

PERSONALITY, MOTIVATION, ANXIETY, STRATEGIES, AND LANGUAGE PROFICIENCY OF JAPANESE STUDENTS

JAMES DEAN BROWN

University of Hawai'i at Manoa

GORDON ROBSON

Showa Women's University

PATRICK ROSENKJAR

Temple University Japan

This study is the first to simultaneously examine the relationships among five language learning variables (personality, motivation, anxiety, learning strategies, and language proficiency) as they co-occur in a group of students with a single language background. The 320 students in this study were all Japanese nationals enrolled in the Intensive English Language Program at Temple University Japan in Tokyo. The six instruments were: the *Yatabe-Guilford Personality Inventory*, the *Attitude/Motivation Test Battery*, the *Foreign Language Classroom Anxiety Scale*, the *Strategy Inventory for Language Learning*, a cloze test, and the structure subtest of the *Michigan Placement Test*.

Descriptive statistics indicated the characteristics of Japanese students. Cronbach alpha analysis indicated that the personality, motivation, anxiety, and learning strategies measures were all reasonably reliable in this situation. Factor analysis (with varimax rotation), used to study the validity of the instruments, indicated a reasonably high degree of convergence of subscales within the measures and divergence between measures. Discriminant function analysis showed that five of the subscales reliably classified students into high, middle, and low proficiency groups, two on the first function (between low proficiency students and the other two groups) and three on the second function (between high proficiency students and the other two groups). The classifications were shown to be 55.19% accurate overall (with 66.3% accuracy in classifying low proficiency students, 48.1% for middle proficiency students, and 51.5% for high proficiency students). Patterns in the intercorrelations of the subscales are also interpreted and discussed.

INTRODUCTION

Five key psychological constructs are investigated in this study: personality, motivation, anxiety, learning strategies, and overall English language proficiency. We will begin by defining and reviewing each of these constructs in turn.

Personality

The personality construct investigated in this study is based mostly on the work of Guilford. Guilford's operationalizations of personality were based on studies of the correlations found between typical items on extraversion-introversion tests like those on

the *Eysenck Personality Questionnaire* (Eysenck, 1970) and *Bernreuter Personality Inventory* (Bernreuter, 1931). Guilford analyzed two general personality types, extraversion and introversion, into their component traits. While Guilford's approach did not rest on a specific and clearly articulated theoretical foundation, his work was based on the trait theories set forth by Allport (1937), Eysenck (1959, 1970, 1978), and Cattell (1956). Trait theories defined the structure of personality as being made up of traits or predispositions, and assumed regularity and pattern to behavior over time and across situations (Pervin, 1989, p. 304). Guilford devised three tests in the 1940s with Martin: the *Guilford Personality Inventory for Factors STDCR*, the *Guilford and Martin Personality Inventory for Factors GAMIN*, and the *Guilford and Martin Personnel Inventory* (Vernon, 1953, p. 133). These three tests were combined and revised in a Japanese version with the help of Yatabe and other Japanese psychologists in 1952. After more than a decade of piloting and revising, the final test was published in Japanese as the *Yatabe-Guilford Personality Inventory* (Guilford & Yatabe, 1957).

Strong (1983) and Ely (1986) investigated personality traits in language learning situations. Strong's 1983 study looked at the relationship between personality factors and the acquisition of specific communicative language skills in a group of Spanish native-speaking kindergarten students. Ely (1986) operationalized personality as risktaking and language-class sociability through a self-report questionnaire. His results found risktaking to be a positive predictor of classroom participation.

Other studies (Rossier, 1975; Chastain, 1975; Naiman, Froehlich, Stern, & Todesco, 1978; Busch, 1982; Chapelle & Roberts, 1986) investigated correlations between measures of personality and overall language proficiency. A typical example of these studies is the one by Busch (1982), which looked for a relationship between extraversion and higher levels of proficiency. Though Busch had hypothesized that extraverts would be more proficient language learners than introverts, her results showed that introverts were in fact more proficient. To summarize briefly, a number of investigations in second language acquisition accept extraversion-introversion and neuroticism-stability as traits of human behavior. The results of various studies in educational psychology (Leith, 1969; Leith & Wisdom, 1970; Shadbolt, 1978; Leith & Trown, 1970) have also been somewhat mixed, but in general, extraverts have been shown to prefer unstructured classroom activities and to be active participants in language learning situations. Students scoring high on neuroticism and introversion appear to prefer more structured activities and are less active in their participation.

Motivation

The view of motivation taken in this study is based on the work of Gardner and Lambert, who investigated integrative and instrumental language learning orientations and, in the process, created the *Attitude/Motivation Test Battery* (A/MTB). This test battery depended on the theoretical model developed by Lambert, which in turn was based on the premise that successful language acquisition depended on the internalization of the "behavioral and cognitive attributes of another cultural community" (Gardner & Smythe, 1981, p. 511). Thus, the degree of proficiency attained was felt to rest on how closely learners identified with their own ethnic group and their attitudes toward the target community. Two key orientations toward learning were also identified: an integrative orientation which defined the goal of language learning as a genuine desire to meet and associate with members of the target language and cultural group, and an instrumental orientation which described the drive for knowledge of a foreign language as a desire for social recognition or economic advantage.

In a further elaboration of the theoretical background for the A/MTB (Gardner, 1985), motivation was viewed as being the sum of effort plus the desire to achieve a language learning goal plus attitudes or the degree of integrative orientation. Effort was described as being derived from several sources such as "compulsiveness, desire to please a teacher or parent, a high need to achieve, good study habits, social pressures, including examinations or external rewards" (Skehan, 1989, p. 55). The desire to achieve a language learning goal was viewed as the behavioral outcome of the learner's attitudes.

The majority of Gardner's studies on motivation were concerned with finding correlations between high scores on the A/MTB and high levels of proficiency (e.g., Gardner & Lambert, 1972). Many of these studies showed that integratively motivated students, regardless of language aptitude, were more likely to succeed in acquiring a second language than those less motivated, and that such students tended to stay with their language programs longer. However, as Au (1988) pointed out, a number of studies have also revealed zero or negative relationships between scores on the A/MTB and proficiency (Clément, Gardner, & Smythe, 1980; Gardner & Lambert, 1972).

Three articles examined the relationships between motivation and students' classroom characteristics. Glikzman, Gardner, and Smythe (1982) focused on whether integratively motivated students had greater levels of classroom participation, produced better quality responses, and had more positive attitudes toward the class. Berwick and Ross (1989) looked at motivation and proficiency in a Japanese context, and attempted to describe variables that may have an effect on changing motivation over time. Ely (1986) showed

that, generally, strength of motivation did not have a predictive relationship to participation.

Anxiety

The operationalization of anxiety used in this study is based on an instrument developed by Horwitz, Horwitz, and Cope (1986). This instrument was designed to measure what MacIntyre and Gardner (1991) identified as situational anxiety or more specifically, anxiety related to language learning. Anxiety was characterized as a "subjective feeling of tension, apprehension, nervousness, and worry" (Horwitz et al., 1986, p. 125), as well as having difficulty concentrating, becoming forgetful, sweating, and having palpitations. More discrete problems caused by anxiety in the language learning classroom were identified as being particularly related to listening and speaking, such as difficulties discriminating sounds in the target language or difficulties with free speaking tasks. Horwitz et al. (1986) claimed three interrelated processes as the basis for their theory: "(1) communication apprehension; (2) test anxiety; and (3) fear of negative evaluation" (p. 127). Drawing from these processes, they developed a self-report questionnaire, called the *Foreign Language Classroom Anxiety Scale (FLCAS)*, made up of 33 items that require respondents to identify particular "self- perceptions, beliefs, feelings and behaviors related to classroom language learning" (p. 128).

MacIntyre and Gardner in a survey article (1991) cited several studies (Muchnick & Wolfe, 1982; Horwitz et al., 1986; and MacIntyre & Gardner, 1989) that provided support for claims that foreign language anxiety is a process separate from other forms of anxiety, and that language learning can be more anxiety provoking than learning in other subjects. Several other studies have examined anxiety and the production of certain grammatical patterns (Kleinmann, 1977), anxiety and story telling (Steinberg & Horwitz, 1986), and the relationships among anxiety, vocabulary learning, and recall (MacIntyre & Gardner, 1989). Still other studies examined the relationships between anxiety and proficiency (Gardner, Smythe, Clément, & Gliksman, 1976 and Lalonde & Gardner, 1984), relationships between anxiety and language classroom performance (Kleinmann, 1977; Steinberg & Horwitz, 1986), relationships among language class discomfort, risktaking, and sociability (Ely, 1986), and relationships among communicative anxiety, vocabulary learning, and learning in both oral and written production (MacIntyre & Gardner, 1989).

Learning Strategies

A large number of strategy training manuals for language teachers and learners have recently appeared. Oxford (1990), Brown (1991), and Wenden (1991) are typical examples. Such documents typically present strategy research findings as the springboard from which to develop student awareness of their own language learning strategies. The success of such a program must ultimately rest on the knowledge we have of how learners learn—that is, on learning strategy research. Much has been written about the strategy use of second language learners. These writings fall largely into four main categories.

First are those, as exemplified by Rubin (1975) and Stern (1975), in which authors relied on intuition, logic, and experience to enumerate behaviors thought to characterize successful language learning. Such articles may be thought of as early attempts to brainstorm a taxonomy of strategies for investigation.

Second, a number of researchers elicited strategy data from learners (for a review of these studies, see Oxford, 1989). The common methodology in these studies was some form of retrospection. For example, Naiman et al. (1978) interviewed successful language learners and identified five major learning strategies. Rubin (1981) similarly used directed self-report to compile a list of six strategies. Utilizing the taxonomies arising out of these two studies and their own intuitions, Politzer & McGroarty (1985) devised a questionnaire to discover the characteristics of the "good language learner." Chamot (1987) interviewed high school ESL students in the United States about their strategy use and was able to classify all the strategies into metacognitive, cognitive, and social-affective categories. Oxford and Nyikos (1989), working from a strategy taxonomy devised by Oxford, identified five major strategy categories in their data and investigated the relationship among these categories and a number of learner variables. (Note that the present study uses Oxford's strategy inventory.) More recently, O'Malley and Chamot (1990) furnished one possible theoretical model for strategies by placing second language learning within the wider context of general cognitive learning theory.

