Errors in Inflectional Morphemes as an Index of Linguistic Competence of
Korean Heritage Language Learners and American Learners of Korean

By

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ABSTRACT

This study examined the linguistic competence in Korean of Korean heritage language learners (HLLs), compared to English-speaking non-heritage language learners (NHLLs) of Korean. It is unclear and controversial as to whether heritage languages learners are exposed to early but are interrupted manifest as L1 competence or share more characteristics with development in L2/FL competence. However, a common misconception is that HLLs outperform NHLLs in overall language skills even though Korean HLLs in Korean as a Foreign Language (KFL) classes do not make better progress than NHLLs despite their comparatively stronger aural interpretive abilities.

This study was designed to investigate whether HLLs have an advantage over NHLLs in learning distinctive parametric values in Korean language, through comparing occurrences and sources of grammatical errors exhibited by two groups taking university-level KFL classes. This study addresses Korean inflectional morphemes, with a focus on case and postposition markers and affixal connectives. Data was collected from error analysis (EA) of inflectional morpheme errors and its source on semi-guided and self-generated writing samples, and grammaticality judgment in a word completion (GJWC) test using the same inflectional morphemes used for the EA. Schlyter's Weak language (WL) as L2, Montrul's WL as L1, and the Missing Surface Inflection Hypothesis (MSIH) provided theoretical frameworks. The EA data was coded using the Systematic Analysis of Language Transcript program. The EA and GJWC data were analyzed using a *2-way* ANOVA and, when there was a significant interaction effect between heritage status and language proficiency level, a *1-way* ANOVA.

This study's results confirmed Schlyter's hypothesis, but did not support Montrul's hypothesis from either the EA or GJWC. MSIH failed in explaining underlying linguistic

competence of HLLs. Significantly higher error rates caused by omitting necessary subject and object markers among HLLs imply their Korean morphological data stays at the level of Korean child's morphology. Significantly higher error rates in instrument marker in the GJWC test by advanced level of HLLs imply impaired Korean morphology of HLLs. Linguistic variation is more prominent among HLL group. Findings are further discussed in relation to their theoretical, methodological, and pedagogical implications. Differentiated instructional and curricular approaches for HLL and NHLL groups are suggested.

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List of Acronyms

BICS: Basic Interpersonal Communicative Skills

CAPL: Cognitive Academic Language Proficiency

EA: Error Analysis

FL: Foreign Language

GJWC: Grammaticality Judgment in a Word Completion

HL: Heritage Language

HLL: Heritage Language Learner

L1: First Language

L2: Second Language

LCTL: Less Commonly Taught Languages

MSIH: Missing Surface Inflection Hypothesis

NHLL: Non- Heritage Language Learner

SALT: Systematic Analysis Language Transcript software

SLA: Second Language Acquisition

TL: Target Language

CHAPTER 1. INTRODUCTION

Background

The Modern Language Association (MLA) 2010 report on foreign language enrollment at higher education institutions in the U.S. stated that "Enrollments in languages other than English at US institutions of higher education have continued to grow over the past decade and are diversifying to include an increasingly broad range of language studies." With a 6.6 percent increase from 2006 to 2009, foreign language course enrollment at U.S. universities is at an all-time high, continuing its steady rise (47.8%) since 1995. While Arabic language saw the strongest increase in enrollment (46.3%), jumping from tenth to eighth place among the most-studied foreign languages on U.S. campuses, significant increases in enrollments were also seen in Korean language (19.1 %), Chinese (18.2%), and American Sign Language (16.4%). Many U.S. students who recognize the importance of language study a foreign language to improve prospects for their future. This demand for an ever-greater range of languages offered as credit courses demonstrates the vitality of the field. Despite troubling cutbacks in language offerings at some institutions, this report shows that overall interest in language studies remains strong in many colleges.

Studying a foreign language to communicate effectively is a central element of a well-rounded education in this increasingly multicultural world. For an adult learner to master an additional language, however, the challenges posed are significant. It is especially difficult when the learning occurs in a country where the target language (TL) is a minority language and is used by a small number of people, as the learner can hardly expect to have sufficient exposure to the language outside of the classroom. Moreover, when the first language (L1) of a language

learner is linguistically distant from the TL, the learner often experiences much difficulty in learning the TL. For these reasons, it is believed to be highly advantageous for learners to take a foreign language class that shares their heritage background. Students who learned the TL by someone from their own family heritage are called heritage language learners (HLLs). HLLs are a population of learners who are "raised in a home where a non-English language is spoken, who speak or merely understand the HL, and who is to some degree bilingual in English and the HL" (Valdés, 2001, p. 38). Kondo-Brown sees HLLs as having some linguistic proficiency in the HL while seeking to learn, maintain, or expand knowledge of their heritage language in the classroom (2006). Another term for HLL, adult early bilingual (EB), specifically refers to the process of L1 acquisition that starts to be acquired from birth simultaneously with a Second Language (L2) – English in the U.S. – but where this L1 acquisition is interrupted as EB speakers go to school and use the socially dominant and official language (Valdés, 1995).

HLLs, or EBs, normally considered by their teachers and counterpart peers as non-heritage language learners (NHLL) or late bilinguals, are thought to have an advantage in overcoming barriers of language distance between their two languages due to more input and early exposure to the TL from parents and community members. However, while native speakers function with the all sociolinguistic and socio-cultural communicative competencies, HLLs often lack the full range of language competencies, due to their contact with a limited community of speakers, their incomplete or absence of formal education in their HL, and dominance of L1 or English in society. HLLs generally present a variety of proficiency levels in language acquisition depending on the individual learner's background, and HLLs often struggle with their L1 when they learn it in formal instructional settings.

Many theories have attempted to explain the current or potential competence or proficiency of HLLs who have been exposed to their heritage L1 from birth, or at least at early stages of language acquisition, while receiving formal education in the dominant L1 (English). For example, the Fundamental Difference Hypothesis (FDH) put forth by Bley-Vroman (1990), the Incomplete Hypothesis by Schachter (1993), and the Failed Functional Features Hypothesis by Hawkins and Chan (as cited in Montrul, 2008a) have examined HLLs' language competence or performance using the age factor. As EBs utilize domain-specific linguistic mechanisms due to early onset of the targeted language, L1 in early bilingual training is thought to be executed differently from that of L2.

From among these similar hypotheses, and based on its original theory differentiating the competence of L1 and L2, the FDH posits that as fundamental differences between L1 and L2 exist, EB learners turn their implicit competence in HL literacy into explicit competence in L1 (HL) literacy via formal education of HL even though their L1 has been interrupted. The EB learners therefore tend to catch up to native levels of proficiency when they receive explicit formal instruction. On the other hand, some scholars (Schlyter, 1993; Montrul, 2008a) have argued that HL literacy can remain as an incomplete acquisition due to insufficient formal education at the right stage of learning. From this perspective, the time to use the HL is dramatically decreased, as the child with a minority language background has more time at school and with peers who speak the dominant language.

Statement of Problem

While Second Language Acquisition (SLA) is often approached by comparing it to first language (L1) acquisition, the distinction between L1 and L2 indicates a "subjective relationship"

between a language and an individual or a group (Sten, 1983, p. 9.). Hence, scholars within the generative framework (Bley-Vroman, 1990; Hawkins & Chan, 1997; Meisel, 1997; Schachter, 1990) and researchers who work with other cognitive approaches to SLA have shared similar overall views (DeKeyser, 2000; Paradis, 2004; Ullman, 2001) that L2 learners are not able to utilize domain-specific linguistic mechanisms in L1 acquisition, exclusively due to the late onset of SLA. The L2 learners instead deploy the domain-general cognitive system unrelated to Universal Grammar (UG). However, due to the late onset of SLA, neither the L1 nor L2 characteristics correspond to those of HL.

Heritage language (HL) is comprised of very special characteristics in that it presents similarities and differences of L1 and L2 at the same time. HL learning is similar to L1 acquisition, as HL acquisition occurs early in life, usually since birth in natural settings, primarily through oral communication, and between learners and caregivers. While HL learning shares many similarities with L1, HL acquisition also has some similarities with adult L2 learning. One of the similarities of HL and L2 is that their acquisition usually occurs in a formal instruction setting where more focus is made on learning formal expressions and understanding of grammar, reading, writing, and schematic oral practices in the target language (TL). HL acquisition/learning, however, differs substantially from both L1 acquisition and L2 learning even though it shares many similarities with both.

In contrast to native adult speakers, adult HL speakers operate their language with a limited range of sociolinguistic and sociocultural communicative competencies, because exposure to primary linguistic data doesn't happen during the appropriate developmental stages and the HL acquisition stopped before it reached a certain threshold level (Meisel, 2008). HL acquisition is also unlike L2 learning in that HL learners show better oral comprehension than

literacy competence, and command more informal vocabulary and colloquial expressions compared to their counterpart learners. The differences of HL learning found in L1 acquisition and L2 learning are not limited to the extent of exposure to the language and culture, and their prospect/purpose of learning the HL includes access to and gaining of their ethnic identity. HL acquisition also presents unique features in terms of the amount of input, continuum of input and output, level of interaction with native speakers and learning materials, and quantity of formal instruction. If HLLs face a different set of discourses and have access to a set of capital different than non-HLLs, the question of whether we can conceptualize the HLL in the same manner as any other L2 learner is raised. It is thus most likely that the HLL is an entity that while sharing certain characteristics and experiences with the non-HLL, must nevertheless be reconceptualized as a language learner who possesses distinct features from the non-HLL.

A language learner is often regarded as a successful learner when he or she is able to produce an utterance or give a correct answer due to the repeated access to the environmental structure, even if the learner does not understand this structure in context. HLLs usually show better listening comprehension skills than their peer learners, NHLLs. HL students in higher-level classes in particular tend to command understandable speaking skills during communication in the TL, which often leads to an overestimation of their overall competency in the TL by their NHLL peers and teachers. However, HLLs usually employ Basic Interpersonal Communication Skills (BICS) in their TL speech. Cummins (1979) suggested that language skill needed for successful academic achievement requires more than BICS, and what is essential for learners' success in school is their Cognitive Academic Language Proficiency (CALP). His studies of second language learners indicated that it usually takes from five to seven years to

reach the CALP level in formal learning settings. HLLs are no exception to this outcome, even though they and their teachers may not feel the need to develop their CALP.

The majority of learners at American colleges are traditional foreign language (FL) learners, especially at colleges in the Midwest. Little attention or support is therefore given to HL learners when their target language – the so-called Less Commonly Taught Language (LCTL) such as Korean or Russian – is spoken by a small or socially week population. The curriculum of FL programs generally focuses on communicative language because one of the main purposes of learning a FL is to be able to communicate well in the TL. While form-focused instruction is inevitable in teaching adult learners, instruction focused on communicative language may not be favorable to HLLs because the characteristics and needs of HLLs differ from those of traditional FL learners. For example, many HLLs need more support to develop their CALP in a college setting. In fact, HLLs in Korean as a foreign language (KFL) classes rarely go beyond their current level of Korean, and continue to make the same errors despite their explicit formal instruction. While they have the tendency to demonstrate weakness in grammatical accuracy, they also display comparatively high-level aural interpretive skills.

Under this language-learning setting, the development of curriculum that can meet the requirements of both learning populations is urgently needed. Considering the unique characteristics of HLLs, explicitly form-focused instructions emphasizing grammar and formal expressions can help HLLs reach balanced language competences in oral performance and academic literacy. Facilitating the learning process and maximizing learning results of both HLLs and NHLLs is thus a prerequisite for educators and practitioners working to better understand differences and similarities in linguistic competencies of the two groups of learners.

Purpose of the Study and Research Questions

It is most likely that HLLs need to be conceptualized as language learners who retain distinct features from non- HLLs (NHLL). Even though HLLs and NHLLs may share certain characteristics and experiences, HLLs hold a different set of given information and knowledge of language and thus have access to a set of capital different than NHLLs. However, in many language programs at colleges in areas with a very small population of native speakers of the TL, HLL's competence in the TL is usually misunderstood to be fluent by their counterpart learners, and even by their teachers. In fact, many adult HLLs experience incomplete language acquisition and hold imbalanced competence in their academic literacy due to interrupted L1 acquisition. Based on the circumstances of adult HLLs, a practical and deeper understanding of HLLs can be achieved when their literacy competence is compared to traditional FL learners or HNLLs. In order for HLLs to have a better experience in learning and to achieve age-appropriate competency in their HL, language pedagogues and practitioners need to put effort toward a more comprehensive and precise understanding of HLLs. Thus, the current study aims to understand the experiences and perspectives of HLLs by examining similarities and differences in linguistic knowledge in Korean inflectional morphemes between HLLs and NHLLs.

The present study investigated grammar knowledge of HLLs and NHLLs in learning Korean as a foreign language (KFL) at the university level in the United States, by comparing HLLs' and NHLLs' accuracy in and sensitivity to grammatical features presenting distinctive parametric values in Korean. The purpose of this study was to first investigate the underlying linguistic knowledge of Korean HLLs as compared to NHLLs of Korean; and provide more specialized support for pedagogical methods, upon which aural interpretive communication skills of HLLs can be capitalized. The phenomena under investigation were Korean inflectional

morphemes in nouns and verbs with a focus on case and postposition markers and affixal connectives.

The research questions were:

1. Are there differences between English-speaking heritage language learners (HLLs) and non-heritage language learners (NHLLs) of Korean in the frequency of errors in case and postposition markers and affixal connectives, demonstrated in their writing?

The hypothesis is that there are differences between HLL and NHLL in the frequency of errors in case and postposition markers and affixal connectives, demonstrated in their writing.

2. Are there differences between HLLs and NHLLs in sources that cause errors in using case and postposition markers and affixal connectives in their writing?

The hypothesis is that there are differences in sources that cause errors in using case and postposition markers and affixal connectives between HLLs and NHLLs.

3. Are there differences in the ability to identify grammatically correct case and postposition markers and affixal connectives between HLLs and NHLLs?

The hypothesis is that there are differences in the ability to identify grammatically correct case and postposition markers and affixal connectives between HLL and NHLL.

In order to investigate these research questions, error analysis (EA) of error rates by morphemes type, error analysis (EA) of sources of the errors, and a grammaticality judgment in a word completion (GJWC) test were utilized.

Definitions of Terms

A few special terms that are continuously referred to throughout the present study are listed and clarified as follows:

1. First Language (L1) is widely used for the language people learn from birth, used in this study interchangeably with the terms home language and mother tongue.

2. Second Language /Additive Language (L2) means a new language that it is not the first/native language of the speaker, usually learned in the environment where that language is spoken.

3. Target Language (TL) refers to the language being learned, usually in the environment of one's native language.

4. Heritage Language (HL) refers to either the language associated with one's cultural background, which may or may not be spoken at home, or the language learned at home other than the dominant language of the community (Cho, Cho, & Tse, 1997).

5. Non-Heritage Language Learner (NHLL) refers to language learners who do not have language background in the target language within a foreign language class.

6. Bilingualism can be defined as the ability to speak two languages, or the habitual use of two languages.

7. Early Bilingual (EB) refers to those exposed to two L1s from birth or at a very early age (Montrul, 2003).

8. Late Bilingual (LB) refers to those who started to learn an additional language after puberty (Montrul, 2003).

9. Literacy can be defined as a reader's ability to comprehend written text required for functioning at appropriate school levels (Sohn, 1995).

10. Linguistic competence can be defined as the system of rules that governs an individual's understanding of what is acceptable and what is not in the languages they speak (Chomsky,1981). The unconscious knowledge of grammar allows speaker to use and understand the language.

11. Interlanguage (IL) is the systematic knowledge of linguistic rules underlying L2 comprehension, which is independent of the learner's L1 and TL.

Significance of the Study

Since many SLA scholars' interest in the political, educational, and linguistic aspects of heritage language speakers dates back several years, the topic has been addressed predominantly from the perspectives of language policy, identity, and education (Valdés, Fishman, Chávez, & Pérez, 2006), sociolinguistics (Silva-Corvalán, 1994), linguistics (Polinsky, 2007) and pedagogy (Polinsky & Kagan, 2007) as well as the multiplicity of these perspectives (Kondo-Brown, 2006). Recent years have also seen an unprecedented interest among applied linguists and educators in the role of American formal education in assisting HL students to develop their HLs (Brecht & Ingold, 1998; Campbell & Peyton, 1998). These researchers have called for attention to the special language behaviors and needs of HL students, which are argued to be noticeably different from those of traditional non-HL students (Andrews, 2000; Campbell & Rosenthal, 2000; King, 1998; Kondo-Brown, 2001).

Previous research on Korean HL learning and teaching has also examined a range of issues, including the benefits of and motivations for maintaining Korean (Cho, Cho, & Tse, 1997; Cho & Krashen, 2000); roles of HL in social relationships (Cho, 2000); HL learners' and/or parents' attitudes towards maintaining Korean language (Cho, Shin, & Krashen, 2004; Shin, 2005); relationships between the ethnic/cultural identity and HL learning experiences (Jo, 2001,

2002; Lee, 2002); electronic literacy practices in HL (Lee, 2006); HL education in K-12 and

post-secondary school (Byon, 2005; Kim, 2008); curriculum development for HLLs; and

articulation between secondary and post-secondary FL curricular (Cho, 2000: Kim, 2002;

Kondo-Brown, 2001; Lee, 2002; Valdes, 2001). Findings from these studies have contributed to

expanding the knowledge base of Korean language education.

Most of the studies that attempt to describe linguistic differences between HL and

NHLLs, however, appear to be "hypothetical in nature" (Draper & Hicks, 2000). A clear picture

of the backgrounds and motivations of post-secondary HL learners is essential not only for

designing programs that best fit their needs, but also for investigating the intricate relationships

among first, second, and heritage language acquisition (Lynch, 2003). Moreover, much of the

previous research on Korean as an HL has focused on comparing spoken language such as

perception or production between learners of Korean as L2 and native speakers of Korean in

phonological aspects, or populations of young Korean American children, usually in areas where

there is a big Korean HL population, such as Washington D.C. and California. Little empirical

research, however, has actually examined linguistic differences between HLLs andN HLLs, or

looked at the heritage population from a linguistic perspective.

Furthermore, few studies have been done on Korean HLLs' literacy competence in

comparison to their counterpart learners at a college in an area where the TL is spoken by limited

numbers of people. A comparison study of the grammatical errors focusing on morphosyntactic

features exhibited by HLLs and NHLLs, again, has rarely been reported. The current study is

therefore significant in its understanding and acknowledgment of HLLs' grammar knowledge as

a key issue, and more importantly, the problems of HLLs who were first exposed to and are

relearning their HL in an area where the language is among the least spoken. This study is

especially meaningful in that it offers an opportunity to bring the issue of language loss and reacquisition into a L2 environment. It is designed to bring the importance of the heritage speaker population, especially speakers of LCTLs at American schools, to the attention of SLA researchers, thus encouraging more practical research on these language learners.

Summary

This chapter describes the background of this study and its purpose and significance. While many U.S. college students are aware of the importance of learning a foreign language, this poses a major challenge for these adults. Learners who share their heritage background with the target language generally want to learn their heritage language, but despite their distinct linguistic competence, the college curriculum of LCTL hardly meets HLL needs, especially in the Midwestern United States. Thus, the motivation of this study is to examine formal instruction practices and grammatical errors of HLLs and NHLLs at a KFL program at the university level in the United States to determine whether HLLs have advantages over NHLLs in learning Korean language. The purposes of the present study is to investigate the underlying linguistic knowledge of heritage language learners (HLLs) as compared to non- heritage language learners of Korean (NHLLs), and thus to provide more specialized support for pedagogical methods, upon which aural interpretive communication skills of HLLs can be capitalized. In Chapter 2, I review literature relating to bilingualism, Korean as a Heritage Language (KHL), characteristics of Korean HLLs, and learners' errors. First, I review studies about characteristics of bilingualism and HL acquisition compared to L1 and L2 learning. Next, I review the situation of Korean as a Foreign Language, the characteristics of Korean language, and the nature of Korean HLLs. Here, I detail learners' motivations, goals, and their learning experiences in a formal instruction setting.

Finally, I discuss the subjects' linguistic competence and performance, and present an overview of theories relating to learners' morphological errors.

