First Language Grammar Proficiency and Language Aptitude: Predictors of Choice and Success in a Second Language

Abra Kinch
ABSTRACT

FIRST LANGUAGE GRAMMAR PROFICIENCY AND LANGUAGE APTITUDE: PREDICTORS OF CHOICE AND SUCCESS IN A SECOND LANGUAGE

By Abra K. Kinch

This project investigates the relationships between native language grammar proficiency, language aptitude, and success in learning a second language. It builds on the research of Jim Cummins with the Developmental Interdependence Hypothesis (1979; 1982) which claims that success in a second language follows closely with the success and skills developed in one’s native, or first, language and that success can be predicted according to these skills. This study hypothesizes that native language (English in this case) grammar proficiency will predict success in a student’s second language. Numerous studies have shown that language aptitude is a measure that can also predict success in a second language, but this study posits that perhaps aptitude also tends to lead students to self-choose harder languages (the difficulty of languages in this study is defined by the Department of Defense). This study also predicts that there exists a correlation between native language grammar proficiency and language aptitude. To test this, an English grammar proficiency test and an abbreviated language aptitude test were given to 122 students studying one of five languages at Florida State University. The languages varied in difficulty and included Chinese, Arabic, Russian, French, and Spanish. The students’ grades were used to measure success. There exists a correlation between English grammar proficiency and success in the target language and between English grammar proficiency and language aptitude, as well as a correlation between language aptitude and choice of language difficulty.

Keywords: Language aptitude, foreign language choice, native language grammar proficiency
The Florida State University
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FIRST LANGUAGE GRAMMAR PROFICIENCY AND LANGUAGE APTITUDE: PREDICTORS OF CHOICE AND SUCCESS IN A SECOND LANGUAGE

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By

Abra K. Kinch

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Chapter 1

INTRODUCTION

What makes a good language learner? What qualities do some possess that make language learning easy for them while terribly difficult for others? Many have researched the qualities of the “good language learner” and posited a veritable plethora of hypotheses. Some think the power of positive attitude will lead to a good language learner (Gardner, 1968). This aspect of attitude expands into motivation. Why are students choosing to learn another language? Is it because they are made to fulfill a requirement as a means to attain a diploma or degree? Is it deemed necessary as part of a job? Is it simply the wish to learn another language? Motivation plays a large role in language learning (Gardner, 1968). Also, what motivates the language learner to choose a particular language of study? Does a one’s own confidence or feeling of aptitude play a role in choosing a particular language or do certain characteristics or skill sets play a role in choosing the language of study?

For example, more and more people are choosing Chinese\(^1\) as a foreign language. Some choose it for the résumé boost in the business world, as China is becoming one of the world’s economic leaders. Some choose it because it is not French or Spanish, which they’ve learned in secondary school. No matter the reason, most American native-English speakers view Chinese as the hardest language to learn. Perhaps this is because of the language’s lack of alphabet, or perhaps the tonal nature of the language would prove

\(^1\) In this paper, the use of Chinese refers specifically to the Mandarin dialect, but can extend to other dialects. When ‘Mandarin’ is used, it is to stress the specificity.
most difficult to master. There are many different aspects of the language that even a “good language learner” would have to overcome to succeed in this second language (L2). Syntactically, students who understand their own language’s grammar quite well may have an advantage. Or perhaps, a student with a strong ability to pick up visual and aural patterns may succeed where others cannot. Phonetically, the perception of auditory patterns in Chinese would provide the student with better understanding of the tonal language. Phonologically, this auditory perception would aid in the production of new sounds found in Chinese, but not found in English. Again, pattern recognition may aid in the acquisition of the logographic nature of Chinese. The characters are comprised of radicals, each with its own meaning. The use of patterns may aid the student in remembering which combination of which radicals forms which word. Perhaps only a student in possession of all of these traits can be a successful Chinese language learner.

Syntactic differences are seemingly minute, but can prove menacing to the new Chinese student. In both English and Mandarin nouns are not declined to show parts of speech. Instead, syntactic word order determines meaning. English, however, has much more flexible rules regulating where phrases can be placed within a sentence. Mandarin word order is almost always in this manner: \textit{Subject-Time (occurring from largest measure to smallest)-“with” accompanying members-other adverbial phrases-verb-object.} The rigidness of Chinese grammar causes difficulty for native English speakers who at the beginning may attempt to translate word for word, but who will violate the grammar rules in this process. Also, most questions are formed in Mandarin by simply replacing the phrase in question with a designated question word. There is not a change in word order or a ‘wh-movement’ as in English.
Phonetic and phonological differences are among the hardest hurdles to leap while learning Chinese. English is a language that makes use of intonation. This is to say that a change in tone or pitch in the voice will change the intention of the speech. To change a statement into a question, the last syllable is raised in pitch. Irony and sarcasm are expressed in a similar manner. However, raising the pitch at the end of the word does not change the word’s meaning. This is not the case in Mandarin as it is a tonal language. Every word is made up of one of four or five tones, and this tone does not change to express any change in semantics, as in English. If a tone is changed, an entirely different meaning will be expressed for that word.

<table>
<thead>
<tr>
<th>Pinyin with Tone</th>
<th>Character</th>
<th>English Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>wēn (1\textsuperscript{st} tone – steady high pitched sound)</td>
<td>温</td>
<td>(adj) warm</td>
</tr>
<tr>
<td>wén (2\textsuperscript{nd} tone – begin low and raise pitch)</td>
<td>文</td>
<td>(n) written language</td>
</tr>
<tr>
<td>wēn (3\textsuperscript{rd} tone – begin mid, drop low, return high)</td>
<td>吻</td>
<td>(v) to kiss</td>
</tr>
<tr>
<td>wèn (4\textsuperscript{th} tone – begin high and drop low)</td>
<td>问</td>
<td>(v) to ask</td>
</tr>
</tbody>
</table>

Many native English speakers have a great issue tackling the tonal aspect of Mandarin since these tones are not found in English.

1) 我 要 问 你。[wǒ yào wèn nǐ] 
I want to ask you.

2) 我 要 吻 你。[wǒ yào wén nǐ] 
I want to kiss you.
Phonologically speaking, Mandarin requires heavy audial perception in native English speakers for another reason. Mandarin words are made up of a combination of sets of initials and finals. These pose a different hurdle for native English speakers, having nothing to do with pitch and tone changes, but with place and manner of articulation. There are three sets of initials that seem particularly difficult to master. They are the retroflex sounds [zhi], [chi], and [shi]; the palatal sounds [ji], [qi], [xi]; and the sibilants [zi], [ci], [si]. The sibilants [zi] and [ci] listed above are, in fact, found in English, but not in the initial place of a word (Xing, 2006). The word “clouds” contains the same final sound [dz] as the initial in the word ᄩ pronounced [dzaj] indicating location. The word “cats” contains the same sound as its final as the initial of the word ґ pronounced [tsaj], meaning “color”.

The palatal and retroflex initials mentioned above are more difficult for native English speakers to acquire because they are not found in the English language. There are a few finals that cause native English speakers problems as well. They are the vowel sounds [ü] (including all finals with the ü sound), [e] and the diphthong [uo], which is written as ‘o’ (Xing, 2006). The vowel ü is not found in English, which explains its difficulty. Many students of Mandarin require much coaching in tongue and lip shape and placement to perfect this sound. The [e] and [uo] are usually read incorrectly as if they were English letters while looking at the pinyin pronunciation – a case of orthographic confusion.