Third, introspective methods also offer a promising new perspective for second language research. A few studies (see Hosenfeld, 1984; Faerch & Kasper, 1987; Abraham & Vann, 1987; Vann & Abraham, 1990; Rosenkjar, 1992) investigated strategy use within the context of tasks through introspective self-revelation (also known as "think-aloud" and "concurrent verbal reports"). Vann and Abraham (1990) expanded the usefulness of think-aloud protocols in tasks by combining this method with analysis of task demands and subject performance.

A fourth category of strategy research consists of studies which examined the training

of students in strategy use. O'Malley (1987), building on the work of Chamot (1987), compared posttest results for a group trained in metacognitive, cognitive, and social-affective strategies with results for a group trained solely in cognitive and social-affective strategies, as well as with results for a control group.

Purpose

The research cited above included a variety of studies of various pairings of five variables: personality, motivation, anxiety, learning strategies, and language proficiency. These studies mostly examined native English speakers learning foreign languages (at various ages) or ESL learners (of various nationalities) learning English. However, no published research has included all five variables in one study with a focus on a single nationality and age group. The purpose of this study was to simultaneously examine the relationships among personality, motivation, anxiety, learning strategies, and language proficiency for a reasonably large number of Japanese university students. To that end, the following research questions were posed:

1. Are self-report scales on personality, motivation, anxiety, and learning strategies reliable when applied to Japanese university students?
2. Are self-report scales on personality, motivation, anxiety, and learning strategies valid when applied to Japanese university students?
3. What do personality, motivation, anxiety, and learning strategy scales tell us about Japanese university students in terms of descriptive statistics?
4. Which personality, motivation, anxiety, and learning strategy subscales significantly and reliably predict differences between the high, middle, and low proficiency Japanese students, and which most reliably predict those differences? How adequately are the resulting predictions classified?
5. How are subscales on each of these measures related to subscales on the other measures when they are administered to Japanese university students?

The alpha level for all statistical decisions was set at .05.

METHOD

Subjects

The 320 students in this study were all Japanese nationals enrolled in the Intensive English Language Program (IELP) at Temple University Japan (TUJ) in Tokyo. The IELP is an academic English program designed to prepare non-native speakers to

undertake college-level work in an English-medium university. There were 158 (49.4%) females, and 162 (50.6%) males. They ranged in age from 18 to 25 with a mean of 20.1 years. The six levels of study at TUJ ranged from the lowest course labeled level 20 to the highest course which was level 70. Of these students, fifty-two (16.3%) were in level 20, seventy-four (23.1%) were in level 30, fifty-eight (18.1%) were in level 40, ninety-one (28.4%) were in level 50, forty (12.5%) were in level 60, and five (1.6%) were in level 70. The average TOEFL score was 435 with scores ranging from 303 to 547 and a standard deviation of 39.7 for those 267 students who had a score on record in the IELP data base. In no case was that score more than one year old.

We must caution readers that, even though the group of students studied here was reasonably large, it cannot be said that this sample represents all university students in Japan. For instance, the types of students who choose to attend American universities in Japan may be very different from those who choose to go to the first-rate Japanese universities like Tokyo University, Keio, Waseda, etc. The students in this study may even be different from students at any Japanese university because they have chosen to do something quite out of the mainstream of Japanese culture. We have made a start by studying this group of students. Other groups within Japan should also be examined, as well as groups in other countries.

Materials

A total of five different constructs were operationalized in this study: personality, motivation, anxiety, learning strategies, and overall English language proficiency. Each operationalization is explained under a separate heading.

Personality. Personality was measured with the *Y/G Personality Inventory* (Guilford & Yatabe, 1957). This instrument was translated into Japanese and adapted to the Japanese situation by a group of Japanese psychologists. It is self-administered and comes with complete instructions and background information in Japanese. The inventory has been shown elsewhere to have reasonably high internal consistency reliability (ranging from .60 to .80) for such short subtests with ten items per trait (Robson, 1992).

The *Y/G Personality Inventory* assesses twelve traits: social extraversion, ascendance, thinking extraversion, rathymia, general activity, lack of agreeableness, lack of cooperativeness, lack of objectivity, nervousness, inferiority feelings, cyclic tendencies, and depression. The twelve traits in this inventory have been shown (see Robson, 1992) to consistently fall into two categories: neuroticism and extraversion (in the list above, the first six represent extraversion and the next six represent neuroticism). In Robson (1992),

the *Y/G Personality Inventory* was also shown to have a good level of concurrent validity with the *Maudsley Personality Inventory* (MPI) (Eysenck, 1959, 1990). Generally, the six extraversion and six neuroticism traits had correlations from .60 to .80 with MPI extraversion and neuroticism and factored into the same two groups. This instrument can thus be said to have a high degree of construct and criterion-related validity, and despite its age, it is still regarded as an appropriate measure by leading researchers in the field (see Angleitner, 1991).

Each trait has ten questions that require a *yes*, *no* or ? answer. *Yes* and *no* answers are marked with a circle and ? answers are marked with a triangle. Circles receive two points and triangles one point for a possible twenty points per trait. Scores of zero are also possible. When a question is negatively worded, the *no* circle will register on the scoring sheet and when a question is positively worded, the *yes* circle will register. The test provides a method for combining the scores on each trait and classifying the examinees into one of five personality types; however, for this study only the raw scores on each trait were used for comparative analysis.

Motivation. Motivation was measured with the *Attitude/Motivation Test Battery* (A/MTB). Gardner and Smythe (1981, p. 511) put together a list of constructs that attempted to measure all of the attitudinal factors related to second language acquisition of French in Canada. They later developed the eleven sections of the *Attitudes/Motivation Test Battery* from that list (Skehan, 1989, p. 55). The assessment format for most of the constructs was a Likert scale; although a short section measuring motivational intensity and desire to learn French used a multiple-choice format, and the evaluative reactions to French courses and French teachers employed a semantic differential technique.

The version of the A/MTB used in this study was adapted to the Japanese situation by Robson. Questions dealing with attitudes toward French Canadians and attitudes toward European French in particular were changed to ones asking for attitudes toward English-speaking Americans in Japan and English-speaking Americans in the United States, respectively, because these groups were identified as the target culture for these particular students.

The first section contained 64 items and asked for information about the following topics: attitudes toward English-speaking Americans in Japan (ten items); interest in foreign languages (ten items); attitudes toward English-speaking Americans in the United States (ten items); attitudes toward learning English (five positively worded items and five negatively worded items); integrative orientation (four items); instrumental orientation (four items), English class anxiety (five items); and parental encouragement (ten items).

Each item was scored using a seven-point Likert scale with a score of one for strongly disagree, a score of four for neutral and a score of seven for strongly agree, unless the question was negatively worded resulting in reverse scoring.

The second section contained twenty multiple-choice questions dealing with motivational intensity (ten items) and desire to learn English (ten items). Very little adaptation was necessary in this section. Negatively worded choices are scored one, more neutral items are scored two, and positively worded choices are scored three. An additional item called an orientation index has two integrative orientation choices scored two points and two instrumental orientation choices scored one point for responses to the question "I am studying English because..."

The third and final section had two semantic differential assessments. Under the headings *My English Teacher* and *My English Course*, two rows of twenty-five descriptors each were provided with seven blanks in between. A mark next to a positively worded descriptor was scored seven and a mark next to a negatively worded descriptor was scored one with a score of four for a mark in the middle. No adaptation was necessary in this section except for changing the word French to English wherever it occurred.

Following the adaptation, the A/MTB was translated into Japanese by two native-speaking Japanese instructors of EFL. The two translators cross-checked each other's work, after which the questionnaire was piloted, producing Cronbach alpha coefficients ranging from a low of .82 to a high of .85. The questionnaire was then re-checked by three other Japanese native speakers (also EFL instructors) resulting in the correction of several Kanji errors and the re-wording of a few items. The final questionnaire had a total of 134 items for a total possible score of 853.

Anxiety. Anxiety was measured by the *Foreign Language Classroom Anxiety Scale* (FLCAS) developed by Horwitz, Horwitz, and Cope (1986). No adaptation was required for the Japanese situation, but the scale was translated following the same method described above for the A/MTB. The questionnaire itself has thirty-three items scored on a five-point Likert scale. Twenty-four of the items are negatively worded and the remaining nine items are positively worded. A typical example from the questionnaire would be: "I start to panic when I have to speak without preparation in language class." After piloting, an item analysis revealed Cronbach alpha coefficients ranging from .92 to .93. In recent studies conducted in Japan, the FLCAS has been shown to be a reliable and valid measure of situational anxiety (Castagnaro, 1992; Robson, 1992; and Tanaka, 1992). Concurrent validity was established by Castagnaro (1992) and was also reported in

Horwitz (1986). Moreover, MacIntyre and Gardner (1991) provide some support for the content and construct validity of the FLCAS (p. 105).

Language learning strategies. Oxford and Nyikos (1989) briefly described their primary data-gathering instrument, the *Strategy Inventory for Language Learning (SILL)*, which was originally developed by Oxford. The SILL is a questionnaire containing 121 items, based on a five-point Likert scale, which asks subjects to rate the frequency of use of various strategies. The theoretical justification for the inclusion of items is said to rest on a "comprehensive taxonomy of language learning strategies that systematically covers the four language skill areas" (Oxford & Nyikos, 1989, p. 292). The six strategies assessed by this instrument are as follows: remembering more effectively, using all your mental processes, compensating for missing knowledge, organizing and evaluating your learning, managing your emotions, and learning with others. The form of the SILL used in this study was a Japanese translation of Oxford's *Strategy Inventory for Language Learning, Version 7.0*, for ESL/EFL (Oxford, 1989). LoCastro (1994) faults the SILL for being potentially insensitive to Japanese learners' concerns and for having no clear theoretical basis. Nonetheless, the SILL is the most reliable of the available strategy questionnaires.