CHAPTER 2. LITERATURE REVIEW

Introduction

Within bilingual research, heritage language learning lacks a clear definition that marks its strengths and weaknesses compared with general bilingualism due to the diverse socio-cultural environments, immigration history of individual speakers, and unique inherent language properties among the languages in question. In this chapter, I review literature that attempts to discover and/or explain the nature and characteristics of HL from bilingualism perspectives, with a focus on Korean as a heritage language. The literature review begins with definitions and explanations of terms related to this study, such as bilingualism and heritage language and its learners in/at foreign language classroom settings, followed by hypotheses derived from observable phenomena in HLLs and studies of HL or HL speakers. I then provide a summary of the situations wherein Korean is a heritage/foreign language and discussing the learners' experiences. Finally, I review existing studies on the nature of language use and linguistic competence of Korean HLLs, with a focus on morphosyntactic errors.

Bilingualism

In order to understand the nature of heritage language (HL) speakers, it is imperative to compare HL with child first language (L1) and adult second language (L2), because a HL learner starts to acquire a HL per the child L1, but seeks to re-acquire the language after a reasonably long period of its interrupted learning. Thus, this paper starts with a review of bilingualism.

Simultaneous and balanced bilingualism. Bilingualism broadly refers to knowledge and command of two or more languages, but it comes in many shapes and sizes (Grosjean, 1998). Two parameters that enable differentiation of bilingualism types are age and order or sequence of

acquisition (Montrul, 2008b). Depending on the age of acquisition of the two languages, bilingualism is categorized as early bilingualism and late bilingualism. Early bilingualism can take place either simultaneously or sequentially.

Early simultaneous bilingualism, often referred to as bilingual L1 acquisition, occurs in early childhood before linguistic foundations of the languages are in place, while sequential bilingualism takes place after a speaker has acquired basic command of L1. Sequential bilingualism can happen early, during childhood, or in adulthood. Early sequential bilingualism could be identified as child L2 acquisition, and late sequential bilingualism is equivalent to adult L2 acquisition (Montrul, 2008a). Researchers have also identified the degree of attainment of two languages by observing learners' proficiency and relative balance in the two languages. According to Meisel (2007), the conditions of balanced bilinguals are (1) a communicative and learning environment, with respect to presence and accessibility of the language, (2) the varied uses bilinguals make of their languages in specific contexts, and (3) the development of linguistic knowledge in the individual (2004).

Many studies have suggested that two or more languages acquired simultaneously can be considered as an instance of multiple first language (L1) acquisition (De Houwer, 1990, 1995; Meisel, 2004), and L1-like competence in each language can be attained in simultaneous acquisition of bilingualism by mere exposure to the target languages (Meisel, 2007). Researchers have since argued that morphosyntactic development of early bilingual children generally corresponds to that exhibited by same-age monolingual children, showing the same rate of morphosyntactic development as monolingual children at least in their dominant language (as cited in Kim. 2011, p. 20). For instance, Paradis, Crago, Genesee, and Rice (2003) conducted a study of French-English bilingual children with specific language impairments in Quebec,

Canada. They reported that the bilingual children exhibit the same pattern and degree of impairment in each language as similarly impaired monolingual English and French children of the same age (as cited in Kim, 2011, p. 22).

In his study of early bilingual acquisition of Dutch and English, De Houwer (1990) insists that bilingual acquisition precedes much like monolingual acquisition. In other words, language-specific input in one language leads to the acquisition of language-specific morphosyntax of the language. De Houwer (1990) further posited that two linguistic systems of bilingual children are differentiated early on; grammatical development continues through the same developmental sequences as in monolingual acquisition, and grammatical knowledge ultimately attained in each of the languages of bilingual children is alike in nature to that of their individual monolingual counterparts (1995). One study that supports this position is Meisel's (1986) investigation of word order and case marking in simultaneous acquisition of two L1s by norms of the respective target languages, German and French, similar to respective monolingual French- and German-speaking children. By video-recording the children's interactions with adults or with other children, she observed that the bilingual children at preschool age distinguish language-specific constructions, and thus obey the norms of the respective languages corresponding to monolingual adult performance.

Meisel mentions that bilingual children are capable of distinguishing grammatical properties of the two languages as soon as they begin to use multiword utterances, and case markings appear earlier in the speech of bilinguals than that of monolinguals. He concludes that bilingual children are able to use different patterns in both languages. These claims support Bley-Vroman's (1990) Fundamental Difference Hypothesis (FDH) that has emphasized the fundamental differences between L1 and L2 acquisition.

Fundamental differences. Comparing and contrasting child L1 acquisition with adult L2 acquisition has been the focus of research in generative linguistics in recent years. Many scholars in linguistics and applied linguistics have built theories and hypotheses to better understand and explain the systematic nature of the linguistic system of L1 learning. Many researchers in the generative linguistics field assume that L1 acquisition is guided by innate knowledge of language or University Grammar (UG), which explains the efficient, rapid, and complete acquisition of L1 during the critical period. According to Chomsky (1981), UG constrains L1 acquisition and this innate knowledge enables children to solve logical problems, which explains the gap between children's limited or incomplete linguistic experience and the complexity and sophistication of the attained linguistic knowledge.

Based on the literature that supports the existence of UG, Bley-Vroman (1990) suggests that UG does not bridge the gap between abstract knowledge and experience in SLA because adult L2 learning no longer activates a domain-specific linguistic system, although both L1 and L2 learners face the same logical problem of "poverty of the stimulus." In describing the FDH, Bley-Vroman (1990) addresses adult L2 learners' reliance on their L1 knowledge for their SLA because their innate linguistic system that activates in childhood is no longer efficient in their L2 learning, and they have already acquired their L1 through the domain-specific innate linguistic system (UG). FDH explains how, "L1 acquisition and L2 learning are fundamentally different because adult L2 learners deploy domain-general problem solving skills instead of domain-specific linguistic mechanisms" (cited in Montrul, 2003, p. 45). Under these perspectives, FDH predicts that because early bilinguals' L1 started at an early stage of language acquisition, they should be more successful at attaining native-like knowledge in both languages than L2 learners. Furthermore, L2 learners are not able to perform like native speakers even after many years of

formal instruction or even in immersion setting regardless of the amount of input and experience with the TL (Montrul, 2008b).

The FDH has been applied to HL learning in SLA literature for many years and has developed its investigation into more refined areas, including the failed functional features hypothesis (Hawkins & Chan, 1997) and the interpretability hypothesis (Hawkins & Hattori, 2006). While many advocates of FDH have claimed that L1-like competence in each language can be attained in simultaneous acquisition of bilingualism or multilingualism by mere exposure to the target languages at an early age, more recently, many studies in the SLA field have been conducted to understand the complex nature of heritage language acquisition in relation to first- and second-language acquisition. Some scholars have argued that mere exposure to the two languages at an early age is not enough for balanced full linguistic development in the two L1s (Montrul, 2008a; Polinsky, 2007).

Weaker Language (WL). Based on the FDH, two somewhat conflicting theoretical positions regarding bilingualism have been proposed by Schlyter (1993) and Montrul (2008a), the "Weak Language as L2 Hypothesis" (WL as L2) and the "Weak Language as L1 Hypothesis" (WL as L1), respectively. Based on Meisel's (1991) list of differences between L1 and L2 acquisition, Schlyter (1993) advanced a theory of WL as L2 on the basis of empirical data from bilingual French- and Swedish-speaking children by observing the development of French and Swedish inflectional morphology and syntax (word order) in her study population.

Schlyter (1993) found that development of French of these children resembled that of second language learners. For example, their French presented limited ultimate attainment, slower rate of acquisition and strong individual differences, discontinuity in acquisitional patterns, and grammatical phenomena which are related to specific parameters being learned as

separate facts, for example verb-second and finiteness. From these data, claimed that the WL develops like a second language while the development of the stronger language matches that of monolingual children. According to Schlyter (1993), complete interruption of L1 input during childhood leads to meaningful loss in linguistic competence in the L1. Therefore, the weaker language should be approached like a second language.

On the other hand, in the "Weak Language as L1 Hypothesis", Montrul (2008a) suggests that Universal Grammar (UG) provides the initial outline for acquisition of HL as L1. This hypothesis claims that HLLs should have implicit knowledge of core aspects of phonology and morphosyntax that emerge very early in childhood, and are not dependent on a significant amount of sustained input, including some early set parameters such as word order and pro-drop. WL as L1 predicts that HLLs are more accurate and faster in oral than in written production as well as comprehension tasks that minimize metalinguistic knowledge. Another prediction is that HLLs react faster and better to formal instruction than NHLLs if there is a re-exposure effect. In sum, HLLs are predicted to reach certain linguistic milestones faster and better than L2 learners do. Early bilinguals (adult HLLs) have the potential to reach native-like competence in the HL, while adult L2 learners do not.

Montrul (2008) also emphasizes the importance of language acquisition onset and sustained input. According to her, while the learner may have the underlying cognitive and linguistic mechanisms for both languages, what determines which language will be best acquired and eventually maintained is the amount of input received during a maturationally determined critical time. In other words, sustained input is crucial in the forming of linguistic representations at an early age for children in order to reach age-appropriate levels of linguistic achievement. In her study comparing bilingual children who are continuously exposed to input with children who

are completely cut off from it, she found that even though advantages of WL as L1 for early bilingualism are consistent, these advantages are selective and depend on the participants' level of proficiency in different grammatical areas, their degree of use of the HL, and the type of tasks they are given. Montrul (2008) concludes that both early age of onset and a minimum threshold level of input are essential to acquire and maintain a critical accumulation of language for reaching adequate linguistic ability. The decline in the efficiency of the learning mechanism not only holds for phonology, but for morphology, syntax, and lexical semantics as well.

The WL as L1 hypothesis has been further expanded to studies on heritage language (HL) acquisition and development by many scholars. For instance, in her recent study of mastery of relative clauses in speakers of Russian, Polanski (2008) reported that monolingual and bilingual children demonstrate full adult-like mastery of relative clauses, while adult heritage speakers (HS) are significantly different from the monolingual adult control group and the child HL group. This contrasting performance result signifies that adults' heritage grammar is not a product of the fossilization of their childhood language. Instead, it suggests that forms existing in the baseline undergo gradual attrition over the life span of HS. This result is consistent with observations on narrative structure in child and adult HSs (Polinsky, 2008).

Bialystok (2010) also reported weaker linguistic competence of early simultaneous bilinguals in receptivity skills among both child and adult bilinguals. Bialystok (2010) examined vocabulary knowledge of 1,738 monolingual and bilingual children between 3 and 10 years old. She reported that monolingual children and bilingual children demonstrate a consistent difference in receptive vocabulary. She identified clear evidence that bilingual children have a smaller vocabulary size in the tested language than their monolingual counterparts, as monolingual children on average obtain significantly higher scores on receptive vocabulary tests

than bilinguals. More importantly, the scores from both groups were distributed normally, with monolinguals obtaining a mean score of 106.8 (*SD* = 12.3) and bilinguals obtaining a mean score of 96.3 (*SD* = 13.0). In her follow-up study about receptive vocabulary competence among adult bilinguals, Bialystok (2011) obtained similar findings. For this study, she collected English receptive vocabulary scores from 797 monolingual and 808 bilingual participants between the ages of 17 and 89 to compare standard scores. All the monolingual participants were English speakers and the bilinguals spoke English plus another language among variety of European and Asian languages, with no concentration on any specific second language. The mean score of participants was significantly different, with monolinguals obtaining a higher standard than bilinguals (F (1, 1603) = 138.4, *MSE* = 164.7, p < .0001).

In their data report, Hart and Risley (1995) found that children growing up in monolingual homes receive vast amounts of input: 7, 250 sentences a day, 2.5 million sentences a year, and a total of 7.5 million sentences over the first three-year period in which much of their language is acquired. In the same work, they reported that children who receive substantially less input show very marked deficits in vocabulary, developing only half the vocabulary size of their age-matched peers. This data support the concept that input deficits during critical periods of acquiring a language are considered to noticeably influence morphosyntatic development of child language acquisition (O'Grady, 2009).

The investigations reviewed so far have been concerned with maturational effects in language development. Focusing on the onset of acquisition, these studies investigated the question of whether delayed onset occurring after the hypothesized sensitive period will result in at least partial acquisition failure (Hyltenstam & Abrahamsson, 2003). However, if the development of native competence by simple exposure to the primary linguistic data during the

optimal age period fails in some cases, it may be necessary to conclude that onset of acquisition during the sensitive stages for language development is a necessary-but-not-sufficient condition for native language acquisition. Thus, the claim that L1 acquisition with severely reduced input can result in incomplete acquisition of the language is plausible. In other words, partial acquisition failure in one of the simultaneously acquired languages can be an indicator of an additional type of constraint on the language acquisition device. This suggests that exposure to the primary linguistic data must happen not only during the appropriate developmental phase, but must also reach a certain threshold (Meisel, 2007).

Heritage Language (HL). L1 acquisition cannot be explained without a discussion of the time needed for L1 to be mastered, "the stability of the linguistic knowledge, the role of universal linguistic mechanisms, the role of age, and cognitive development during language acquisition" (Montrul, 2011, p.158). While many components of HL may also be explained by these factors, the study of HL speaker populations may offer a unique perspective on the relative influence of these factors in language learning processes and outcomes (Montrul, 2011).

Even though many research studies have reported that the two languages of bilingual speakers present equal full-linguistic competence, the languages reported as two well-balanced L1s in many language acquisition studies are generally linguistically close with each other such, as French and German, English and Spanish, or French and Swedish. However, some bilinguals whose heritage language presents a relatively large language distance from their dominant one (English), and where this HL is obviously less taught and spoken in their micro- and macro-societies, can hardly keep the developmental balance between their L1s due to their limited exposure to the minor language or HL (Ellis, 1985). As a result, according to Silva-Corvalan (2003), HL learners gradually lose their linguistic competence, and few are able retain a full

functional command of their HL (as cited in Carreira, 2011, p. 42). Heritage language literacy is typically lost as bilingual children enter school, as when English becomes their dominant language.

Even though de Houwer (1995) advocated that equal bilingual acquisition is possible to achieve much like monolingual acquisition, he admitted that there are situational variations to be considered, such as the role of input, the formal relationship between a bilingual child's two languages, and language choice both within and across utterances. The essential issue here is to identify the limits of the actual language-acquiring process of bilinguals. The partial, or in a rare case, total, acquisition failure of HL is due to the fact that exposure to its primary linguistics is not provided during appropriate developmental stages, and HL acquisition is interrupted before it reaches a certain threshold level (Meisel, 2007). Thus, it is most likely that bilinguals cannot attain L1-like competence in their one language that is prominently weaker than the other. While many theoretical accounts of the different mechanisms of L2 from L1 are controversial, the theories and hypotheses on L1 and L2 are not likely to provide a precise understanding of HL that can be identified as a weak L1 of early bilinguals.

As Wiley emphasized critical roles of universities "in offering a second chance to individuals while helping the nation rebuild its linguistic resources" (2002, p. 2), the role of colleges in foreign language education is more important than ever. As there is a growing desire for language minority groups to preserve their language and heritage, and a developing appreciation of these multilingual citizens as a national resource (TESOL, 2004; Campbell & Peyton, 1998), HL education is moving into schools at all levels. There is a noticeable increase in attention to heritage language learning and learners during the last decade, as many American universities are faced with a growing population of HL learners enrolling in foreign languages

courses. Korean as a Foreign Language is no exception. If fact, according to Brod and Welles (2002), there was a 34 percent increase in enrollment in Korean language courses between 1995 and 1998, making it the third-largest growth in foreign language programs during this period (a cited in Lee & Kim, 2007, p. 159). Thus, the rest of the Chapter 2 reviews Korean as a Foreign/Heritage Language at post-secondary schools in the U.S., followed by the linguistic competence/grammar knowledge of adult Korean HL, and identification and analysis of errors in learners' grammar knowledge.

Learning Korean Language

Language acquisition is one of the vital requirements for success in life because competency in language is essential to the exchange of ideas and communication of values and thoughts. Many people think that learning a foreign language is a difficult and time-consuming process, but they also consider it important and valuable. They often believe that being bilingual or multilingual will open up more opportunities in the future, especially in career development, even though the process of language learning can be very stressful (Briggs, 1979). Recently, as bilingualism is getting a considerable amount of attention at most colleges in the United States, and due to the difficulty in learning a new language as an adult, more students with minority language backgrounds want to take a foreign language that is their heritage language. This is particularly true in regard to Korean American college students. Thus, three issues relating to Korean HLLs are reviewed herein: first, the setting where Korean is learned as a Foreign Language; second, the characteristics of the Korean Language; and third, social- and cultural-linguistic as well as language behaviors of KHLL, linguistic competence, and frequent error types in Korean HLLs.

Korean as a foreign language (FL) at post-secondary colleges in the U.S. Korean has

not been as popular for Americans to study as other well-known East Asian languages until

recently. Since 1975, the number of Korean language courses at U.S. colleges has grown from 10

to over 130 in the early 2000s (Byon, 2005). After Columbia University first offered KFL

courses in 1934, the University of California at Berkeley and the University of Hawaii at Manoa

started the same program, in 1943 and 1947, respectively. However, until the 1950s, only a few

more U.S. universities such as Brigham Young University, Harvard University, Indiana

University, and the University of Washington Seattle began to offer KFL courses.

Throughout the 1970s and 1980s, not only were KFL courses opened at more universities,

but more levels of KFL courses were offered as well. For instance, the University of Illinois,

University of Kansas, University of Pittsburg, and Yale University began to offer their first KFL

classes in the 1970s. Around the same time, the University of Hawaii at Manoa first offered a

BA degree in the Korean language, George Washington University in Washington D.C. added

the second year course, and Brigham Young University expanded their KFL program into third-

and fourth-year courses (Byon, 2005). These numbers have continued to grow in the 2000s. By

2008, there were approximately 130 U.S. universities offering Korean language courses (Kang,

2005).

Learners of Korean. While the growth of Korean as a Foreign Language (KFL)

programs at U.S. colleges has been remarkable over the last three decades, it is well accepted

that broadly two heterogeneous groups of learners – heritage and non-heritage learners – exist in

these programs (Lee, 2000; Lee, 2002; Sohn 1995; Wang, 1997). These two distinct groups of

students, learners of Korean as a Heritage Language and learners of Korean as a Foreign

Language, have different language backgrounds and needs. As Korean is a heritage language for

Korean-American students, these students have comparatively more opportunities to be exposed to Korean outside of the classroom. This phenomenon is accelerated in areas where Korean heritage populations are concentrated, such as the East and West coasts. Hence, these students appear to be fluent in Korean compared to non-Korean-American students.

The non-HLLs are, in general, true beginners because they do not have previous Korean language or cultural experience and few opportunities to use Korean outside of the classroom, where Korean is taught in a foreign language environment. Additionally, Korean is one of the so-called Less Commonly Taught Languages (LCTL) in the United States. Consequently, learners of Korean have fewer opportunities for the input of and exposure to language compared to more commonly taught languages such as Spanish and Chinese. The educational environment, therefore, obviously affects the outcomes and experiences for those learning Korean. It is well known that English-speaking students struggle in learning the Korean language. The U.S. Foreign Service Institute (FSI) ranks Korean language as "Category 4" or "exceptionally difficult" for American adult learners, along with Chinese, Japanese, and Arabic. Even though both English and Korean are orthographically alphabetic languages, many English-speaking adult learners find Korean more difficult to learn than Chinese and even Japanese (Kim, 2005. p. 27). This can be attributed to the fact that Korean is structurally and pragmatically quite different than English.

Reviewing the specific structure of Korean language and language distance between English and Korean will bring a better grasp of learning experiences and difficulties faced by English-speaking learners of Korean. As this current study is interested in learners' academic literacy competence with a focus on grammar knowledge, the literature review in the following

section is centered on morphosyntatic properties of Korean, after a brief look at its sound and

spelling systems, as well as its sentence structure.

Korean Language. Linguistically, the Korean language belongs to the Ural-Altaic

language family of Central Asia. Korean is unique in its sound and script, and syntactical,

semantic, and pragmatic distance between Korean and English, making it problematic to

English-speaking learners.

Spelling system. The Korean alphabet is called *Hanguel*. There are 24 letters in the

Korean alphabet, comprised of 14 consonants and 10 vowels together with consonant clusters

and diphthongs to form different syllabic groupings. The letters are combined to form syllable

blocks. The shapes of the basic consonants are graphical representations of the speech organs

used to pronounce them. Other consonants are created by adding extra lines to the basic shapes.

The shapes of the vowels are based on three elements: man (a vertical line), earth (a horizontal

line) and heaven (a dot). In modern Hangeul, the heavenly dot has mutated into a short line.

