Extraversion–Introversion and the Prediction of Proficiency in English as a Second Language

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Abstract

The fact that some learners are more successful at acquiring a second language (L2) than others has led to investigations of individual characteristics as predictors of successful L2 acquisitions. This study explores whether extraversion–introversion of Chinese English as a Second Language (ESL) learners affects their target language (TL) proficiency. The subjects of this study were 150 ESL Chinese students at Foo-Yin Junior College of Nursing and Medical Technology. Results of the Pearson product moment correlation and the Chi-square test will be presented, indicating that there were slightly, negatively significant correlations between extraversion–introversion tendency and English proficiency test, and between extraversion–introversion tendency and academic performance in English. This finding implies that students with a tendency toward introversion tend to do better than their extravert counterparts on academically-related tests. In addition, the result about the relationship among all of the language tests indicates that students who performed better on the proficiency test on the Joint Junior College Entrance Examination also performed better on their academic work as well as the cloze and dictation tests. The implications of these findings for further research are outlined.
Introduction

Attempting to understand the overall process of second language (L2) learning, researchers have investigated the relationships among L2 learning and different variables, other than L2 curriculum improvement (Chastain, 1969), such as intelligence (Pimsleur, Mosberg and Morrison, 1962), cognitive variables (Naiman, Frolich and Stern, 1975), attitudes (Gardner and Lambert, 1972) and social factors (Schumann, 1976).

Along with cognitive variables, affective factors, i.e., personality factors within a person, have been believed to contribute to success in L2 learning (Brown, 1973). Of these personal characteristics, extraversion, and its counterpart, introversion, are suggested as potential factors to account for the variance of L2 learning (Rubin, 1975; Stern, 1975; Naiman, Frolich and Stern, 1978). Psychologists have written volumes on the subject of extraversion-introversion, and thus various definitions have been developed. Since this study is specifically concerned with the relationship between extraversion-introversion and language proficiency, it is necessary to define the concept used here.

Among a variety of operational and theoretical definitions of extraversion-introversion, the most highly developed theory comes from Hans Eysenck (Morris, 1979), who contends that the basic difference between extraverts and introverts is biological, rooted in the reticular activation system of the brain. This is the system that monitors incoming neural impulses resulting from environmental stimulation and that either stimulates (excites) or inhibits responses of higher brain centers to the stimulation. Thus, the system controls the arousal level of the cortex of the brain. According to Eysenck, extraverts and introverts are held to differ in the relative strength of the opposing processes of excitation and inhibition such that introverts have typically higher levels of cortical arousal compared with extraverts. The differing levels of arousal result in behavioral and attitudinal preferences and tendencies. Introverts learn more social inhibitions than do extraverts, which affects their activities in social settings. According to Eysenck's theory, extraverts are described as sociable, lively, impulsive, carefree; they seek novelty and change. In contrast, introverts are quiet, introspective, intellectual, well-ordered, emotional, expressive, and value oriented; they prefer small groups of intimate friends, and plan well ahead.

In L2 or foreign language classrooms, particularly in Western countries, where oral participation is highly valued, extravert students are often admired for their outgoing and talkative personality, whereas students with a quiet and reserved personality are considered "problems students" and language teachers "seek
ways of encouraging extraversion” (Brown, 1973:236). Although the relationship between extraversion-introversion and language learning is not clear, many researchers still believe that extraverts may perform better in oral communication which involves face-to-face interaction because they create more opportunities, obtain input, and experience success (Possier, 1975; Rubin, 1975; Seliger, 1977). On the other hand, introverts are assumed to be better at learning to read and write in a L2 (Busch, 1982).

In spite of the fact that teachers, researchers, and L2 learners widely conceive extraversion-introversion as an obvious factor in L2 acquisition, very few empirical studies have been undertaken to investigate this intriguing topic.

Among the few studies which have been done, Naiman, Frolich, and Stern (1975) and Naiman, Frolich, Stern, and Todesco (1978) were to investigate the role of personality in L2 learning (in this case, French). Using the Eysenck Personality Inventory (EPI) (1986) to measure the extraversion introversion tendencies of junior and senior high school students, they found no significant correlations between extraversion and L2 proficiency as measured by a battery of standardized tests. They did, however, find that certain types of extravert behaviour, such as calling out answers and handraising, correlated positively with L2 proficiency.