Using Cronbach alpha, the reliability of the SILL was found to be .96 for the 1200-subject sample in the Oxford and Nyikos (1989) study and .95 for a 483-subject sample in an earlier study. Various validity arguments include: (a) a correlation of .95 between two raters who matched SILL items with strategies in the taxonomy on which it was based; (b) the strong relationships between SILL items and self-reports of proficiency and motivation in the Oxford and Nyikos (1989) study; and (c) a previous study in which the SILL was administered to more highly trained and less highly trained linguists, with the more highly trained subjects reporting "more frequent and more wide-ranging" strategy use (Oxford and Nyikos, 1989, p. 292). Furthermore, the researchers compared SILL results with interview data obtained from the earlier 483-subject test and sampled their SILL data to determine if they exhibited a halo effect. Finally, Green and Oxford (1995) explored the relationships between the SILL, L2 proficiency, and gender based on a sample of 374 students in Puerto Rico.

Overall English language proficiency. The English proficiency construct was operationalized by using two different types of scores: scores on a cloze test and scores on the structure subtest of the *Michigan Placement Test*.

The cloze test used in this study was based on a 399 word passage taken from Kurilesz (1969, p. 58-59). Fifty words were deleted for an every-seventh-word deletion pattern.

Brown (1980) found that this cloze test produced a K-R20 reliability coefficient of .90 and a criterion-related validity coefficient of .88 with the English as a Second Language Placement Examination at UCLA.

A portion of the *Michigan Placement Test* (Michigan, 1968) was also used to measure English proficiency in a more traditional manner. The grammar section of Form H was used. This section has forty discrete-point grammar items. Michigan (1977) reported Form H to be reliable (using the K-R21 formula) at .92 and presented general arguments for the validity of Michigan placement tests in general.

Procedures

Teachers in the Intensive English Language Program (IELP) at Temple University Japan were asked to volunteer two days of class time during the last week of classes (which is after the testing, so it tends to be a "quiet" week). The result was that 27 sections of students participated in this study. All measures were administered in comfortable, well-lit classrooms, and they were administered in the same order in all classes.

Only data from students who participated in both days of the data gathering were included in this study. Consequently, 23 students out of a total of 343, or fewer than seven percent, were missing on one of the days and were excluded from the analysis.

RESULTS

Descriptive Statistics and Reliability

Table 1 shows the descriptive statistics for each of the measures in this study (in capital bold-faced letters) and each of the subscales of those measures. In each case, the number of subjects (*N*), mean (*M*), and standard deviation (*SD*) are given. Since the measures and subscales use different scales, the total possible score in each case is also given in order to make interpretation of these results easier.

Table 1 also gives reliability estimates for each of the measures. All of these reliability estimates are Cronbach alphas. If the decimal is moved two places to the right, Cronbach alpha can be interpreted as the percent of reliable or consistent variance in each measure. For instance, according to Table 1, the overall Y/GPI has a Cronbach alpha of .84 in this study. This means that the measure can be viewed as 84 percent reliable, and by extension 16 percent unreliable. Because reliability is often related to test length, the number of items (*k*) is given in the column furthest to the right. Notice that the reliability estimate for

each of the measures taken as a whole (in bold type in Table 1) is reasonably high in all cases. The reliability estimates for the Y/GPI, A/MTB, FLCAS, and SILL were .84, .95, .89, and .94, respectively. The subscale reliabilities were lower in most cases than the full test reliabilities, which makes sense because shorter measures tend to be less reliable than longer measures if all other factors are held constant. The scales fluctuated considerably from a low of .42 to a high of .88. Notice also that the proficiency measures were somewhat less reliable than the self-report measures, with the reliability of the Michigan structure test estimated at .64 and the Cloze test estimated at .71 despite the fact that both of these tests have been shown to have high reliability elsewhere (Michigan, 1977; Brown, 1980). The lower reliability found here may be due to a relatively restricted range of student ability levels (as compared to the populations involved in the original norming).

Table 1
Descriptive Statistics for All Dependent Variables

MEASURE				TOTAL		
Subscale	N	MEAN	SD	POSS.	REL.	k
Y/GPI (PERSONALITY)	320	131.61	22.78	240	.84	120
Social Extraversion	320	14.74	4.65	20	.81	10
Ascendance	320	11.69	4.68	20	.76	10
Thinking Extraversion	320	9.97	3.56	20	.42	10
Rhathymia	320	13.55	4.26	20	.69	10
General Activity	320	12.35	4.53	20	.76	10
Agreeableness (Lack)	320	13.11	3.91	20	.62	10
Cooperation (Lack)	320	8.18	4.13	20	.68	10
Objectivity (Lack)	320	9.69	4.07	20	.63	10
Nervousness	320	9.22	5.28	20	.80	10
Inferiority Feelings	320	7.72	5.29	20	.81	10
Cyclic Tendencies	320	10.81	4.56	20	.69	10
Depression	320	10.57	6.09	20	.85	10
A/MTB (MOTIVATION)	320	679.52	60.47	853	.95	134
Att Amer in Japan	320	54.08	7.56	70	.75	10
Interest Foreign Lang	320	64.51	5.30	70	.68	10
Att Amer in General	320	50.91	8.77	70	.87	10
Att Learning English	320	61.12	7.02	70	.77	10
Integrative Orient'n	320	25.42	3.05	28	.66	4
Instrumental Orient'n	320	20.17	4.78	28	.60	4
English Class Anxiety	320	20.42	6.15	35	.73	5
Parent Encouragement	320	54.51	10.31	70	.84	10
Motivat'l Intensity	320	23.19	2.75	30	.58	10
Desire to Lrn English	320	25.92	2.59	30	.66	10
Orientation	320	1.74	.44	2	NA	1
Att English Teacher	320	136.20	22.83	175	.95	25
Att English Class	320	131.71	20.68	175	.94	25
FLCAS (ANXIETY)	320	107.05	15.85	165	.89	33
SILL (STRATEGIES)	320	3.29	.47	5	.94	50
Remembering	320	3.62	.54	5	.74	9
Mental Processes	320	3.90	.54	5	.84	14
Compensating	320	4.11	.57	5	.69	6
Organizing & Eval	320	4.25	.61	5	.88	9
Managing Emotions	320	3.57	.63	5	.63	6
Learning with Others	320	4.07	.59	5	.73	6
MICHIGAN	320	17.45	4.73	40	.64	40
CLOZE	320	7.21	4.06	50	.71	50

Underlying Factor Structure of Variables

Table 2 presents the results of a factor analysis using factor analysis and varimax rotation. Eight factors had Eigen values over 1.00. Examination of the scree plot confirmed that an eight factor solution was appropriate. These eight factors accounted for 66.2 percent of the variance. The loadings for each of the variables in this study on the eight factors are shown in Table 2. The asterisks indicate loadings of .30 or higher, and the bold-faced type indicates the highest loading for each variable. Furthest to the right, a column of communalities (H^2) is presented in italics. These communalities indicate the total proportion of variance that the eight factors account for in each variable. For instance, the eight factors account for account for 67.9% of the variance in Social Extraversion and 67.1% of the variance in Ascendance, but only 46.6% of the variance in Thinking Extraversion. At the bottom of the table, a row is provided in italics that shows the proportion of variance in the overall solution accounted for by each factor. For example, the first factor accounts for 21.9 percent of the variance in this solution.

Notice that all of the subscales of the SILL loaded most heavily on factor two, that the FLCAS loaded most heavily on factor five, and that the proficiency measures (Michigan structure and Cloze) loaded on factor seven. Two other measures, the A/MTB and the Y/GPI, present more complex patterns of loadings.

Eight of the subscales of the A/MTB load fairly heavily on factor three, and two subscales, English Class Anxiety and Motivational Intensity, load most heavily on factor five with the FLCAS. This pattern makes sense because all three of the variables loading on factor five can be viewed as being related to anxiety. This is obvious for the FLCAS and the English class Anxiety scale, but Motivational Intensity may be related to anxiety because of the types of items in this scale: many of its items deal with classroom behaviors such as speaking out, volunteering, or asking for assistance that could be negatively affected by

TABLE 2 Factor Loadings after Varimax Rotation

MEASURE Subscale	Factors								h ²
	1	2	3	4	5	6	7	8	
Y/GPI (PERSONALITY)									
Social Extraversion	-.369*	.216	.121	.580*	.295	.139	-.197	-.018	.679
Ascendance	-.381*	.146	.077	.591*	.350	.143	-.082	-.016	.671
Thinking Extraversion	-.567*	-.203	-.001	.164	-.243	-.060	-.063	.100	.466
Rhathymia	.064	.070	.170	.823*	-.042	-.033	-.082	.010	.724
General Activity	-.370*	.248	.157	.592*	.128	.136	-.003	-.144	.629
Agreeableness (Lack)	.211	.158	.038	.750*	.152	-.082	.034	.081	.670
Cooperation (Lack)	.685*	-.021	-.102	.051	-.043	-.106	-.043	-.132	.515
Objectivity (Lack)	.738*	.049	-.054	.243	-.149	.081	-.129	.088	.662
Nervousness	.826*	-.062	-.076	-.160	-.083	-.034	.018	.037	.727
Inferiority Feelings	.697*	-.070	-.037	-.366*	-.358*	-.020	-.126	.060	.774
Cyclic Tendencies	.769*	-.127	.052	.196	-.099	-.033	-.042	.014	.661
Depression	.828*	-.033	-.054	-.173	-.186	-.049	-.106	.084	.775
A/MTB (MOTIVATION)									
Att Amer in Japan	-.020	.076	.755*	-.005	-.134	.251	-.067	-.141	.681
Interest Foreign Lang	-.047	.189	.720*	.071	.107	-.044	.128	.244	.651
Att Amer in General	-.130	.085	.667*	-.022	-.070	.329*	-.101	-.093	.602
Att Learning English	-.118	.148	.671*	.102	.225	.063	.054	.153	.578
Integrative Orient'n	.023	.115	.775*	.159	-.062	.061	.019	-.049	.651
Instrumental Orient'n	.005	-.001	.483*	.127	-.015	-.232	-.043	-.558*	.616
English Class Anxiety	-.178	.023	-.080	.118	.824*	.011	.022	.013	.732
Parent Encouragement	-.011	.147	.527*	.105	-.080	.153	-.211	-.087	.392
Motiv'l Intensity	-.023	.359*	.226	.073	.554*	.135	-.036	.105	.523
Desire to Lrn English	-.065	.296	.585*	.039	.338*	-.013	.034	.221	.599
Orientation	.024	-.071	.140	.048	-.003	-.026	.027	.812*	.688
Att English Teacher	.018	-.003	.249	-.030	.082	.842*	.068	.053	.787
Att English Class	-.107	.036	.215	.096	.011	.829*	.107	.021	.768
FLCAS (ANXIETY)									
	-.335*	.129	-.044	.248	.690*	-.037	.073	-.092	.683
SILL (STRATEGIES)									
Remembering	-.049	.755*	.075	.099	.033	.033	-.022	-.061	.595
Mental Processes	.001	.872*	.139	.102	.127	-.003	.049	.054	.811
Compensating	-.024	.764*	.125	.033	.096	-.079	.010	-.005	.616
Organizing and Eval	-.060	.842*	.242	.034	.100	.023	.065	.029	.788
Managing Emotions	.094	.743*	.065	.136	-.098	.054	-.233	-.125	.666
Learning with Others	-.076	.782*	.136	.157	.133	.059	.051	.004	.685
MICHIGAN									
	-.117	.031	-.013	-.155	.032	.079	.809*	-.049	.703
CLOZE									
	-.082	-.047	-.064	.030	.005	.073	.837*	.095	.728
Proportion of Variance	.219	.128	.087	.068	.052	.040	.035	.033	.662