Spaces are placed between words, which can be made up of one or more syllables. The script is

easy enough to be taught effectively even in Korean-as-a-foreign-language classroom setting

(Kinoshita, 1995).

Sound system. The sound system of Korean is so different from that of English that

English-speaking learners of Korean encounter a host of phonological challenges. The main

problem in that the pronunciation of individual words lies in the reproduction of consonants. The

sounds of some consonants change depending on whether they appear at the beginning, the

middle, or the end of a syllable. For instance, stop consonants in English such as p-b, t-d, k-g are

not positional variants of each other but occur in the same position. However, Korean voiced

stops are only positional variants of corresponding voiceless ones; when a stop is positioned

between other voiced sounds, the stop sounds voiced to English speakers. For example, /b/ and /g/ in two of the most common names "*Bark*" or "*Gim*" are pronounced like (and often spelled in English) /p/ or /k/ because there are no positional variants of the stops in English.

By the same token, the Korean voiceless stops present similar kinds of problems for learners of Korean. As they tend to carry over aspiration that occurs in an initial position for the English phonetic system, they mispronounce /g/ as in "*gal*" (to go), /d/ as in "*dal*" (moon), /b/ as in "*bal*" (foot) as /k/, /t/, and /p/, respectively, which changes the meanings of the exemplified words in the parentheses to "knife," "to ride on," and "arm." Korean vowels cause no less difficulty for English-speaking learners, as they are more tense and shorter than those in English, whereas English language vowels generally sound lax to the ears of Korean native speakers (Park, 1996). Differences in syllable structure between the two languages may lead to the addition of a short vowel sound at the end of English words that terminate with a consonant or within words containing consonant clusters.

Word and sentence structures. Korean is a syllable-timed language wherein individual word stress is insignificant. Korean has been heavily influenced by Chinese. A large proportion of Korean words were either coined in Korean using Chinese characters or borrowed directly (see *Integrated Korean*, Cho et al, 2000). Korean and English are so different in structure that not only should word order be converted in translation, but in most cases the wording itself must be changed as well. There is little correspondence between Korean and English (Kim, 1989), in that they stand typologically opposite both in the phrasal level and sentential level. Within the framework of word-order classification, contrasts of Korean and English with respect to their features yield opposite branching directions.

The conceptual chunks of English as Subject-Verb-Object (SVO) are expanded to right branching clauses such as multiple sentences, complementation (that clause), and coordination (and clause), whereas those of Korean in SOV are oriented to the left-branching clauses. Such mirror images are also evident in the structure of noun and its preposition in English versus postposition in Korean. In English, prepositions such as "in," "at," or "to" are located before the accompanying nouns. The grammatical relation in English is reflected by word order whereas in Korean postpositional particles (i.e., markers) or case markers are used (Yeon, 2003). In Korean, however, the words that are functionally equivalent to English prepositions follow the co-occurring nouns, and all postpositions are suffixal, or bound to nouns, and are hence called postpositions, as seen in the sentence:

Mary-*ka tosekwan-eyse kongpwuha-ss-ta.*

SM   library   at/in   study   PT IE

"Mary studied in the library."

Korean is an SOV language on the surface, with the verb always occurring at the end of a sentence. Relative freedom of word order, agglutinatively-formed words and overt case marking are major characteristics of Korean.

Grammar. Grammatical categories in Korean have no clear correspondence with those in English. First, like other agglutinating languages, bare verb stems are impossible in adult Korean. All roots must be supported by mood markers that represent clause-types, such as declarative, interrogative, imperative, or propositive. Second, it is well known that Korean is a head-final (basic SOV word order) language. Third, Korean has well-developed morphological particles such as nominative, accusative, temporal, and locative particles, which explain both the semantic roll of the noun and its syntactic relationship with its corresponding verb in a sentence.

Additionally, subjects, objects, and case markers can be dropped if they are licensed by discourse contexts. Hence, personal subject reference avoidance is common when encountering Korean sentences consisting of verb only (Park, 1996).

Korean is an agglutinative language in which verb information such as tense, mood, and social relations between speaker and listener are added successively to the end of the verb. Korean grammar is also heavily influenced by honorifics. Verb endings and choice of nouns, adjectives, or pronouns depend on the relative status of the speaker or writer in relation to the listener or reader. The many inherent linguistic differences in morphosyntax between Korean and English can be a main obstacle to English-speaking learners of Korean (Cho & Sells, 1995).

Suffix. Morphemes in Korean present well-developed suffixes, that of the noun suffix and verbal suffix. Several recent studies of Korean morphology have attempted to establish the exact morphosyntatic status of nominal suffixes such as case markers and verbal inflectional suffixes. These morphemes have been broadly analyzed as inflectional affixes (Kang, 1985; Cho & Morgan, 1988; Park, 1988), as clitics (Kuh, 1988), and as phrasal affixes (Kim, 1986; Kendall & Yoon, 1986; Lapointe, 1990, 1991; Yoon, 1987). However, the characteristics of Korean noun and verb inflectional morphemes seem closer to affixes according to the descriptions of differences between clitics and affixes (Zwichy & Pullum, 1983, cited by Markham, 2009) as follows:

1. Clitics exhibit a low degree of selection with respect to their hosts, while affixes exhibit a high degree of selection with respect to their stems;

2. Affixed words, but not clitic groups, have more arbitrary gaps;

3. Morpho-phonological idiosyncrasies are more characteristic of affixed words than of clitic groups;

4. Semantic idiosyncrasies are more characteristic of affixed words than of clitic groups;

5. Syntactic rules can affect affixed words, but cannot affect clitic groups; and

6. Clitics can attach to material already containing clitics, but affixes cannot.

These attributes correspond to the characteristics of Korean affixes for several reasons: the selection of affixes and verb stems are not decided in an arbitrary manner, Korean affixes are not separable from the verb stem but characterize morpho-phonological and semantic idiosyncrasies, and Korean affixes are decided by syntactic rules.

The Korean suffixes are important because they mark speech level, mood, and discourse and exhibit a high degree of selection. Noun suffixes mark such properties as case, focus, mood, plurality, quantification, semantic delimitation, and copula (attached to a nominal category in Korean). A complex series of verb suffixes are attached to the verb root to mark mood, tense, aspect, speech level, and discourse functions, in addition to nominalizing suffixes. The Korean suffixes not only show strong phonological evidence that they are lexically attached, but also play an important role in syntax and semantics (Poser, 1985). The summary of Korean suffixes by type is given in Table 1.

Table 1

Noun suffixes and verbal suffixes in Korean (Cho & Sells, 1995)

Suffixes		Phonetic	Yale
Noun	Function		
Case markers	Nominative	-ka/-i	-ka/-i
	Accusative	-il/lil	-ul/-lul
	Topic		-un/-nun
	Genitive		-uy
Postposition markers	Locative		-ey, eyes
	Dative		-eykey, -hante
	Instrumental		-lo/-ulo
	Conjuncture		-kwa/-wa
	Comitative		-hako

Delimiters	"only"	-man	-man
	"also"	-to	-to
	"even"	-cocha	-cocha
Copula		-i	-i
Verb			
Honorific		-si/-isi	-si/-usi
Tense	Past tense		-ess /-ass
	Present tense		-n/-nun
	Future tense		-keyss
Prenom. Mod.			-n/un, -nun, -l/- ul
Adverbial			-key
Nominalizer			-m/-um, -ki
Comp			-e, key, -ci
Speech level			-pni/-supni
Mood	Declarative		-ta
	Question		-kka, -ni
Discourse			-yo, -ney

Case marking. As an agglutinative language, Korean has a very productive inflectional

system. As noted in the table provided above, inflectional morphemes (vs. derivational

morpheme) include case markers, postpositions, prefixes, and other suffixes on nouns, as well as

tense, honorific, and sentence type markers on verbs and adjectives. In terms of the noun

inflections, Korean is regarded as a language in which all subjects and objects are case-marked.

While subject and object in English are marked by their position and agreement with verbs and

modals in the sentence, in Korean, subject and object are not unclearly marked without case-

marking suffixes. Case markers indicate hierarchies of person, animacy, and definiteness, as well

as classes of subjects and objects, but case marking is not static in it application. Regardless of

its syntactic argumenthood, topic markers "-(*n*)*un*," subject markers " -*ka*/ -*i*," and object

markers "-(*l*)*ul*" can shift from genitive as a pragmatic unit because it is an independent focus or

topic element within a clause. Additionally, the case marking often presents shifts from each other or is deleted, a phenomenon that is frequent in spoken Korean (Lee, 2006, p. 72). Examples of case marking in a diary (a) and its ellipsis in a conversation (b) are:

(a) *Na-un   onul   gabang-ul   sa-(a)tt-a.*

   I-Nom. Today-Top a bag-Acc   buy-Past-Dec.

   "I bought a bag today."

(b) *Onul   gabang -   sa-(a)tt-a.*

   Today-Top   a bag - (Acc)   buy-Past-Dec.

   "(I) bought a bag today."

This sentence (a) represents the normal written form that can be found in Korean, manifesting all the possible case subject and object markers. On the other hand, in (b), the object "gabang" appears without the following accusative case marker "*ul*." In colloquial Korean, this kind of ellipsis is frequent. While this case ellipsis is allowed less in the written form of Korean, this type of case ellipsis in (b) can be attributed to a number of linguistic and non-linguistic factors such as stylistic and pragmatic factors, semantic relationship between noun phrase argument and the predicate, and discourse/semantic factors and information status (Yeon, 2003).

Postposition markers. Among the diverse inflectional morphemes, the postposition markers in Korean can correspond to English prepositions. English prepositions expressing time, location, direction, instrument, and possessive marker have compatible elements in Korean in the form of an inflectional morpheme such as "-*e*", "-*puthe*,", "-*kkaci*," "-*esse*," "-*hantae*," "-*hantaeseo*," "-*uro*," and "-*ue*." Especially, Korean locative case markers and English prepositions are similar in that they express goal, locative, tool, time, direction, and source.

However, some of the Korean postposition markers make several distinctions about semantic and syntactic properties of certain elements in the clause.

Korean postposition markers have not only a syntactic role as in a head of adverbial phrase but also have a semantic role that indicates a direction, an instrument, time, or a location. For example, a locative postposition marker '-*esso*' that indicates a location where an event occurs can be combined with a topic marker '-(*n)un*' to make a contrast the function of the place in concern with the other place(s). Hence, it is important to use an appropriate postposition marker to have a right connection between an action and a place relating to the action. Learners of Koreans frequently display errors in these markers even though the Korean postposition markers and English prepositions are syntactically corresponding elements.

Affixal connectives. Although the inflectional morphemes are found in Korean verbs, these connectives do not exist in English. English has free connectives, but not affixal connectives. In Korean, however, there are two ways to display coordinators connecting two sentences or phrases. One way is to have non-affixal coordinators such as "*kuriko*," "*kuressu*," "*kurussciman*," or "*kurunde*" which are parallel to "and," "so," "but," and "however," respectively. In the context, the verbs in each conjunct are independently inflected just for aspect, tense, and mood. For instance:

John-*un* coffee-*lul cohahanda*.   *Kuriko* Mary-*nun* juice-*lul cohahanda*.

  -topic   -acc like-decl-pre   and   -topic   -acc like-decl-pre

(John likes coffee. And Mary likes juice.)

However, the two sentences can be connected with a connective as a verbal suffix instead connecting with the free connective "*kuriko*." The two sentences in the example above can be described without any change in meaning, as in the following:

John-*un*   coffee-*lul cohaha -ko*   Mary-*nun* juice-*lul cohahanda*.

 -topic   -acc like-decl-pre and   -topic   -acc like-decl-pre

(John likes coffee and Mary likes juice.)

In English, there is no affixal connective but only non-affixal connectives. Hence, the affixal

connectives in Korean such as "*-ko*," "*-ciman*," "*-(u)su*" or "*-(n)unde*" can cause difficulties to

English-speaking learners of Korean as these elements do not exist in English (Park, 1994).

Due to the different positions of positional particles and existence of case markers and

affixal connectives, Korean suffixes often cause learner's errors. In addition, given the

complexity of markers in Korean, acquiring them takes a long time. Thus, a learner's good

application of these inflectional morphemes can be an index of high linguistic competence in

Korean language (Cho & Sells, 1995).

As seen in the overview of Korean, Korean and English languages manifest fairly big

distances from each other, which is one of the critical characteristics that make the English-

speaking learners of Korean feel it is a difficult language to learn. Another phenomenon that may

result in an unfortunate learning experience or less achievement is the fact that Korean is not

commonly taught in formal educational systems in the United States. While Korean is yet

categorized as one of the much LCTLs, many scholars and practitioners have recently witnessed

a strikingly growing number of Korean-American students in Korean language programs across

colleges in the United States. However, it is challenging to identify general characteristics of

HLLs across languages, as reviewed earlier in Chapter 2. It is most likely that defining and

clearly understanding a specific HL and the HL group is a more complex process due to various

factors such as socio-cultural environments, language behaviors of the individual HLL, and

inherent properties of the HL. Indeed, HLLs are found to possess distinctive language behaviors,

needs, and motivations that are obviously different from NHLLs (Choi, 1999; Kim, 2002; King, 1998; Lee, 2000; Sohn, 1995).

The rest of this chapter is therefore dedicated to a review of studies on socio-cultural issues and the nature of language behaviors of Korean HLLs, and the linguistic competence of HLLs, followed by a review of two main approaches to learners' errors, such as Error Analysis (EA) and Interlanguage (IL) errors, that try to understand the problems in underlying grammar competence and knowledge of HLLs.

Korean Heritage Language Learners (HLLs)

As recent interest in learning heritage languages has grown considerably, much of the research on HL education has increasingly focused on developing a clear and accurate picture of this relatively new population of language learners in U.S. universities, such as language behaviors of HLLs, motivation in learning the HL, and learning experiences of HLLs.

Language attitude/behavior towards heritage language. Despite efforts of first-generation Korean immigrants to help prevent the replacement of Korean for English, a language shift to English is occurring in many Korean immigrant families due to many socio-cultural and socio-linguistic factors (Kang, 1996; Kim et al., 1981; Cho, 1998). Since culture, as depicted by Lee (2002), is "a complex entity that holds a set of symbolic systems, including knowledge of norms, values, beliefs, language, art, and customs as well as habits and skills learned by individuals as members of a given society" (p. 119), language and culture are interdependent while being maintained independently.

Fishman (1991) emphasized intergenerational communication as an essential element to prevent language shifts to the majority language within an adult minority language speech

community (Kim, 2002, p. 94). However, the symbolic status of English language in Korea and among many Korean immigrants is another factor that accelerates KHL loss among second- and third-generation Koreans. In her study on language attitude and ideology, Jeon (2008) reported that most new immigrant parents want their children to focus on learning English, because they still embrace the strong phenomenon that English proficiency leads to more success in college admission and finding prestigious jobs in Korea, and they believe skill in English is the means to their children's success in their new country.

It is also widely reported that Korean immigrant children resist learning their HL because it is a minority language in the U.S. (Kim, 2002, p. 100; Hong & Min, 1999). Second-generation immigrant children also desire to be assimilated into American culture and belong to their American peer groups. For example, in the findings of their survey, Hong and Min (1999) reported that Korean immigrant adolescents have achieved a high level of cultural assimilation in American culture, whereas the same group of adolescents showed a rather low level of cultural ethnic attachment to Korean culture. As this language-shift phenomenon occurs during early childhood, it is predictable that the children of immigrants have few opportunities for formal instruction in their HL during the appropriate stage of developing grammatical competence. When children notice that their family language is not valued as the majority language, they begin to speak it less and less. Negative feelings about the HL tends to lead to less willingness to use the language throughout childhood, and eventually cause adult early bilinguals as well to use the language less, resulting in weaker HL competence.

While social norms regarding a language, and the family's role and its culture are central in transmission of heritage language of minors, location of the language community is a crucial factor in language shifts. The place of immigrants' settlement in the United States has been

found to be very important to the ways it shapes language behavior of immigrant children. It is well know that immigrant children in areas with little residential concentration of native speakers and community institutions lack speech contexts, and broader social relationships restrict language learning to speech styles and registers used by the immediate family Conversely, residential concentration and community institutions provide more opportunities and motivation to learn and maintain HL (Kim, 2008).

Many studies have documented that a language shift to the dominant language is a natural process, as most language behaviors occur in various social contexts. Maintenance of one's HL thus demands extra effort for the HL speaker (Cho, 1998; Lopez, 1982).

Motivation of learning the HL. Many college HL students want to learn and improve their HL skills for a variety of personal and practical reasons. Byon (2005) addressed several factors relating to the reasons college Korean HLLs' take Korean language courses, including their instrumental and integrative motivations. Due to the incorrect assumption that a Korean class would be easier for them than other foreign language courses, or to pursue their own academic interests, some take the class to fulfill the foreign language requirement or to get an easy passing grade. Others learn Korean as their HL due to its availability on the college curriculum, their career plans, or their interest in learning about their cultural background or seeking cultural identity as a Korean (Byoen, 2005).

However, the specific needs of HLLs are not often well reflected in the school curricula at universities with single-track programs, as these universities have traditionally taught foreign languages to non-native speakers of the target language (Lynch, 2003). For instance, among a number of studies that used student self-reported data to examine learning motivations and language behaviors of HL learners in the university context (Lee, 2002; Oh & Au, 2005; Shum,

2001), a survey by Jensen (2007) noted that HLLs appear to learn a target language in order to maintain their heritage. Jensen conducted this survey research with 128 students at beginning class-level HL programs at UCLA. The participants consisted of four different heritage language groups – Korean (45%), Russian (9%), Thai (12%), and Vietnamese (34%). On the first part of the survey, after demographic survey questions, students responded to questions about language use, attitudes towards the HL, and a self-assessment of their HL ability. Findings show that the majority of the students were interested in achieving university-level academic reading proficiency even though they reported that they spent little time reading in their HL. Additionally, most HL students expressed their reason for learning the HL was to maintain their cultural identity, and they would therefore like to read texts embedded with cultural and historical information in the HL classroom. So regardless of their different heritage backgrounds, these students stated that maintaining their heritage identity is important, while only 6 percent agreed that HL is important for their future occupational career.

The survey results underscore the importance of sustaining students' motivation in taking HL literacy courses by selecting appropriate materials that are connected to students' goals for learning the HL, and by providing explicit instruction in reading skills and strategies in both English and the HL. Results of this study may thus be of particular use to HL curriculum planners and material developers. In the description about the questionnaire as a part of her study, Montrul (2011) mentioned that although 48 percent of Spanish heritage learner participants identified Spanish as their L1, many felt that they had "never learned certain aspects of grammar, vocabulary, and spelling before coming to the Spanish program at their college, the University of Illinois" (p. 174).

Learning experiences of Korean HLLs. While many difficulties are expected among American learners of Korean due to socio-linguistic and linguistic reasons, HLLs also confront their own problems in learning the language. As noted earlier, the specific needs of HLLs are not well reflected in the school curricula at universities with single-track programs because these universities have traditionally taught foreign languages to non-native speakers of the target language (Lynch, 2003). Moreover, as the audience for textbooks is meant to be traditional foreign language learners, Korean textbooks usually fail to select appropriate materials for HLLs who would like to read texts embedded with cultural and historical information in order to maintain their cultural identity (Jensen, 2007).

Written materials for HLLs in the United States are rarely available as well. For example, Ulanoff and Pucci (1996) examined Spanish language books in four elementary school libraries that serve a large population of Spanish speakers. More recently, Lambson (2002) investigated the availability of print in languages other than English in libraries of a large elementary school district in Phoenix, Arizona. Similarly, Pucci (2003) examined the Spanish print environments in two predominantly Latino neighborhoods in Los Angeles and Milwaukee. All of these studies consistently found that few books and print materials in languages other than English are available to HL learners and speakers. They argued that the limited availability of HL print in schools and communities presents a serious challenge to HL language maintenance, and also contributes to inequalities in the education of language-minority students.

Common misconceptions about HLLs in a foreign language class. Besides the language environment where these two groups of learners are located, Heritage Language (HL) learners are different from non-HL learners due to the distinctive characteristics in HL, wherein HL learners possess both linguistic characteristics of an L2 learner as well as a native speaker.

However, due to recent attention to this population, it is most likely that their learning experience is often misunderstood by both their teachers and counter peers. For example, HLLs are mistakenly assumed to possess a high command of listening comprehension, vocabulary, and cultural knowledge, and to be fluent in both oral and written performance.

