suggests that amae need and dependency need may be conceptually different although Doi (1970) uses these terms synonymously. Of course, theory or concepts are never verified by a single study; therefore the implications of this study for the verification of amae theory is to be taken conservatively at this time.

Provision of Knowledge of Social Resources for Nursing

The concept of social resource or social environment has been acknowledged by nurse theorists as one of the important concepts in nursing knowledge (e.g., Nursing Theory Conference Group, 1980). However, the properties and functions of social resources or environment for an individual have not been well conceptualized and empirically tested. Recent studies of social support are emerging in nursing journals and are one promising effort in this country (e.g., Brandt & Weinert, 1981; Norbeck et al., 1981, Note 4). Since the concurrent validity of the ANQ with the Norbeck Social Support Questionnaire is supported by this study, the concept of amae network conceptualized to comprise a phenomenon of the psychosocial environment of the individual

in Japanese society may provide knowledge about psychosocial resources for nursing in Japan.

Provision of a Measure for Clinical Practice

Since amae is speculated to be significantly related to the mental health of the individual in Japanese society (Doi, 1971, 1979) as described in Chapter I, the ANQ may be a useful instrument for studying the psychosocial status of neuroses, adolescent disturbances, or psychoses which were explained from the amae perspective by Doi (1958, 1964, 1966, 1970, 1971, 1979). However, it is necessary to cross-validate this tool with various samples before the ANQ can be utilized to measure the state of an individual for prescriptive clinical practice. The process of these future studies will be discussed in the following section.

Recommendations for Future Study

Validation of an instrument is a process which continues through a series of studies and not the product of a single study. The ultimate goal of these studies is to use the ANQ in clinical studies in order to collect knowledge which might eventually guide nursing practice.

Additional Validation of the ANQ

The series of additional validation studies can be recommended including 1) further analyses of present data, 2) studies of cross-population characteristics, and 3) studies of convergent and discriminant factors.

Additional analyses of present data. The most powerful validation method is to analyze the convergent and discriminant factors by computing the multitrait-multimethod matrix (Allen & Yen, 1979; Campbell & Fiske, 1959). Since this study involved different measurements in which some were discriminant for the amae network and some were convergent, analyzing the multitrait-multimethod matrix would be useful to assess the construct validity of the ANQ.

It is also suggested that relationships between individuals of different zones be analyzed to determine their formal roles for a subject. It will be interesting to find whether individuals in Zone 1 are more often family members of the subject than those in Zone 2.

Studies of cross-population characteristics. Possible generalizability of the findings of this study is limited to the population of young Japanese female students. There is evidence that supports the claim that women practice amae or dependency more than men (e.g., Fujiwara & Kurokawa, 1981; Kagan & Moss, 1960). The ANQ should be validated by a study using a sample of Japanese men.

Age is another variable to be examined for validation of the ANQ since this study sample was a young homogeneous group and amae was speculated to change as one matures. The use of known groups is also a powerful way to validate an instrument. Studies on seasonal workers who would be away from their usual amae networks or on mentally ill people who are speculated to have pathological amae would be important to include in further validations of the ANQ. Using instruments to measure convergent and discriminant phenomena related to the amae network, a comprehensive matrix of multitrait-multimethod correlations would be obtained.

Use of instruments to measure relevant phenomena. Using instruments to measure convergent and discriminant phenomena related to the amae network, a comprehensive matrix of multitrait-multimethod correlations would be obtained. The amae scale which was reported recently (Fujiwara & Kurokawa, 1981) may be useful for convergent phenomena while projective psychological instruments, including TAT or Rorschach, may measure both convergent and discriminant phenomena by using methods different than those used for the ANQ.

Clinical Studies

Use of an instrument to measure stressful life events may be significant in analyzing the role of the amae network in the emotional status of the individual. This is based on a conceptual prediction of the interactional effects of the amae network with the stressful life event on emotional status as well as on empirical evidence of social support studies (e.g., Norbeck & Tilden, Note 8; Wilcox, 1981). However, the utility of the ANQ is still to be questioned because the length of time required for its use appears to be a little long for application in clinical cases. Sensitivity of the ANQ for clinical cases needs also to be studied.

Cross-cultural Studies

It would be interesting to verify Doi's hypothesis of universality of amae phenomena across various cultural boundaries by conducting cross-cultural studies. However, the ANQ utilizes specific Japanese terms which are difficult to translate literally into other languages. Thus it would be necessary to modify the ANQ for application to

different cultures and to examine the reliability and validity of the revised instrument while the cross-cultural studies are being carried out.

Summary

In summary, the implications of this study are threefold: 1) verification of the concepts of amae, 2) provision of knowledge of the social environment for nursing, and 3) provision of a measure for clinical practice. In order to be able to use the ANQ for the clinical studies and practice, further validation of the instrument is suggested and cross-cultural studies of the ANQ are recommended to test the universality of amae phenomena.