* = Loadings over .30 **BOLD** = highest loading for each variable

foreign language specific anxiety in this sample of Japanese students. Attitude toward English Teacher and Attitude toward English Class both load most heavily on factor six and therefore appear to be similar to each other but different from the rest of the A/MTB subscales. In addition, the Orientation and Instrumental Orientation subscales both load most heavily on factor eight and appear to be related to a common factor that is different from the other scales in this study.

As for the Y/GPI, five of the first six subscales (which measure extraversion) load most heavily together on factor four, and all of the remaining six neuroticism subscales load most heavily on factor one. In addition, in this particular Japanese setting, the Thinking Extraversion subscale appears to be more highly related to neuroticism than to extraversion, a different result from Guilford's original findings. Guilford initially described this trait as *thinking extraversion* and later renamed it *thoughtfulness*, defining it with such adjectives as reflectiveness and meditateness versus mental disconcertedness. Yatabe's subsequent renaming and rewriting of the items on this trait may be partly responsible for its loading with neuroticism.

Predicting Proficiency Group Membership

Discriminant function analysis is designed to help researchers predict group membership from a set of predictors. In this study, groups were created on the basis of their cloze test scores. On the basis of students' cloze test scores, the high proficiency group was created by combining the top 107 students, the middle group was similarly created to include 106 students, and the low proficiency group included 107 students. The proficiency groupings were based on the cloze test rather than on the Michigan structure test because the cloze test was found to be more reliable in this study and because the cloze was measuring more highly integrated language skills (certainly as compared to the multiple-choice Michigan structure test).

Discriminant function analysis was then used to predict high, middle, and low proficiency group membership from all of the 32 subscales in the Y/GPI (Personality), A/MTB (Motivation), FLCAS (Anxiety), and SILL (Strategies). Discriminant function analysis is related to multivariate analysis of variance (MANOVA) procedures. In fact, mathematically, they are the same. But, they are two ways of viewing the issues involved. In MANOVA, a set of procedures familiar to many second language researchers, the multiple interval scales are the dependent variables and the grouping variable is the independent variable. The goal of MANOVA is to analyze the significance of differences in groups' performances on the various dependent variables. In contrast, in discriminant

function analysis, the multiple interval scales are viewed as the independent variables and the grouping variable as the dependent variable, and the goal is to analyze the degree to which the set of predictor (or independent) variables reliably predict group membership (or the dependent variable). Discriminant analysis also helps in examining patterns of differences among predictor variables in order to better understand dimensions along which the groups differ from each other. The stepwise method (using the Wilks' lambda criterion) was appropriately used here because: "When the researcher has no reasons for assigning some predictors higher priority than others, statistical criteria can be used to determine order of entry" (Tabachnick & Fidell, 1989, p. 528). Standard classification procedures were used instead of the jackknifing method because the latter was not available in the SPSS program.

Assumptions. As in MANOVA, data screening is particularly important before conducting a discriminant function analysis. Certain design conditions and assumptions must be met for the analyses to be correctly performed and the results to be reasonably accurate. To those ends, the following steps were taken in the data screening stage of this research.

1. Univariate outliers were checked using the SPSS EXAMINE command. Box plots for all cells in the design for each of the independent variables indicated that there were some extreme cases or outliers. Eleven variables were found to have extreme values (defined here as cases that were more than 3.67 standard deviations above or below the mean, after Tabachnick & Fidell, 1989, p. 96). Twelve subjects were producing these extreme values (in some cases on two of the eleven variables). These twelve subjects were eliminated from study, leaving a total of 308 cases (with 101, 104, and 103 subjects in the high, middle, and low groups, respectively).
2. The remaining data were then checked for multivariate outliers using Mahalanobis distance in SPSS REGRESSION. None were found.
3. Normality was checked with the SPSS EXAMINE command. Out of the 96 distributions in the cells of this design (3 proficiency groups times 32 predictor variables = 96), only four had skewedness statistics slightly higher than 1.00 in magnitude (positive or negative). Tabachnick and Fidell (1989) said that:

The central limit theorem proves that, with large sample sizes, sampling distributions of means are normally distributed regardless of the shapes of the distributions of variables. For example, if there are at least 20 degrees of freedom for error in a univariate ANOVA, the *F* test is said to be robust to violations of normality of variables (provided that there are no outliers). The degree to which robustness

extends to multivariate analyses is not yet clear, but the larger the sample size the less effect nonnormality of variables is likely to have on your conclusion. (p. 71).

While the sample in this study is not huge, 308 far surpasses the 20 degrees of freedom mentioned above by Tabachnick and Fidell (1989). Hence, the slight violations of the assumption of normality found here were not felt to be problematic.

4. Homogeneity of variance-covariance matrices was tested using the Box *M* statistics in SPSS MANOVA. The Box *M* statistic was not significant, indicating that there was no serious problem in this study with homogeneity of variance-covariance matrices.

5. The linearity of relationships among all pairs of independent variables was examined using SPSS PLOT for each pair. While some relationships were somewhat weak, none appeared to be markedly non-linear.

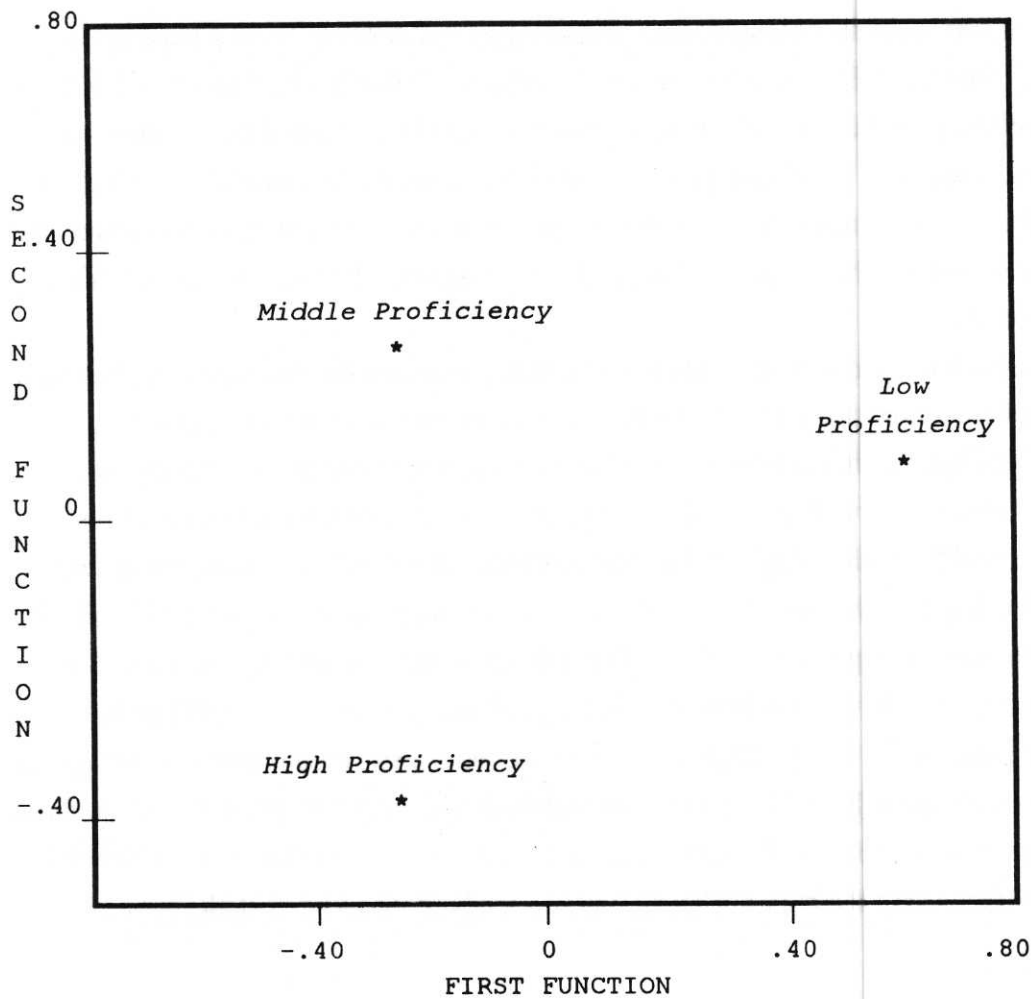
6. Multicollinearity was checked by examining the Pearson product-moment correlation matrix of all independent variables with each other. The vast majority of those correlations were very low. However, even the highest was .765 (considerably higher than all the others), which is below the .80 that Tabachnick and Fidell (1989) set as the problematic level of collinearity. Therefore, multicollinearity does not appear to be a major problem in this study.

In sum, after twelve cases with univariate extreme outliers were eliminated, no worrisome violations of the assumptions of discriminant function analysis remained in this study.