Yet their oral and written proficiency levels are reported to show significant variations both in the relative length of their HL skill acquisition and in their knowledge of its vocabulary, speech style, sociolinguistic, pragmatic, and cultural aspects (Choo, 1999; Hahn, 1998, Sohn, Seo, Kameri, & Campbell, 2002; Wang, 1997). Korean language studies have pointed out that Korean HL learners also exhibit various and significant weaknesses in other areas, such as productive skills and grammar competency, which tend to persist despite years of formal college-level instruction.

According to Carreira and Kagan (2011), HLLs may present a variety of language fluency in their HL. For example, while aural proficiency of heritage speakers is generally stronger than their counterparts in other language skills, it falls within a continuum, from rather fluent speakers, who can sound almost like competent native speakers, to those who can barely speak the home language. Kim and Lee (2007) reported that HLLs experience difficulties not only in comprehending but also in producing speech in real time as the topics become less familiar and information becomes more complex. HLLs' proficiency and familiarity with the language are generally bound within the limits of daily functions in the home, where they also experience difficulties communicating with their parents or grandparents on heart-to-heart issues. It is also often observed by teachers of Korean classes that the speech styles of Korean HL speakers present informal and less-polite forms despite how Korean elders highly emphasize polite speech styles. Furthermore, while having formal education in English, speech repertoire of

HLLs and their use of vocabulary are considerably limited to that of children because HL speakers are accustomed to informal Korean speech styles at home before going to preschool or elementary school.

It is also much reported that even though they may sound fluent, HLLs' oral proficiency has gaps in linguistic knowledge in terms of lexicon, discourse organization, and speech register due to a switch to the dominant language (Lee & Kim 2008; Kondo-Brown, 2010; Polinsky, 2008; Kim, 2008; Vales, 1995). For example, a qualitative study with two Korean American students found that the participants' literacy, both in Korean and English, was identified as advanced based both on their self-report and on the researcher's observation. The participants had actively engaged in writing in Korean through voluntary on-line writing practices. Neither studied Korean formally in the United States. One participant immigrated to the U.S. at age 10, and the other was born in America and lived in Korea from age 4 through 11. Although they reported being fluent in four language skills both in Korean and English and comfortable with both languages, they had difficulties with Korean grammar. The majority of grammatical errors found were inappropriate uses of particles and incorrect conjugations that can often be found among English-speaking learners of Korean.

Researchers in the KFL area have also identified a "low literacy competence of HLLs for professional purposes due to the weak writing and reading abilities" (Lee & Kim, 2007, p. 178). For instance, Jensen asked participants to rate their HL ability in each of the four skills of listening, speaking, reading, and writing using a Likert 4-point scale (0=none, 1=low, 2=intermediate, 3=advanced, 4=native-like). The results revealed that students in all groups reported their listening ability to be higher than the other skills and perceived their writing ability to be the lowest, closely followed by reading. This variation in perceived levels of proficiency

across skills is consistent with other studies of HL learners (Shum, 2001; Kondo, 1997). This weak competency in reading and writing can thus be a barrier to use of their HL in future professional situations.

While identifying distinctive linguistic differences between HL and non-HL learners has been an ongoing and critical issue, many empirical studies have attempted to characterize the linguistic competence of Korean heritage language learners compared to non-heritage language learners.

Linguistic competencies in KHLLs. The results of studies that explore Korean heritage language learners(KHLLs) exhibit polarized findings: while many studies reported that HLLs outperform NHLLs both in oral and written tests, many researchers have argued that there is no significant linguistic differences between the two groups of learners (O'Grady et al., 2001; Kim, 2001). For example, Lee et al. (2005) conducted a study to identify linguistic characteristics of advanced English-speaking learners of Korean at the University of Hawaii at Manoa. The participants, identified as advanced or intermediate high level by standards set by the American Council on the Teaching of Foreign Language (ACTFL) Oral Proficiency Instruction (OPI), consisted of 23 Korean HLLs and four NHLLs in the first test, and nine Korean HLLs in the follow-up test. The study collected data from a written test in original and revised versions, a guided narrative, and a language background questionnaire. From the first written test, the researchers found that HLLs outperformed NHLLs in all areas. While both HLLs and NHLLs exhibited the most difficulties in idiomatic expressions and passive constructions, NHLLs displayed more difficulties in connectives than HLLs.

Another study by Au and Romo (1997) tested learners' phonological perception (tensed vs. lax consonant sounds) and morphosyntax intuition (subject and object case markers). The

participants were 18 students in a first-year Korean language course at UCLA, consisting of five groups: fluent speaker, limited speaker, over-hearer, and first-time learner. The researchers found that the re-learners (fluent speakers, limited speakers, and over-hearers) generally outperformed first-time learners in both perception and morphosyntax intuition. The findings are not surprising in that most participants were not beginners. However, many researchers reached contrasting conclusions in their studies investing HLLs' acquisition of parametric values in Korean language, where they did not find advantages among HLLs in the acquisition of Korean syntax or morphosyntax over NHLLs.

A study by Kim (2001) examined the degree of negative L1 transfer among HLLs and NHLLs to see whether HLLs are less influenced by interference from their dominant language (English). Two parametric features distinctive in Korean were selected, that of null subject (pro-drop parameter) and *wh*-movement construction. In order to draw out how the target structures are perceived and produced, two types of writing tasks in both grammar structures were given to the total of nine learners (five HLLs and four NHLLs) in the beginning level at Washington University in St. Louis. The writing productions with both structures showed no significant transfer of L1 (English) parametric values observed among both HLLs (74 %) and NHLLs (67 %). In the production of null-subjects, both groups adopted the null-subjects with no significant difference: 82 percent among HLLs and 73 percent among NHLLs. On the *wh*-question production tasks, both HLLs (74 %) and NHLLs (67 %) mostly employed the "S-(X)-*wh*-(X)-V" pattern rather than the "*Wh*-S-(X)-V" pattern. Kim concluded that in the beginning level, HLLs have no advantages over NHLLs in the acquisition of parametric values as it is observed in the similar degree of English interference in Korean among both groups of learners. However, the use of an inadequate group of participants and little information about the different

degree of bilingualism of each of the HLLs could be problematic in generalizing results for all Korean HLLs, even though a research study (Kim, 2001) found that HLLs do not have advantages over NHLLs in some parametric values such as the null-subject and wh-question.

O'Grady, et al. (2001) explored the processing of Korean relative clauses among HLLs and NHLLs to identify any possible advantages existing among HLLs. Sixteen HLLs and 45 NHLLs enrolled in second- and fourth-semester Korean language courses were asked, based on a given picture, to select one sentence among multiple choices consisting of five relative clauses with direct objects, that of five relative clauses with subjects and nine relative clauses impertinent to the main question. While the results showed that both HLLs and NHLLs display better comprehension in subject relative clauses than in direct object relatives; the findings also confirm that HLLs are not significantly different from NHLLs in the acquisition of relative clauses.

While many studies on linguistic knowledge of HLLs have been conducted in order to investigate the extent of linguistic competency of HLLs compared to NHLLs, they have hardly reached an agreement on linguistic competence of Korean HLLs. However, it is likely true that HLLs outperform NHLLs in receptive skills, pronunciation, and vocabulary processing but not in morphology and syntax of the language, even though more studies in HLLs syntax acquisition seem to be necessary on a larger scale to confirm their linguistic competence in morphosyntax (Kim, 2001; O'Grady et al., 2001).

Fluency vs. Accuracy. As discussed, it is generally believed that HLLs' aural proficiency is stronger than their competence in other modalities even though their fluency is presented at a variety of levels. Recently, many scholars in SLA have focused on and have highly valued fluency, even at the expense of linguistic accuracy (Valdman, 1987). Others claim

that fluency without accuracy will only lead to "abominable" fluency (Jorden, 1987) or irremediably inaccurate fluency (Garrett, 1986). Even Omaggio (1986), from early on, who emphasized substantial importance of proficiency-oriented instruction, has advocated linguistic accuracy.

Since the communicative language teaching method replaced the audio-lingual and grammar-translation methods, the main object of instruction has focused on fluency in communication rather than accuracy of language form. Many CLT advocates were against formal grammar instruction in L2 teaching (as cited in Park, 2002, p. 20). In accordance with the trend in L2 education, Korean language instruction also applies a more communicative and task-based approach than ever before. This phenomenon can be observed in many Korean as-a-foreign-language (KFL) classroom settings and recently published Korean textbooks, such as *Integrated Korean* (Cho et al., 2000). However, many scholars point out the weakness of CLT in its exclusive focus on fluency at the cost of accuracy.

For instance, in a research studies, Swain (1993) argued that students who were taught a foreign language in the immersion context made many errors in grammar even after 12 years of language learning experience. While many L2 scholars emphasized the inclusion of focus-on-form instruction into CLT, especially adult L2 classes (Long 1991), there has been insufficient research on how, when, and in what ways grammar teaching should be integrated into CLT-oriented classrooms for HLLs in traditional foreign language classrooms. Under this circumstance, an implicit approach to grammar teaching appears to be efficient. Long and Robinson (1998) suggested not predetermining which forms to teach, but providing feedback through an examination of learners' systematic and consistent errors. The fact that learning

experiences cannot happen without learner errors is well accepted, and many researchers have investigated learner errors to understand the weaknesses of their literacy competence.

In order to facilitate learning processes and maximize learning outcomes, it is crucial that teachers know learners' strengths and weaknesses regarding specific linguistic features in the target language in terms of phonological, morphological, syntactic, and semantic domains, including that of Korean. Unfortunately, however, measures that provide sufficient information about the learners' linguistic strengths and weaknesses are rare. While the classification of HLLs is not clear, the review of theories relating to the sources of errors made by language learners in general is believed to bring a better understanding of the types and levels of error found in HL learning.

Errors of Language Learners

As making errors is inevitable for learners acquiring both L1 and L2, SLA researchers have been long interested in the phenomenon of error. Recently, many scholars have argued that errors provide evidence of the learners' stages in their target language (TL), and believe that correct analysis of learners errors can elevate those errors from the state of "undesirability to that of a guide to the inner working of the language learning process" (Ellis, 1985, p. 53).

Overview of the theories about learners' errors. The most influential theories explaining the sources of errors of language learners are contrastive analysis, error analysis, and interlanguage theory.

Contrastive Analysis Hypothesis (CAH). During the 1940s through 1960s, Contrastive Analysis was prevalent among researchers in linguistics areas in identifying similarities and differences between L1 and TL by comparing the two languages, assuming that errors are made

as a result of native language interference. While there was no theoretical framework that explained the role of errors in language learners until the 1970s, Corder and colleagues developed traditional error analysis into a substantial part of applied linguistics, their so-called Contrastive Analysis Hypothesis (CAH).

CAH views language learning essentially as building a system of language behavior habits, which means successful language learning involves transferring L1 learning habits into L2 learning habits in phonological, morphological, lexical, and syntactic levels. CAH sees errors as an integral part of language learning, and the linguistic phenomena as deviant from standard language rules and usages. A strong version of CAH claims that a leaner's difficulties and development of teaching methods can be predicted by having comparisons of phonological, grammatical, and syntactic features of the L1 and the L2.

However, CAH has been regarded as insufficient in predicting difficulties in learning TL by simply comparing phonological, grammatical, and syntactic features of the L1 and TL (Briere, 1968). Weaker versions of CAH that emerged later looked for recurring errors in learners' language habits and attempted to account for those errors caused by learner's L1 and L2 differences. The weaker versions of CAH are believed to be a more realistic and practical approach to detecting the source of errors, which has received considerable attention as a better explanatory methodology, the so-called Error Analysis (EA) (Jie, 2008).

Eckman rejected the weak version of CAH and instead proposed Markedness Differential Hypothesis (MDH) (1977), where he explained the "relative degree of difficulty" in terms of typological markedness and relations between linguistic features using the following example:

 (a) the door was closed

(b) the door was closed by the janitor

The sentence (a) does not express the agent, but the sentence (b) does. According to Eckman, (b) implies (a) but (a) does not imply (b); therefore (b) is more marked than (a). He defined Markedness as wherein "a phenomenon A in a language is more marked than B if the presence of A in a language implies the presence of B, but the presence of B does not imply the presence of " (1977, p. 320). Under this definition, Eckman (1977) proposed the following principles that would predict difficulty in L2 learning:

1. Those areas of the TL, which differ from the L1 and are more marked than the L1, will be difficult;

2. The relative degree of difficulty of the areas of the TL, which are more marked than the L1, will correspond to the relative degree of markedness; and

3. Those areas of the TL, which are different from the L1 but are not more marked than the L1, will not be difficult.

     Error Analysis (EA). While CAH offers an error inventory for pedagogical focus on for teaching L2, EA provides the methodology needed for investigating errors made by learners in the process of L2 acquisition. In EA, learner's errors give researchers major evidence of language learning processing (Corder, 1967). EA advocates believe that language educators' clear understanding of the sources of errors enables them to better detect the processes of L2 learning. According to EA, a learner's error is the noticeable deviation in grammaticality resulting from a lack of requisition knowledge – that is, lack of competence, not a failure of utilizing their knowledge of TL rules. Many scholars pointed out the significance of EA in SLA in that (1) errors are good sources for teachers to provide feedback to their students because errors tell the teachers how far towards the goal the learners have progressed and what remains for the learners to learn, (2) errors are the evidence of how the language is learned, and (3) errors

can be a device that the learners can use for their L2 learning. However, EA is only effective with the learners' production, speaking, and listening because they tend to avoid words or structures they are not sure about. EA, therefore, hardly functions as a good device to know where learner performs correctly (Cited in Jie, 2008).

Errors in Interlanguage (IL). The most recent approach to learners' errors has been proposed in Interlanguage (IL) theory. The idea of IL is based upon the assumption that an L2 learner is using a language system that is neither the L1, nor the L2, but a third language with its own grammar, its own lexicon, and so on. Therefore, the rules used by the learner cannot be found in either the learner's L1, or in TL (Corder, 1967).

Interlanguage theory is distinct from the prior two approaches, CAH and EA, as it focuses on the learning experience from the learners' perspective rather than that of teachers by examining the major features of the psychological structure of a learner wherever the learner tries to understand or produce sentences in TL. In IL, researchers have categorized errors into two types, that of "interlingual" and "developmental" errors (Ellis, 1994). O'Grady, Dobrovolsky, and Aronoff (1993) stated that interlingual errors are caused by interference from the learner's native language, and developmental errors arise from "a mismatch between the L2 learner's grammar and that of the native speaker" (p. 409). These researchers considered the latter type of errors to be developmental because they seem to be "evidence of the learners' attempts to acquire language based upon their hypotheses about the language they are learning" (p. 409). The developmental error is more often presented by children during the course of their L1 acquisition as part of the natural developmental process (Montrul, 2011, p. 164).

Errors in Morphosyntax. In the last few years, research has focused on whether or not problems at the morphological level reflect some kind of deficit in the underlying interlanguage

(IL) grammars, such as the absence of corresponding abstract properties. In general, L2 learners have exhibited inconsistency in the operation of inflectional morphology associated with functional categories, such as tense and agreement, and associated lexical items, including auxiliaries (Hawkins & Chan, 1997; Hawkins, 2000; White, 2003). There is considerable disagreement as to the implications of errors or omission in inflectional morphemes as well.

Since morphological errors may be found in advanced learners, some researchers have argued that grammatical deficiencies are permanent and that Universal Grammar (UG), which is part of the innate language faculty (Chomsky, 1981), no longer regulates (post-puberty) acquisition of foreign languages. According to this claim, the failure to consistently produce inflectional morphology in the L2 is the result of defective morphosyntactic representations; in particular, adult L2 learners cannot acquire functional features not existing in the L1 grammar (Hawkins & Chan, 1997; Hawkins, 2000). For instance, failure to systematically produce past tense "–ed" in L2 English means that tense is not a major part of the learners' IL system. Hence, post-puberty learners whose L1 grammars lack features such as tense or agreement are claimed to be unable to represent these features in the Interlanguage grammar; consequently, they fail to supply the relevant overt morphology consistently. On the other hand, some researchers found that there is no deficit in syntactic representation per se, and features not found in the L1 can be represented in the IL grammar. Problems with overt morphology are instead attributed to difficulties in mapping between the syntactic and morphological elements of the grammar (Haznadar & Schwartz 1997; Lardiere2005; Prevost & White, 2000; White, 2003).

Morphological variability and the source of morphological errors have been intensely debated in SLA. Montrul (2011) attempted to explain the different characteristics of HLLs by the Missing Surface Inflection Hypothesis (MSIH) in her research study. According to the MSIH, L2

learners have intact functional projections, but their errors stem from problems during production only, referred to as "a mapping or processing deficit" (p. 163). She supported the MSIH by a recurrent finding that post-puberty L2 learners often delete or use the wrong affix for nominal and verbal inflections in oral production but less so in written tasks. Montrul addressed therein the fact that the MSIH does not apply to these learners, because errors in heritage speakers are more frequent in written than in oral tasks even though morphological variability is also a linguistic characteristic of heritage speakers.

Categories and Types of Errors. Corder (1967) compared errors displayed by normal native adult speakers to those by adult L2 learners (p. 166). He found that even though adult native speakers may commit errors due to "memory lapses, physical states, such as tiredness and psychological conditions," those errors happen with no systematic pattern and the adult native speakers are usually aware of their errors immediately. On the other hand, L2 learners may or may not be aware of errors they make in speech. Based on this logic, Corder suggested that language pedagogues should be able to discriminate between those errors "as the product of such likelihood environment and those which reveal his underlying knowledge of the language," which he calls *Traditional Competence* (p. 166). He added that a learner's errors, therefore, provide evidence of the language system the learner is using or has learned at a particular point in the learning process.

According to Corder (1973), errors fall into four main categories: "omission, addition, incorrect selection, and misordering of elements" (p277). Error can be made by omitting some required element. For example, in English morphology, the third person singular morpheme -s, the plural marker -s and the past tense inflection –*ed* are often left out (e.g., It happen yesterday.). Adding a redundant morphological elements often cause errors (e.g., I eats). An error also can be

committed in morphology as a result of the selection of a wrong morpheme. For example, the learner can use *-est* instead of *-er* for the comparative, producing a sentence like (e.g., She is smarter among the students). At the morphological level misordering of bound morphemes in English is perhaps less frequent, given their limited number; but in the example * He's get upping now, the learner attaches the inflection *-ing* to the particle of the two-word verb get up .

Errors are also classified as productive and receptive errors (Gefen, 1979). Productive errors are those which occur in the language learner's utterances; and receptive errors are those which result in the listener's misunderstanding of the speaker's intentions. It is easier to look into productive errors than receptive errors. Analysis of productive errors is based on learners' utterances, but to investigate receptive errors, one needs to look at people's reactions to requests, orders, etc. The former type of error is not considered as serious as the latter ones because performance errors normally can be overcome with learner's effort. However, since competence errors reflect inadequate learning, receptive errors are regarded more serious than the other type of errors.

Errors among learners of Korean. Many current studies have tried to identify the reason and sources of language learners' errors by examining the nature of these errors. While the classification of HLLs is not clear, the overview of the theories and research studies regarding the sources of errors by language learners, in general, may bring better understanding to the types and level of errors in HL learning.

Language distance as source of errors in KFL. As discussed earlier, extensive errors are expected to occur among learners of Korean language as Korean is a quite distant from English. Sohn (2002) addressed some of the main possible sources causing difficulties in English speakers' learning Korean and errors by the learners, including (1)Unique and complex sound

patterns, (2) two writing systems, native Korean with its morphophonemic spelling convention and Chinese script, (3) typical agglutinative morphology with a very high degree of inflectional complexity, (4) a reversal of English SOV sentence structure and word order, (5) no genetic and typological relationship with English, (6) extremely polysemous (having multi-meanings) native words and highly diversified Sino-Korean words, and no cognates with English, (7) the complex honorific system, and (8) the cultural perspectives and practices underlying communication (Kim, 2008). Because of the sharp linguistic and pragmatic differences between Korean and English, English-speaking learners of Korean are required to seek out new conceptual distinctions that do not exist in their L1.