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Appendix A: Instrument Clarity Questionnaire

The original scale in Japanese is available by request from the investigator.

Appendix A: Instrument Clarity Questions

Thank you very much for answering the Amae Network Questionnaire.

As the last questions please let me know your opinions about this questionnaire by answering the following questions.

1. How long did it take time to complete this questionnaire ?

_____ hours _____ minutes

2. What do you think about the length of this questionnaire ? Please chose one answer from the following lists.

1) too long 2) very long 3) not so long

3. What do you think of the format of this questionnaire ?

1) very difficult to understand 2) somehow difficult to understand

3) not so difficult to understand 4) easy to understand

5) very easy to understand

4. Are there any questions which you had some difficulty to respond?

1) yes 2) no

If you said "yes", please answer the following

1) For example, which questions did you have difficulty ?

2) Why did you think it was difficult ?

5. Were there any words which you did not understand or had difficulty to understand ? 1) yes 2) no

If "yes", please list the words which you had difficulty to understand.

If you have any questions or comments about this questionnaire, please contact with me in the following address;

Hiroko Minami, 435 Warren Dr. #7, S.F., Ca. 94131, Tel: 665-1287

Thanking you again for responding to this questionnaire.

Appendix B: The Amae Network Questionnaire and The Amae Attitude Scale

The English translation of the Amae Network Questionnaire is presented in page 68 and that of the Amae Attitude Scale is in page 51.

他にもれることは決してありませんので、できるだけあなたの
気持ちや考えに正直にお答え下さい。

ます。回答して下さった質問紙は回収いたしますが、カードの方は回収いたしません。ただし、このカードは、次の頁からの質問に答えて下さる時に必要なものですので、下記の説明をよく読んで下さい。

まず最初に、あなたが日頃よくおつきあいしている人々や、あなたにとって大切な方々を心に浮べてください。

あなたはその人達を何と呼ばれていますか？

おてもとのカードの線上に（右の頁の図のように）できるだけ多くの人々の呼び名を記入して下さい。その人達のことを思い浮べるに際し、次のリストを参考にして下さい。

- 家族
- 親戚
- 恋人や親友
- 友人、仲間
- 同僚、同級生
- 近所の人
- 医療関係者（医師や看護婦など）
- 民生委員、ケースワーカー
- 宗教関係の人

質問2から質問49までは、下記の例のように、カードの数字と回答欄の数字が並ぶように置いて、1人1人についてお答え下さい。

〔例 図〕

 $(k - k^*)$

あなたの日頃よくおつき
あいらしている人々また……

質問 13 あなたが経済的に困っているとき、この人はたよりになりですか。どれくらいそうですか？

- | | | |
|----|--------------|----|
| 1. | <u>たけおさん</u> | 1. |
| 2. | <u>父さん</u> | 2. |
| 3. | <u>ママ</u> | 3. |
| 4. | <u>姉さん</u> | 4. |
| 5. | <u>よし子</u> | 5. |
-
-
20. 山本さん 20.

- | | |
|-------|---|
| 1. | 5 |
| 2. | 5 |
| 3. | 5 |
| 4. | 4 |
| 5. | 3 |
| | |
| 20. | 2 |

この質問はパートⅠ（質問1～50）とパートⅡとからなっています。

パートⅠがすんでから、パートⅡにおすすみ下さい。

次の頁にすすむ前に、まずカードへの記入をすませて下さい。

(カードが回答欄の横に置かれていますか? カードの数字と回答欄の数字が並ぶように置いてください)

質問 1

カードに書かれた人々は、あなたにとっては、次のどれに該当しますか。番号で答えてください。

1. 身内で遠慮のないつきあい。
2. 他人だが、身内のようにつきあい。
3. 身内だけど、遠慮のあるつきあい。
4. 他人で遠慮も多少あるが、わりと親しいつきあい。
5. 主に義理のつきあい。

質問 2

この方々は、あなたのいま住んでいるところからどれ位離れて住んでいますか。

1. 同居している
2. 同じ家や棟 (アパートや下宿など) に住む。
3. 歩いて訪ねられるところに住む。
4. バスや電車で2時間以内に住む。
5. 上記よりも遠いところに住む。

質問 3

この人と知りあいてなって、どれ位の期間が経過しましたか。

1. 5年以上
2. 2~5年
3. 1~2年
4. 6~12ヶ月
5. 6ヶ月以内

質問 4

この人とはどれ位に1回おつきあいされていますか。(電話、訪問、手紙を含む) 次のなかから、もっとも近いものを選んでください。

1. 毎日
2. 1週間に1回以上
3. 1ヶ月に1回以上
4. 1年に2~3回
5. 1年に1回、またはそれ以下

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

(カードの数字と回答欄の数字が並ぶように置かれていますか。回答欄には、次のうちもっともあてはまるものを、数字でお答えください。)