Significance and number of discriminant functions. The reliabilities of two discriminant functions were found to be statistically significant in this analysis. Chi-squared analysis indicated reliable association between proficiency group membership (high, middle, and low) and the 15 predictor variables that survived the stepwise analysis, $\chi^2(30) = 77.67, p < .0001$. After the first function was removed, significant reliable association between groups and predictors remained in the second function, $\chi^2(14) = 25.72, p < .028$. The first function accounted for 67.88% of the between-groups variance in discriminating among the three groups, and the second function accounted for 32.12%.

The plot shown in Figure 1 illustrates how both discriminant functions are related to each other in predicting group membership. The first discriminant function (on the *X* axis) separates the low proficiency group from the other two groups, with the middle and high groups are fairly close together on that function. The second discriminant function (on the *Y* axis) separates the high proficiency group from the other two groups, with the low and middle proficiency groups reasonably close on that second function.

Importance of predictor variables. The 15 steps in the discriminant function analysis along with their associated Wilks' lambdas and probabilities of significance are shown in Table 3. These statistics were used to determine how many and which variables would add significantly to the effectiveness of the prediction of proficiency group membership. The standardized canonical discriminant function coefficients are also shown in Table 3. These statistics were used to determine how many and which variables would add significantly to the effectiveness of the prediction of proficiency group membership. The



EXACT COORDINATES:

Proficiency Group	Function 1	Function 2
Low	.61476	.06491
Middle	-.29777	.33535
High	-.30217	-.40226

Figure 1. Plot of the three group centroids on two discriminant functions derived from 15 of the independent variables

standardized canonical discriminant function coefficients are also shown in Table 3. These statistics were used to calculate each subject's predicted group membership.

The loading matrix of correlations between the predictor variables and the two discriminant functions is shown in Table 4. Note that loadings over .30 are presented in bold-faced type; values lower than that are traditionally not interpreted. To help in interpreting the results of the discriminant function analysis, the means and standard deviations for the high, middle, and low proficiency groups are shown in Table 5 for all of the predictor variables. The results in Tables 4 and 5 suggest that the best predictors for distinguishing between the low proficiency group and the other two groups (the first function) are Instrumental Orientation as measured on the A/MTB (with a loading of .46565) and Managing Emotions as measured by the SILL (with a loading of .36242). High and middle proficiency students appear to have less Instrumental Orientation on average (with means of 19.52 and 19.79, respectively) than the low proficiency students ($M = 21.62$). In addition, the high and middle groups appear to be slightly less prone to Managing Emotions (with means of 3.49 and 3.56, respectively) than the low proficiency group ($M = 3.72$).

At the same time, Table 4 indicates that the best predictors for distinguishing between the high proficiency students and the other two groups (the second function) are Inferiority Feelings (with a loading of .55289), Nervousness (loading at .38502), and Thinking Extraversion (with a .38293 loading), all three of which were measured on the Y/GPI (Personality) scale. High proficiency students appear to have considerably less Inferiority Feelings on average ($M = 6.45$) than the middle proficiency group ($M = 8.65$) or low proficiency group ($M = 7.94$). High proficiency students also appear to be less nervous on average ($M = 8.54$) than the middle proficiency group ($M = 9.97$) or low proficiency group ($M = 8.86$). High proficiency students also score higher on average on Thinking Extraversion ($M = 10.29$) than the middle proficiency group ($M = 9.36$) and only slightly more than the low proficiency group ($M = 10.18$). These differences, which are not great, indicate that the high proficiency group tends to be somewhat slower on

Table 3
Summary of Stepwise Discriminant Function Analysis

Step Entered	Wilks' Lambda	p	Standardized Canonical Discriminant Function Coeff.	
			Function 1	Function 2
1 Instrumental Orient'n	.96030	.0021	.55435	-.11141
2 Inferiority Feelings	.92965	.0002	.12363	.91305
3 Social Extraversion	.90537	.0000	.51864	-.08418
4 Desire to Lrn English	.88868	.0000	-.27936	.25636
5 Managing Emotions	.87412	.0000	.44908	.06919
6 Remembering	.85889	.0000	-.17382	.45211
7 Learning with others	.84265	.0000	-.36142	-.58112
8 Att English Class	.83263	.0000	-.25614	-.20092
9 Agreeableness (Lack)	.82292	.0000	-.26997	.45765
10 Objectivity (Lack)	.80600	.0000	.32152	-.37743
11 Compensating	.79717	.0000	.30658	.13477
12 Nervousness	.78970	.0000	-.42352	-.02545
13 Parent Encouragement	.78230	.0000	.16799	.27962
14 Depression	.77633	.0000	.40818	-.23683
15 Thinking Extraversion	.77055	.0000	.13214	-.28859

Table 4
 Loadings for Predictor Variables on Discriminant Functions

VARIABLE	FUNCTION 1	FUNCTION 2	UNIVARIATE F(2, 305)
Y/GPI (PERSONALITY)			
Social Extraversion	.24518	-.21148	2.36
Ascendance	.08794	-.27785	.96
Thinking Extraversion	.07173	-.38293*	2.17
Rhathymia	.20878	-.00517	1.93
General Activity	.09949	-.27512	.51
Agreeableness (Lack)	-.04776	.16301	.43
Cooperation (Lack)	.10212	.22724	2.62
Objectivity (Lack)	.25309	.07181	1.93
Nervousness	-.04312	.38502*	2.09
Inferiority Feelings	.13668	.55289*	4.74
Cyclic Tendencies	.11802	.26245	1.66
Depression	.21708	.29934	2.60
A/MTB (MOTIVATION)			
Att Amer in Japan	.13068	.06407	.69
Interest Foreign Lang	-.02574	.03750	.20
Att Amer in General	.06269	-.01620	1.34
Att Learning English	.01914	.02278	.38
Integrative Orient'n	.13520	.06948	.24
Instrumental Orient'n	.46565*	-.02111	6.30
English Class Anxiety	-.10571	-.19511	1.34
Parent Encouragement	.27675	.18754	2.71
Motiv'l Intensity	-.17681	-.02077	.50
Desire to Lrn English	-.16962	.12087	1.04
Orientation	-.18690	.05900	.03
Att English Teacher	-.18234	-.14699	.29
Att English Class	-.21414	-.19049	1.83
FLCAS (ANXIETY)	-.06339	-.23294	2.96
SILL (STRATEGIES)			
Remembering	-.02116	.25567	.91
Mental Processes	.07856	.07500	.02
Compensating	.20139	.11082	1.35
Organizing and Eval	.06713	.00203	.24
Managing Emotions	.36242*	.09574	3.94
Learning with Others	-.02847	-.23895	.81

CANONICAL R	.4000	.2875	
EIGEN VALUE	.1905	.0901	

* Loadings over .30

Table 5:

Descriptive Statistics for Low, Middle, and High Proficiency Groups for Discriminant Function Analysis (N = 308)

MEASURE Subscale	LOW PROF.		MIDDLE PROF.		HIGH PROF.		FUNCTION
	Mean	SD	Mean	SD	Mean	SD	
Y/GPI (PERSONALITY)							
Social Extraversion	15.56	4.42	14.18	4.51	14.71	4.84	
Ascendance	11.82	4.88	11.22	4.59	12.10	4.61	
Thinking Extraversion	10.18	3.15	9.36	3.65	9.94	3.80	Function 2
Rhathymia	14.25	4.36	13.45	4.01	13.11	4.37	
General Activity	12.44	4.62	12.04	4.52	12.67	4.39	
Agreeableness (Lack)	13.00	3.62	13.44	4.11	13.01	3.99	
Cooperation (Lack)	8.49	4.08	8.53	4.04	7.39	4.06	
Objectivity (Lack)	10.27	3.58	9.54	4.34	9.17	4.19	
Nervousness	8.86	5.41	9.97	5.21	8.54	5.17	Function 2
Inferiority Feelings	9.94	5.20	8.65	5.65	6.45	4.77	Function 2
Cyclic Tendencies	10.89	4.31	11.29	4.68	10.16	4.62	
Depression	11.24	5.69	10.96	6.54	9.44	5.95	
A/MTB (MOTIVATION)							
Att Amer in Japan	55.06	7.09	54.34	7.19	53.93	6.79	
Interest Foreign Lang	64.79	4.47	65.12	5.60	64.75	4.90	
Att Amer in General	52.39	8.14	50.58	8.21	51.06	8.21	
Att Learning English	61.40	6.77	61.04	6.92	61.85	6.42	
Integrative Orient'n	25.62	2.49	25.74	2.35	25.49	2.88	
Instrumental Orient'n	21.62	4.51	19.79	4.52	19.52	4.75	Function 1
English Class Anxiety	19.60	5.95	20.36	6.14	21.01	6.36	
Parent Encouragement	56.54	9.86	55.11	9.34	53.39	9.84	
Motivat'l Intensity	23.10	2.53	23.47	2.60	23.21	2.93	
Desire to Lrn English	25.85	2.40	26.31	2.46	26.16	2.16	
Orientation	1.74	0.43	1.74	0.43	1.75	0.43	
Att English Teacher	136.22	21.47	136.27	20.04	138.27	24.36	
Att English Class	129.62	19.42	131.51	21.94	134.99	19.63	
FLCAS (ANXIETY)	105.64	13.37	105.35	17.59	110.10	15.72	
SILL (STRATEGIES)							
Remembering	3.63	0.50	3.70	0.46	3.60	0.58	
Mental Processes	3.94	0.53	3.93	0.44	3.94	0.51	
Compensating	4.20	0.53	4.14	0.55	4.08	0.54	
Organizing and Eval	4.31	0.54	4.33	0.50	4.28	0.53	
Managing Emotions	3.72	0.65	3.56	0.54	3.49	0.58	Function 1
Learning with Others	4.09	0.63	4.04	0.53	4.14	0.56	

Table 6

Classification Results (Correct Predictions in **BOLD**)

ACTUAL GROUP	N	PREDICTED GROUP MEMBERSHIP		
		Low	Middle	High
Low Proficiency Group	101	67 66.3%	21 20.8%	13 12.9%
Middle Proficiency Group	104	23 22.1%	50 48.1%	31 29.8%
High Proficiency Group	103	25 24.3%	25 24.3%	53 51.5%

average to make decisions when compared with the low proficiency group but somewhat faster than the middle group. However, on average, the means indicate that all three groups are fairly well-balanced because they fall approximately in the middle of the 20-point range, being neither too contemplative nor too quick in their thinking styles.