While interrelated sources such as the inherent linguistic complexity of Korean, interlingual differences, and cross-cultural differences cause difficulties, the complex syntactic properties in Korean is one of the biggest challenges for adult English-speaking learners of Korean acquiring the language. The large language distance caused by different parametric properties in Korean morphosyntax often lead to many errors in learners' performances. Syntactic errors are frequent, varied, and extensive among learners of Korean (Sohn, 1986). Indeed, one of the most rigorous debates in SLA over the last decade has been about the nature of the morphology/syntax interface and morphological variability and source of errors derived from the variability. One particular issue concerns the connection between the acquisition of overt inflectional morphology and abstract morphosyntactic properties, such as functional categories, which underlie grammatical concepts including tense, agreement, determiner, and number, and their associated features (White, 2003). It is well known that morphology manifesting morphosyntactic properties can be very difficult for L2 learners to acquire, and errors can be frequent even at advanced stages (Sohn, 1986).

Case and postposition markers as marked source of errors. Case particles or markers are very important in Korean because a case marker indicates not only the semantic roll of the noun in the sentence, but also the syntactic relationship between the verb and the noun in the clause (Martin, 1992). However, as the particles for case marking are absent in English, this is one of the most frequent errors observed among learners of Korean. While the case markers are taught from a very early stage of learning, they stay as the main source of morphosyntatic errors for learners mainly due to the interference from English and the absence of equivalent elements in English. Markers also provide the evidence of learners' avoidance in their omission. Korean colloquial practice often allows the deletion of nominative and/or accusative particles.

High rate of errors in case markers and particles is often observed among KFL learners. For example, a study by Lee et el (2009) reported that while scores on most items in the Grammaticality Judgment task showed the increasing tendency, scores on Case markers and particles and Conjunction did not exhibit a general tendency to increase with means from ILR 1+ to ILR 4: level 3 with 84% and level 4 with 78% of accuracy in Conjunctions, and level 2 with 67% and level 4 with 52% accuracy in Markers and particles. They found that accuracy for the these features not to reach a native-like ability (85% of accuracy) even at higher proficiency levels on the ILR scale (p19). These findings imply that KFL learners hardly reach native-like grammatical competence in these grammar features comparing to other grammatical features, even after long period of studying Korean (Lee, Moon, & Long, 2009)

Many studies have reported that learners of Korean are most often confused about nominative particles and accusative particles. One of the most common interlingual errors made by English-speaking learners concerns the accusative marker in Korean (Kim, 2011, pp. 19-21). These errors may be due to the influence of semantic functions of some action verbs in the

English structure. For instance, in English, "need" is a transitive verb which always requires an object. However, the equivalent verb in Korean, "*pi-ryo-ha-da*," functions like an intransitive verb, and what would have been considered to be the object in English is used as a subject in Korean.

Many American learners of Korean make errors when selecting between nominative and accusative markers even after having one or two years of formal instruction. This phenomenon is regarded as being due to the interference of English. Because basic English sentence structures start with a subject followed by a predicate, many American learners of Korean take the first noun as a subject and attach a nominative marker. However, in a sentence where the subject is "I" or "you," or where it is the same subject as the previous sentence, the subject is skipped so that the first word of the sentence is the object if the verb is transitive. For example, "*erun* (adjective) *nal-ssi* (object) *-ul* (accusative marker) *cho-a-heayo* (transitive verb)" (I like this kind of weather) is often spoken as "*erun* (adjective) *nal-ssi* (object) *-gah* (nominative marker) *cho-a-heayo* (transitive verb)," which is grammatically wrong and sounds awkward to native speakers of Korean.

Another type of marker frequently misused by learners of Korean is the locative markers, "*-uro*," "*-e*," and "*-esso*." A locative marker causes confusion not only because of its location but also because of its morphosyntactic property. The locative markers may be equivalent to locative prepositions in English, such as "at," "in," "to," or "towards," which are located in front of a noun as an independent word. However, the Korean locative particles are marked as separate words in front of the related noun. Semantically, the appropriate locative particle is decided by the relationship between the main verb and the noun in front of the particle. For example, the locative particle when a person is heading to a given place can be "*-e*" or "*-uro*" but the locative

particle when a person is doing an activity at the given place is "-*esso*." Another type of error observed is in the operation of locative particles omission, considered a mistake by native speakers of Korean. This error may be caused by an overgeneralization of the acceptable omission of nominative and accusative particles in colloquial forms of Korean (Lee, 2000).

Lee (2000) investigated error types in spoken and written language made by 150 intermediate learners of Korean at the University of Michigan, 93 percent of which were HLLs. Out of the many error types identified, the author reported that the most common and frequent errors are particle-related, such as omission and incorrect use of particles. Other error types included those related to connectives, delimiters, and predicates, and so forth. Lee further distinguished these HLLs based on the degree of language use with parents, as the majority of participants were HLLs. Even though errors were not directly correlated with the participants' background, the results indicate that a large number of HLLs cannot correctly produce their HL despite substantial HL input from their parents.

English Interference vs. developmental errors in HL. While many scholars have agreed that errors by adult L2 learners are mainly due to their L1 interference, the sources of the errors of HLLs is not evident. A small number of studies have reported that interference from English (dominant language) was observed among Korean HLLs (Kim, 2002; Hahn, 1998). For example, Kim (2002) found English inference in Korean HLLs' errors.

Due to the apparent difficulties of learning Korean particles, researchers in Korean education have been interested in perception and operation of Korean particles by the learners of Korean. For example, Kim (2002) also examined the degree of particle acquisition and its perception by Korean HLLs in the beginning (N = 24) and intermediate (N = 24) levels. The participants, who all grew up in Korean-speaking families, were given a text-revision task. They

were asked to correct sentences containing various particle-related errors. The researcher found that HLLs had difficulty with the particle features different from those of English grammar, such as the locative particles (-*ey* and -*eyse*). While the learners had less difficulty in locating the errors related to subject or direct object particles, they had difficulty distinguishing between the locative particles in which "-*ey*" is used with static and goal-oriented verbs, and where "-*eyse*" is used with dynamic verbs. In summary, Kim reported that HLLs have difficulty revising sentences with errors involving locative particles such as "-*ey*" and "-*eyse*" which are different from those of English grammar, while they do not exhibit much difficulty in correcting errors related to subject or direct object particles. Kim's results (2002) support the position that HLLs have inference from their dominant language (English) in learning their HL.

Another study by Hahn (1998) about errors in written productions by Korean HLLs reported that "direct translation is one of the error sources found among less-proficient HLLs" (p. 93). Hahn mentioned that errors found in HLL writings can be due to the interference from English. For example, one student translated "for one month" from English into Korean and produced *il-wol-tongan* * (one month during). However, the right Korean phrase of the English term "one month during" should follow the order of the native Korean numeral and word for month, such as *han-tal-tongan* (one month during) because the Chinese-derived compound *il-wol* means "January." Another student produced *nam tayhaksayng** for "male college student." Although *nam* means "male" in both Chinese and Korean, the word is only used as a prefix in Korean, and it cannot be prefixed to *tayhaksayng*. The standard Korean expression is *namca tayhaksayng* (male-person university student). This finding supports the concept that English interference is evident in learning HL. It is well know that L1 interference is often observed in

direct translation by adult language learners. Hence, it is mostly likely true that the sources of errors observed among HLLs are not developmental but interlingual.

Summary

Due to the diverse socio-cultural environments, immigration history, and unique inherent language properties, an exact understanding of the linguistic competence of HLLs compared to their counterpart is yet to be established even though scholars in SLA and Applied Linguistics have been increasingly interested in many HLL issues during the last decade. It has been reported that HLLs have different access to and performance of their knowledge in their HL compared to NHLL peers. At the same time, however, HLLs share some characteristics with NHLLs such as nonnative-like attainment and transfer errors form the dominant language.

Korean language courses have seen a remarkable increase in its enrollment rate as it ranked at the third place in foreign language program growth. Generally, there are roughly two distinctive groups of learners in most Korean-as-a-Foreign Language courses, that of English-speaking Korean heritage language learners (HLLs) and English speaking non-heritage language learners (NHLLs). In fact, recent research has reported that HLLs often exhibit a variety of serious weaknesses and lack of accuracy in productive skills and grammar competence despite having some years of formal instruction. For example, second-generation Korean Americans are reported to have very low levels of HL proficiency maintenance compared to other second-generation Asian American groups in the United States (Min, 2000, p. 160).

Many of the problem areas typical of NHLLs also appear to be problematic for HLLs, such as inflectional morphology (Au, Knightly, Jun, & Oh, 2002). Due to the morphological complexity, a learner's good application of these inflectional morphemes can be an index of high

linguistic competence in Korean language (Han & Palmer, 2004). Accordingly, many scholars in KFL have attempted to identify and characterize the linguistic differences between HLLs and NHLLs, especially those concerning morphosyntactic cues such as case markers, pragmatics in Korean honorific system, and inflection. In an attempt to maximize learning outcomes, many researchers have also been interested in identifying errors of language learners to better understand their mental processes as well as sources of their errors. Much discussion can be found about how errors should be corrected when they occur (Omaggio, 1986), but strategies for reducing errors are not specifically addressed in the literature. As important as the problem of interference is to language learning, what is more directly relevant to this issue is how to minimize learner errors.

Due to the limited availability of research on the population of heritage language learners of less-commonly-taught-languages, a good portion of the review makes use of the experiences of HLLs compared to those of traditional learners of the language as a foreign language, or NHLLs, as a separate group. However, despite the increasing interest in the linguistic profiles in HLLs, no one has explored the interlanguage differences and similarities between Korean HLLs and NHLLs of KFL in areas with a comparatively smaller Korean population. Moreover, few studies have been done to identify and compare types of morphosyntactic errors of Korean HLLs with the same errors of NHLLs of Korean in their moderately controlled writing.

Hence, it is critical to carry out a comparison of errors of HLLs and NHLLs that presents evidence about the linguistic ability of these two types of learners, and to clearly identify the differences and similarities between their linguistic knowledge. This study thus compared differences and similarities in morphosyntactic errors of Korean HLLs and NHLLs of Korean in

the Korean Program at the University of Kansas, where the size of the Korean- American college

student population is relatively small.

CHAPTER 3. METHODS

This chapter presents the research methodology and procedures that will be utilized in the proposed study. The following are addressed herein: (a) Discussion about a pilot study of error analysis (EA), (b) Research design of proposed study including restatement of the research questions and description of the research approach, (c) Participants and instruments, (d) Data collection procedures, and (e) Description of the data analysis adopted.

Pilot Study

A sample Error Analysis(EA) was carried out in order to investigate occurrence and its frequency of errors in case and postposition markers and affixal connectives committed by learners of KFL in their written products to compare with other types of grammatical errors exhibited by KFL learners. These errors include tenses, verbal suffixes (as in speech style), word use, and sentence structure. The purpose of this sample analysis was to determine the feasibility of the proposed study by confirming if the errors in case markers and bound coordinators are salient among all errors in the learners' writings even though those errors are frequently observed among learners of Korean through my 5 years of experience as a Korean instructor.

Materials. The materials are the written drafts as part of the final exam in the fall of 2011. Eighteen students in the second semester of second year of Korean class submitted their script draft of the oral performance as a part of the requirements of the final exam, which comprised 10% of the possible total. The draft is based on the guidelines given to students beforehand. The writings followed the format, topic and grammar points that are indicated on the guidelines. Among 18 writing samples collected, 5 samples were randomly selected and analyzed to check

the validity of the instrument, Error Analysis (EA). The mean sentence number (n = 25) and the average word number in a sentence were identified (n = 8).

Procedure. The error identification followed three error criteria among four suggested by Ellis (1994): clear deviation of standard form, clear deviation of standard syntax and semantics, and a clear deviation from acceptability. Particles (markers) in Korean are often dropped in speech. However, marker omission is more restricted in written and formal spoken forms in Korean. Hence, omission was counted as an error. Error coding was implemented based on the morphosyntactic classification by Strauss et al (2006), with additional categories of word and sentence.

As the errors to be examined were collected from the writing samples of the students in the fourth semester of study, those affix categories that are seldom found in written form, or that are not covered until 4th semester of the course were not included in the sample analysis (e.g., attributive, interruptive, retrospective, classifier, or exclamation). In order to observe the sources of the errors, those morphosyntactic features were further classified into 6 categories:

1. Case marker

2. Postposition marker

3. Verbal suffix by speech style

4. Verbal suffix by conjunction

5. Word use

6. Sentence structure

Result. A pilot error analysis was conducted to check the validity of the purposed EA by observing the occurrence rate of errors in case and postposition markers and affixal connectives comparing with errors in other morphosyntactic, lexical, and semantic elements. Table 2 below

presents the error classification and number of errors observed in each category. The left-hand

column includes the type of error made, while the next column shows the frequencies of error

per writing sample. The next column shows the possible number of errors out of 160 possible,

and finally the "frequency" column displays the percent frequency of errors. This percentage was

computed by dividing the number of errors out of the total, 160 for each type of error. Numbers

by error types in each category in the table were identified.

In this sample analysis, errors in case and postposition markers occur more frequently

(45.4%), followed by errors in word (21.8%). Errors in affixal connectives (9%) were not

detected as frequently as markers were. The result is consistent with the results for other studies

concerned in errors by learners of Korean (Hi-Sun Kim, 2005). The most common and frequent

errors are particle-related, such as omission and incorrect use of particles. Other error types

included those related to connectives, delimiters, predicates, etc. The findings of error numbers

and their frequencies by morpheme type are given in Table 2.

Table 2

Classification of errors by numbers and error frequencies

Error classification	Subcategories of error (Entries in the parenthesis)	Number of errors (out of 160)	Frequency
Case marker	Subject Marker (5, 3, 2, 4, 2)	16	10 %
	Topic Marker (3, 1, 6, 0, 6)	16	10 %
	Object Marker (5, 3, 0, 5, 0)	13	8.1 %
	Possessive marker (2, 2, 0, 0, 1)	5	3.1 %
Total %			31.2 %
Postposition marker	Indirect object (1, 0, 0, 0, 0)	1	0.6 %
	Locative (2, 2, 3, 2, 0)	9	5.6 %
	Dative (0, 3, 1, 4, 1)	9	5.6 %
	Instrumental (0, 0, 0, 2, 0)	2	1.2 %
	Companion (0, 1, 0, 1, 0)	2	1.2 %
Total %			14.2 %
Verbal suffix (by sentence type)	Declarative (3, 3, 2, 4, 0)	12	9 %
	Interrogative (0, 1, 1, 4, 0)	5	3.1 %
	Imperative (0, 0, 0, 0, 0)	0	0 %
	Suggestive (0, 2, 0, 0, 0)	2	1.2 %

	Quotative (0, 0, 1, 0, 0)	1	0.6 %
Total %			5.8 %
Verbal suffix (by conjunction)	Conditional (1, 1, 1, 0, 0)	3	0.2 %
	Connective (2, 2, 4, 7, 0)	15	9 %
Total %			9.2 %
Word/vocabulary	Wrong word (5,1, 1, 8, 0)	15	9.3 %
	Spelling (5, 3, 6, 7, 0)	20	12.5 %
Total %			21.8 %
Sentence structure	Loose (4, 1, 1, 4, 0)	10	6.2 %
	Poor (0, 0, 4, 0, 0)	4	2.5 %
Total %			8.7 %

Discussion. Substitution and omission are the most occurring patterns of errors. The rate of omission is especially frequent in the case and postposition markers. For example, the last entry made the least numbers of errors across the categories but the errors are all in case marker and the pattern of the errors was omission. Malformation was one of the most frequent error types, which can be mostly expected due to the form of the language used - in written form of the language. This may be derived mainly because of the orthographic difference from sound of Korean words. Errors in verbal suffix by conjunction were not identifies as much as they are observed in the learners speech during class. This phenomenon may be attributed to students avoid the use of complex sentences, which were not required in this writing. Avoidance may be the main reason that errors in some categories such as indirect objective marker, instrumental, quotative, or conditional affix.

As it is impossible to validate such avoidance on voluntary writing, it seems to be hard to obtain precise information about the underlying linguistic weakness of the learners. Moreover, since this is a pilot study with a very small size of writing samples, it is hard to observe the frequency of errors in affixal connectives. A follow-up error analysis test will provide more precise information about level of linguistic competence of the learners.

In conclusion, the purpose of this pilot study was to check the feasibility of the proposed EA. Even though the sample writing size is small, the errors in markers are more often occurring than those in other categories, which aligns with findings from other research studies about learners' errors in Korean morphemes. Therefore, analyzing errors in markers can be utilized as an index to investigate linguistic competence of HLLs compared to NHLLs. A more in-depth analysis will be possible with a larger size of writing samples.

Research Design

This research was designed to investigate whether formal instruction in heritage language is more advantageous for English-speaking Korean Heritage Language Learners (HLLs) compared to English-speaking Non-Heritage Language Learners (NHLLs) in terms of their linguistic competence in written samples and grammaticality judgment task. Hence, this study employed a non-experimental comparative research design in an attempt to examine existing differences between Korean HLLs and non-HLLs in Korean program. A comparative research study was appropriate for the research questions because the nature of linguistic competence is not something that could be controlled in a laboratory setting. The focal independent variable was language group by heritage status, Heritage Language Learners (HLLs) group and non-Heritage Language Learners (NHLLs), which has been differentiated according to the research purpose, and the moderate variable was language proficiency, which has been already formed. Therefore, no intervention, manipulation, or random assignment was involved.

A *two-way* factorial design, also known as a two-factor ANOVA with a fixed-factor, was the main statistical test employed in the present study. Factorial ANOVA was appropriate to address the research questions that focus on difference in group means. Additionally, the two-

factor ANOVA was suitable to investigate the effects of an independent variable, which was

heritage status in this research study, on the dependent variable (error rates or error sources), in

conjunction with an additional independent variable (proficiency level). Even though the central

factor to be compared is heritage status, or HLLs vs. NHLLs, there are three different proficiency

levels with each language group. A two-way ANOVA is suitable to test the main effect of

heritage status (HLLs vs. NHLLs), and interaction effect between heritage status and level

(beginning, intermediate, advanced) at a time. Furthermore, a two-way ANOVA is expected to

reduce risk in committing a Type I error by avoiding analyzing in part the same data twice which

happens when a researcher uses multiple one-way ANOVAs. A *one-way* ANOVA was also

employed only when a significant interaction effect was revealed by the two –way ANOVA test.

"Weak Language as L1 Hypothesis" (WL as L1) (Montrul, 2008a) versus "Weak

Language as L2 Hypothesis" (WL as L2) (Schyter, 1993), and the Missing Surface Inflection

Hypothesis (MSIH) provided the theoretical frameworks for three tests: error analysis (EA) by

morpheme type, EA by error source, and a grammaticality judgment in a word completion

(GJWC) test. The advocates of WL as L1 claim that HLLs should have implicit knowledge of

core aspects of phonology and morphosyntax which emerge very early in childhood and are not

dependent on a significant amount of sustained input. Thus, WL as L1 predicts that HLLs react

faster and better to formal instruction than NHLLs if there is a re-exposure effect. On the other

hand, the proponents of WL as L2 suggest that the weaker language develops like a second

language because complete interruption of L1 input during childhood leads to meaningful loss in

linguistic competence in the L1.

Inflectional morphology can be so difficult or foreign learners to acquire that the errors in

inflectional morphemes are frequently observed even though these morphemes are crucial in

semantic and syntactic roles. The Missing Surface Inflection Hypothesis (MSIH) proposes that while L2 learners have unconscious knowledge of the functional projections and features underlying tense and agreement, their problem lies in realizing surface morphology (Prévost & White, 2000). According to MSIH, while the projections of a functional head in L2 syntax are intact, their errors mainly arise from problems during their production tasks - speaking and writing – "due to mapping or processing deficit" (Montrul. 2011, p. 163). MSIH provides the theoretical framework for the analysis of the errors on written productive and receptive tasks in order to compare linguistic competence between HLLs and NHLLs. It is explored, based on the MSIH, whether HLLs and NHLLs present similarities or differences in their inflectional morpheme use and knowledge.

The linguistic knowledge and profiles of HLLs are not easy to characterize properly, currently with no operational criteria agreed among scholars. Hence, a comparison study of errors in the special parametric features in Korean through written productive and interpretive tasks will bring a deeper understanding of the HLLs' linguistic competence in the grammar compared to English-speaking NHLLs.

Using the hypotheses mentioned above that provide the theoretical base for this study, this study aims to examine the knowledge of several Korean morphemes - four types of case markers and six types of postposition markers, and four types of affixal connectives - using both written and reading measures.