5. 全くそうである。 4. かなりそうである。 3. まあまあそうである。 2. 少しだけそうである。 1. 全くそうでない。

質問 5 この人はつね日ごろあなたの気持ちに敏感に気づいてくれますか？
どれ位そうですか？

質問 6 この人はあなたにどれ位関心をもっていると思いますか？

質問 7 この人は、あなたのすること（家事、仕事、勉強など）を日頃よく認めてくれていますか？
どれ位そうですか？

質問 8 この人は、あなたのことを信じて、あなたの思うようにさせてくれますか？
どれ位そうですか？

1. _____	1. _____	1. _____	1. _____
2. _____	2. _____	2. _____	2. _____
3. _____	3. _____	3. _____	3. _____
4. _____	4. _____	4. _____	4. _____
5. _____	5. _____	5. _____	5. _____
6. _____	6. _____	6. _____	6. _____
7. _____	7. _____	7. _____	7. _____
8. _____	8. _____	8. _____	8. _____
9. _____	9. _____	9. _____	9. _____
10. _____	10. _____	10. _____	10. _____
11. _____	11. _____	11. _____	11. _____
12. _____	12. _____	12. _____	12. _____
13. _____	13. _____	13. _____	13. _____
14. _____	14. _____	14. _____	14. _____
15. _____	15. _____	15. _____	15. _____
16. _____	16. _____	16. _____	16. _____
17. _____	17. _____	17. _____	17. _____
18. _____	18. _____	18. _____	18. _____
19. _____	19. _____	19. _____	19. _____

(カードの数字と回答欄の数字が並ぶように置かれていますか？また、回答欄には、次のうちもっともあてはまるものを数字で答えてください。)

5. 全くそうである。 4. かなりそうである。 3. まあまあそうである。 2. 少しだけそうである。 1. 全くそうでない。

質問 9 この人は、あなたのことを
好きだと思うれていますか？
どれ位そうですか？

質問 10 この人に好意をもたれるこ
とが、あなたには大切なことですか。
どれ位そうですか？

質問 11 この人は あなたが成長し、
向上するのを見守ってくれています
か。どれ位そうですか？

質問 12 この人は、あなたが成長し、
成功するのを、わがことのように喜
んでくれますか。どれ位そうですか？

1. _____	1. _____	1. _____	1. _____
2. _____	2. _____	2. _____	2. _____
3. _____	3. _____	3. _____	3. _____
4. _____	4. _____	4. _____	4. _____
5. _____	5. _____	5. _____	5. _____
6. _____	6. _____	6. _____	6. _____
7. _____	7. _____	7. _____	7. _____
8. _____	8. _____	8. _____	8. _____
9. _____	9. _____	9. _____	9. _____
10. _____	10. _____	10. _____	10. _____
11. _____	11. _____	11. _____	11. _____
12. _____	12. _____	12. _____	12. _____
13. _____	13. _____	13. _____	13. _____
14. _____	14. _____	14. _____	14. _____
15. _____	15. _____	15. _____	15. _____
16. _____	16. _____	16. _____	16. _____
17. _____	17. _____	17. _____	17. _____
18. _____	18. _____	18. _____	18. _____
19. _____	19. _____	19. _____	19. _____

(カードの数字と回答欄の数が合うように置かれていますか？また、回答欄には、次のうちもっともあてはまるものを数字で答えてください。)

5. 全くそうである。 4. かなりそうである。 3. まあまあそうである。 2. 少しだけそうである。 1. 全くそうでない。

質問 13 あなたが経済的に困っている時には、この人はたよりになりませんか。どれくらいそうですか？

質問 14 もしあなたが病気で、1週間ほど寝込むことになった場合、この人はあなたの身のまわりの世話を実際どれ位してくれると思いますか？

質問 15 もしあなたが、病気のために3ヶ月安静にしないでならなくなったら、この人はあなたを実際に助けてくれると思いますか？

質問 16 仕事や勉強のことで、あなたが決断しなくてはならない時、この人はあなたを助けてくれると思いますか？

どれくらいそうですか？

1. _____	1. _____	1. _____	1. _____
2. _____	2. _____	2. _____	2. _____
3. _____	3. _____	3. _____	3. _____
4. _____	4. _____	4. _____	4. _____
5. _____	5. _____	5. _____	5. _____
6. _____	6. _____	6. _____	6. _____
7. _____	7. _____	7. _____	7. _____
8. _____	8. _____	8. _____	8. _____
9. _____	9. _____	9. _____	9. _____
10. _____	10. _____	10. _____	10. _____
11. _____	11. _____	11. _____	11. _____
12. _____	12. _____	12. _____	12. _____
13. _____	13. _____	13. _____	13. _____
14. _____	14. _____	14. _____	14. _____
15. _____	15. _____	15. _____	15. _____
16. _____	16. _____	16. _____	16. _____
17. _____	17. _____	17. _____	17. _____
18. _____	18. _____	18. _____	18. _____
19. _____	19. _____	19. _____	19. _____

(カードの数字と回答欄の数字があるように置かれていますか。また回答欄には、次のうちもっともあてはまるものを数字で答えてください。)

5. 全くそうである。 4. かなりそうである。 3. まあまあそうである。 2. 少しだけそうである。 1. 全くそうでない。

質問 17 あなたはこの人々、身体に
触れあうことがありますか。(腕を
組んだり、肩を叩いたり、抱きあっ
たりなど) どれ位そうですか?