As mentioned previously, Mandarin is a logographic language. The time and effort required to learn to write the characters can vary greatly among student, but it is something the L2 student should accomplish to attain the proficiency of a native Chinese speaker. There are over 56,000 Chinese characters, but a combination of about 3,000 covers roughly 99% of the most frequently used words, while classical Chinese literature requires
knowledge of about 6,000 characters (Ager, 1998). The problem stemming from this is the repetition of character usage. One character may be used several times within a series of words, but the words mean only semi-related or completely different things. O'Grady, Archibald, Aronoff, and Rees-Miller (2005) explains the similarity differential rate hypothesis as one that “makes the claim that the rates of acquisition for dissimilar phenomena are faster than for similar phenomena.” This being true, remembering when and where a character is repeated is a daunting task for any non-native Chinese learner, no matter their background.

BACKGROUND

Many people feel only the best and brightest can learn Chinese, but is this “best language learner” in possession of any certain character traits? Is this learner multilingual? Concerning his or her native language, does the grasp of this language have any effect on how well another language can be learned? The belief held by the Center for Applied Linguistics that native language proficiency directly correlates to acquisition of a second language (Walqui, 2000) supports this hypothesis, and Larsen-Freeman (2003) suggests that the understanding of one’s native grammar is abundantly beneficial in the learning of a second language.

The military model

As a basis for this study, a close examination was made of the processes used to select and train linguists and foreign language speakers by the United States military. Because the selection process has been in place since World War II, and many men and
women are trained in a foreign language with such successful results, their methods produce an ample model to emulate when conducting this research.

The military follows the theory of developmental interdependence when airmen, soldiers, seamen, and marines are in need of foreign language instruction. Men and women deemed acceptable to become linguists for the United States military as well as select government personnel requiring language skills are sent to the Defense Language Institute (DLI) Foreign Language Center at the Presidio of Monterey in Monterey, CA. Students with no prior military job training (non-prior service members) are submitted to an additional week of instruction at the beginning of their language course conducted by the Student Learning Center as part of the Student Motivation and Retention Training (SMART) program. This program was started by the Air Force Element in October 1996 in order to increase the success rate of the language students belonging to the 311th Training Squadron. Later, the course was opened to all branches and students, and finally made compulsory for all non-prior service basic level language learners. This course, renamed Introduction to Language Studies (ILS) in 2004 contained an introduction to the language culture and some study habits training, but its main focus was on a complete understanding of English grammar (Defense Language Institute Foreign Language Center). Two tests are given to establish proficiency in this subject: one at the beginning of the course, and one at the end to measure improvement. Gaps in grammar proficiency are filled with intense explicit instruction in grammar terminology and use, and no further language instruction can be given without an acceptable grade on the second test.

Before any military language training is approved, enlistees as well as reserved officer training corps (ROTC) students and other Department of Defense (DoD)
personnel are made to take the Defense Language Aptitude Battery (DLAB), the aptitude test used to measure language learning ability by the United States DoD. A language aptitude test is one “designed to measure a person’s capacity or general ability to learn a foreign language and to be successful in that undertaking (Brown, 1993)” This test should be completely independent of a foreign language, as it is not a proficiency test. The DLAB consists of two sections: 1) audio stress recognition and noun and adjective understanding leading into full grammatical rules and 2) visual “gibberish” decoding. The results of this test (out of a possible 176 points) determine which category language a military member is to be assigned.

- Category I language: >= 95 (Dutch, French, Italian, Portuguese, and Spanish)
- Category II language: >= 100 (German and Indonesian)
- Category III language: >= 105 (Belarusian, Czech, Greek, Hebrew, Iraqi Arabic, Persian, Polish, Russian, Serbo-Croatian, Slovak, Tagalog, Thai, Turkic, Ukrainian, and Vietnamese)
- Category IV language: >= 110 (Arabic, Chinese, Japanese, Pashto, and Korean)

The length of the courses is also determined by category, with higher category ranking requiring a longer length of instruction (Defense Language Institute Foreign Language Center, 2003). These categories are widely accepted and, for the purposes of this study, will serve in establishing a correlation between aptitude and chosen language difficulty of participants.
Language Aptitude Testing Traditions

The DLAB is only used by the DoD. The most widely spread language aptitude test, the Modern Language Aptitude Test (MLAT) developed by Carroll and Sapon, is used to determine the success of individuals in learning a second language under certain criterion (Carroll, 2002). This test was developed as part of a Harvard research study (1953-1958) assisting the Army-Air Force in determining which individuals would be most likely to succeed in an intensive language instruction during World War II. It was the precursor to the DLAB. The MLAT, published in 1959, is still used by other government agencies and missionaries as well as some private high schools in the area of academic advising (Second Language Testing, Inc.). It is comprised of 5 sections: number learning, phonetic script, spelling clues/hidden words, words in a sentence and paired associations (Carroll, 2002). A study by Ehrman (1994) involving 1,000 adult students at the United States Department of State Foreign Service Institute at the George P. Shultz National Foreign Affairs Training Center in Arlington, Virginia concluded the success of this test is just as valid today as it was at the test’s inception and is showing increased validity in the areas of speaking proficiency.

Yet another aptitude test was designed by Pimsleur (1966) and targeted to junior high and high school aged children (grades 7-12). The study, conducted by Pimsleur et al. from 1958 to 1966, determined six sections for this test: interest, vocabulary, language analysis, sound descrimination, and sound symbol association. A later study in 1965 determined a student’s grade point average be included in this, now seven section, test. Targeted to secondary school aged children, this test’s main purpose is acedemic advising (Second Language Testing, Inc.).
PREVIOUS RESEARCH

This study will look at sequential bilinguals, or those students studying a foreign language after already having acquired a first language, and the effects of their native language on their current target language. There are two major avenues for research in this area. The first, linguistic transfer, or “the influence of the patterns of one language onto another’s” can serve to support the L2 for the language learner if the languages are similar in some respects, but can also hinder language learning (Gass, 1992; Castilla, Restrepo, & Perez-Leroux, 2009). In the case of cognates, or etymologically similar words, a student may be able to carry their L1 concept of the word over to the L2. Such is the case for the Spanish word, atractivo, meaning ‘attractive’ in English. However, at the other end, false cognates provide a form of negative transfer, where the influence of the L1 is a hindrance to the acquisition of the L2. This is the case for words such as the Spanish word, decepción, meaning ‘disappointment.’ It does not mean ‘deception’ as it may appear. Since there is no simple way of discerning whether the transfer occurring in an L2 learner is positive or negative, or to completely discern where it is originating, it is best to look at the second alternative avenue for effects of L1 on L2. This is the Developmental Interdependence Hypothesis. This perspective only looks to the positive effects of metalinguistic knowledge on the second language. In this respect, the negative effects caused by vocabulary or a greater variation within contrastive analysis will be unnecessary for consideration. Therefore, this paper adopts the second perspective.
**The Developmental Interdependence Hypothesis**

The Developmental Interdependence Hypothesis (DIH), developed by Cummins (1979), suggests that success in L2 follows closely with the success and skills developed in L1 and that predictions can be made on the level of these skills (Cummins, 1979; 1982; 1983). Cummins (1979) attempted to explain why minority English as a second language children of low socio-economic statuses performed so poorly academically. He attempted to formulate a theoretical framework which would account for this common occurrence. He later examined the L1 cognitive/academic proficiency of Japanese elementary and middle school children and slightly older Vietnamese children studying in Canada. The participants consisted of Japanese students in grades 2, 3, 5, and 7 in the School of Japanese Supplementary Studies in Toronto, Canada as well as a slightly older group of 45 Vietnamese children between the ages of 9 and 17 who recently arrived in Canada. The study tested their cognitive abilities and academic proficiency in their L1, followed by an assessment of acquisition of English as an L2. Data showed that the children who possessed a higher cognitive ability and better formed L1 managed to better acquire English academically. It also showed that the L1 and L2 interact interdependently in that both draw on the same aspects of the individual and cognitive proficiency. This is shown especially in literacy skills where Cummins explains the L1 and L2 skills as “materialization of one common underlying proficiency (Cummins, 1983).” This is to say that the same proficiency governs the learning of any language and thus the high proficiency of L1 help L2 acquisition. Cummins found that L1 cognitive/academic proficiency did account for high a variance of L2 proficiency, independent of the age of the student.
Castilla, Restrepo, and Perez-Leroux (2009) also determined this correlation when investigating the effects of L1 Spanish when preschool immigrant children were placed in an English-only preschool. Participants consisted of 49 Spanish-speaking preschool children assessed in their L1 using the Bilingual English Spanish Assessment (BESA), a measure of mean length of utterance in words, and a lexical diversity measure obtained from random language sample. Following nine months of English-only instruction, the children were assessed using the English-BESA. In their analyses of results data, grammatical and semantic measures in the participants’ first language of Spanish did predict the success in the same measures of English.