The research questions are:

1. Are there differences between English-speaking heritage language learners (HLLs) and non-heritage language learners (NHLLs) of Korean in the frequency of errors in case and postposition markers and affixal connectives, demonstrated in their writing?

2. Are there differences between HLLs and NHLLs in sources that cause errors in using case and postposition markers and affixal connectives in their writing?

3. Are there differences in the ability to identify grammatically correct case and postposition markers and affixal connectives between HLLs and NHLLs?

The corresponding hypotheses are:

1. There are significant differences between HLL and NHLL in the correct application of case and postposition markers and affixal connectives in writing performance.

2. There are significantly different sources of errors in using case and postposition markers and affixal connectives between HLLs and NHLLs.

3. There are differences in the ability to identify grammatically correct use of these morphemes between HLLs and NHLLs.

In order to investigate the research questions, error analysis using learners' writing samples, and a grammaticality test in paper-pencil format were conducted. Since Error Analysis (EA) in SLA was established in the 1960s by Corder and colleagues, EA was used to predict a great majority of errors produced by learners making faulty inferences about the rules of the new language. As an Error is a noticeable deviation form from the adult grammar of a native speaker (Ellis, 1994), it reflects the competence of the learner. From the data of errors in markers and affixal connectives in the learners' language production samples, it was expected to discover how much underlying knowledge about distinctive parametric value in Korean language the learners have, and furthermore, whether there was a difference between HLLs and NHLLs in their grammatical knowledge.

Even though EA has been long used to predict and treat typology of errors displayed by language learners, it can also deal effectively with productions of the learner such as speaking and writing, but not with learner's comprehension. Comprehension of language is as important as the production because being fluent in a language means the language user is good at not only speaking and writing, but also listening and reading. Furthermore, guided writings hardly reveal all possible errors due to learners' avoidance. The absence of error or lesser number of errors in the speaker's production does not mean the language speaker possesses native-like competence because the learner may be avoiding expressions that include linguistic elements which cause difficulties or uncertainty for him or her. As learners can avoid what they are not certain about in their writing, an additional test to examine learners' grammaticality judgment was necessary.

A grammaticality judgment in a word completion (GJWC) test was conducted to determine whether the findings from the EA could be also supported in a grammaticality judgment task with the same sets of case markers and affixal connectives. This additional measurement enabled the researcher to examine the overall linguistic competence both in the learners' performance and comprehension of the linguistic parametric features under investigation.

The phenomenon under investigation involves learners' errors in markers and affixal connectives on their writing sample, and the learners' sensitivity to markers and affixal connectives in a grammaticality judgment task. Error analysis (EA) was designed to identify both the error rates in the 14 types of morphemes and sources of those errors. In EA by error rate, the focal independent variable was heritage status (HLL versus NHLL), the moderate variable is language proficiency, and the dependent variables were error rates by the types of morphemes. In EA by sources of the errors. the focal independent variable and the moderate variable were same

as in EA by error rates, and the dependent variables were four error sources. In a follow-up GJWC test, focal independent variable and moderator were the same in the EA, and dependent variables were error scores in 14 types of morphemes. The generalized error sources are addition, omission, substitution, and orthography, or malformation, following Corder (1973)'s suggestions.

Operational definitions of Variables and Key terms

Heritage language Learner (HLL). In this study, the definition of Korean heritage language learners in this study is limited to individuals whose parents or parent immigrated from Korea to the United States prior to the subject's birth or before the age of three or four, when they were not able to access the written forms of both languages (Montrul, 2008a). That is, it focuses on learners who have some functional abilities in their HL, as the purpose of this study is to contribute to provide linguistic competence of Korean through understanding the linguistic competence of the heritage groups. The HLLs addressed in this paper may be or may be not orally fluent. In terms of types of bilingual profiles, this group can be categorized as simultaneous bilinguals, who were exposed to the heritage and the majority language. Four of the HLLs have parents who are both Koreans and can speak Korean, and the other HLLs have a Korean mother or father in this study;

Non-Heritage Language Learner (NHLL). NHLL is basically the counterpart Korean learner of HLL in the current research. NHLLs are generally identified as English-speaking learners of Korean whose first language is marked as English. They were born and had formal education (K-12) in the United States. However, some these NHLLs have a different heritage background than Korean or American, such as Vietnamese, Chinese, or Hmong in this research;

Linguistic Competence. This term refers to the system of linguistic knowledge possessed by speakers of a language. Linguistic competence is the ideal language system that enables speakers to produce and understand an infinite number of sentences in the language, and to distinguish grammatical sentences from ungrammatical ones (Chomsky, 1981).

Case marker. Case markers in Korean are nominal affixes that appear to attach exclusively to nominal roots to give a case to the noun. Case markers indicate hierarchies of person, animacy, and definiteness, as well as classes of subjects and objects. The markers in this study are limited to four case and nine postposition markers for the following reasons: case markers postposition markers are the most frequently used; persistent errors among KFL learners are often reported; and beginner participants learned these case markers from the very early stage of the program.

Affixal connectives: This term refers to inflectional morphemes that are attached exclusively to verbal roots or stems. As seen in its name, connective conjunctions connect words, phrases, and clauses that have equal or the similar grammatical functions. The connectives include and, but, or, yet, nor, for, and so. In this paper, four Korean connectives are used: "-ko," "-ciman," "-(u)su," and "-(un)de," equivalent to English words "and," "but," "so," and "however," respectively.

Affixal connectives. Connectives are conjunctions that connect words, phrases, and clauses that have equal or the similar grammatical functions (e.g., 'and', 'but', 'or', 'yet', 'nor', 'for', or 'so'). Korean connectives can be displayed in two ways, as in non-affixal morpheme and affixal morphemes. The non-affixal connectives such as "kuriko," "kurussciman," "kuressu," or "kurunde" are parallel to "and," "so," "but," and "however," respectively. The other form of connectives such as "-ko," -"ciman," "-(u)su" or "(n)unde" can cause difficulties to English-speaking learners of Korean as these elements do not exist in English (Park, 1994). In this paper,

four Korean connectives are used: "-ko," "-ciman," "-(u)su," and "-(un)de," equivalent to English words "and," "but," "so," and "however," respectively.

Error Analysis (EA). In EA, errors that were produced by learners are identified and classified to study the types and causes of language errors. Types and sources of errors are examined but overtness and degree of an error are not considered in this study.

Error Type: In this study, 14 types of Korean inflectional morphemes are adopted to explore learner's morphological knowledge.

Error Source: In SLA field, the term error source is used in general to classify errors into interlingual, and intralingual/ developmental errors. However, the term error source in this study means the same four main error categories - omission, addition, incorrect selection, and misordering as used by Corder (1973). In the present research, the error category is defined as factor that causes errors which are deviants from grammatical forms of the language in the learner's writing.

Grammaticality Judgment in a Word Completion (GJWC) **test**. In this test participants review a series of incomplete sentences with a blank and identify which inflectional morphemes (words) from accompanying lists extend the expressions in a grammatically appropriate way to fill the blank.

Participants

All of the participants were currently taking or have taken a Korean language program at the University of Kansas (KU) in Lawrence, Kansas. All participants were placed in an appropriate level of class corresponding to their overall language proficiency based on the departmental policy of assigning proficiency levels according to leaners' previous learning

experiences or a proficiency test. All participants for this study were taking a Korean class, or had exited the program within the previous year, at the University of Kansas, Kansas when data was collected. Participants were composed of about 20 HLLs and 29 NHLLs in a beginning, intermediate, or advanced course of Korean language. As the current number of HLLs participants (13) at the Korean Department at KU presents a noticeably smaller size than that of NHLL group (22), HLL students who have taken Korean classes (within the previous two semesters) at KU recruited for the proposed research.

A total of 31 NHLLs and 22 HLLs each submitted a writing draft. However, 2 of NHLLs were excluded due to the incompletion of the test or her language experience that did not fit the definition of NHLL applied in this study. Five of the NHLLs answered that their parents' L1s were non-English. However, NHLL was defined as a group of learners of a foreign language whose heritage language was not Korean but who were born in U.S. and started and completed their elementary and secondary level education in the U.S. Even though their parents' L1s were Spanish, Vietnamese, Chinese, or Hmong, as they fit the definition of NHLL, they were included as legitimate participants. Twenty two HLLs originally participated in the study. However, 2 of the HLL participants who answered that they immigrated to America since they received formal education were also excluded because they did not satisfy the definition of HLL as defined in this study.

Seven of the NHLLs who had left or completed the program took a proficiency test. Two of the seven had left two semesters and five of the seven had left one semester before data collection. Each of them was placed at a beginning or intermediate level according to their test scores. One NHLL, who had exited the program two semesters before the study after having finished the second year of the program, and another participant, who had left the program a

semester prior to data collection after having finished the first year of the program, were assigned to a beginning level. Out of the five NHLLs, three participants, who had finished their second year of the Korean program one semester before data collection, were placed at the intermediate level and the other two participants at the advanced level based on results of their proficiency test scores. Among 20 HLLs, seven participants had exited the program one year before the data was collected. One among three HLLs, who finished the second year of the program one year prior to the study, was assigned to the beginning level based on the proficiency test score and two participants met the criterion of the intermediate level. Two among four HLLs, who finished the third year of the program two semesters or one semester before the study, were assigned at the intermediate level, and the other two participants at the advanced level upon the results of the proficiency test.

The final numbers of participants were 20 English-speaking Korean heritage language learners (HLLs) and 29 English-speaking learners of Korean, or non-HLLs. Korean HLLs were individuals whose parents or parent have immigrated from Korea to the United States prior to the subject's birth or before the age of three or four, when they were not able to access the written forms of both languages. In the present research, NHLL was defined as the counterpart Korean learner of HLL, who are generally identified as traditional foreign language learners. Among the HLLs, some had Korean parents and the rest had a Korean mother or father. All participants were born and had formal education (K-12) in the United States. The participants' primary language was English and their learning experiences of the target language varied. The average age of participants was age of 21. The details about the participants are given in Table 6.

All participants in this study received a consent form with information of the study. They filled out a Human Subjects Consent form before the writing samples created by the participants

were analyzed. The consent form was signed and returned to the researcher before the actual research was conducted. The participants were asked to answer a survey question for demographic information and self-assessment.

The questionnaire was confidential, and the individual student name was anonymously shared but the responses were expected to be shared by committee members. Information obtained from Error Analysis and a paper-pencil test was marked as a number with the group identity such as HL1 for a heritage language learner number 1, NHL 2 for a non-heritage language learner 2, and so on.

Instruments

This study used two types of instruments: error analysis (EA), and grammaticality test in word completion (GJWC) test.

Error Analysis (EA). EA was adopted and designed to answer research question 1 and 2. The data of errors rates by morphemes type was used to explore the differences between HLLs and NHLLs in the grammatically correct use of the 14 Korean inflectional morphemes observed, in their writing. The data of EA was further classified into sources of the errors in order to investigate differences and similarities in the sources that caused the errors between HLLs and NHLLs.

Writing samples of students' essays on the final exam were collected for EA of error rate by morpheme type and error rate by error source. The purpose of conducting error analysis in this study was to compare the level of knowledge and accuracy in using distinctive parameters in Korean language – markers (particles) and affixal connectives, between the HLLs and NHLLs.

Error classifications in SLA are typically as follows: (1) modality (level of proficiency in speaking, writing, reading, listening), (2) linguistic levels (pronunciation, grammar, vocabulary, style, (3) form (omission, insertion, substitution), (4) type (systematic errors vs. occasional errors, errors in competence vs. errors in performance), (5) cause (interference, interlanguage), and (6) norm vs. system. Among these categories, this study focuses on grammar in writing and reading, all the possible forms and types of errors, and lastly, their causes (Hahn, 1998).

The coding scheme follows the suggestions of Ellis (1994): (1) clearly deviated from standard form, (2) clearly deviated from standard syntactic and semantic form, (3) deviated from correctness and appropriateness (acceptability), and (4) systematically and contiguously deviated from the norm. The items in the EA are identified on the basis of clear deviation from syntactically standard structure and deviation from correctness and appropriateness, partially following the criteria suggested by Ellis (1994). The classifications in this study are limited to the following: (1) writing and reading, (2) grammar, (3) omission, addition, replacement, and malformation, and (4) errors in performance and competence.

Error analysis (EA) by morpheme type. The identified errors are categorized in four case markers - subject, topic, direct object, and possessive- and six postposition markers - indirect object, locative, temporal, instrumental, directional and companion -, and four of affixal connectives such as "-*ko*," "-*ciman*," "-*(u)su*" and "-*(n)unde/inde*" which are "and," "but," "so," and "however" in English, respectively.

Overt case marking is one of the major characteristics of Korean. For example, the subject is commonly expressed by a noun phrase (NP) plus the Nominative (subject) marker -*i/-ka*. The object is expressed by an NP plus the Accusative (object) marker -*ul/-lul*. As for case assignment in Korean, all cases are structural. Nominative case and Accusative case are

determined by syntactic constructions. In other words, nominative marker - *i/-ka*., and accusative marker -*ul/-lul* appear at the level where Case is determined. Another major case marker is Topic marker.

While any of these elements can be compatible to Korean, Case markers do not exist in English except possessive marker, there are English words that could be matched with Korean postposition markers and affixal connectives in terms of their meanings. However, the postposition markers and affixal connectives are not in a free word form but in the form of an inflectional morpheme, which might cause problems for English-speaking learners of Korean. Especially, an affixal connective, (*n*)*untey,* often makes it hard for teachers to find a compatible word from the English language.

(*N*)*untey* is one of the affixal connectives selected for the present study. (*N*)*untey* does not have an exact English counterpart. It is often interpreted as 'and', 'but', 'so', or 'given that' (Park, 1996). Due to this kind of ambiguity the meaning of this connective has been controversial among Korean linguists such as Lee (1991), Choi (1990), and K. Lee (1993) (Park, 1996, p131&2). For example, H. Lee(1991) considers that this connective is used to present background circumstances, under which the speaker can express a completely different clause using any type of proposition, where the meaning relation can be 'and', 'but', 'while', 'given that', etc. Subsequently, it is expected for the learners to pay more attention to its meaning based on the context where the morpheme is being used. The explanation of (*n*)*untey* by the teachers in the Korean language program at KU follows the definition of H. Lee and K. Lee. Therefore, the participants should have learned (*n*)*untey* for the meaning of either 'and', 'but', 'so', 'while' or 'given that'.

The following table (Table 3) presents more details about the inflectional morphemes selected for the present study, based on the findings from the pilot error analysis.

Table 3

Inflectional Morphemes observed in the present study

Morphemes	Type	Marker in Korean
Case markers	Subject	*i/ka, kkese*
	Topic	*(n)un, kkesenun*
	Object	*(l)ul*
	Possessive	*ui*
Postpositional markers	Indirect object	*hantei*
	Location	*eyse*
	Direction	*ey, (u)ro, kaji*
	Instrument	*(u)ro*
	Companion	*hako*
	Temporal	*ey*
Affixal Connectives	AND (in English)	*ko*
	SO (in English)	*(e)se*
	BUT (in English)	*chimahn*
	WHILE (in English)	*(nu/i)ndei*

EA by sources or errors. The four main categories of errors suggested by Corder (1973) - omission, addition, incorrect selection, and misordering were applied to the current study with a little modification to fit the purpose of the study. In the EA adopted for the present study, the final four categories of error sources are: omission, replacement, addition, and malformation. Omission as error source is important because objects and subjects are allowed to be absent in informal conversation and in short utterances, but omission of case markers is not accepted as formal style (Hong 2004, Lee 2006, Tsutsui 1984).

Reliability of the measure. The reliability and validity of the writing samples were tested in order to check bias in data analysis using the writing samples as a measure. The error coding was confirmed by the same distribution in identifying errors by two inter-raters. The reliability of the writing samples was also tested using Mean Length of Utterances (MLU). The results of

differences in average length of utterances in writings produced by HLLs and NHLLs are reported.

Mean Length of Utterances (MLU). MLU means the average (mean) length of a speaker's utterances in relation to number of words or morphemes, which is calculated by dividing the number of words or morphemes by the number of utterances or sentences. Although MLU was originally developed to measure linguistic productivity in children, more recently it has been frequently used to examine whether other linguistic processes or competencies are equivalent to each other by comparing MLUs of diverse language groups (Miller & Chapman, 2010): A higher MLU is regarded as an index of a higher level of language proficiency. The results of measures using MLU are reported to support the reliability and validity of MLU as an index of normative language acquisition and grammatical development so the findings are being used for comparisons across research samples (Rice, Mabel L. et al. 2010).

In this study, MLU is the average length of participants' utterances in relation to number of words which were spontaneously produced by participants in a written form. Numbers of morphemes were not included in counting MLU as the purpose of calculating MLU is to check through the average length of the utterances whether a significant linguistic competence gap preexists between the two language groups, which may cause problem in analyzing the data collected. The MLUs produced by each participant and identified from Systematic Analysis Language Transcript (SALT) program were calculated, using IBM Statistical Package for the Social Sciences (SPSS) software in order to compare MLUs in writings by two language groups and MLUs of three paired groups by proficiency levels from the two language groups as well. A further examination was conducted in three paired groups of HLL and NHLL by proficiency

level due to proficiency level effect that may be associated with differences in MLUs between the two groups.

2-way ANOVA was employed to test whether there are differences in MLU between HLLs and NHLLs. The score of MLU was the dependent variable, heritage status (HLL vs. NHLL) was the focal independent variable, and language proficiency level (beginning, intermediate, and advanced) was the moderator variable.

The mean length of words produced by advanced level of NHLLs is the highest score (M = 11.05, SD = 1.19) with the lowest score (M = 6.84, SD = 1.19) among Beginning level of NHLLs. While the MLUs within NHLL group tend to increase at a regular rate as proficiency levels improve, there is a very small difference in MLUs between Beginning level of HLLs (M = 6.26, SD = 1.13) and intermediate level of HLLs (M = 6.97, SD = 1.27). Additionally the MLU by Advance level of HLLs (M = 9.74, SD = 2.18) does not show much difference from the MLU by intermediate INHLLs (M = 8.36, SD = 1.93). The means and standard deviations of the MLU are provided in Table 4.

Table 4

MLU by Language Status and Language Proficiency

Language group	Non-Heritage Learner			Heritage Learner		
Language proficiency	N	*M*	*SD*	N	*M*	*SD*
Beginning	12	5.84	1.19	6	6.26	1.13
Intermediate	9	8.36	1.93	7	6.97	1.27
Advanced	8	11.05	2.06	7	9.74	2.18

A *2-way* ANOVA was conducted in order to test significant difference in MLUs relating to proficiency level effect that may be associated with differences in MLUs between the two groups (HLL, NHLL). The 2-way ANOVA determined the lengths of the utterance of the writing samples are significantly related to the proficiency level, but not to the heritage status. The

statistic data is given in Table 5. The results from the data analysis of MLU confirmed that linguistic competence may be different depending on language proficiency level but linguistic processes are equivalent to each other between HLLs and NHLLs at a same language proficiency level (Miller & Chapman, 2010). Therefore, the writing samples do not cause any reliability issues as a measure of data analysis.

Table 5

ANOVA Table: MLU

Source	df	F	η^2	p
Heritage status	1	2.44	.05	.13
Proficiency level	2	26.58	.55	.00
Heritage* level	2	1.48	.06	.24
Error	43			

Grammaticality Judgment in word completion (GJWC) test. The test used in this paper was a follow-up test to obtain data on differences in receptive language competence of HLLs compared to NHLLs. Although EA reveals learners' knowledge about grammar features, it was not expected be enough to examine the learners' actual underlying linguistic competence because their samples are produced by the learners even under some guidelines. The GJWC test was utilized to provide a better diagnosis of the learners' interpretive competence in linguistic knowledge. The GJWC test implements question items that assess learners' knowledge of distinctive grammatical features in Korean – markers and affixal connectives of which rules are typically included in the Korean language textbook and workbook.

Four case markers, six postposition markers, and four affixal connectives were used in the question items based on the following facts: first, case particles, possessive, and postposition markers are very important in Korean for their semantic and syntactic roles. Second, there is

usually heavy instruction on morphosyntatic features on Korean sentences from the first semester and is emphasized throughout Korean language programs. Third, markers in literacy forms can be evidence of grammar knowledge of learners because it is often allowed to omit nominative and accusative markers in Korean colloquial expression, but not in written form in general. Finally, they also provide evidence of different degrees of mastery over parametric features in Korean, which can be used as indicatives to identify whether and how much HLL have advantages over NHLLs in utilizing parametric values in Korean. For these reasons, even though the test items focus on markers and affixal connectives, they were expected to serve as good measurements to enable teachers to understand HL learners' limitations and problems in their grammar knowledge.