質問 18 この人と気持ちがぴたりあ
うようなことがありますか。
どれ位そうですか?

質問 19 この人と一緒にいるときに
は、時のたつのも忘れてしまうよう
なことがありますか。
どれ位そうですか?

質問 20 この人とのつきあいに、息
苦しくなり、できることなら逃げだ
したくなることがありますか。
どれ位そうですか?

1. _____	1. _____	1. _____	1. _____
2. _____	2. _____	2. _____	2. _____
3. _____	3. _____	3. _____	3. _____
4. _____	4. _____	4. _____	4. _____
5. _____	5. _____	5. _____	5. _____
6. _____	6. _____	6. _____	6. _____
7. _____	7. _____	7. _____	7. _____
8. _____	8. _____	8. _____	8. _____
9. _____	9. _____	9. _____	9. _____
10. _____	10. _____	10. _____	10. _____
11. _____	11. _____	11. _____	11. _____
12. _____	12. _____	12. _____	12. _____
13. _____	13. _____	13. _____	13. _____
14. _____	14. _____	14. _____	14. _____
15. _____	15. _____	15. _____	15. _____
16. _____	16. _____	16. _____	16. _____
17. _____	17. _____	17. _____	17. _____
18. _____	18. _____	18. _____	18. _____
19. _____	19. _____	19. _____	19. _____

(カードの数字と回答欄の数字が並んでいますか。また回答には、次のうちから もっともあてはまるものを選んでください。)

5. 全くそうである。 4. かなりそうである。 3. まあまあそうである。 2. 少しだけそうである。 1. 全くそうでない。

質問 21 この人ときあいは末長く
真面目につきあっていきそうですか。
どれ位そうですか?

質問 22 あなたは この人に自分の
個人的な気持や、秘密を打ち明けて
話しますか。
どれ位そうですか?

質問 23 この人と あなたは、おた
がいの考えや信念、将来の設計など
について、話しあうことがあります
か。どれ位そうですか?

質問 24 この人とのつきあひにあな
たは満足していますか。どれ位そ
うだと思いますか?

1. _____	1. _____	1. _____	1. _____
2. _____	2. _____	2. _____	2. _____
3. _____	3. _____	3. _____	3. _____
4. _____	4. _____	4. _____	4. _____
5. _____	5. _____	5. _____	5. _____
6. _____	6. _____	6. _____	6. _____
7. _____	7. _____	7. _____	7. _____
8. _____	8. _____	8. _____	8. _____
9. _____	9. _____	9. _____	9. _____
10. _____	10. _____	10. _____	10. _____
11. _____	11. _____	11. _____	11. _____
12. _____	12. _____	12. _____	12. _____
13. _____	13. _____	13. _____	13. _____
14. _____	14. _____	14. _____	14. _____
15. _____	15. _____	15. _____	15. _____
16. _____	16. _____	16. _____	16. _____
17. _____	17. _____	17. _____	17. _____

(カードの数字と回答欄の数字が並んでいますか。また回答には、次のうちから、もっともあてはまるものを選んでください。)

5. 全くそうである。

4. かなりそうである。

3. まあまあそうである。

2. 少しだけそうである。

1. 全くそうでない。

質問 25 この人とのつきあいで、うんざりさせられることがありますか。どれ位そうだと思いますか？

質問 26 この人とのつきあいは、あなたの心を落ちさせ、安心させるものだと思いますか。どれ位そうだと思いますか？

質問 27 あなたはこの人に甘えられますか。どれくらいそうだと思いますか？

質問 28 あなたはこの人に日ごろ甘えていると思いますか。どれ位そうですか？

1.	_____
2.	_____
3.	_____
4.	_____
5.	_____
6.	_____
7.	_____
8.	_____
9.	_____
10.	_____
11.	_____
12.	_____
13.	_____
14.	_____
15.	_____
16.	_____
17.	_____
18.	_____
19.	_____

1.	_____
2.	_____
3.	_____
4.	_____
5.	_____
6.	_____
7.	_____
8.	_____
9.	_____
10.	_____
11.	_____
12.	_____
13.	_____
14.	_____
15.	_____
16.	_____
17.	_____
18.	_____
19.	_____

1.	_____
2.	_____
3.	_____
4.	_____
5.	_____
6.	_____
7.	_____
8.	_____
9.	_____
10.	_____
11.	_____
12.	_____
13.	_____
14.	_____
15.	_____
16.	_____
17.	_____
18.	_____
19.	_____

1.	_____
2.	_____
3.	_____
4.	_____
5.	_____
6.	_____
7.	_____
8.	_____
9.	_____
10.	_____
11.	_____
12.	_____
13.	_____
14.	_____
15.	_____
16.	_____
17.	_____
18.	_____
19.	_____

質問 29 この人とのつきあいに、遠慮や気がねがありますか。

どれ位そうだと思いますか。

- 5 全くそうである
- 4 かなりそうである
- 3 まあまあそうである
- 2 少しだけそうである。
- 1 全くそうでない

質問 30 この人とあなたはどんな関係ですか。右の例のようにできるだけ

詳しく記入ください。1人が2つ以上の関係のある人は、そう書いてください。

〔例〕

夫、恋人、母、義父、弟、教師、同性の友人、先輩、異性の友人、親友、娘、近所の人、牧師、医師、上司、など

質問 31.