Another study which used the EPI was undertaken by Rossier (1975) to determine whether extraversion introversion was a significant variable in the learning of English as a L2 by Spanish-speaking high school students in the United States. A positive correlation was found between extraversion as measured by the EPI and oral English fluency as judged by three raters when variables, such as the written aspects of English and the length of time spent in the United States, were controlled.

Busch (1982) conducted a comprehensive study to explore the relationship of extraversion (as measured by the EPI) to English proficiency in adult Japanese ESL students in Japan. Her hypothesis that extravert students would be more proficient than introverts was not supported. In fact, her finding that the pronunciation of the introverts was significantly better than that of the extraverts was quite contrary to the common belief that extraverts are frequent and willing participants in class activities (Brown, 1987). However, it is difficult to draw conclusions based on Busch’s results as Brown (1987:110) states that “Busch’s study...was done in one culture with one group of learners.”

In order to further understand whether extraversion introversion tendencies are crucial to L2 learning, this study attempts to determine if extraversion introversion are predictors of proficiency based on several L2 measures: a cloze test, a dictation test, an essay test, the English proficiency test on the Joint Entrance
Examination of Junior Colleges, and academic performance in English.

Methodology

Subject
The subjects were 150 first-year Chinese-speaking students enrolled at Foo-Ying Junior College of Nursing and Medical Technology during the spring semester of 1994.

Variables and Measurements

1. Extraversion Introversion

The Eysenck Personality Inventory (EPI) measures two major personality dimensions: extraversion introversion and neuroticism-stability, which, according to Eysenck, account for most of the variance in the personality domain. In this study, only the extraversion-introversion scale was used. The extraversion scale measures individual levels of impulsiveness and sociability, as these two factors are believed to be the main subcomponents of extraversion.

The EPI was chosen because it is better devised to incorporate criteria such as item comprehensibility, nonambiguity, concreteness, self-reference, and nonevaluative content, into the standard canon of item selection strategies. In addition, the EPI-Extraversion scale has been used in other studies that have investigated the relationship between ESL proficiency and extraversion-introversion (Naiman et al. 1975, 1978; Rossier, 1975; Busch, 1982).

In order to minimize the variables from reading ability, the study used the Chinese version of the EPI. The Chinese version was translated back-translated three times by three different Chinese-English bilinguals. After two-back-translated version of the EPI were obtained, both versions were compared by a fourth bilingual. The best translation was determined by comparing both versions with the original one.

The reliability coefficient of the extraversion scale for Chinese students (N = 150) was alpha .66, lower than the split half coefficient of .71 reported for Japanese students (N = 185) (Busch, 1983) and of .75 for American college students (N = 2335) (Eysenck and Eysenck, 1968). Since the EPI was not developed for a Chinese population, and the sample size of this study was much smaller than the group of American subjects, the lower reliability coefficient is not surprising. Descriptive statistics of the EPI scores for all subjects as compared with Japanese and American subjects are given in Table I. Compared with Americans, Chinese are more introverted: as a result, while assessing the extraversion-introversion tendencies of language learners, teachers and ESL researchers need to consider the cultural
differences.

Table 1
Descriptive Statistics for EPI

<table>
<thead>
<tr>
<th>Maximum</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>12.7</td>
<td>4.0</td>
</tr>
<tr>
<td>(Chinese, N=150)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Japanese, N=185)</td>
<td>13.1</td>
<td>3.9</td>
</tr>
<tr>
<td>(Americans, N=2335)</td>
<td>20.55</td>
<td>5.8</td>
</tr>
</tbody>
</table>

2. Cloze Test

Interpreted as integrative measures, a cloze test was used for educational decision making and language acquisition research to provide an index of general target language (TL) proficiency. The purpose of the test is to understand students' abilities in language: knowledge of vocabulary, grammatical structure, and discourse structure, reading skills and strategies, and internalized "expectancy" grammar (Brown, 1987), which enables one to predict an item that will come next.

In this study, a passage comprising a total of 226 words adapted from New Guided English: Book 2 (D.H. Howe, 1974) was used. Every seventh word was deleted to produce a random cloze test. In scoring, semantically acceptable and misspelled words were counted correct.

3. Dictation Test

In spite of the questions that remain about dictation test, including "text selection, determination of item size and scoring methods" (Cziko, 1982; Savignon, 1982; Stansfield, 1985; cited from Chapelle 1988:69), dictation tests have been considered to work very well in determining English proficiency. According to Oller (1979), a dictation test, like a cloze, meets the requirements for integrative tests, for it attempts to assess a subject's language skills at the same time.