In an effort to minimize the influence of extra-grammatical factors in GJWC test and thus to improve statistical power of the test; building question items in GJWC test followed Schütze's suggestions (1996). First, Schütze suggests avoiding sentences that could cause confusions with its parsing difficulty. Second suggestion is to utilize sentences and lexical items that are presented in context in order to reduce the likelihood that informants come up with their own imaginary context in which the sentence might occur. Thirdly, the frequency of lexical items should be controlled to avoid the possibility that informants reject sentences because of a word that is not frequent in the language. Schütze emphasizes right number of grammatical and ungrammatical items in Grammaticality Judgment (GJ) task. For example, a greater number of grammatical items can lead informants to expect the test items to be grammatical and influence their judgments in general. Researchers should therefore ensure that the number of grammatical and ungrammatical items is more or less equal.

Although in a broad sense acceptability often involves linguistic agreement both to the phonology and to the syntax, only syntactic conformity is considered in this test, which is often examined in the acceptability test. A revised version of the GJ test, the GJ in word completion (GJWC) test (Renaud, Shein, & Tsang, 2010) was utilized. The original GJ test has two choices, correct and incorrect. As Schütze (1996) pointed out, this traditional GJ can be less accurate in examining the linguistic competence when the size of participants is small. Hence, the GJ test in this study employed the revised version proposed by Renaud et al, which is a grammaticality judgment in word completion (GJWC) test. For instance, participants were asked to review a series of incomplete sentences with a blank and identify which words from accompanying lists extend the expressions in a grammatically appropriate way to fill the blank. For example:

1. 저는 아버지___ 책을 드렸어요.

(Cuh-nun apuci__ chekul turyusseyo.)
(I gave (marked in honorific expression) a book to (marked as a blank) my father.)
①는 (topic marker) ②께 (indirect object in honorific) ③지만 (affixal connective) ④를 (object marker)

Test sentences were selected and modified from the textbooks of first and second year classes used. The questions in GJ in multiple –choice consisting of thirty fill-in-the-blank type questions were implemented based on the textbook and workbook with revision. Even though the sentences in the question were selected from the text of first year of Korean classes, the length of sentences and difficulty of words were modified to prevent the occasion that beginners would not be able to answer solely because of the level of difficulty of the sentence or unknown words. The words and vocabulary were carefully selected and checked if there were any words that were unfamiliar to the participants. The textbook and workbook "Interchange" that the Korean program at the University of Kansas (KU) were considered reliably grammatical. Selected 30

sentences were based on the consideration of the reading capacity of the beginner participants and the possible time frame. To avoid an item order effect, the order of the question items will be randomized. The original copy of the GJWC test can be seen in Appendix B.

Reliability of the GJWC test. The question items were adopted from the sentences in the textbook and workbook after being modified. As the sentences for the GJWC test were selected from the text book and workbook that the learners use, inter-raters were not necessary. However, a group of raters took a test with the question items used in the actual GJWC test in order to confirm that native speakers of Korean perceived the sentences as grammatically correct.

Three raters were composed of three native speakers of Korean who had worked as graduate teaching assistants (GTAs) of Korean at the University of Kansas. Their teaching experience at KU ranged from one year to five years. As the three of the raters had more than one year of experience of teaching beginners in the program, they were not only familiar with the content of the books adopted for the study, but also knew the range of vocabulary and grammar patterns that the beginners had learned.

The raters tested a total of 40 questions that were first implemented by the researcher in order to check whether all question items on the test were what had been taught to the learners during class hours or from the textbook, and whether the question items were appropriate to evaluate the learners' knowledge about the grammar features focused on in the test. Upon the raters' suggestion, seven out of 40 questions were deleted: four questions could be not understood by some of the beginning level of participants due to the sentence complexity, six of the items contained two possibly correct answers among four choices.

Additionally, Cronbach's alpha score was measured to examine the internal consistency of the question items of the GJWC using SPSS reliability analysis. Cronbach's alphas for the 30 question items was α =.76, which was found to be reliable.

Data Collection Procedures

Questionnaire. When participants from each level of Korean program met for a pencil-paper test (GJWC), they were asked to fill out a questionnaire prior to the test. The meetings occurred during the last class hours of the semester Spring 2012 in the classrooms of the beginning, intermediate, and advanced levels. The participants who took the proficiency test previously in order to participate in the research were invited to one of the classrooms depending on the test score. The participants were informed that they would be given ten minutes for the questionnaire after the consent forms were collected.

The questionnaire was composed of language background and self-assessment. The first two parts asked for participants' demographic information and language experiences beyond the classroom setting. The second part asked for their self-rating about their language sub-skills such as listening, speaking, reading, and writing in order to observe how much of a gap exists between the HLL and NHLL groups in the learners' self-perception of their overall language competence. A five-point Likert Scale was used (1: strongly disagree, 2: disagree, 3: neither agree nor disagree, 4: agree, 5: strongly agree). All numerical data were gathered through a survey conducted by the researcher at a classroom at KU. A total of 53 participants responded to the survey.

The goal of the first two sections of the questionnaire was to gather data demographic such as means of average age, gender ratio, language proficiency level, and length of Korean

language learning, and language experiences and use in daily life beyond the formal Korean instruction setting. The self-assessment was implemented in an attempt to provide how learners evaluate their language sub-skills in Korean compared to English sub-skills, and how HLLs evaluate their language sub-skills compared to NHLLs.

Error analysis (EA). EA was adopted and designed to answer research question 1 and 2. The data of rates of errors by morphemes type was used to explore the differences between heritage language learners (HLLs) and non- heritage language learners (NHLLs) in the grammatically correct use of the 14 Korean inflectional morphemes observed, in their writing. The data of EA was further classified into four sources of the errors in order to answer research question 2.

EA procedure followed Gass & Selinker's (1983) Models except the last step: 1 collecting data, 2. identifying errors, 3. classifying errors, 4. quantifying errors, 5. analyzing source of error, and 6.remediating errors. It involves collecting samples of learner language, identifying the errors in the sample, describing these errors, classifying them according to their hypothesized causes, and evaluating their seriousness. In this study, remediating errors was not included as remediating errors was not the purpose of the current research, and it should be handled as an independent issue, "with its own method of enquiry" (Ellis, 1994, p63). The morphosyntactic errors under investigation were isolated, identified, categorized tagged, and analyzed.

Materials for EA were collected from drafts of final essays at the end of the second, fourth, and sixth semesters of the first, second and third years, respectively. In the first writing draft, students were required to write paragraphs containing at least the required grammar patterns, a total of 10 to13 depending on the proficiency level. The topics of the essays were

diverse depending on the objectives of the each proficiency level. The writing drafts were returned with the instructor's feedback so that students could make the scenario as complete as possible. There was no rating on the draft writing, but they lost 10 percent out of the possible total if they failed to turn in a draft by the due date.

Error Analysis was done as follows:

1. After collecting the writing sample, the errors in inflectional morphemes focusing on four case markers, six postposition markers, and four affixal connectives were identified.

2. Two inter-raters randomly selected one sample in order to identify the errors that fell into the 14 types of morphemes. The distribution of errors by each rater was compared for reliability of the identification of errors.

3. The errors were further classified into four types of sources of the error previously identified, such as omission, replacement, addition, and malformation.

Coding 14 types of morphemes. The coding scheme was based on the suggestions of Ellis (1994): (1) clearly deviated from standard form, (2) clearly deviated from standard syntactic and semantic form, (3) deviated from correctness and appropriateness (acceptability), and (4) systematically and contiguously deviated from the norm. The errors in the EA were identified on the basis of clear deviation from syntactically standard structure and deviation from correctness and appropriateness, partially following the criteria suggested by Ellis (1994). The classifications in this study are limited to the following: (1) writing and reading, (2) grammar, (3) omission, addition, replacement, and malformation, and (4) errors in performance and competence.

This study employed quantitative data analysis procedures of coding, analyzing, and comparing errors. Systematic Analysis of Language transcript (SALT) program was utilized mainly for the final coding and comparison of data obtained. All the collected writing samples

were typed into SALT program. As SALT fits mainly English transcript analysis and yet not accommodating Korean language, the necessary program input task was essential before the data was transcribed. SALT produced vast information that are critical for language analysis such as, total length of sentences and number of words, errors committed by the writer, MLU, and so forth (more details can be found in a sample SALT transcript in Appendix C). In SALT, lists of inflectional morphemes found in the markers and the affixal connectives were generated to identify a subject's total vocabulary, and each item was listed with the number and percent of transcripts contained in it and the total number of occurrences of error so that comparison of the items by group would be facilitated.

Calculating error rates by morpheme type and by error source. In order to obtain the rates of errors committed by the two language groups - HLLs and NHLLs, the following steps were taken:

1. Collecting the writing samples

2. Transcribing the collected writing samples in the SALT transcript program, with errors and their sources tagged in each test in the SALT software

3. Obtaining not only the total number of morphemes used on the writing samples that fell into the error categories, but also error numbers by morpheme category on the SALT program.

However, as the data was collected from guided but learner-generated writing samples, length and the number of the sentences and the numbers of words used by each writer were varied. The raw numbers were not expected to provide correct comparison among the subjects, but percentage of errors by the total morphemes used was predicted to provide appropriate

information on error frequency. Therefore, calculation of the percentage of occurrence of errors by morpheme type and by error source was necessary.

In order to obtain the frequency of errors in percentage, the following steps were taken:

1. The total numbers of morphemes and error numbers by morpheme type and by error source identified obtained from SALT were saved in SPSS program.

2. SPSS calculated the percentage of each type of error and each type of error source.

3. The percentages of each type of error were calculated by having the numbers of each type of error divided by the sum of the total number of morphemes.

4. The percentages of error occurrence caused by the four sources that were previously tagged were also calculated using SPSS, by dividing the number of each error source by the sum of the total number of morphemes.

The rationale of selecting learner-generated writing samples lies in the suggestions of Corder (1975). He mentions that a writing sample that was produced at non-laboratory settings is better material for understanding the problems and causes of errors. However, from eight years of the researcher's experience, it was often observed that when learners confronted some elements with which they were not confident, but which could be replaced, they avoided using the one about which they were less confident. Due to such freedom in the learner-generated writing, or learner's avoidance strategy, the follow-up grammaticality judgment test was necessary to examine the underlying grammar knowledge of students.

Grammaticality judgment in word completion (GJWC) test. A paper-pencil test was conducted to examine the learners' grammar knowledge more closely by examining receptive competence of the learners. A GJWC test was designed in order to investigate learners' ability to identify a grammatically correct morpheme among the four choices of morphemes given, and

thus understand more accurate linguistic competence of the learners. This was achieved by narrowing the multiple possible expressions in the contexts given. The paper-pencil test was conducted after the survey.

After the consent form and the survey were collected, a written test was conducted for 30-35 minutes, depending on the proficiency level, during a regular drill session hour of the first-, second-, and third-year of Korean classes (during Monday review session) by the researcher who was an instructor of the program. After a brief explanation about the purpose and content of the test, participants were asked to fill out the survey questionnaire. Prior to the test, participants received detailed instructions for the test followed by a practice test. The participants were then asked to judge the grammaticality acceptability of each question item by their selection of one choice among four, which contained markers and / or affixal connectives. The participants were also strongly encouraged to select one choice that makes the sentence sound perfectly fine in a formal, written form of sentence. After the test was collected, feedback about the grammar patterns focused on the test was given to participants.

Data Analysis

Organization of Data Analysis. The survey questionnaire contains demographic data to determine independent variables. Survey was used not only to collect participants'' demographic data but also to understand participants' language confidence in four types of language sub-skills. The data of EA by morpheme type and by its source, and the scores from the GJWC test were analyzed in order to answer three research questions.

Reporting the results of each of the measures begins with an overview of descriptive statistics and comparative analysis for measure. The data was analyzed quantitatively. *One-way*

ANOVA and *two-way* ANOVA were employed for statistical analysis of the results of EA by morpheme type and by error source, and GJWC. *2-way* ANOVA was a main test and *1-way* ANOVA was performed to check interaction effect between two independent variables. When *2-way* ANOVA revealed a significant interaction effect between heritage status and language proficiency level, the paired independent variable was further investigated by proficiency level – beginning, intermediate, and advanced. Alpha level was used as a significant criterion for the tests in this study. An alpha level *(p)* of .05 was used for all statistical tests. Only when the *p* value was less than .05, it was conventionally stated merely as $p < .05$. Additionally, when a statistically significant difference was found, effect size, eta squared (η^2) was calculated to see how much independent variable has affected the dependent variable.

Analysis 1. Analysis of the data from EA by morpheme type was performed to answer research question 1: "Are there differences between English-speaking heritage language learners (HLLs) and non-heritage language learners (NHLLs) of Korean in the frequency of errors in case and postposition markers and affixal connectives, demonstrated in their writing?" The hypothesis was that there are differences between HLLs and NHLLs in in the frequency of errors in case and postposition markers and affixal connectives, demonstrated in their writing.

To test hypothesis 1, a *2-way* ANOVA was conducted with participants' heritage status (HLL vs. NHLL) the focal independent variable and three language proficiency level (beginning, intermediate, and advanced) as the moderator variable and error rates of 14 types of Korean inflectional morphemes as the dependent variables. The data were analyzed using a *two-way* ANOVA, with starting with the item grouping in the first set of analyses. As there was no significant interaction effect between heritage status and language proficiency level, a *1-way* ANOVA was not followed.

Analysis 2. Analysis of the data from EA by error source was performed to answer research question 2: "Are there differences between English-speaking heritage language learners and non-heritage language learners of Korean in the sources of errors in using case and postposition markers and affixal connectives, demonstrated in their writing?"
The hypothesis was that there are differences in the source of errors on written product between HLL and NHLL.

In order to test hypothesis 2, a *2-way* ANOVA was conducted with participants' heritage status (HLL versus NHLL) the focal independent variable and three language proficiency level (beginning, intermediate, advanced) as the moderator independent variable, and error sources (omission, replacement, addition, and malformation) as the dependent variables. The data were analyzed using *two-way* ANOVA.

Further tests were conducted using 1-way ANOVA in the paired independent variable - beginning, intermediate, and advanced, due to noticeably high error rates by Omission and Replacement in addition to the high error rates in Case markers. The independent variable was heritage status (HLL versus NHLL) and the dependent variables were Omissions in Subject, Topic, Object, and Possessive markers and Replacements in Subject, Topic, Object, and Possessive markers.

Analysis 3. Analysis of the data of the scores from the GJWC test was performed to answer research question 3: "Are there differences in the ability to identify grammatically correct case and postposition markers and affixal connectives between HLLs and NHLLs?"
The hypothesis was that there are differences in the ability to identify grammatically correct use of these morphemes between HLL and NHLL.

First, a *2-way* ANOVA was conducted in order to test hypothesis 3. The main focal independent variable was the participants' heritage status (HLL versus NHLL), the moderator variable was language proficiency level (beginning, intermediate, advanced), and four error sources (omission, replacement, addition, and malformation) were the dependent variables. When the *2-way* ANOVA revealed a significant interaction effect between heritage status and language proficiency level in certain types of morphemes, a series of *1- way* ANOVAs were performed to determine in which proficiency level those error rates are significant between heritage and non-heritage groups.

Summary

This chapter described the methodology of the present study. The current study was conducted at the Korean Department at the University of Kansas, Kansas. Participants were 20 Korean heritage language learners (HLLs) and 29 non-heritage language learners (NHLLs) in a beginning, intermediate, or advanced course of Korean language. All of the participants were currently taking or have taken a Korean language program at the University of Kansas (KU). As the current number of HLLs participants (N = 10) who were taking Korean courses at KU presented a noticeably smaller size than that of NHLL group (N = 20), HLL students who have taken Korean classes (at least within the previous two semesters) at KU were recruited for the proposed research. The participants' primary language was English but their learning experiences of the target language varied. Two instruments – error analysis, and grammaticality judgment test- that were used to answer research questions were described. The nature of instruments and the procedure of data collection were described in detail. Finally, the statistical analyses that were employed to test three hypotheses for the research questions were discussed.

In the next chapter (Chapter 4), the results of the data analyses to the research questions are provided.

CHAPTER 4. RESULTS

This chapter presents the results of data analyses to answer the research questions. The purpose of the present study is to investigate the underlying linguistic knowledge of heritage language learners (HLLs) as compared to non- heritage language learners of Korean (NHLLs), and to provide more specialized support for pedagogical methods, upon which aural interpretive communication skills of HLLs can be used to generate better language learning outcomes. Three research questions were established in order to fulfill the research purpose.

The questions and hypotheses were:

1. Are there differences between English-speaking heritage language learners (HLLs) and non-heritage language learners (NHLLs) of Korean in the frequency of errors in case and postposition markers and affixal connectives, demonstrated in their writing?
   The hypothesis is that there are significant differences between HLL and NHLL in the correct application of Korean case and postposition markers and affixal connectives in the writing performance.

2. Are there differences between HLLs and NHLLs in sources that cause errors in using case and postposition markers and affixal connectives in their writing?
   The hypothesis is that there are significantly different sources of errors in using case and postposition markers and affixal connectives between HLLs and NHLLs.

3. Are there differences in the ability to identify grammatically correct case and postposition markers and affixal connectives between HLLs and NHLLs?
   The hypothesis is that there are significantly different sources of errors in using case and postposition markers and affixal connectives between HLLs and NHLLs.

Participants and Demographic Data

All of the participants were currently taking or have taken a Korean language program at the University of Kansas (KU) in Lawrence, Kansas. All participants were placed in an appropriate level of class corresponding to their overall language proficiency based on the departmental policy of assigning proficiency levels according to leaners' previous learning experiences or a proficiency test. There was a difference of 9 in the total number of participants between HLLs and NHLLs. The total number of participants at beginning level was 18; the total number of participants at intermediate level was 16; and the total number of participants at advanced level was 14. The size of NHLLs (N = 12) was twice as big as HLLs (N = 6) at the beginning level. However, the sizes of HLLs and NHLLs at the advanced level are identical. As a whole group, students' gender was balanced with 49 % of females (*M* = 24) and 51 % of males (*M* = 25). However, there was a gender imbalance observed within group. While HLL group has more female participants (N = 12) than male participants (N = 8), NHLL group has a larger number of male (N = 17) than females (N = 12).

The average length of study of the language ranged from 2.42 semesters among NHLL at the beginning level to 5.29 semesters among both NHLLs and HLLs at the advanced level. The average age of contacting the target language for the first time is much lower among HLLs (*M* = .42, *SD* = 1.26) than that among NHLLs (*M* = 18.07, *SD* = 3.18). None of the NHLLs had their first contact with the language before 10 years old. In contrast, all the HLLs had their first contact with Korean language before school age. All of the HLLs at the intermediate level were exposed to Korean since birth. Among the three sub-HLL groups by proficiency level, all of the intermediate level of HLLs were exposed to Korean since birth. The details about the participants are given in Table 6.

Table 6

Demographic information

Language status		Non-heritage learner (N = 29)			Heritage learner (N = 20)		
		Beginner	Intermediate	Advanced	Beginner	Intermediate	Advanced
Language level	*N*	12	10	7	6	7	7
	%	25	21	14	12	14	14
Gender	*Female*	6	4	2	4	3	5
	Male	6	6	5	2	4	2
Length of Study of Korean	*M*	2.58	4.3	5.4	2.67	4.42	5.29
	SD	.90	.67	.79	.82	1.13	.95
Age of contacting Korean	*M*	18.33	17.10	19	.67	.00	.57
	SD	3.28	3.78	1.83	1.63	.00	1.51
Relative use of Korean on a daily basis (*%*)	*M*	8.58	4.00	13.42	7.5	12.57	12.43
	SD	7.81	2.67	16.72	5.24	7.16	6.43

Research Questions and Results

Study Variables. The independent variable is heritage language status (HLL vs. NHLL). As each heritage group consists of students at three proficiency levels, language proficiency level (beginner, intermediate, and advanced) are the moderator variable. In testing research questions 1 and 3, the dependent variables are error rates in four case markers, six postposition particles and four affixal connectives. The 14 inflectional morphemes were selected based on the findings from a pilot error analysis. The 4 case marker morphemes are Subject, Topic, Object, and Possessive markers, the 6 postposition markers are Indirect object, Locative, Instrumental, Companion, Temporal, and Directional postposition markers. The 4 affixal connective have equivalent meanings of "AND," "BUT," "SO," and "WHILE," respectively. In testing research

question 2, the dependent variables are four error sources - omission, addition, replacement, and malformation (more details about these morphemes can be found in Table 3).