あなたが、このカードに書いた人たちとのつきあいを全体としてみた場合、あなたは、自分の周囲の人々との関係に満足していますか。

どれ位そうだと思いますか？

（この質問に対する答えはひとつです。次のうちどれがあなたの気持ちに一番近いですか？

○印をひとつつけてください）

- 5 全く満足している
- 4 かなり満足している
- 3 まあまあ満足している
- 2 少しだけ満足している
- 1 全然満足していない。

1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
6. _____	6. _____
7. _____	7. _____
8. _____	8. _____
9. _____	9. _____
10. _____	10. _____
11. _____	11. _____
12. _____	12. _____
13. _____	13. _____
14. _____	14. _____
15. _____	15. _____
16. _____	16. _____
17. _____	17. _____
18. _____	18. _____
19. _____	19. _____

ご苦労さまでした。これで パートⅡは終了しました。
次のページのパートⅢにおすすみください。

パ ー ト Ⅱ

下に記された20の文章についておたがねいたします。

それぞれの文章に対しては、ある人は賛成し、ある人は反対するというふうに、人によって態度が異なります。

ひとつひとつの文章を読んで、自分の気持や態度にもっとも適した数字に○印をつけて下さい。

非	か	ま	賛	ど	か	非
常	な	あ	成	ち	な	常
に	り	ま	に	ら	り	に
賛	賛	あ	賛	か	反	反
成	成	賛	成	と	対	対
				う		
				と		
				反		
				対		

- | | | | | | | | |
|-------------------------------|---|---|---|---|---|---|---|
| 1. 人が甘えられるのは子供の時だけである。 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. 甘えがあると仕事や勉強で間違いをおこしやすくなる。 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. 甘えは人間関係の潤活油のようなものである。 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. 私はどちらかというと自分に甘い方である。 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 5. 私はどちらかというと他の人に甘い方である。 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. 人が甘えるのは、甘やかす人がいるからである。 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 7. 男性は女性よりも甘えると思う。 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. 私はどちらかというと他の人に甘える方である。 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 9. 私はどちらかというと他の人に甘えられる方である。 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 10. 私はどちらかというと、甘えすぎることかあると思う。 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 11. 私が甘えるのは、相手の人による。 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 12. 自分の身内に対して、私は何となく甘えにくい。 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

13. 私は自分の身内には甘えることが多い。	7	6	5	4	3	2	1
14. 私は全くの他人にも甘えることがある。	7	6	5	4	3	2	1
15. 人と人がお互いに甘えあっているのを見るのはほほえましいと思う。	7	6	5	4	3	2	1
16. 大人になると甘えられなくなるものだ。	7	6	5	4	3	2	1
17. 自分が他の人に甘える時、その時は甘えていると気づかないことが多い。	7	6	5	4	3	2	1
18. 人は、自分の甘えに気づかないことが多いと思う。	7	6	5	4	3	2	1
19. 甘えは人をわがままにさせる。	7	6	5	4	3	2	1
20. 人はいつかは甘えを乗り越えねばならないと思う。	7	6	5	4	3	2	1

非 常 に 反 対
 か な り 反 対
 ま あ ま あ 賛 成
 賛 成 で も 反 対 で も な い
 ど ち ら か と い う と 反 対
 非 常 に 反 対

Appendix C: Social Desirability Scale

The Japanese translation of this scale used in this study is available by request from the investigator.

Social Desirability Scale

Developed by D. Crowne and D. Marlowe

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to your personality.