The dictation test in the study consisted of a prerecorded 77 word passage which the students listened to three times: the first time at normal speed, the second time with the passage divided into sections and the third time again at normal speed. The test was scored by assigning one point for every word in the text, following Oller (1979). However, scores were not given for errors, including deletions, distortions of form of sequence, and insertions.

4. Essay

A writing test has also been considered as integrative or pragmatic, for it elicits a subject's TL graphology, structure, and vocabulary abilities (Oller, 1979). However, the type of scoring method used has various influences on the integrativity of an essay test (Savignon, 1983).
The essay test used in this study required subjects to write a paragraph about their last summer vacation. Two trained graders holistically rated each essay on a 1-4 scale.

5. English Proficiency Test

The English proficiency test on the Joint Junior College Entrance Examination is intended to assess the students' level of English ability achieved in junior high school English classes, and to predict their academic achievement in college English classes. Because an aptitude test is used as a predictor of some future performance (Thorndike and Hagen, 1977), a predictive validity was attained for the test ($r = .67, p < .0001$) using the present subjects' scores in their first-year college English course as a criterion. In addition, based on the English textbooks for the junior high school students edited by Taiwan National Council of Teachers of English, the test is designed to cover and to reflect the current content in junior high school and the college English classes (i.e., it is a measure with content validity). Thus, the evidence that the test is a reliable, valid, and practical measure of verbal ability is provided.

Unlike a cloze test and a dictation test, the proficiency test is considered a discrete point test because its questions are divided into sections including grammar, vocabulary, reading, etc. It mainly consists of three parts. The first part is designed to measure the students' understanding of grammar and vocabulary. The second part includes multiple-choice cloze passages and reading comprehension items. The third part consists of items to determine the students' writing ability.

6. Academic Performance in English

The subjects' academic performance in English was measured by homework, quizzes, a midterm examination, and a final examination in their first-year English course. The midterm and final examinations, as discrete-point tests based on the English course textbook, included questions on vocabulary, grammar, reading, and listening.

Procedure

During the tenth and eleventh weeks of the 1994 spring semester, the cloze, dictation, and essay tests were administered to all subjects. During the fifteenth week, they were given the EPI. The scores of the English proficiency test on the Joint Junior College Entrance Examination were obtained from the Admissions office. Each cloze and dictation test was scored by the researcher. Each essay was rated by two experienced ESL teachers, and the inter rater correlation coefficient was calculated and considered. The final English scores were interpreted as the students' academic performance in English. All data were entered into a computer file and rechecked by the researcher.
Analysis

The data was analyzed by using the SAS (Statistical Analysis System) to perform the three analyses. First, reliability for each test was estimated (Note 1). Secondly, descriptive statistics were calculated. Finally, correlational analyses and a Chi-square test were performed to determine whether extraversion-introversion correlated significantly to language proficiency.

Results

Table 2
Means, standard deviation, and ranges on the tests

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloze</td>
<td>18.8</td>
<td>7.4</td>
<td>54</td>
</tr>
<tr>
<td>Dictation</td>
<td>30.8</td>
<td>12.5</td>
<td>77</td>
</tr>
<tr>
<td>EPT</td>
<td>75.5</td>
<td>11.4</td>
<td>100</td>
</tr>
<tr>
<td>APE</td>
<td>63.4</td>
<td>9.1</td>
<td>90</td>
</tr>
<tr>
<td>EPI</td>
<td>12.7</td>
<td>4.0</td>
<td>24</td>
</tr>
</tbody>
</table>

Note: In Table 2 and 6, EPT stands for the English proficiency test; APE, stands for the academic performance in English

Table 3
KR-21 reliability estimates for the EPI, and the cloze, and dictation language tests.