Panneman and van der Feen (2000) conducted a study into whether German students of Dutch would utilize their own grammatical judgement on ungrammatical Dutch sentences where the two language share the same word order. Both German and Dutch are SVO languages (subject-verb-object word order). Their study focused on administering a grammaticality judgement task to German students of Dutch to determine whether or not the students would have a lag in reaction time (RT) when presented with sentences with SVO word ordered clauses. The students showed no difference in RTs when processing the SVO clauses with the SOV clauses. However, the control native Dutch speakers showed the same pattern of results as the german students. Thus the results do not support their hypothesis that German native speakers base their acquisition strategies of Dutch exclusively on knowledge of their first language grammar.

The Cummins paper and studies (1979; 1982; 1983) and Castilla et al. (2009) looked at languages in a holistic manner, looking at summary effects of L1 abilities on performance in related areas of L2 in foreign language students. These studies are, perhaps, too broad
and allow the masking of the finer predictors of success in an L2. On a smaller scope, Panneman and van der Feen (2000) looked a little deeper into syntactic word order as a predictor for success in an similar L2, but with little success. This study looks deeper than the effects of broad language ability, but not quite as deep as syntactic word order. In a so-called middle ground, this study examines native grammar abilities only as a predictor for success in an L2, and approaches this relationship between native language grammar and second language success in a more explicit manner to control for testing. The purpose of this study is to add on to this previous research to examine areas of interest within the native language.
Chapter 2

HYPOTHESES

Research conducted by Cummins (1979, 1982) and Castilla et al. (2009) look at proficiency in native language as a whole when predicting success or failure in learning an L2. As mentioned above in Chapter 1, a holistic view of language encompasses several aspects. Perhaps a large vocabulary in the L1 aids in learning an L2. Their broad examinations of success allow for many interpretations, and this study focuses on proficiency levels of specific grammatical concepts in an attempt to further show, not only the correlation between a more fine-grained proficiency measure in L1 and success in L2, but perhaps also a correlation between proficiency in L1 and language aptitude as a whole. This study postulates that the skill sets shown on both grammar and aptitude tests will correlate with each other as well as the success of L2 classroom learning. This study will also look at aptitude as a predictor for the self-chosen language of study of the L2 student. This study will examine Chinese, Arabic, Russian, French, and Spanish as target languages. These languages were chosen because they vary among category as described above.

In this study, the following hypotheses are tested:

1. L1 (English in this study) grammar proficiency will predict success in an L2.
2. Students with high language aptitude will tend to choose ‘harder’ target languages.

2 Difficulty of language as defined by the Department of Defense as described above.
3. There exists a correlation between L1 (English in this study) grammar proficiency and language aptitude.

GENERAL DESIGN

This research was comprised of a cross-sectional study focusing on three areas of the L2 learner: English grammar proficiency, language learning aptitude, and academic achievement at the beginning of the language level. This section will look at each of these areas by examining the participants, delving into their language history and qualifications for inclusion in this study. I will then explain the materials used in this study as well as the measures used for data analyses. Finally, I will explain the procedures used when presenting the tasks and running statistical analyses.

PARTICIPANTS

Research participants consisted of 122 students among the 5 target languages enrolled in the intermediate level (Florida State University code for intermediate language is 2220) of their chosen foreign language. This level was chosen because, as the third semester of foreign language instruction, it is both required as satisfaction for the foreign language requirement in many university colleges and is also on the required course map for students majoring in the language. There were 78 female students and 44 male. The average age of the students was 21. All participants had previously taken the second semester beginning level of the language at Florida State University, or in the case of
Spanish, the combined first and second semester beginning level was accepted. All participants completed the three experiments within a standardized period of time (no more than 35 minutes to complete all three) and during one sitting.

**Language History Questionnaire**

One task presented to the participants was a Language History Questionnaire (see appendix A). It was designed to determine whether a participant meet requirements to be calculated in the project. For example, students who had studied beyond the intermediate level in a target language or who were native in the target language had their tests excluded from analyses. Students whose native language was not English were also excluded. Ten survey questions were divided into two sections: personal data, such as age and gender; and language background, which asks native and other spoken language proficiency and motivation for choosing their current target language. Because of the results of the survey, only 109 participants’ results were used for data analyses. Reasons for disqualification are specified and explained in the “Selection Criteria for Participant Inclusion” section below.

*See Table 2-1.* Table 2-1 shows the breakdown of participants by language category, gender and age. Students of Spanish comprised the largest portion, making up over one-quarter of the participants, and French, with only 17 participants, made up only 15.5%, all of whom were female. This low number of such a popular language was a result of the dismissal of one-third of students from the study because they had not previously taken any language courses at the university level. These students all came directly from secondary school. Roughly 65% of participants were female and the mean age of all participants was just under 21 years of age.
Selection Criteria for Participant Inclusion

To control for certain aspects of the L2 learner, such as previous languages learned, education level attained, previous experience with the current target language, etc., a specific set of criteria was established. These criteria were based on the answers received from the language history questionnaire, mentioned above. These criteria allowed the task data to be analyzed without too much concern for larger variation of social or academic differences.

Language Experience Criteria

To ensure that fair comparisons could be made on the English grammar proficiency task and the language aptitude task, participants were excluded if their native language was any other than English. Participants’ data were also excluded if they had not previously taken the second semester beginning level of their target language at Florida State University. The grade received from this course was used as the success measure (discussed further later), and could not be determined otherwise. A few participants made some procedural errors (e.g., not completing imperative information, such as name), and their data sets were also excluded. If any participants had taken beyond the 2220-level in their target language, their data were also excluded to control for grammar instruction beyond the intermediate level.
Table 2-1: Participant counts (N) and age data from the language history questionnaire

<table>
<thead>
<tr>
<th>Language</th>
<th>N&lt;sub&gt;total&lt;/sub&gt;</th>
<th>N&lt;sub&gt;female&lt;/sub&gt;</th>
<th>N&lt;sub&gt;male&lt;/sub&gt;</th>
<th>Mean Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>23</td>
<td>15</td>
<td>8</td>
<td>20.91</td>
</tr>
<tr>
<td>Chinese</td>
<td>22</td>
<td>12</td>
<td>10</td>
<td>20.52</td>
</tr>
<tr>
<td>French</td>
<td>17</td>
<td>17</td>
<td>0</td>
<td>20.64</td>
</tr>
<tr>
<td>Russian</td>
<td>18</td>
<td>12</td>
<td>6</td>
<td>20.16</td>
</tr>
<tr>
<td>Spanish</td>
<td>29</td>
<td>15</td>
<td>13</td>
<td>22.38</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>71</td>
<td>37</td>
<td>20.92</td>
</tr>
</tbody>
</table>

Note. Totals of female and male participants in Spanish do not add up because one participant did not reveal gender. Consequently, the total participants do are off by one as well.