- T F 1. Before voting I thoroughly investigate the qualifications of all the candidates.
- T F 2. I never hesitate to go out of my way to help someone in trouble.
- T F 3. It is sometimes hard for me to go on with my work if I am not encouraged.
- T F 4. I have never intensely dislike anyone.
- T F 5. On occasion I have had doubts about my ability to succeed in life.
- T F 6. I sometimes feel resentful when I don't get my way.
- T F 7. I am always careful about manner of dress.
- T F 8. My table manners at home are as good as when I eat out in a restaurant.
- T F 9. If I could get into a movie without paying for it and be sure I was not seen, I would probably do it.
- T F 10. On a few occasions, I have given up doing something because I thought too little of my ability.
- T F 11. I like to gossip at times.
- T F 12. There have been times when I felt like rebelling against people in authority even though I knew they were right.
- T F 13. No matter who I am talking to, I am always a good listener.
- T F 14. I can remember playing sick to get out of something.
- T F 15. There have been occasions when I took advantage of someone.
- T F 16. I am always willing to admit it when I make a mistake.
- T F 17. I always try to practice what I preach.
- T F 18. I do not find it particularly difficult to get along with loud mouthed, obnoxious people.
- T F 19. I sometimes try to get even rather than forgive and forget.
- T F 20. When I don't know something I don't at all mind admitting it.
- T F 21. I am always courteous, even to people who are disagreeable.
- T F 22. At times I have really insisted on having things my own way.
- T F 23. There have been occasions when I felt like smashing things.
- T F 24. I would never think of letting someone else be punished for my wrong doings.

- T F 25. I nver resent being asked to return a favor.
- T F 26. I have never been irked when people expressed ideas very different from my own.
- T F 27. I never make a ling trip without checking the safety of my car.
- T F 28. There have been times when I was quite jealous of the good fortune of others.
- T F 29. I have almost never felt the urge to tell someone off.
- T F 30. I am sometimes irritated by people who ask favors of me.
- T F 31. I have never felt that I was punished without cause.
- T F 32. I sometimes think when people have a misfortune they only got what they deserved.
- T F 33. I have never deliberately said something that hurt someone's feelings.

Appendix D: The Norbeck Social Support Questionnaire

The Japanese translation of this tool is available by request from the investigator.

Page 1

SOCIAL SUPPORT QUESTIONNAIRE

PLEASE READ ALL DIRECTIONS ON THIS PAGE BEFORE STARTING.

Please list each significant person in your life on the right. Consider all the persons who provide personal support for you or who are important to you now.

Use only first names or initials, and then indicate the relationship, as in the following example:

Example:

	First name or initials	Relationship
1.	Mary T.	Friend
2.	Bob	Brother
3.	M.T.	Mother
4.	Sam	Friend
5.	Mrs. R.	Neighbor
	etc.	

Use the following list to help you think of the people important to you, and list as many people as apply in your case.

- spouse or partner
- family members or relatives
- friends
- work or school associates
- neighbors
- health care providers
- counselor or therapist
- minister/priest/rabbi
- other

WHEN YOU HAVE FINISHED YOUR LIST, PLEASE TURN TO PAGE 2.

For each person you listed, please answer the following questions by writing in the number that applies.

- 1 = not at all
- 2 = a little
- 3 = moderately
- 4 = quite a bit
- 5 = a great deal

Question 1:

How much does this person make you feel liked or loved?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 2:

How much does this person make you feel respected or admired?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

GO ON TO NEXT PAGE

[7-9]

[10-12]

Page 3

- 1 = not at all
 2 = a little
 3 = moderately
 4 = quite a bit
 5 = a great deal

Question 3:

How much can you confide
 in this person?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 4:

How much does this person
 agree with or support your
 actions or thoughts?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

GO ON TO NEXT PAGE

[13-15]

[16-18]

- 1 = not at all
 2 = a little
 3 = moderately
 4 = quite a bit
 5 = a great deal

Question 5:

If you needed to borrow \$10, a ride to the doctor, or some other immediate help, how much could this person usually help?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Question 6:

If you were confined to bed for several weeks, how much could this person help you?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

GO ON TO NEXT PAGE

[19-21]

[22-24]

Question 7:

How long have you known this person?

- 1 = less than 6 months
- 2 = 6 to 12 months
- 3 = 1 to 2 years
- 4 = 2 to 5 years
- 5 = more than 5 years

1.	_____
2.	_____
3.	_____
4.	_____
5.	_____
6.	_____
7.	_____
8.	_____
9.	_____
10.	_____
11.	_____
12.	_____
13.	_____
14.	_____
15.	_____
16.	_____
17.	_____
18.	_____
19.	_____
20.	_____

Question 8:

How frequently do you usually have contact with this person? (Phone calls, visits, or letters)

- 5 = daily
- 4 = weekly
- 3 = monthly
- 2 = a few times a year
- 1 = once a year or less

1.	_____
2.	_____
3.	_____
4.	_____
5.	_____
6.	_____
7.	_____
8.	_____
9.	_____
10.	_____
11.	_____
12.	_____
13.	_____
14.	_____
15.	_____
16.	_____
17.	_____
18.	_____
19.	_____
20.	_____

Personal Network

First name or initials

Relationship

1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____
11.	_____	_____
12.	_____	_____
13.	_____	_____
14.	_____	_____
15.	_____	_____
16.	_____	_____
17.	_____	_____
18.	_____	_____
19.	_____	_____
20.	_____	_____

Number _____ [1-]

Date _____

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9. During the past year, have you lost any important relationships due to moving, a job change, divorce or separation, death, or some other reason? [54]

1. No

2. Yes

IF YES:

9a. Please check the category(s) of persons who are no longer available to you.