<table>
<thead>
<tr>
<th></th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPI</td>
<td>.66</td>
</tr>
<tr>
<td>Cloze</td>
<td>.94</td>
</tr>
<tr>
<td>Dictation</td>
<td>.89</td>
</tr>
</tbody>
</table>

Table 4
Pearson product-moment correlations between the EPI and language tests

<table>
<thead>
<tr>
<th></th>
<th>Cloze</th>
<th>Dictation</th>
<th>EPT</th>
<th>APE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPI</td>
<td>-.05</td>
<td>.06</td>
<td>-.14</td>
<td>-.14</td>
</tr>
<tr>
<td></td>
<td>(p&lt;.5)</td>
<td>(p&lt;.5)</td>
<td>(p&lt;.08)</td>
<td>(p&lt;.09)</td>
</tr>
</tbody>
</table>

Note: In Table 2 and 6, EPT stands for the English proficiency test; APE, stands for the academic performance in English.
Table 5

Chi-square of language tests for levels of extraversion

<table>
<thead>
<tr>
<th>Extraversion</th>
<th>High</th>
<th>Middle</th>
<th>Low</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>18</td>
<td>20</td>
<td>11</td>
<td>49</td>
</tr>
<tr>
<td>Middle</td>
<td>14</td>
<td>16</td>
<td>14</td>
<td>44</td>
</tr>
<tr>
<td>Low</td>
<td>17</td>
<td>23</td>
<td>17</td>
<td>57</td>
</tr>
<tr>
<td>Totals</td>
<td>49</td>
<td>59</td>
<td>42</td>
<td>150</td>
</tr>
</tbody>
</table>

$X^2 = 1.27, \ p < .86$

Table 6

Pearson product–moment correlations among language tests

<table>
<thead>
<tr>
<th></th>
<th>EPT</th>
<th>APE</th>
<th>Cloze</th>
<th>Dictation</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPT</td>
<td></td>
<td>.67 ***</td>
<td>.50 ***</td>
<td>.36 ***</td>
</tr>
<tr>
<td>APE</td>
<td>.67 ***</td>
<td></td>
<td>.53 ***</td>
<td>.34 ***</td>
</tr>
<tr>
<td>Cloze</td>
<td>.50 ***</td>
<td>.53 ***</td>
<td></td>
<td>.43 ***</td>
</tr>
<tr>
<td>Dictation</td>
<td>.36 ***</td>
<td>.34 ***</td>
<td>.43 ***</td>
<td></td>
</tr>
</tbody>
</table>

Note: *** $p < .001$

Descriptive statistics and reliabilities

In Table 2, the descriptive statistics for each language test are presented. The average EPT score (75.5 out of 100 possible) is higher than the total average (58.99, with a SD of 23.22) reported by the Council of the Joint Junior Entrance Examination in 1993. This indicates that the subjects in the present study scored above the intermediate level among the national population.

Reliabilities were first calculated for the two nonstandardized tests: the cloze (94) and the dictation (89) tests, and indicated that they were adequate measurement of the students general proficiency. However, the interrater correlation coefficient for the present subjects on the essay test was .42 too low to use it as a measure of writing ability; thus, it is not discussed in the present analysis.

Relationships between extraversion introversion and language proficiency

In Table 4, the results of the Pearson product–moment correlation between extraversion–introversion and each language measure are given. A preliminary
review of the data revealed that extraversion–introversion did not correlate significantly with any of the language tests at the .05 level. However, the negative relationships existing among extraversion–introversion, EPT (p < .08) and APE (p < .09) is slightly significant. In other words, students with a tendency toward introversion performed better on the English proficiency tests as well as in their academic English courses.

In addition to the Pearson product–moment correlation, a Chi-square test was used to determine whether extraversion introversion affected students language proficiency. The scores on all the language tests were divided into three levels: high, middle and low (see Note 2), and used to signal the independent variables; the EPI scores were used to signal the dependent variables. In Table 5, it can be seen that there were not significant differences between extraversion–introversion and the language tests; that is, extraversion–introversion was not related to language proficiency.

Additional information about the relationships among all of the language tests presented in Table 6 shows that there is a significant correlation between the English proficiency test and the subjects academic performance in English, and between the cloze and the dictation language tests. This result indicates that students who performed better on the proficiency test also performed better on their academic work as well as the cloze and dictation tests.

**Discussion and Implications**

It is now possible to discuss the intriguing topic whether extraversion–introversion is a predictor of L2 proficiency. The results form the Pearson product moment correlation analysis and the Chi square test indicate that there is no significant correlation between extraversion–introversion and language proficiency at the .05 level. However, in spite of the overall lack of and significant correlation between extraversion and language proficiency, some of the findings require further discussion.

If the significant levels were expanded to the .1 level, the relationships between extraversion and the English proficiency test, and between extraversion and the subjects academic performance in English would be negatively significant. This finding implies that students with a tendency toward introversion tend to do better than their extravert counterparts on academically related tests. Introverts may pay more attention to a learning task without being troubled by irrelevant distractors because they are quiet, and well-ordered. Out of their intellectual and less impulsive personality, they seem to be able to consciously check language input and output for accuracy in grammar, pronunciation, and vocabulary. The conclu-
sion is consistent with Busch’s report that introverts are likely to have better academic performance (Busch, 1982).