Native Proficiency

Table 2-2: Mean scores of participants’ self-reporting of proficiency in different areas of their native language (English) from the language history questionnaire

<table>
<thead>
<tr>
<th>Language</th>
<th>Reading</th>
<th>Writing</th>
<th>Speaking</th>
<th>Listening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>7.00</td>
<td>6.86</td>
<td>7.00</td>
<td>7.00</td>
</tr>
<tr>
<td>Chinese</td>
<td>6.70</td>
<td>6.45</td>
<td>6.65</td>
<td>6.55</td>
</tr>
<tr>
<td>French</td>
<td>7.00</td>
<td>7.00</td>
<td>7.00</td>
<td>6.92</td>
</tr>
<tr>
<td>Russian</td>
<td>7.00</td>
<td>7.00</td>
<td>7.00</td>
<td>7.00</td>
</tr>
<tr>
<td>Spanish</td>
<td>6.82</td>
<td>6.64</td>
<td>6.82</td>
<td>6.75</td>
</tr>
<tr>
<td>Total</td>
<td>6.89</td>
<td>6.76</td>
<td>6.88</td>
<td>6.83</td>
</tr>
</tbody>
</table>
As part of the language background survey, students were asked to rate their own
native English competence. They were asked to rate themselves on a scale from 1 to 7 with
7 being ‘native or native-like’ in the aspects of reading, writing, speaking, and listening.
See table 2-2. Table 2-2 shows the results of this self-reporting. Students of Russian
deemed themselves perfectly native in all categories. Students of French regarded their
English as perfectly native in all areas except listening, where they rated a 6.92. Students of
Arabic were perfectly native in all areas except writing where they rated 6.87. Students of
Spanish and Chinese did not rate themselves native in any category, but maintained 6.45-
6.89 across each category, with students of Chinese at the lower end. Please note that all
participants are indeed native English speakers and that this self-reporting is simply
perception.

MATERIALS

In the following section, details regarding the tasks and their administration are
provided. The following tasks were administered to all participants. Materials included
‘paper and pencil’ style test booklet consisting of the three tasks. Task 1 was the English
grammar proficiency test used to measure English grammatical proficiency. Task 2 was the
language aptitude test used to measure ability to learn a foreign language. Task 3 was the
language background survey used to determine candidates for the study and also look into
motivation and background. This task was discussed above, but presented last as not to
prejudice the participants against the remaining tasks.
**English Grammar Proficiency**

Task 1 was designed to determine the participant’s proficiency in English grammar (See Appendix B). This test assumes collegiate competence with the English language, and tested only explicit grammatical rules of English. For example, participants were asked in a multiple-choice manner to choose which of the following choices (A. am, B. be, C. was, D. shall) reflects the present subjunctive mood. This will elicit not only whether the student understands what the subjunctive mood is, but also how to use it in their native English. The four answers were shown, and the participant was to select the one and only correct answer. Questions, like that above, were included in a section involving verb tense and usage. Another section will cover parts of speech and terminology. Given a word in a sentence, the participant was asked to identify it as a noun, verb, adjective, pronoun, etc.³

**Language Aptitude**

Standard language aptitude tests can extend up to three hours and consist of aural and visual stimuli. To shorten this, only visual stimuli were presented and the test itself was shortened, yet still retained characteristics from each of the DLAP, MLAT and PLAB. The test measured ability to recognize patterns in both an explicit and implicit manner within a given artificial language (See appendix B). Pattern recognition questions were based on examples from within the made up language. Syllable stress questions were presented to determine the subject’s ability to recognize differences in pronunciation and

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³ The difficulty level of these questions ranges from medium to difficult. Questions for this experiment were obtained either directly from or inspired by the following websites, and answers were verified before the task was administered to participants. See the following websites: [http://a4esl.org/a/g5.html](http://a4esl.org/a/g5.html); [http://forums.catholic.com/showthread.php?t=80325](http://forums.catholic.com/showthread.php?t=80325); [http://www.ego4u.com/en/cram-up/grammar](http://www.ego4u.com/en/cram-up/grammar)
stress patterns. Scores were calculated as number of questions answered correctly divided by total questions. Task 2 was designed to test the participant’s ability to learn a language.

These tested the participant’s ability to recognize patterns in an artificial language and extrapolate based on these patterns. The test used an artificial language to control for previous knowledge. For example, the following three rules are morphological grammar for the artificial language presented in the task and were presented as a gloss entry (i.e., imaniotiredo ‘tired man’):

1. All nouns begin and end with ‘o’
2. All adjectives begin and end with ‘i’ except where the original word ends with a vowel, in which case the original ending is dropped in both rules 1 and 2
3. And adjectives always follow nouns.

In order to accomplish this task, participants would have had to identify the above rules as well as the head-initial nature of the language (nouns precede adjectives, verbs precede adverbs, etc.) from the given translations. The gloss also included full sentence translation, from which the participants were to extrapolate the SOV (subject-object-verb) nature of the artificial language. The students were given an English sentence and asked to select the one and only correctly translated answer.

Another section tested the participants’ ability to recognize differences in syllabic stress. In a ‘one of these things is not like the other’ scenario, the participants were asked which of the four-syllable words presented had an alternative stress pattern.

Finally, the last section had two parts. First the participants used images to learn some vocabulary from an artificial language based on differing contexts. Second they were asked to continue the pattern based on the images applying the new vocabulary to new
images. Again, here the use of an artificial language is for the maintenance of controlling for previous language experience.

MEASURES

Three measures were used to analyze each of the participant’s L1 grammar proficiency, language aptitude, and success in the L2. These measures will be described below.

An English grammar test was used to evaluate proficiency. Questions covered parts of speech terminology, use of grammar rules, and verb tense and aspect. Scores were calculated as number of questions answered correctly divided by total number of questions. An abbreviated aptitude test was given to all participants to evaluate language learning ability. Scores were calculated by dividing the number of questions answered correctly by the total number of questions. As a measure of success in the participants’ target language, grades from the second semester beginning level were solicited. These grades were broken down into numbers ranging from 1 to 12 for analysis purposes where F = 1, and A = 12 with step grades, where B+ had its own individual score. For statistical analysis purposes as well as grade inflation (addressed in the “Issues for further research” section), only ‘high’ and ‘low’ grades were considered. This is to say that a grade of C in the course, while still passing, was considered a “low” mark, and was categorized as such in the analysis.
Participants were recruited from their intermediate level foreign language courses. Language department chairmen were contacted to elicit the names of the instructors of each of the target languages. These teachers were contacted to schedule a time during their class in which the tasks could be administered.

At the beginning of the semester, the tasks (issued as a test booklet) were administered to students having just begun the intermediate level of the target languages. A brief introduction was given to all participants and questions were answered. Any questions that may have biased the participants were asked to wait until the completion of the experiments. All three tasks were conducted in the target language classroom. The students verbally identified themselves as having taken the required beginning level course at FSU. They were then presented with the informed consent, which explained their rights as a participant, and asked to read then sign the form. Questions concerning the content of the informed consent were addressed. The test booklets were distributed to the participants. Then the experimenter briefly explained the individual tests to the participants. The language history questionnaire was presented as the final part of the booklet as not to prejudice the participants against the tests.

After completing the three experiments, participants received an explanation (and answer key if requested) along with a sugar reward as a token of appreciation. The three tasks, described above, are included in the appendices of this paper. After task data were entered, a list of participants were sent to the Department of Modern Languages and Linguistics undergraduate advisor requesting the participants’ final letter grade from the
previous semester (second semester beginning level) course. Once those grades were added to the data, the participants’ names were replaced with a randomly generated number.
Chapter 3

RESULTS

Below I report the scores the participants received on the three measures described above: English grammar proficiency, language aptitude, and a final grade at the second semester beginning level of the participant’s target language. Initially, I will report on the overall performance of participants in each task. Then I will report on the cross-linguistic analyses to look at specific areas where one group of students excelled and one group, perhaps, did not. Finally, I will report on the statistical analyses related to the research questions, looking at correlations between the three measures as well. Whenever data appeared to be outlying or outstanding, the participants’ reported motivation was also taken into consideration, and in most instances was able to explain the abnormality.