Adequacy of classification. For the classification analysis, sample sizes were taken into account in estimating prior probabilities of group membership. The classification procedure indicated that, overall, 170 (or 55.19%) were correctly classified as shown in Table 6. However, the accuracy of the classifications varied for the three levels. The analysis was more likely to correctly classify low proficiency students than the other two groups. Low proficiency students were classified correctly with 66.3% accuracy, while middle proficiency students were classified with 48.1% accuracy, and high proficiency students were classified correctly with 51.5% accuracy.

Relationships among predictor variables. Pooled within-group correlations were calculated for all possible combinations of the 32 variables in this study. Many of those would reach statistical significance at the .01 level (all $r < .2540$, two-tailed) if they were tested a priori. A full 32 by 32 correlation matrix is far too cumbersome to present here. However, we will report the highlights of these correlational analyses in prose.

Earlier in the discussion of Table 2, we explored the relationships of subscales within measures in terms of convergence and divergence within and between the measures involved. Here, we will discuss relationships of the subscales in each measure to the subscales in other measures. In other words, we will not examine the correlations of subscales to other subscales within the same measure. Only correlation coefficients of .30 or higher will be considered. Hence the relationships we are discussing can all be said to represent at least nine percent overlapping variance ($r^2 = .30^2 = .09$, or 9 percent).

First, correlations between the personality subscales (on the Y/GPI) and motivation subscales (on the A/TMB) were examined. The Motivational Intensity subscale and the Desire to Learn English subscale were both found to be positively correlated with Social Extraversion (both are .30). Apparently, outgoing, socially active individuals tend to also have a greater desire to learn English and to be more highly motivated. Positive correlations were also found for Classroom Anxiety with Social Extraversion (.35) and with Ascendance (.38), and negative correlations were found for Classroom Anxiety with Inferiority Feelings (-.42) and Depression (-.30). This pattern of results seems to indicate that, contrary to previous findings, Classroom Anxiety is somewhat related to outgoingness and leadership tendencies, and negatively related to some aspects of neuroticism in this population. In short, to some degree, this anxiety scale seems to be an indicator of facilitating anxiety for these Japanese students. This issue will be revisited below.

Second, correlations between the anxiety subscales (on the FLCAS) and motivation subscales (on the A/MTB) were inspected. The FLCAS positively correlated with Social Extraversion (.45), Ascendance (.47), and General Activity (.36), and negatively correlated with Lack of Objectivity (-.30), Nervousness (-.35), Inferiority Feelings (-.53), and Depression (-.42). Moreover, Classroom Anxiety and the FLCAS were found to be correlated at .66. These results further support the notion that anxiety can be beneficial, at least in this population. Note also that the group means shown in Table 5 indicate that the high proficiency group was more anxious on average than either the middle or low groups (110.10, 105.35, 105.64, respectively, on the FLCAS, and 21.01, 20.36, 19.60, respectively, on the Classroom Anxiety scale). These correlations and mean differences must be interpreted in light of personality theory, which typically places anxiety in scales measuring neuroticism—a conclusion quite different from the results found here.

Third, correlations between the learning strategies subscales (on the SILL) and motivation subscales (on the A/MTB) were evaluated. Mental Processes correlated positively with Motivational Intensity (.34). Positive correlations were also found

between Organizing and Evaluation Strategies with Interest in Foreign Languages (.30), Attitudes toward Learning English (.33), Motivational Intensity (.38), and Desire to Learn English (.30). Learning with Others correlated positively (.36) with Motivational Intensity. Notice that three of the SILL subscales correlated with Motivational Intensity. However, also note that none of these three SILL subscales was found to significantly differentiate among the three proficiency groups in the discriminant function analysis. So, though the use of these learning strategies does not appear to be related to proficiency, they may be somewhat related to motivation and attitudes towards language learning.

Finally, correlations between the learning strategies subscales (on the SILL) and personality subscales (on the Y/GPI) were inspected. Mental processes positively correlated with Social Extraversion (.31) and General Activity (.30). Organizing and Evaluation correlated positively with General Activity (.30), and Learning with Others with Social Extraversion (.30) and Ascendance (.32). Note that all correlations between personality variables and language learning strategies were with traits that are classified as Extraversion traits on the Y/GPI.

DISCUSSION

The purpose of this section is to provide direct answers to the research questions posed at the beginning of the study. Therefore, to help orient readers, those original research questions will be used as headings to help organize the discussion.

1. Are self-report scales on personality, motivation, anxiety, and learning strategies reliable when applied to Japanese university students?

The reliability of any measure has to do with the degree to which it is measuring consistently. Recall that the results for the total scales on the self-report measures were all fairly reliable (ranging from .84 to .95) in a situation where the proficiency measures were less reliable (cloze = .71; Michigan = .64). However, most of the subscales were found to be considerably lower in reliability and to vary considerably in the magnitude of their reliabilities (ranging from .42 to .88). Subscale reliabilities naturally tend to be lower than the overall reliabilities of measures because the subscale estimates are based on scales that are shorter. If all other factors are held constant, shorter subscales will tend to be less reliable than longer ones.

In fact, these reliability estimates are generally much higher than we expected before doing this study. Like many expatriates living in Japan, we had fallen into the trap of

thinking that Japanese students are relatively homogeneous with regard to personality, motivation, anxiety, and learning strategies. However, a homogeneous population would have produced little variance (and this would have been reflected in relatively low reliability estimates). Yet, the standard deviations reported in Table 1 indicate that these students do vary considerably in terms of personality, motivation, anxiety, and learning strategies, and the reliability estimates are relatively high. The students in this study are in fact far from being homogeneous with regard to these variables, and the measures are reasonably reliable in measuring those variables.

2. Are self-report scales on personality, motivation, anxiety, and learning strategies valid when applied to Japanese university students?

The issue of validity has to do with the degree to which an instrument is measuring what it claims to be measuring. One way to study the validity of a measure is to use factor analysis to study the convergence and divergence of a group of measures. The results in Table 2 indicate that all of the subtests on the SILL converge on one factor and diverge from all other measures in this analysis. Thus the six subscales on this measure appear to be uniformly measuring a single construct which is different from the other scales in this study.

Similarly, the Y/GPI loads on only two factors, one of which appears to be related to extraversion and the other to neuroticism. Thus the Y/GPI seems to be measuring two constructs (with only one subscale not conforming to that two-way classification). Thus, for the most part, the Y/GPI appears to be measuring two constructs—constructs that are not measured on the other scales—just as it was designed to do.

The A/MTB presents a more complex picture because it loads on four different factors—factors that are divergent in the sense that they are different from all of the other measures. Eight of the subscales load on one factor thus showing considerable convergence, while two load on a separate factor apparently related to anxiety (because the FLCAS also loads on that factor), two (attitudes toward English teachers and classes) load on a third factor, and one (orientation) loads on a factor all alone. Thus for Japanese students, the A/MTB seems to measure at least four different things—though the majority of subscales are on one factor. Hence there is some question about the validity of this measure at least in terms of measuring a unitary construct. However, recall that the A/MTB included three distinct item types. This fact combined with the fact that the FLCAS was included in the analysis may go a long way toward explaining why the subscales of the A/MTB loaded on four factors. Clearly, further study of the construct

validity of the A/MTB is warranted, especially when it is applied to this population.

Lastly, there are no subscales on the FLCAS to help in exploring convergence. However, in terms of divergence, this scale appears to be quite different from all of the other scales in this study except two subscales (English class anxiety and motivational intensity) on the A/MTB, which, as we explained above, may logically be related to anxiety. Thus, this pattern of loadings supports the validity of the FLCAS as a measure of anxiety.

3. What do personality, motivation, anxiety, and learning strategy scales tell us about Japanese university students in terms of descriptive statistics?

Beginning first with personality, we can see that on average these students tend to be more extraverted than either introverted or neurotic. In particular, the scores on Social Extraversion, Rhathymia (carefreeness), General Activity (physical activity), and lack of Agreeableness (argumentativeness) were rather high. These findings seem to contradict teachers' expectations about Japanese students' classroom behavior as well as findings of some studies (see Sato, 1982). However, Robson (1992 & 1994) found relationships between students' oral classroom participation and high levels of extraversion and noted in general that the Japanese students in that study tended to be extraverted. In fact, the reticent classroom behavior of many Japanese students may be conditioned by factors other than personality—factors like cultural expectations (for more on this topic, see Anderson, 1993).

The descriptive statistics for motivation show that these students generally have a high degree of interest in learning foreign languages and a good attitude toward learning English as well as a desire to do so. Moreover, these students are somewhat more integratively motivated as shown in both the Integrative Orientation and Orientation subscales. Oddly, given that they are more integratively oriented, the students' attitudes toward Americans (in Japan and in general) are not particularly high. English Class Anxiety is not particularly high either, nor are the scores on the attitude scales related to English teachers and English classes. These students may thus be characterized as being well motivated to learn and to integrate, but with mixed feelings toward Americans, their teachers, and their classes.

The mean of the FLCAS shows these students to be relatively anxious, though not extremely so. In Robson (1992 & 1994), those students found to score high on this measure tended to participate orally less often. Thus, given the relatively high anxiety score, it would be reasonable to expect some of these students to be fairly quiet in class

when speaking English, a condition that is often noted by English teachers in Japan.

Three subscales of the SILL—Compensating (for missing knowledge), Organizing and Evaluating, and Learning with Others—have rather high scores. What might account for this? The subjects under investigation here were all studying intensive English with a view to undertaking college-level work through the medium of English. Perhaps in the process, they were exposed to larger amounts of English input than they could comfortably handle. If this were the case, they might be compelled to adopt strategies for survival in a language learning environment which severely taxed their abilities to cope. One way to do this would be to organize one's life in order to maximize potential learning opportunities. Another way would be to rely on communication strategies which assist in dealing with missing linguistic knowledge. In addition, they might grow to depend on help from other people, such as fellow students. Finally, in such an intense foreign language learning environment, the students might need to stretch in order to use all available mental processes. Naturally, all of these possibilities are very speculative in nature.