Although the relationships between extraversion-introversion and the proficiency test, and between the academic performance approach and significance, the negative trends are quite weak for the English proficiency test (.14) and the lack of or weak relationships between extraversion-introversion and the language tests. One explanation is that extraversion-introversion may not be a salient factor that accounts for much of the variance in foreign language learning. In the field of psychology, “trait theory” (the theory that stable response dispositions such as extraversion-introversion are enduring causes of behavior, Mishel, 1968) has encountered much criticism. It has been implied that extraversion-introversion not be considered as an isolated component in contributing to learning (Busch, 1982). Rather, extraversion-introversion, along with cognition considerations and other personality variables must be examined in the context of the situation under which the L1 is learned. For example, ESL learners in Taiwan mostly rely on formal instruction (i.e., the classroom), and thus the learning situation may be a crucial factor.

Brown (1987) has pointed out that extraversion-introversion could be invoked by the facilitating or interfering effects if certain methods or situations. In Taiwan, the entrance examinations for senior high schools and colleges usually determine the format in junior and senior high schools, including testing and teaching styles. Since the entrance examination and its sub-tests heavily emphasize grammar and vocabulary, the traditional teacher-centered teaching style, in which teachers dominate the greatest portion of classroom time by giving lectures and having students take notes, and the level of students participation is minimal, is still prevailing style in the ESL classroom, and the style most preferred by administrators and parents. In a teacher centered classroom, which is the most prevalent in the Asian society, students are usually required to inhibit their outgoing, amiable and talkative personalities so that they don’t hinder the serious, quiet learning environment or the tight syllabus processing, or even show their respect for the teachers. Nevertheless, students under the teacher centered teaching methods gradually develop their passive, sterilized learning strategies, and they are usually afraid or incapable of stating their opinions or creating novel ideas. In addition, under the pressure of curriculum demands, they are negatively conditioned against free participation and using their innate process of learning acquisition (Mockridge-Fong, 1984). Consequently, students with passive, fossilized learning patterns cannot obtain as much input in the foreign language classroom as they would in a different situation. As a result, extraversion-introversion are irrelevant to language learning in a teacher centered ESL classroom. While discussing the
relationship between extraversion–introversion and ESL learning, it is crucial to take cultural variations and teaching methods into account.

Another point of discussion has to do with the EPI itself. In spite of the fact that the EPI is a standard and valid test for measuring extraversion–introversion tendencies, it has been developed from a western cultural perspective. A follow-up interview administered to the subjects in the present study revealed that it was difficult for them to answer “yes” or “no” to some questions which reflected their usual way of acting or feeling for those questions which involved situations uncommon in their society. Thus, it is possible that there is a discrepancy between their EPI scores and their usual behavior.

The results of this study indicate that there is slightly significant relationship between extraversion–introversion and language proficiency, and yet suggest some questions which might be taken up in future research:

1. Would the findings of this study be supported using another personality test for measuring extraversion–introversion based on the Asian societies and culture?

2. Would a heterogeneous group of subjects, incorporating with factors as cultural background, style of previous instruction in English, age, and emotional needs, show a similar result?

Another suggestion for researchers interested in replicating this study is that the research should include other learner variables, such as affective factors.

Additional research may help to shed more light on the relationship between the cognitive/affective factors and ESL learning. These findings will lead teachers and ESL researchers to a greater understanding of the language learning process and improvement in teaching methods.

Notes

1. For the cloze test and the EPI, KR-21 reliabilities were estimated because the items were scored on a 0-1 scale. The dictation, however, is not so easily scored 0 or 1 for each word (because of points lost for insertions); therefore, the text was divided into “super items” (Raatz, 1985) for the purpose of calculating reliability. Since the items of the English proficiency test were scored variously. For example, the items of vocabulary were score on 0–1 scale; those of reading comprehension, on 0–2 scale. As a result, it is not possible to calculate a reliability for the test.

2. Scores in the top 27% for all instruments were classified as high (i.e., high extraversion, high English proficiency test, and high language tests). Likewise, the scores in the lowest 27% were classified as low and the remaining 46%
References


Savignon, S.J. 1982. Dictation as a measurement of communicative competence in