_____ spouse or partner [55]

_____ family members or relatives [56]

_____ friends [57]

_____ work or school associates [58]

_____ neighbors [59]

_____ health care providers [60]

_____ counselor or therapist [61]

_____ minister/priest/rabbi [62]

_____ other (specify) _____ [63] [64]

9b. Overall, how much of your support was provided by these people who are no longer available to you? [65]

_____ 1. none at all

_____ 2. a little

_____ 3. a moderate amount

_____ 4. quite a bit

_____ 5. a great deal

Appendix E: Dependency Scale

This scale was originally developed by Keiko Takahashi and modified by this investigator for this study. The scale in Japanese used in this study is available by request from this investigator. Since this English translation has not been validated, the sample of this scale is illustrated in the following pages.

This questionnaire asks you about your feelings toward your family or friends. There are 24 questions listed below. The following pages are response sheets for six persons who are 1) your mother, 2) your father, 3) your closest brother or sister(if you are twin, your twin sister or brother), 4) your closest friend (same sex), 5) your most intimate friend or lover (opposite sex), and 6) the person whom you respect the most. Please answer each question for each person by using a 5-point scale. For example, when you answer the questions for your father, please replace (A) in the sentences with your father and answer according to your feelings toward your father.

1. If it is possible, I would like to be with (A) all the time.
2. When I am ill or depressed, I wish (A) to sympathize with me.
3. I want (A) to stand up for me for any occasions.
4. At the time of confusion, I desire to ask (A), "am I O.K.?"
5. When I am having hard time or sad, I recall (A).
6. If it is possible, I would like to go with (A) to wherever I go.
7. When I am having hard time or sad, I want (A) to understand my feelings.
8. When I have to do difficult task, I like to do together with (A).
9. When I can't make up my mind, I want to defer to (A)'s opinion.
10. When I feel glad or happy, I wish to report to (A).
11. Just being with (A) makes me feel safe.
12. When I receive sad or bad news, I want (A) to be with me.
13. Just thinking of (A) makes me feel good.
14. I want (A) to be concerned with me by asking "How are you?" etc.
15. I can believe in what (A) thinks is right.
16. (A) is the support for my soul.
17. When I do something, I want (A) to pay attentions to me and encourage me.
18. I am always paying my attention to (A).
19. I wish (A) to understand me more and love me more.
20. (A) is the essential to my life.
21. When (A) agrees with me, I feel good of myself.
22. When I would be the most misery, I would not want (A) to discard me.
23. If I lost (A), my life would become empty.
24. Even when I were not in good position, I would want (A) to believe in me.

Response Sheet 1. (For Example)

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[illegible]

Appendix F: Rosenberg Self-Esteem Scale

The Japanese translation used in this study is available by request from the investigator.

Number _____

Self-Evaluation Questionnaire

Developed by M. Rosenberg

Directions:

For each statement, please circle the response on the right which best describes how you feel about yourself.

	1.Strongly Agree	2.Agree	3.Disagree	4.Strongly Disagree
1. I feel that I'm a person of worth, at least on an equal basis with others.	1	2	3	4
2. I feel that I have a number of good qualities.	1	2	3	4
3. All in all, I am inclined to feel that I am a failure.	1	2	3	4
4. I am able to do things as well as most other people.	1	2	3	4
5. I feel I do not have much to be proud of.	1	2	3	4
6. I take a positive attitude toward myself.	1	2	3	4
7. On the whole, I am satisfied with myself.	1	2	3	4
8. I wish I could have more respect for myself.	1	2	3	4
9. I certainly feel useless at times.	1	2	3	4
10. At times I think I am no good at all.	1	2	3	4

Appendix G: The Spielberger State-Trait Anxiety Inventory

The Japanese translation of this tool used in this study is available by request from the investigator.

SELF-EVALUATION QUESTIONNAIRE

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Developed by C. D. Spielberger, R. L. Gorsuch and R. Lushene

STAI FORM X-1

NAME _____ DATE _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *feel* right now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	①	②	③	④
2. I feel secure	①	②	③	④
3. I am tense	①	②	③	④
4. I am regretful	①	②	③	④
5. I feel at ease	①	②	③	④
6. I feel upset	①	②	③	④
7. I am presently worrying over possible misfortunes	①	②	③	④
8. I feel rested	①	②	③	④
9. I feel anxious	①	②	③	④
10. I feel comfortable	①	②	③	④
11. I feel self-confident	①	②	③	④
12. I feel nervous	①	②	③	④
13. I am jittery	①	②	③	④
14. I feel "high strung"	①	②	③	④
15. I am relaxed	①	②	③	④
16. I feel content	①	②	③	④
17. I am worried	①	②	③	④
18. I feel over-excited and "rattled"	①	②	③	④
19. I feel joyful	①	②	③	④
20. I feel pleasant	①	②	③	④



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SELF-EVALUATION QUESTIONNAIRE