OVERALL PERFORMANCE ON TASKS

Participants performed at roughly 50% in most areas of the tasks (see table 3-1). Table 3-1 shows the general mean scores from each of the tasks as well as their component tasks. The mean score on the English grammar proficiency test was 9.58 out of 20. This score was comprised of a mean 5.19 out of 10 on the parts of speech terminology section and a mean 4.39 out of 10 on the grammar usage portion. These data show that native English L2 learners know slightly less than half of the grammar and information included in this task.
Participants performed only slightly better on the language aptitude test. The mean score of the entire task was 7.05 out of 14. This score was comprised of three parts. The worst performance occurred on the translation of the English-based artificial language. The mean score in this area was 1.09 out of 4. Better was the performance on the stress patterns task where the mean was 3.92 out of 6. Again, participants scored at roughly 50% with a mean score of 2.04 out of 4 on the image patterns and translation section of this task. These data show that these L2 learners could solve slightly more than half of the language patterns presented to them.

As mentioned above, grades were assigned a numerical value where A = 12 and F = 1 with incremental steps for both full letter grades and the plus (+) or minus (-) possibilities as well. (A=12; A-=11; B+=10; etc.) The mean grade for all participants was a 9.55, which places them somewhere between a B and a B+. The distribution of the grades was hardly normal, with the most participants (39) receiving an A. Following that, 20 participants received an A-, 13 received a B+, 9 received a B, 6 received a B-, 5 received a C+, 4 received a C, 5 received a C-, 1 received a D+, 2 received a D, and 5 received an F.

In the English grammar proficiency task, a score of 50%, while not passing in a traditional classroom, allows a highly discriminatory look at participants’ results. This is to say that students who performed extraordinarily well were completely (or almost completely) knowledgeable about their native language grammar. As mentioned in the section describing this task, these questions were rated as having a difficulty of medium to difficult. A score of 50% on this task could categorize a person with about a medium-grade knowledge of explicit English grammar.
A score of 50% on the language aptitude task is common, and “average”. This means that most people would be able to get about this score and would be able to master a category-2 language. The score required by the DoD to qualify for a category two language is 90 out of possible 176 (51%). Those whose performance exceeds this score would be better suited for “harder” target languages, while those who score less should perhaps seek a different course of study. The aptitude test included in this study is abbreviated and should by no means be used to determine one’s scholastic future. It is merely used as an identifier of ability.

Table 3-1: Mean scores of participants’ overall performance in each task and their component tasks.

<table>
<thead>
<tr>
<th>General Performance on Tasks</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parts of Speech</td>
<td>5.1927</td>
<td>1.64698</td>
<td>51.93%</td>
</tr>
<tr>
<td>Grammar Usage</td>
<td>4.3853</td>
<td>1.52089</td>
<td>43.85%</td>
</tr>
<tr>
<td>TOTAL English Grammar</td>
<td>9.578</td>
<td>2.36993</td>
<td>47.89%</td>
</tr>
<tr>
<td>Language Translation</td>
<td>1.0917</td>
<td>0.89795</td>
<td>27.29%</td>
</tr>
<tr>
<td>Stress Patterns</td>
<td>3.9174</td>
<td>1.47904</td>
<td>65.29%</td>
</tr>
<tr>
<td>Image Translation</td>
<td>2.0367</td>
<td>1.00854</td>
<td>50.92%</td>
</tr>
<tr>
<td>TOTAL Aptitude</td>
<td>7.0459</td>
<td>2.22105</td>
<td>50.33%</td>
</tr>
</tbody>
</table>
These scores take a holistic view of these measures and differences may be masked by the combination of language category groups. For better analysis, I will now present a break down by language.

CROSS-LINGUISTIC EVALUATIONS

Results on the two test experiments were compared between language students to examine the participants’ performance within different language category groups. This section is broken down into individual measures of sections within tasks, followed by an evaluation of global performance on the overall task. Following this, I will report on a comparison between the best and worst groups of performers in order to uncover any hidden significant differences in performance.

**English grammar proficiency**

Table 3-2 shows scores from each task within the English grammar proficiency section as well as an overall score between each language. In the area of parts of speech, the performance went right down the categories. That is to say that students of Chinese performed the best, followed by students of Arabic, students of Russian, students of French and finally students of Spanish. In the area that tested grammar usage in a fill in the blank scenario, scores weren’t entirely linear in that students of Arabic performed by far the lowest. The rest, Chinese, Russian, French, and Spanish, followed in their category order.

Slight anomaly aside, these scores show that English grammar knowledge follows the categorical progression, meaning the students in the higher category languages performed better in these tasks. In the following sections, I will analyze the data from each
task more closely looking for significance in the differences between these scores, as well as examine the difference between the highest and lowest performers.

Matching Parts of Speech

Out of 10 questions, the mean score was 5.1, suggesting that the mean was close to half. There was a fairly normal distribution of scores from 0 to 10; however, there was no significant difference in the participants’ knowledge of parts of speech terminology between languages ($F=1.669$, $p=.163$, $MSE=4.418$).

If a comparison is made between the highest and lowest categories, Chinese and Spanish, with mean scores of 5.55 and 4.55, respectively; there is a significant difference ($F=4.817$, $p=.032$, $MSE=12.353$). This indicates that students of Chinese scored significantly higher than students of Spanish on this section, meaning they have a better knowledge of what part of speech individual words in a sentence belong to.

Fill in the Blank Explicit Grammar Usage

Again, there were 10 questions in the explicit grammar usage section. These questions asked the participants to either use one of the multiple-choice answers to fill in a blank to complete a sentence or to answer a question about a particular part of English grammar using one of the multiple choice answers. See Appendix B for these stimuli. The questions that elicit sentence completion investigate specific explicit grammar competence.

The results were much less normally distributed across the range than the previous section with an overall mean score of 4.38 out of 10. The largest group of students (32) comprised roughly one-third of the participants and scored 5 out of 10. This suggests that one-third understand exactly half of their native English grammar. Most (52.3%) of the
participants scored below a 5 on this section. This suggests that most participants understand less than half of the explicit rules of their native English grammar.

The highest performers in this task were students of Chinese (mean 4.86) and the lowest were students of Arabic (mean 3.82). The comparison of these two groups in this section revealed there was a slightly significant difference in scores (F=4.007, p=.052, MSE=12.105). This difference shows that students of Chinese, once again performed well in the area of English grammar use in context. They better understand explicit grammar concepts than the category-4 language in the study, meaning that not all proficiency is spread evenly among language categories.

Total Explicit English Grammar Knowledge

Table 3-2: Mean scores of participants’ performance on each component task in the English grammar task, separated by language.

<table>
<thead>
<tr>
<th>Language</th>
<th>Parts of Speech</th>
<th>Grammar Usage</th>
<th>Total English Grammar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>Mean 5.4783</td>
<td>3.8261</td>
<td>9.3043</td>
</tr>
<tr>
<td>Chinese</td>
<td>Mean 5.5455</td>
<td>4.8636</td>
<td>10.4091</td>
</tr>
<tr>
<td>French</td>
<td>Mean 5.1765</td>
<td>4.4118</td>
<td>9.5882</td>
</tr>
<tr>
<td>Russian</td>
<td>Mean 5.4444</td>
<td>4.6111</td>
<td>10.0556</td>
</tr>
<tr>
<td>Spanish</td>
<td>Mean 4.5517</td>
<td>4.3103</td>
<td>8.8621</td>
</tr>
</tbody>
</table>

Overall this experiment shows that there is no significant difference between explicit English grammar proficiency among the five language categories (F=1.635,
The students of Chinese in total scored the highest (mean 10.41) and the students of Spanish scored the lowest (mean 8.86). A comparison between these found a significant difference (F=5.418, \( p=.024 \), MSE=29.93). This indicates that students of Chinese are superior at using their knowledge of explicit English grammar rules and terms to solve sentences and questions on individual words within a sentence.