4. Which personality, motivation, anxiety, and learning strategy subscales significantly and reliably predict differences between the high, middle, and low proficiency Japanese students, and which most reliably predict those differences? How adequately are the resulting predictions classified?

The results of this study indicate that Instrumental Motivation in the A/MTB (Motivation) and Managing Emotions in the SILL (Strategies) were the best predictors for distinguishing between the low proficiency group and the other two groups (the first discriminant function). High and middle proficiency students appear to have less instrumental motivation on average than the low proficiency students and are slightly less prone to managing emotions than the low proficiency group ($M = 3.72$). At the same time, Inferiority Feelings, Nervousness, and Thinking Extraversion, all on the Y/GPI (Personality) scale seem to be the most reliable predictors for distinguishing between the high proficiency students and the other two groups (the second discriminant second function). High proficiency students seem to be different from the middle and low proficiency groups in three ways: (a) high proficiency students have considerably less Inferiority Feelings on average than the other two groups, (b) high proficiency students appear to be less nervous on average than the other groups, and (c) high proficiency students tend to be somewhat slower on average to make decisions than the low proficiency group but somewhat higher than the middle group (though on average all three groups should be viewed as fairly well-balanced in their thinking styles).

When all is said and done, the classification procedure indicated that over 55 %, were correctly classified (as shown in Table 6) with the accuracy varying somewhat for the three levels (Low proficiency predictions had 66.3% accuracy; middle proficiency classifications were 48.1% accurate, and high proficiency students were classified correctly with 51.5% accuracy. These rates of accuracy in the predictions, while far from perfect, are well above chance fluctuations and could provide useful information for identifying students likely to be low in proficiency, who could benefit from supplementary help in one way or another.

5. How are subscales on each of these measures related to subscales on the other measures when they are administered to Japanese university students?

Generally, the relationships found among the subscales on the A/TMB and the Y/GPI seem to indicate that extraverted or socially active students tend to be more motivated and have a greater desire to learn English. These results would seem similar to those found by Gardner and his associates. However, the positive relationship between Anxiety (in the A/TMB) and Extraversion (in the Y/GPI) and the negative relationship between Anxiety and Neuroticism are somewhat odd. The positive relationship found between Anxiety and Extraversion is unexpected because it indicates that what would typically be labeled as detrimental anxiety is beneficial or facilitating in this setting (if we view extraversion as a positive classroom behavior). In other words, where we found a positive relationship between Anxiety and Extraversion, personality theory would predict that Anxiety would be a neurotic trait and would be negatively related to Extraversion. At the same time, the negative relationship found between Anxiety and Neuroticism is unexpected because, in personality theory, anxiety is considered a neurotic trait and should be positively associated with neuroticism.

Similarly, a positive relationship was found between Anxiety as measured by the FLCAS and the Y/GPI Extraversion, and a negative one was found between FLCAS Anxiety and Y/GPI Neuroticism. This is again the reverse of what would typically be expected both theoretically and based on previous studies (see Robson, 1994 in particular). As the high proficiency group was the most anxious, we must interpret these findings as indicating beneficial anxiety, or anxiety that pushes students to perform better. Such results may be limited to this population alone and may have a relationship to their unique status among Japanese university students.

The relationships found between Learning Strategies (SILL) and Motivation (A/MTB) may indicate that strategies necessary to survive in an intensive English language program

impact on the students' level of motivation by pushing it higher. There also seems to be an important relationship between such survival strategies and Extraversion (Y/GPI), which would seem to indicate that socially active students are more prone to employing such strategies. In addition, the positive relationship between Extraversion and Mental Processes strategies is similar to those found elsewhere in this study between Anxiety and Extraversion because this subscale also deals with anxiety. Thus again, we see a beneficial side to anxiety.

CONCLUSIONS

In theoretical terms, this study was the first to examine personality, motivation, anxiety, strategies, and multiple measures of language proficiency all at the same time. The results indicate that the measures are effective for doing research on Japanese students in that they turned out to be reasonably reliable. All of the measures, except the A/MTB, were shown to be valid in the sense that subtests on the different measures tended to converge on the same factors; at the same time, the various measures were clearly tapping into distinctly different traits, as indicated by the fact that they were loading most heavily on different factors. Even with a single nationality, as in this study, sufficient variance was produced by these self-report measures for us to learn a great deal about the students. In a practical sense, however, future researchers should realize that two of the measures, the Y/GPI and A/MTB were both somewhat cumbersome to administer and score because they have 120 and 134 items, respectively. The FLCAS and the SILL are shorter and considerably easier to administer.

The main point of this study, and of many of the studies looking at individual differences, has been the desire to determine what constitutes a good or proficient language learner. Although a far from complete profile has been provided by this study, certain generalizations can be made. We see that learners in the high proficiency group can be categorized as being: (a) well-balanced in their thinking styles—neither too quick nor too indecisive—given their medium range of scores for Thinking Extraversion; (b) emotionally stable due to the low scores on Inferiority Feelings and Nervousness; (c) less instrumentally motivated; and thus (d) more integratively motivated ($M = 25.5$ on a 28 point scale) and less anxious as measured by the Managing Emotions scale of the SILL.

The findings here that seem to indicate a relationship between Cognitive Academic Language Learning (CALP) (or general second language learning proficiency as measured by the cloze test), and emotionally stable personality types are somewhat unexpected

because previous studies in general have been unable to establish such relationships (see Ellis, 1994 for a summary of this research, and Robson, 1994 for an example of such null findings). The additional findings of a predictive relationship between individuals with personalities prone to well-balanced thinking styles and CALP are also unique.

The fact that the high and middle proficiency groups were found to be less instrumentally motivated on average than the low proficiency group (discriminant function one), seems to contradict the theory underlying the A/MTB, which is generally taken to be that instrumentally oriented students have a drive for knowledge of a foreign language due to desires for social recognition or economic advantage. In such a view, the students in the Temple University (TUJ) EFL program would be seeking English language proficiency for economic advantage, which is typically believed to be the reason for higher education in Japan. However, the high proficiency group was found to be more integratively motivated on average. Perhaps on average these students are not studying at TUJ to become economically or socially successful, but rather to become closer to the target (i.e., American) community, a tendency which may be reflected in the desire of many students to study at the main Temple University campus in Philadelphia.

However, note that the majority of studies using the A/MTB do not precisely indicate how scores on the battery were compared with whatever measure of language learning was being used. Were the different components of the battery simply added together or were certain sections selected? There is an unfortunate level of mystery/ambiguity as to just how Gardner and his colleagues have been using the A/MTB. This ambiguity makes it difficult to compare our results with the earlier studies.

Finally, a close examination of the individual items in Part E (Managing Emotions) of the SILL revealed that this subtest is basically a sort of anxiety questionnaire with items such as "I try to relax whenever I feel afraid of using English." It is curious that scores on the FLCAS, which has been shown to have moderately high (and significant) relationships with both language learning proficiency and classroom participation (Robson, 1994) were higher on average for the high proficiency group, while scores on Part E were low for this group. Perhaps the difference in results is due to instability in the Managing Emotions subscale as reflected in its relatively low reliability (.63) which could be due in part to the scale's relatively short length.

To sum up a bit, one of the most important things we learned from this study is that it is useful to examine specific populations of students, like the Japanese in this case. In so doing, their characteristics can be explored in terms of personality, motivation, anxiety, and learning strategies variables. We also learned that simple linear explanations of those

characteristics as they relate to even a well-defined population like that in this study (using for example, multiple regression analysis or multivariate analysis of variance approaches to analyze the results) may be inadequate. Subpopulations may exist as defined by proficiency levels. More precisely, the variables that separate low, middle, and high proficiency students from one another may be different at different levels. Put another way, the three groups may vary from each other along two or more dimensions.

Suggestions for Further Research

This study has broken new ground by simultaneously investigating a number of affective and strategic instruments in Japanese translation in an EFL setting in Japan and by using discriminant function analysis to do so. Nonetheless, further research would be useful on the personality, motivation, anxiety, and learning strategies of Japanese students of English. To that end, the following suggestions for future research are offered:

1. Would similar results be obtained if this study were replicated with students at different levels of study?
2. Would similar results be obtained if this study were replicated at universities in other countries? Or would there be interesting, systematic differences between language groups and/or cultures?
3. Would similar results be obtained if this study were replicated with Japanese students studying at Japanese (as opposed to American) universities?
4. Would the self-report measures prove as reliable and valid elsewhere as they did in this study?
5. What other psychological tests and observation techniques could be used to validate these self-report measures?
6. Could other techniques be used which would be more reliable and valid than the self-report measures?
7. What other psychological constructs might usefully be used to characterize Japanese learners of English?
8. How might information like that found in the discriminant function analysis in this study be used to develop strategies to help potentially low proficiency students become better language learners?

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REFERENCES

- Abraham, R. G., & Vann, R. J. (1987). Strategies of two language learners: A case study. In A. Wenden & J. Rubin (Eds.) *Learner strategies in language learning* (pp. 85-102). Englewood Cliffs, NJ: Prentice-Hall.
- Allport, G. W. (1937). *Personality: A psychological interpretation*. New York: Holt, Rinehart, & Wilson.
- Anderson, F. (1993). The enigma of the college classroom: Nails that don't stick up. In P. Wadden (Ed.), *A handbook for teaching English at Japanese colleges and universities*. Oxford: Oxford University.
- Angleitner, A. (1991). Personality psychology: Trends and developments. *European Journal of Personality*, 5, 185-197.
- Au, S. Y. (1988). A critical appraisal of Gardner's social-psychological theory of second-language (L2) learning. *Language Learning*, 38, 75-100.
- Bernreuter, R. G. (1931). *Bernreuter personality inventory*. Stanford, CA: Stanford University.
- Brown, H. D. (1991). *Breaking the language barrier: Creating your own pathway to success*. Yarmouth, ME: Intercultural Press.
- Brown, J. D. (1980). Relative merits of four methods for scoring cloze tests. *Modern Language Journal*, 64(3), 311-317.
- Busch, D. (1982). Introversiveness-extraversiveness and the EFL proficiency of Japanese students. *Language Learning*, 32, 109-132.
- Castagnaro, P. (1992). Introduction of physiological measures in locating aversive stimulation related to second language learning among Japanese university students. Unpublished ms. Tokyo: Temple University Japan.
- Cattell, R. B. (1956) Personality and motivation theory based on structural measurement. In J. L. McCary (Ed.) *Psychology of personality* (pp. 63-120). New York: Logos.
- Cattell, R. B., & Cattell, M. D. (1969). *Handbook for the junior-senior high school personality questionnaire*. Champaign, IL: I.P.A.T.
- Chamot, A. U. (1987). The learning strategies of ESL students. In A. Wenden & J. Rubin (Eds.) *Learner strategies in language learning* (pp. 71-84). Englewood Cliffs, NJ: Prentice-Hall.