STAI FORM X-2

NAME _____ DATE _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
21. I feel pleasant	①	②	③	④
22. I tire quickly	①	②	③	④
23. I feel like crying	①	②	③	④
24. I wish I could be as happy as others seem to be	①	②	③	④
25. I am losing out on things because I can't make up my mind soon enough	①	②	③	④
26. I feel rested	①	②	③	④
27. I am "calm, cool, and collected"	①	②	③	④
28. I feel that difficulties are piling up so that I cannot overcome them	①	②	③	④
29. I worry too much over something that really doesn't matter	①	②	③	④
30. I am happy	①	②	③	④
31. I am inclined to take things hard	①	②	③	④
32. I lack self-confidence	①	②	③	④
33. I feel secure	①	②	③	④
34. I try to avoid facing a crisis or difficulty	①	②	③	④
35. I feel blue	①	②	③	④
36. I am content	①	②	③	④
37. Some unimportant thought runs through my mind and bothers me	①	②	③	④
38. I take disappointments so keenly that I can't put them out of my mind	①	②	③	④
39. I am a steady person	①	②	③	④
40. I get in a state of tension or turmoil as I think over my recent concerns and interests	①	②	③	④

Appendix H: The Yatabe-Guilford Personality Inventory: Emotional Stability

Since only a part of the inventory was analyzed in this dissertation, the only relevant items were translated by this investigator for the convenience for readers.

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The Yatabe-Guilford Personality Inventory:

Emotional Stability

(Only items analyzed in this study were translated into English for readers)

<u>Item Number</u>	<u>Statement</u>	<u>Response</u>		
9.	It is difficult for me to do my job in front of other people.	Y	?	N
10.	I am always worried if I make any mistake.	Y	?	N
11.	My emotions are easily apparent in the facial expression.	Y	?	N
12.	I sometimes loose my interest in anythings.	Y	?	N
21.	I am often annoyed by visitors.	Y	?	N
22.	Chances often go away from me because I can't make up my mind.	Y	?	N
23.	Excitement makes me easily teary.	Y	?	N
24.	I sometimes feel lonely even when I am in a crowd of people.	Y	?	N
33.	My feelings get easily hurt.	Y	?	N
34.	I am worried if others may disturb me.	Y	?	N
35.	I often regret for making decisions so late.	Y	?	N
36.	I sometime feel that I am no worth.	Y	?	N
45.	I am inclined to be annoyed by the behaviors of others.	Y	?	N
46.	I am often embarrassed with a blush in front of people.	Y	?	N
47.	I am often agitated.	Y	?	N
48.	Without any particular reason, I sometimes become anxious.	Y	?	N
57.	I am uneasy because I feel people are watching at me.	Y	?	N
58.	I suffer from my inferiority complex.	Y	?	N
59.	I am easily startled by unexpected stimuli.	Y	?	N
60.	I am often easily absorbed in meditation.	Y	?	N
69.	Even small obstacle disturbs me.	Y	?	N
70.	I am too embarrassed to do differently from others.	Y	?	N
71.	I sometimes can't concentrate in my thinking.	Y	?	N
72.	My past mistakes often take my thoughts away from reality.	Y	?	N

<u>Item Number</u>	<u>Statement</u>	<u>Response</u>		
81.	I am highly sensitive.	Y	?	N
82.	I get easily upset.	Y	?	N
83.	I am inclined to be moody.	Y	?	N
84.	I feel always exhausted.	Y	?	N
93.	I feel apprehension.	Y	?	N
94.	Diificulty makes me discourage.	Y	?	N
95.	I get easily excited.	Y	?	N
96.	I often get depressed.	Y	?	N
105.	I am inclined to be peevish.	Y	?	N
106.	I usually do not have confidence in me.	Y	?	N
107.	I get easily moroseness.	Y	?	N
108.	I tend to loose myself in the clouds.	Y	?	N
117.	I am preoccupied with minor problems.	Y	?	N
118.	I can make up my mind without much troubles.	Y	?	N
119.	I tend to be emotional.	Y	?	N
120.	I often become cheerless.	Y	?	N

Appendix I: Demographic Data Sheet

The original sheet in Japanese is available by request from the investigator.

ABOUT YOUR BACKGROUND

To compare the results with people from different groups and situations, I would like some additional information about your background.

1. AGE _____

2. MARITAL STATUS

_____ 1) single

_____ 2) married

_____ 3) separated, divorced or widowed

3. EDUCATIONAL LEVEL

1). Number of years of education since graduation from junior-high school to entrance to this school _____

2). Number of years of education from graduation of high school to present _____

3). Number of years of education completed in this school _____

4. JOB EXPERIENCE

Number of years of job experience completed _____

5. NATIVE PLACE

The place where you spent for the longest time in your life;

_____ 1) big city

_____ 2) middle size city

_____ 3) country-side city

_____ 4) county or village, mainly for farming or forestry

_____ 5) county or village, mainly for fishery

_____ 6) others