**Language aptitude**

Table 3-3 shows scores from each task within this section as well as an overall score between each language. In the language translation task, which asked participants to translate sentences given pre-translated examples, expected categorical progression was not seen. In fact, other than Chinese having the highest performance, no other language placed according to its category. Spanish followed Chinese, then French, Arabic, and Russian. The task that asked participants to identify the word with an alternative syllable stress pattern than the others in a group also showed this illogical progression. Where one would assume students of Chinese to excel because of the high audial sensitivity requirements of the language, students of French scored highest, followed by students of Arabic, students of Russian, then students of Chinese, and finally students of Spanish. The translation task looking at images somewhat followed the expected pattern, with students of Chinese scoring highest, followed by students of Arabic, and then French, Spanish and students of Russian.

Overall, the scores were not as expected in this section. Students of Chinese had the highest performance, followed by the students of French, then students of Arabic, students of Spanish, and finally students of Russian. With the complex language patterns employed
by Russian, it is assigned a higher category, but in this instance, those students in French and Spanish out performed the students of Russian. I will now examine the results of each individual task, looking for significant differences between languages, as well as explore differences between high and low performers.

**Artificial Language Translations**

This section consisted of only 4 questions, but was targeted to elicit the most appropriate language-style patterns. See Appendix C as reference to these stimuli. The artificial language presented to the participants is a variant on English with elements of word order and morphology extracted from existing languages. The participants were to extrapolate the grammatical and morphological rules from given phrase translations.

The participants seemed to have some difficulty with this task, as the mean score of 1.1 out of a possible 4. There was no significance between the different language categories (F=1.448, p=0.224, MSE=1.148). Students of Chinese and Spanish (categories 5 and 2, respectively) scored almost identically (1.27) on this task. This data is surprising, and shows that language category, which should be an enormous indicator of aptitude strength, may not actually act in such a way when students are self-choosing their target languages. When a comparison was made between the highest and lowest scoring groups, Chinese (mean 1.27) and Russian (mean 0.72), a significant difference was found (F=4.755, p=.035, MSE=3.00). This indicates that students of Chinese are better abled to solve descriptive linguistic-type problems. Still, even the higher mean of 1.27 would be the equivalent of only being able to solve about one-third of the translations presented. This is quite
unimpressive, despite the significance over the lowest scorers, who show the ability to only solve 18% of the problems presented to them.

*Syllable Stress Recognition*

There were six groups of English words presented to participants, and each word consisted of four syllables. In each of the groups, syllable stress was consistent in three of the words, and inconsistent in one. Although students studying Chinese would be expected to have a better “ear” for aural patterns in language, this was not the case. The students of Chinese only scored higher than Spanish (mean 3.72 compared to 3.48). The highest performers in this task were the students of French (mean 4.41), and students of Spanish were the lowest. A comparison between these means showed a significant difference (F=5.401, p=.025, MSE=9.25). This indicates that even though both French and Spanish are close in difficulty, the students performed quite differently in this task. Because the categories have been so well established, the anomaly is attributed again to student’s self-choosing.

*Image Patterns in Translations*

There were four questions in this section that required participants to examine a series of images labeled in an artificial language. They were then to extrapolate an adequate English translation of the context of the images based on the artificial translation and transfer that to a new image in the series. See Appendix C for these stimuli.

Performance varied so greatly between each language, there was an outstanding difference in scores. Across the board significance was found in this task (F=5.544, p=.00, MSE=4.827). At the high end, students of Chinese (mean 2.64) accurately translated 66%
of the images presented to them. Perhaps the logographic nature of Chinese, and the fact that the radicals within characters each have meaning plays a part in the success of students in this language in this task. Their scores were far better than the performance by the students of Russian (mean 1.44) who only accurately translated 36% of their stimuli. With only 4 questions, it is not surprising there is such significance across the board (p=000 for a comparison between each individual language against each other as well), not just between high and low performers.

**Total Language Aptitude**

Of the 14 questions presented, there was no significant difference among the five categories of languages. The difference between Chinese and Russian is also not significant (F=3.036, p=0.090, MSE=18.273). This indicates that students in the various categories do not perform significantly different on the aptitude tasks when taken in overall measure.

Correlations will now be evaluated between measures. Although there was no significant difference between the performance by language students on the aptitude tasks as a whole, this does not discount the possibility of a correlation stemming from one hypothesis made in this study: that students were self-choosing accurately based on their own feelings of aptitude. This still may be the case in that, while not always in a categorical progression, students of higher categories did tend to outperform students of lower categories on these tasks.
### Table 3-3: Mean scores of participants’ performance on each component task in the language aptitude task, separated by language.

<table>
<thead>
<tr>
<th>Language</th>
<th>Language Aptitude Task Results by Language</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Translation</td>
</tr>
<tr>
<td>Arabic</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>Chinese</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>French</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>Russian</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>Spanish</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
</tr>
</tbody>
</table>

**CORRELATIONS BETWEEN MEASURES**

**Language aptitude vs. Target language**

The comparison between the language aptitude score and participants’ target language shows that students are self-choosing according to their own feelings of aptitude, and the comparison between the language aptitude score and the participant’s final grade shows any success in this self-choosing. Although there was no significant difference in
aptitude between the different categories of language, there exists a correlation between language aptitude and the category of the participant’s language of choice (p<0.05). This implies that for the most part, students are choosing languages based on their own language aptitude.

![Mean Aptitude vs Language Category](image)

**Figure 3-1**: The correlation between language category and mean aptitude as performed on the aptitude tasks by students.

Students of French, though in a category 2 language, seemed to test in aptitude like the Arabic (category 4) and Chinese (category 5) students. Upon further investigation, those students who did exceedingly well in this experiment had taken French in high school and chose to continue studying the language into college. Conversely, those students who chose Russian tested lower than Spanish. Despite this, analysis revealed a 0.165 one-tailed Pearson correlation indicating that there is still a small but significant (p=.043) correlation between language aptitude and difficulty of target language.
**English grammar proficiency vs. Language aptitude**

The question of whether English grammar proficiency has any effect on L2 success may also extend into general language ability. The comparison between the English grammar proficiency score and the language aptitude score shows the effects of native grammar proficiency on language learning ability. The Pearson correlation revealed a medium (0.326) one-tailed correlation and that that correlation between English grammar proficiency and general language aptitude is significant (p=0.01).

![Image of a scatter plot showing the correlation between English grammar proficiency and language aptitude](image)

**Figure 3-2**: The correlation between English grammar proficiency and general language aptitude.

This could be interpreted as native grammar influencing how adults attempt to recognize corresponding patterns in any newly presented language. It could alternatively be interpreted as language aptitude being an aid in the acquisition of the explicit grammar rules and application in one’s native language. The question at this point becomes whether
language aptitude can be learned or matured, or if it is something that is constant from birth or the onset of native language.

**English Grammar Proficiency vs. Success in L2**

The comparison between the English grammar proficiency score and the participant’s final grade shows the effects of native grammar proficiency on the success of learning a second language. Consistent with the previous research in the field, this study found a significant correlation in the participants’ English grammar proficiency and success measure in their target language. The one-tailed Pearson correlation (.167) was found to be significant (p=.042) on a relatively small scale.

![Figure 3-3: The correlation between English grammar proficiency academic success in an L2.](image-url)
Chapter 4

DISCUSSION

In this section we will address the three research questions that motivated the present study: Do students with higher language aptitude self-choose harder languages? Is there a correlation between explicit English grammar knowledge and success in learning a foreign language? Does this correlation extend to a general ability to learn new languages?