- Chapelle, C. & Roberts, C. (1986). Ambiguity tolerance and field independence as predictors of proficiency in English as a second language. *Language Learning*, 36, 27-45.
- Chastain, K. (1975). Affective and ability factors in second language acquisition. *Language Learning*, 25, 153-161.
- Clément, R., Gardner, R. C., & Smythe, P. C. (1980). Social and individual factors in second language acquisition. *Canadian Journal of Behavioural Science*, 12, 293-302.
- Educational Testing Service. (1994a). *Test of English as a foreign language*. Princeton, NJ: Educational Testing Service.
- Educational Testing Service. (1994b). *TOEFL score user's manual*. Princeton, NJ: Educational Testing Service.
- Ellis, R. (1994). *The study of second language acquisition*. Oxford: Oxford University.
- Ely, C. M. (1986). An analysis of discomfort, risktaking, sociability, and motivation in the L2 classroom. *Language Learning*, 36, 1-25.
- Entwistle, N. J. (1972). Personality and academic attainment. *British Journal of Educational Psychology*, 42, 137-151.
- Eysenck, H. J. (1959). *Maudsley personality inventory*. London: University of London.
- Eysenck, H. J. (1970). *The structure of human personality* (3rd ed.). London: Methuen.
- Eysenck, H. J. (1978). The development of personality and its relation to learning. In V. Sarris & S. Parducci (Eds.) *Perspectives in psychological experimentation: Towards the year 2000* (pp. 179-195). Hillsdale, NJ: Erlbaum.
- Eysenck, H. J. (1990). *Maudsley personality inventory* (6th ed.). Tokyo: MPI Kenkyû-kai.
- Faerch, C. & Kasper, G. (1987). *Introspection in second language research*. Clevedon, Avon: Multilingual Matters.
- Gardner, R. C. (1985). *Social psychology and second language learning*. Rowley, MA: Newbury House.
- Gardner, R. C., & Lambert, W. E. (1972). *Attitudes and motivation in second-language learning*. Rowley, MA: Newbury House.
- Gardner, R. C., & Smythe, P. C. (1981). On the development of the attitude/motivation test battery. *The Canadian Modern Language Review*, 37, 510-525.

- Gardner, R. C., Smythe, P. C., Clément, R., & Glikzman, L. (1976). Second language acquisition: A social psychological perspective. *The Canadian Modern Language Review*, 32, 198-213.
- Glikzman, L., Gardner, R. C., & Smythe, P. C. (1982). The role of the integrative motive on students' participation in the French classroom. *The Canadian Modern Language Review*, 38, 625-647.
- Green, J. M., & Oxford, R. (1995). A closer look at learning strategies, L2 proficiency, and gender. *TESOL Quarterly*, 29, 261-297.
- Guilford, J. P., & Yatabe, T. (1957). *Yatabe-Guilford personality inventory*. Osaka: Institute for Psychological Testing.
- Horwitz, E. K. (1986). Preliminary evidence for the reliability and validity of a foreign language anxiety scale. *TESOL Quarterly*, 20, 559-562.
- Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *Modern Language Journal*, 70, 125-132.
- Hosenfeld, C. (1984). Case studies of ninth grade readers. In J. C. Alderson & A. H. Urquhart (Eds.) *Reading in a foreign language* (pp. 231-249). London: Longman.
- Kelly, R. V., Jr. (1972). *Instructional objectives, learner personality, and prediction of academic achievement*. Unpublished doctoral dissertation, Purdue University, Purdue, IN.
- Kleinmann, H.H. (1977). Avoidance behavior in adult second language acquisition. *Language Learning*, 27, 93-107.
- Kurilesz, M. (1969). *Man and his world: A structured reader*. New York: Crowell.
- Lalonde, R. N., & Gardner, R. C. (1984). Investigating a causal model of second language acquisition: Where does personality fit? *Canadian Journal of Behavioural Science*, 16, 224-237.
- Leith, G. O. (1969). Learning and personality. In W. R. Dunn & C. Holroyd (Eds.), *Aspects of educational technology* (pp. 101-110). London: Methuen.
- Leith, G. O., & Trown, E. A. (1970). The influence of personality and task conditions on learning and transfer. *Programmed Learning*, 7, 181-188.
- Leith, G. O., & Wisdom, B. (1970). An investigation of the effects of error making and personality on learning. *Programmed Learning*, 7, 120-126.
- LoCastro, V. (1994). Learning strategies and learning environments. *TESOL Quarterly*, 28, 409-414.

- MacIntyre, P. D., & Gardner, R. C. (1989). Anxiety and second language learning: Toward a theoretical understanding. *Language Learning*, 39, 251-275.
- MacIntyre, P. D. & Gardner, R. C. (1991). Methods and results in the study of anxiety and language learning: A review of the literature. *Language Learning*, 41, 85-117.
- Michigan (1968). *Michigan placement test - Form H*. Ann Arbor, MI: University of Michigan.
- Michigan (1977). *Michigan placement test - Technical manual*. Ann Arbor, MI: University of Michigan.
- Muchnick, A. G., & Wolfe, D. E. (1982). Attitudes and motivation of American students of Spanish. *Canadian Modern Language Review*, 38, 262-281.
- Naiman, N., Froehlich M., Stern, D., & Todesco, A. (1978). *The good language learner*. Toronto, Ontario: Ontario Institute for Studies in Education.
- O'Malley, J. M. (1987). The effects of training in the use of learning strategies on learning English as a second language. In A. Wenden & J. Rubin (Eds.) *Learner strategies in language learning* (pp. 133-144). Englewood Cliffs, NJ: Prentice-Hall.
- O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition*. Cambridge: Cambridge University.
- Oxford, R. (1989). Use of language learning strategies: A synthesis of studies with implications for strategy training. *System*, 17, 235-247.
- Oxford, R. (1990). *Language learning strategies: What every teacher should know*. New York: Newbury House.
- Oxford, R., & Nyikos, M. (1989). Variables affecting choice of language learning strategies by university students. *The Modern Language Journal*, 73, 291-300.
- Pervin, L. A. (1989). *Personality, theory and research* (5th ed.). Toronto: John Wiley.
- Politzer, R., & McGroarty, M. (1985). An exploratory study of learning behaviors and their relationship to gains in linguistic and communicative competence. *TESOL Quarterly*, 19, 103-123.
- Power, C. N. (1977). Effects of student characteristics and level of student-teacher interaction on achievement and attitudes. *Contemporary Educational Psychology*, 2, 265-274.
- Robson, G. (1992). Individual learner differences. Unpublished ms. Tokyo: Temple University Japan.

- Robson, G. (1994). *Relationships between personality, anxiety, proficiency, and participation*. Unpublished doctoral dissertation, Temple University Japan, Tokyo, Japan.
- Rosenkjar, P. R. (1992). The use of strategies in task-based language production: Case study of a Japanese learner. In K. Yoshioka, B. Murdoch, J. Smith, & Y. Kato (Eds.), *Proceedings of the 4th conference on second language research in Japan* (pp. 79-93). Niigata, Japan: The International University of Japan.
- Rossier, J. C. (1975). *Extraversion-introversion as a significant variable in the learning of English as a second language*. Unpublished doctoral dissertation, University of Southern California, Los Angeles, CA.
- Rubin, J. (1975). What the "good language learner" can teach us. *TESOL Quarterly*, 9, 41-51.
- Rubin, J. (1981). Study of cognitive processes in second language learning. *Applied Linguistics*, 11, 110-131.
- Sato, C. J. (1982). Ethnic styles in classroom discourse. In M. Hines & W. Rutherford (Eds.), *On TESOL '81*. Washington, DC: TESOL.
- Shadbolt, D. R. (1978). Interactive relationships between measured personality and teaching strategy variables. *British Journal of Educational Psychology*, 48, 227-231.
- Skehan, P. (1989). *Individual differences in second-language learning*. London: Edward Arnold.
- Steinberg, F. A., & Horwitz, E. K. (1986). The effect of induced anxiety on the denotative and interpretive content of second language speech. *TESOL Quarterly*, 20, 131-136.
- Stern, H. H. (1975). What can we learn from the good language learner? *The Canadian Modern Language Review*, 31, 304-318.
- Strong, M. (1983). Social styles and the second language acquisition of Spanish-speaking kindergartners. *TESOL Quarterly*, 17, 241-258.
- Tabachnick, B. G., & Fidell, L. S. (1989). *Using multivariate statistics* (2nd ed.). New York: Harper Collins.
- Tanaka, Y. (1992). Classroom participation and individual differences: An exploratory study. Unpublished ms. Tokyo: Temple University Japan.
- Vann, R. J., & Abraham, R. G. (1990). Strategies of unsuccessful language learners. *TESOL Quarterly*, 24, 177-198.

- Vernon, P. (1953). *Personality tests and assessments*. London: Methuen.
- Wankowski, J. (1978). Personality dimensions of students and some educational implications of Eysenck's theory of extraversion and neuroticism. *University of Birmingham educational survey research report*. Birmingham: University of Birmingham.
- Wenden, A. (1991). *Learner strategies for learner autonomy*. Englewood Cliffs, NJ: Prentice-Hall.

James Dean Brown
Department of English as a Second Language
1890 East-West Road
Honolulu, HI 96822

brownj@hawaii.edu