As shown, a significant correlation was found between students’ aptitude scores and their choice of language. The Pimsleur Language Aptitude Battery is used specifically to advise students in foreign language choices. This study shows that while accurate, students tend to choose languages based on their own feelings of ability. The problem arises in secondary schools which do not offer languages beyond the category 1 and 2 staples – German, Spanish, and French. Most participants who chose to take French did so because they had previous study in the language. It would be interesting to look at secondary school students whose available foreign languages include those from various categories, and compare them without the bias.

Articles, such as one by Lantolf and Sunderman (2001), suggest that current events and popular trends guide language choice. They discuss the growing popularity of Russian during the post-Sputnik era and Spanish and Portuguese after relationships with Latin America were stressed by President Kennedy. Foreign language students chose Vietnamese during the conflict there and Arabic has steadily been growing more and more popular as tensions in the Middle East have been budding since the 1990’s. Most participants in this study expressed their desire to learn Chinese as being pushed by
marketability. China’s growing strength, replacing Japan as one of the world’s financial leaders has stressed the importance of understanding the language in the economic world.

You can see the same trends in the languages recruited for by the military. While social trends don’t play as prevalent a role, political issues guide the numbers of graduates from DLI at any given time. For example, Russian is no longer deemed a critical language, and has been on the decline since the end of the Cold War. Currently, those military members who learned Russian have been asked to return to learn a more critical language, such as Chinese, Korean or Arabic. Trends aside, though, this study shows that those students who have a greater language aptitude do choose harder languages. The question then arises, do those students know of their ability or is it a subconscious influence?

In this study, English grammar proficiency did, indeed, predict success in the participants’ target language on a limited scale. While there was a significant correlation between English grammar proficiency and the target language success measure, there appeared to be a ceiling effect in that measure. This, as addressed above, may pose a problem when analyzing this data. It may be a case of grade inflation or perhaps non-performance criteria make up a large portion of the overall course grade. To examine this, I examined both the grade distribution between the languages and solicited the syllabi from each course instructor to look at what exactly went into the grade.
Table 4-1: Mean scores of participants’ grade in the second semester beginning language level course and specific course grade requirements, separated by language.

<table>
<thead>
<tr>
<th>Language</th>
<th>Mean Grade Score</th>
<th>Mean Grade</th>
<th>Percentage required (A)</th>
<th>Percentage required (A-)</th>
<th>Non-academic grading criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>9.8696</td>
<td>B</td>
<td>94-100</td>
<td>90-93</td>
<td>Attendance, participation, and homework</td>
</tr>
<tr>
<td>Chinese</td>
<td>10.1818</td>
<td>B+</td>
<td>95-100</td>
<td>91-94.9</td>
<td>Attendance &amp; Participation</td>
</tr>
<tr>
<td>French</td>
<td>9.7647</td>
<td>B</td>
<td>94-100</td>
<td>90-93</td>
<td>Participation and Preparation</td>
</tr>
<tr>
<td>Russian</td>
<td>9.9444</td>
<td>B</td>
<td>94-100</td>
<td>90-93</td>
<td>Participation and homework</td>
</tr>
<tr>
<td>Spanish</td>
<td>8.4483</td>
<td>B-</td>
<td>94-100</td>
<td>90-93</td>
<td>Participation</td>
</tr>
<tr>
<td>Total</td>
<td>9.5505</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4-1 shows that remarkably, all languages had the same mean grade assigned to students. This suggests that while a letter grade of C may be average, B is more common, and thus students appear to perform above average academically in their language classrooms. It further demonstrates that some languages place more emphasis on non-academic related grading criteria, such as attendance and participation, which simply required one to be there and try, rather than succeed. In many of these languages, homework must only be completed, and is not graded for accuracy.
Another view of this relationship applies specifically to the learning of foreign languages in the classroom. Montrul (2010) finds that when looking at heritage Spanish learners\(^4\) and classroom L2 Spanish learners, L2 classroom learners outperform heritage learners in tasks which require more metalinguistic knowledge. That is to say that those students who have not been exposed to the language in ecological settings have to rely on their knowledge of their understanding of language itself. These students outperform those who have gained more of a “feel” for the language on tasks which assess the amount of metalinguistic knowledge, such as the English grammar task in this study. Perhaps the strongest correlation exists between English grammar proficiency and general language aptitude. The existence and strength of this correlation shows that students who have the metalinguistic understanding how their own native grammar works tend to have a stronger language aptitude. This makes sense in that many of the tasks on a traditional language aptitude test require that the participant use grammatical patterns such as word order based on syntactic category to solve for translations, much in the same way the first task of the language aptitude task in this study did. When students can easily identify that nouns act in a certain way in a given language without thorough instruction, they are better equipped to handle the pattern recognition required for acquiring a new language.

\(^4\) Heritage learners are those who grew up around people who spoke the the L2 (usually a minority language), but whose L1 is the majority language.
Chapter 5

CONCLUSIONS

The findings presented in this paper show that the Developmental Interdependence Hypothesis extends beyond the holistic view of a person’s native language into metalinguistic knowledge. In other words, where students understand how their own native language behaves in terms of syntactic categories (e.g., nouns are subjects and come first in English), they are better equipped to carry this knowledge with them and apply it in a useful manner to their target language, even when the characteristics do not match. Although grammatical and lexical negative transfer does occur, the DIH allows the metalinguistic skills from the L1 to be positively transferred to the L2.

This paper also demonstrated the validity of using a language aptitude battery; much like DLAB is used with military members or PLAB is used with secondary school students, an aptitude test could be used at the collegiate level to determine the most appropriate choice of foreign language study. Students who are more aware of their language learning abilities will feel much more comfortable in their classroom. However, students also seem to have an innate sense of what their language abilities are, in that they are choosing harder languages because they are better at learning language. If an aptitude test were available, though, many students like the participants studying French, would perhaps be more encouraged to take language more suited for their talents.
IMPLICATIONS AND FUTURE DIRECTIONS

One purpose of this research study is to emphasize the importance of native grammar proficiency in second language learning. Just as the ILS program at DLI is compulsory, such programs could be used as a preface to second language instruction at many learning institutions. On a pedagogical level, language instructors could use this knowledge to emphasize different aspects of L2 grammar in a way that the student could more easily ascertain based on their displayed proficiency. At The Florida State University, a course titled Intro to Linguistics for Foreign Language Students (LIN 3041) is offered as a brief look at the different aspects of linguistics including phonetics, phonology, morphology, syntax, and so on. This class is compulsory for students majoring in Spanish and Russian. With the evidence seen in this project as to the importance of English grammar and skills, the importance of such classes should be recognized, and the requirement could be added to all language major tracks.

As mentioned above, another purpose of this study is to look at language aptitude as a predictor for how students are choosing an L2 and their success in that L2, just as the PLAB is used in some private middle schools for advising, and the DLAB is used by the DoD for language assignments in the military, such knowledge about an individual student could assist in success in choosing an appropriate target language, though as this study shows, students seem to have that proclivity already. This knowledge could aid an adviser as reinforcement.
ISSUES FOR FUTURE RESEARCH

These experiments took place in the classroom of the target language during allotted class time. In every section of the target languages, instructors told students they were dismissed when tests were complete; so possible “Christmas Tree” effects or an excess of guessing could have affected the outcome.

It would be informative to compare and contrast grammars between English and the target languages. It would be useful to know where students showed the most interdependence and between which languages.

With enough time, it would be most useful to give participants a full-length aptitude test and a grammar test with a more full range of questions. Judging by the overall poor scores, it is possible that perhaps the questions were too difficult. Also, the aptitude test used in this study could have expounded on the pattern recognition in translations section to include solicitation as to why the alternative translations presented were incorrect in order to better understand where students were correctly or incorrectly discovering syntactic and morphological pattern.
REFERENCES


APPENDIX A
Language History Questionnaire

Please use the above Wong Baker Faces Pain Scale to rate the following questions.
1. How did you feel while taking the grammar portion of this test?
2. How did you feel while taking the language aptitude portion of this test?
3. How do you feel about your current target language?

Current language course: __________________________________________

Please answer the following questions to the best of your knowledge.

Personal History
1. Age (in years):
2. Gender (circle one): Male / Female
3. Education (degree obtained or highest level completed):
4. What is your native language? (If you grew up with more than one language, please specify)

Language Background
5. Other than the language you are currently learning and English, have you studied any other languages? (If yes, please proceed to number 6. If no, please skip to number 8)
6. Please specify the age at which you started to learn a language (other than English) in the following situations
   i. At home: ______________________
   ii. In school:____________________
   iii. While in the country where the language is spoken:____________________
7. List all foreign languages you know including English in order of most proficient to least proficient. Rate your ability on the following aspects in each language. Please rate according to the following scale (write down the number in the table):
   Very poor = 1, Poor = 2, Fair = 3, Functional = 4, Good = 5, Very good = 6, Native-like = 7

<table>
<thead>
<tr>
<th>Language</th>
<th>Reading</th>
<th>Writing</th>
<th>Speaking</th>
<th>Listening</th>
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8. In your current target language, which courses have you already completed?
9. Do you have any other experience with your current target language?
10. Why did you choose to study your current target language at this time? (You may continue on the reverse side)
APPENDIX B

English Grammar Proficiency Test

Part I: Parts of speech
Choose the correct part of speech for the capitalized word from the bank and write the appropriate letter in the blank. Some answers will be used more than once, and some may not be used.

<table>
<thead>
<tr>
<th>A. noun</th>
<th>B. adjective</th>
<th>C. verb</th>
<th>D. name</th>
<th>E. pronoun</th>
</tr>
</thead>
<tbody>
<tr>
<td>F. interjection</td>
<td>G. preposition</td>
<td>H. adverb</td>
<td>I. conjunction</td>
<td>J. exclamation</td>
</tr>
</tbody>
</table>

1. Sometimes, HE gets out and goes into another room. **HE** is a/an ____________
2. He bites his own REFLECTION in the mirror. **REFLECTION** is a/an ____________
3. He may be slow, but he can disappear in a HURRY. **HURRY** is a/an ____________
4. SPEEDY likes to eat worms covered in dirt. **SPEEDY** is a/an ____________
5. Although he’s short, he’s a VERY good swimmer. **VERY** is a/an ____________
6. Speedy likes to escape FROM his cage when no one is home. **FROM** is a/an ____________
7. I have a PET turtle named Speedy McSpeederson. **PET** is a/an ____________
8. He also likes to EAT tons of strawberries in the morning. **EAT** is a/an ____________
9. When the weather is bad, he can hide for days AND days. **AND** is a/an ____________
10. WOW! I sure am glad when I find him. **WOW** is a/an ____________

Part II:
Choose the best answer to either complete the sentence or answer the question and write the appropriate letter in the blank.

1. Her uncle prefers that she ________ with him personally.
   a. speaks
   b. has spoken
   c. speak
   d. is speaking
2. The greater the demand, ________ the price.
   a. the higher
   b. higher
   c. the greater
   d. greater
3. It is he ________ the committee has chosen.
   a. which
   b. that
   c. who
   d. whom
4. Give the money to John or ________.
   a. I
   b. me
   c. myself
   d. mine
5. If she had offered pie, I would have wished to ________ some.
   a. have eaten
   b. have ate
c. eat
d. had eaten
6. I was able to _______ down for _________ hours than him.
   a. lay; fewer
   b. lie; fewer
   c. lay; less
   d. lie; less
7. People demand that the troops BE withdrawn. BE is in what mood? _______
   a. indicative
   b. imperative
   c. subjunctive
   d. infinitive
8. Which of the following sentences contains a contact clause?__________
   a. The boy we met yesterday is very nice.
   b. A seaman is someone who works on a ship.
   c. Do you know the girl who is talking to Tom?
   d. Is this the shop where you bought your bike?
9. He can SWIM. SWIM is what kind of verb?
   a. gerundive
   b. modal
   c. transitive
   d. infinitive
10. Which of the following sentences shows the past perfect simple tense?
    a. She opened her birthday presents and then the whole family went to the zoo.
    b. Simon was playing on the computer.
    c. I ate pancakes for breakfast.
    d. Before her sixth birthday, Jane had never been to the zoo.
APPENDIX C

Pattern Recognition Test

Part I: Apply the patterns from the following phrases in this “pretend” language to determine which answer is the correct translation for the presented sentence.

imaniotiredo – tired man
iballiobluo – blue ball
irtifactioraro – rare artifact
urunuefreelye – run freely
ustanduetalle – stand tall
ustudyuedilligentlye – study diligently
icariamya – my car
ahima – him
igradiatheira – their grade
tupit – up
tidownit – down
tinit – in

Imaniogreatotinearitflagiustandsueproudlye.
The great man stands proudly near the flag.
Istudentsiosmartotonititestsiusucceeduelwayse.
Smart students always succeed on tests.
Ipresidentitofiticountryiahimselfaukilluuwillu.
The president of the country will kill himself.

1. A clean desk is a sign of a cluttered desk drawer.
   a. Deskioclanoisigenitotidrawerioclutteredoodeskouisu.
   b. Iceleaniolodesignototdrawerioclutteredoodeskoiurietisuisu.
   c. Deskioclanoisignitotideskiidrawerioclutteredouisuisu.
   d. Deskioclanoisignitofitidrawerioclutteredoodeskoiu.

2. Never play leapfrog with a unicorn!
   a. Enevereuplayuileapfrogitiwithitinicorni!
   b. Ileapfrogiinicornitiwithituplayuenevere!
   c. Ileapfrogitiwithitinicorniuplayuenevere!
   d. Ileapfrogitiwithitinicornienevereuplayu!

3. A suicidal twin killed her sister by mistake.
   a. Itwiniuosuicidaltobytimistakiisisteriahreaaukilledu.
   b. Itwiniuosuicidalosisteriahreatitytimistakiukilledu.
   c. Isuicidaltwinotbyitimistakiisisteriahreaaukilledu.
   d. Isuicidaltwinotbyitimistakiukilleduisisteriohero.

4. Your gene pool could use a little chlorine.
   a. Ipooliayouraogenoichloriniolittlouseuucouldu.
   b. Ayouraipoooliagenoichloriniolittlouseuucouldu.
   c. Ipooliogenoayouraolittlloichloriniuseuucouldu.
   d. Ipooliogenoayouraolittlloichlorinioulduuseu.

Part II: Choose the answer where the stress pattern is not the same as the others.

1. ___________
   a. exhilarating   c. anticipation
   b. tumultuous   d. necrophilia

2. ___________
   a. biologist   c. photographer
   b. psychologist   d. secretary

3. ___________
   a. impossible   c. elevator
   liv
4. ________
   a. harmonica           c. emergency
   b. discovery           d. electrician

5. ________
   a. January             c. alligator
   b. February            d. American

6. ________
   a. celebration         c. invitation
   b. information         d. kindergarten

Part III: Follow the patterns presented to determine which answer is correct.

What is the best translation for the following

1. ________
   a. Lonoyal             c. Shynoyal
   b. Yalnoshy            d. Yalnolo

2. ________
   a. Yalnolo             c. Lonoshy
   b. Shynoyum            d. Lonoyal
<table>
<thead>
<tr>
<th>Ge</th>
<th>Mo</th>
<th>Getelmo</th>
<th>Nahtelge</th>
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<tr>
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<td><img src="mo.png" alt="Image" /></td>
<td><img src="getelmo.png" alt="Image" /></td>
<td><img src="nahtelge.png" alt="Image" /></td>
</tr>
</tbody>
</table>

1.  
   a. Motelge  
   b. Nahtelge  
   c. Gemo  
   d. Nahtelmo  

2.  
   a. Nahtelge  
   b. Nahtelgetelnah  
   c. Motelgetelnah  
   d. Nahtelnah