Research question 1. Research question 1 is: "Are there differences between English-speaking Korean heritage language learners (HLLs) and non-heritage language learners (NHLLs) of Korean in the occurrence and frequency of errors in case and postposition markers and affixal connectives, demonstrated in their writing?"

The hypothesis 1 is that there are differences in in the correct application of Korean morphemes in writing performance between HLL and NHLL. To test hypothesis 1, a 2-way ANOVA was conducted with participants' heritage status as the focal independent variable, proficiency level as the moderator, and error rates of 14 types of Korean inflectional morphemes as the dependent variables.

Descriptive report

The percentages of errors by type range from 8 % in Object marker error ($SD = 8.18$) and 6 % in Subject marker ($SD = 5.52$) to 0% in Instrumental marker error. Ranges of error numbers are following: 3 -11 errors among Beginning level of HLLs, 2 - 20 among intermediate level of HLLs, and 2-31 among advanced level of HLLs, and 0 - 14 errors among Beginning level of NHLLs, 4 – 20 among intermediate level of NHLLs, and 2 - 22 among advanced level of NHLLs.

Errors in case markers are the most frequently committed by both HLLs and NHLLs. Among the errors in four case markers, the highest rate of errors is found in Object marker errors in both HLLs and NHLLs, with a slightly higher score by HLLs ($M =7.99, SD = 7.12$) than NHLLs ($M = 7.51, SD = 8.96$). The most contrasting results in the frequencies of errors between HLLs and NHLLs are found in Topic marker and Locative postposition marker. NHLLs ($M = 5.04, SD = 3.85$) obtained a higher score in Topic marker than HLLs ($M = 2.84, SD = 2.79$); and

HLLs (M = 3.71, SD = 4.49) earned a higher score in Locative particle than NHLLs (M = 2.25,

SD = 3.62). No error was found in Instrumental marker either by HLLs and NHLLs. The

descriptive statistics are given in Table 7 and Figure 1.

Table 7

Error rates by 14 types of morphemes identified on the writing samples

Language status		Non-heritage learner (N = 29)			Heritage learner (N = 20)		
Error rate	Data	Beginner (N = 12)	Intermediate (N = 9)	Advanced (N = 8)	Beginner (N = 6)	Intermediate (N = 7)	Advanced (N = 7)
Subject case	M	6.28	5.74	4.50	5.62	7.51	3.60
	SD	6.93	4.57	3.58	5.34	4.92	4.09
Topic case	M	6.17	5.12	3.25	5.04	4.11	1.79
	SD	4.51	2.91	3.46	3.85	3.69	1.83
Object case	M	9.41	9.00	3.00	7.51	7.72	11.80
	SD	11.91	7.15	2.70	8.96	5.72	8.91
Possessive	M	.38	.87	1.19	.75	.00	.97
	SD	1.31	1.94	1.86	1.66	.00	1.66
Indirect Object	M	.89	.20	1.56	.86	.76	.00
	SD	2.09	.60	2.17	1.81	1.86	.00
Location	M	2.80	1.61	**2.15**	2.25	2.03	2.68
	SD	4.97	1.93	**2.90**	3.62	3.25	4.72
Direction	M	1.23	.00	.00	.51	1.34	.00
	SD	1.93	.00	.00	1.36	2.09	.00
Instrument	M	.00	.00	.00	.00	.00	.00
	SD	.00	.00	.00	.00	.00	.00
Companion	M	1.93	.93	.46	1.21	1.40	2.65
	SD	2.56	1.39	.86	1.93	2.18	4.95

|						
Temporal	M	.95	.19	.11	.48	.64	.00
	SD	2.28	.56	.30	1.52	1.57	.00
AND	M	.87	.37	.00	.48	1.92	.26
	SD	1.64	.73	.00	1.16	4.71	.69
SO	M	.81	.98	1.30	1.00	1.90	1.31
	SD	1.90	1.48	1.31	1.58	3.20	1.79
BUT	M	.64	.29	.22	.42	.76	.65
	SD	1.58	.88	.62	1.15	1.86	1.72
WHILE	M	.79	.37	1.54	.87	.00	.65
	SD	1.85	.73	1.54	1.52	.00	1.13
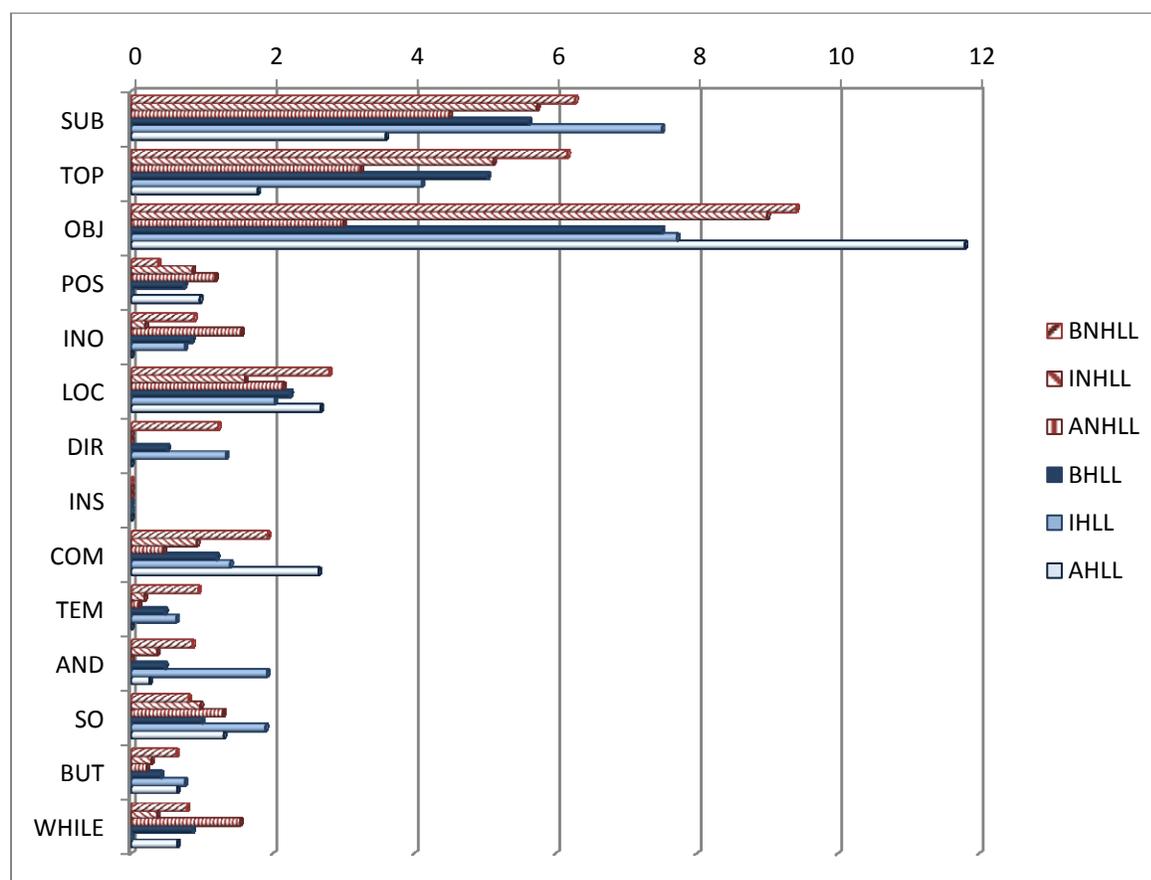
Figure 1 *Comparison of error frequencies in 14 types of errors between HL and NHL at 3 proficiency levels*

<u>Statistical Tests Set 1</u>

A *two-way* ANOVA was performed to test statistically significant differences between HLLs (N = 20) and NHLLs (N = 29) in the frequencies of errors in the use of Case markers, Postposition particles, and Affixal connectives on their writing task. The results of the statistical analysis are seen in Table 8 - 10.

<u>Error rate in Case markers</u>

The main effect of heritage status was insignificant in the error rate in Case marker, F (1, 43) = .09, p = .77, with a trivial effect size, η^2 = .002; the main effect of proficiency level yielded an F ratio of F (1, 43) = 2.04, p = .13, with a large effect size, η^2 = .09, indicating that proficiency level to error rate in Case markers was non-significant; and there was also no significant interaction between heritage status and proficiency level, F (2, 43) = .29, p = .24, with a small effect size, η^2 = .01.

Table 8

ANOVA: Error rates in Case markers in error analysis (EA)

Source	df	F	η2	p
Heritage status	1	.30	.64	.13
Proficiency level	2	6.92	.13	.87
Heritage* level	2	.29	.75	.01
Error	43			

<u>Error rate in Postposition markers</u>

The two-way ANOVA test showed no significant main effect for heritage factor, F (1,43) = .77, p = .38, with a small effect size, η^2 = .02; there was no significant main effect of language proficiency level, F (2, 43) = 1.06, p = .35, with a small effect size, η^2 = .05; and no significant interaction effect was identified between proficiency level and heritage status, F (2,43) = .92, p

= .41, with a small effect size, η^2 = .04. The results indicated that language proficiency level,

heritage status, and interaction between level and heritage status were not significantly related to

the error frequency in Postposition markers.

Table 9

ANOVA: Error rates in Postposition markers in EA

Source	df	F	η^2	p
Heritage status	1	.84	.46	.29
Proficiency level	2	1.15	.46	.54
Heritage* level	2	1.15	.46	.54
Error	43			

Error rate in Affixal connectives

The two-way ANOVA test showed no significant main effect for heritage factor, $F(1,43)$

= .02, p = .89, with a small effect size, η^2 = .02; there was no significant main effect of language

proficiency level, $F(2, 43)$ = 1.12, p = .34, with a small effect size, η^2 = .05; and no significant

interaction effect was identified between proficiency level and heritage status, $F(2,43)$ = 1.01, p

= .37, with a small effect size, η^2 = .05. The results indicated that language proficiency level,

heritage status, and interaction between level and heritage status were not significantly related to

the error frequency in Affixal connectives.

Table 10

ANOVA: Error rates in Affixal connective in EA

Source	df	F	η^2	p
Heritage status	1	.02	.90	.01
Proficiency level	2	1.11	.47	.53
Heritage* level	2	1.01	.37	.04
Error	43			

Statistical Tests Set 2

No differences were found from the three broad categories of morpheme errors, so each of the 14 possible morpheme errors were tested individually in an attempt to examine in-depth whether there are significant differences between heritage language learners (HLLs) and non-heritage language learners (NHLLs) in the use of these morphemes. A series of t*wo-way* ANOVA were performed to test statistically significant differences between HLLs (N = 20) and NHLLs (N = 29) in the rates of errors in the use of a total of 14 inflectional morphemes: four case markers (Subject, Topic, Object, and Possessive), six postposition markers (Indirect object, Locational, Directive, Instrumental, Companion, and Temporal), and four affixal connectives ("AND," "BUT," "SO," and "WHILE"). However, as there was no error found in Instrument postposition marker on any of the writing samples, this error category was not tested. Thirteen out of 14 dependent variables were explored using *two-way* ANOVA to test whether there are significant differences between heritage status and proficiency level in the error rates in the 13 types of morphemes.

Error rates in Subject marker

The main effect of heritage status was insignificant, $F(1, 43) = .00$, $p = .98$, with no effect size, $\eta^2 = .00$; the main effect of proficiency level yielded an F ratio of $F(2, 43) = .85$, $p = .44$, with a small effect size, $\eta^2 = .04$, indicating that proficiency level to error rate in subject marker was non-significant. There was no significant interaction effect between heritage status and proficiency level, $F(2, 43) = .47$, $p = .63$, with a small effect size, $\eta^2 = .02$.

Error rates in Topic marker

The main effect of language status yielded an F ratio of $F(1, 43) = 3.75$, $p = .06$, with a medium effect size, $\eta^2 = .08$, indicating that heritage status to scores in topic marker error was

non-significant. The main effect of language proficiency level yielded an F ratio of F (2, 43) = 1.66, p = 20, with a medium effect size, η^2 = .07, indicating that language proficiency level is insignificant to rate in topic marker error. There was no significant interaction between heritage status and proficiency level in the error of topic marker, F (2, 43) = .68, p = .51, with a small effect size, η^2 = .03.

Error rates in Object marker

No significant main effect was presented for heritage effect, F (1,43) = .13, p = .72, with a trivial effect size, η^2 = .003; the main effect of language proficiency level is not significant with an F ratio of F (2, 43) = 2.80, p = .07, with a medium effect size, η^2 = .12, indicating that language proficiency level is not significantly related to errors in object marker; and there was no significant interaction effect between proficiency level and heritage status, F (2,43) = .32, p = .73, with a small effect size, η^2 = .01.

Error rates in Possessive marker

The main effect of heritage status was insignificant, F (1, 43) = .14, p = .71, with a trivial effect size, η^2 = .003; the main effect of proficiency level yielded an F ratio of F (2, 43) = 2.97, p = .06, with a medium effect size, η^2 = .12, indicating that proficiency level to error rate in possessive marker was non-significant. There was no significant interaction effect between heritage status and proficiency level, F (2, 43) = .53, p = .59, with a small effect size, η^2 = .02.

Error rates in Indirect Object marker

The main effect of language status yielded an F ratio of F (1, 43) = 1.98, p = .17, with a small effect size, η^2 = .04, indicating that heritage status to scores in indirect object particle error was non-significant. The main effect of language proficiency level yielded an F ratio of F (2, 43) = 1.11, p = .34, with a small effect size, η^2 = .05, indicating that language proficiency level is

insignificant to rate in indirect object particle error. There was no significant interaction between heritage status and proficiency level in the error of topic marker, $F(2, 43) = 1.06$, $p = .35$, with a small effect size, $\eta^2 = .05$.

Error rates in Locative marker

No significant main effect was presented for heritage effect, $F(1, 43) = 1.54$, $p = .22$, with a small effect size, $\eta^2 = .03$; the main effect of language proficiency level is not significant with an F ratio of $F(2, 43) = 1.16$, $p = .32$, with a small effect size, $\eta^2 = .05$, indicating that language proficiency level is not significantly related to errors in locative particle; and there was no significant interaction effect between proficiency level and heritage status, $F(2, 43) = 1.44$, $p = .25$, with a large effect size, $\eta^2 = .06$.

Error rates in Directional marker

The two-way analysis of variance showed no significant main effect for heritage factor, $F(1,43) = .54$, $p = .47$, with a small effect size, $\eta^2 = .01$. However, the main effect of language proficiency level yielded an F ratio of $F(2, 43) = 3.19$, $p = .05$, with a medium effect size, $\eta^2 = .13$, indicating that language proficiency level is significantly related to errors in directional particle. There was no significant interaction effect between proficiency level and heritage status, $F(2, 43) = .36$, $p = .70$, with a small effect size, $\eta^2 = .02$.

Error rates in Companion marker

The main effect of language heritage status yielded an F ratio of $F(1, 43) = .51$, $p = .48$, with a small effect size, $\eta^2 = .01$, indicating that heritage status to scores in Companion particle error was insignificant. The main effect of language proficiency level yielded an F ratio of $F(2, 43) = .93$, $p = .40$, with a small effect size, $\eta^2 = .04$, indicating that language proficiency level is not significant to rate in Companion particle error. There was no significant interaction between

heritage status and proficiency level in the error of Companion particle, $F(2, 43) = .81$, $p = .45$, with a small effect size, $\eta^2 = .04$.

Error rates in Temporal marker

No significant main effect was presented for heritage effect, $F(1,43) = .28$, $p = .60$, with a small effect size, $\eta^2 = .01$; the main effect of language proficiency level is not significant with an F ratio of $F(2, 43) = 1.63$, $p = .21$, with a medium effect size, $\eta^2 = .07$, which indicates that language proficiency level is not significantly related to errors in Temporal particle; and there was no significant interaction effect between proficiency level and heritage status, $F(2,43) = .02$, $p = .98$, with a trivial effect size, $\eta^2 < .01$.

Error rates in affixal connective "AND"

The main effect of heritage status was insignificant, $F(1, 43) = .33$, $p = .57$, with a small effect size, $\eta^2 = .01$; the main effect of proficiency level yielded an F ratio of $F(2, 43) = 2.46$, $p = .10$, with a medium effect size, $\eta^2 = .10$, which demonstrates that proficiency level to error rate in affixal connective 'AND' was non-significant. There was no significant interaction effect between heritage status and proficiency level, $F(2, 43) = .47$, $p = .63$, with a small effect size, $\eta^2 = .02$.

Error rates in affixal connective "SO"

The main effect of language status yielded an F ratio of $F(1, 43) = .29$, $p = .59$, with a small effect size, $\eta^2 = .01$, indicating that heritage status to scores in affixal connective 'CAUSE' error was non-significant. The main effect of language proficiency level yielded an F ratio of $F(2, 43) = .09$, $p = .91$, with a trivial effect size, $\eta^2 < .01$, indicating that language proficiency level is insignificant to rate in topic marker error. There was no significant interaction between

heritage status and proficiency level in the error of affixal connective 'CAUSE', $F(2, 43) = .61$, $p = .55$, with a small effect size, $\eta^2 = .03$.

Error rates in in affixal connective "BUT"

No significant main effect was presented for heritage effect, $F(1, 43) = .05$, $p = .82$, with a trivial effect size, $\eta^2 < .01$; the main effect of language proficiency level is not significant with an F ratio of $F(2, 43) = .82$, $p = .45$, with a small effect size, $\eta^2 = .04$, indicating that language proficiency level is not significantly related to errors in affixal connective 'BUT'; and there was no significant interaction effect between proficiency level and heritage status, $F(2,43) = .19$, $p = .82$, with a small effect size, $\eta^2 = .01$

Error rates in in affixal connective "WHILE"

The main effect of heritage status was insignificant, $F(1, 43) = .33$, $p = .57$, with a small effect size, $\eta^2 = .01$; the main effect of proficiency level yielded an F ratio of $F(2, 43) = 2.46$, $p = .10$, with a medium effect size, $\eta^2 = .10$, which demonstrates that proficiency level to error rate in affixal connective 'WHILE' was non-significant. There was no significant interaction effect between heritage status and proficiency level, $F(2, 43) = .47$, $p = .63$, with a small effect size, $\eta^2 < .01$.

In summary, the *two-way* ANOVA performed to answer research question 1 indicated that there was no main effect of heritage status (HLL versus NHLL) to occurrences of 13 types of errors, and no significant interaction effect between heritage status and proficiency level as well. The main effect of proficiency level was determined significant only in the error frequency by Directional particle. In conclusion, there are no differences between HLLs and NHLLs in error rates in the use of 14 types of morphemes on their writing products.

Research question 2. Research question 2 is: "Do Korean heritage language learners (HLLs) and non-heritage language learners (NHLLs) of Korean exhibit differences in the sources of errors in using case and postposition markers and affixal connectives? The hypothesis 2 is that there are differences in the sources of errors on written product between HLLs and NHLLs.

To test hypothesis 2, a 2-way ANOVA was conducted with participants' heritage status (HLL vs. NHLL) as the focal independent variable, language proficiency level (beginning, intermediate, and advanced) as the moderator variable, and four error sources (Omission, Replacement, Addition, and Malformation) as the dependent variables. Data from the EA was further utilized to answer the research question 2. The data were analyzed using *two-way* ANOVA. When *2-way* ANOVA revealed a significant interaction effect between heritage status and language proficiency level, the paired independent variable was further investigated by proficiency level – beginning, intermediate, and advanced.

Statistical Tests

Two-way analysis of variance ANOVA was performed to test statistically significant differences between HLLs and NHLLs in the source of errors in the use of the four types of Case markers, six types of Postposition markers, and four types of Affixal connectives on their writing task. The means and standard deviations are presented in Table 11. The results of the statistical tests are given in Table 12 - 15.

Table 11

Rates of errors by its source

Heritage status		Non-heritage learner (N = 29)			Heritage learner (N = 20)		
Error source		Beginner (N = 12)	Intermediate (N = 9)	Advanced (N = 8)	Beginner (N = 6)	Intermediate (N = 7)	Advanced (N = 7)
Omission	M	38.46	31.70	27.87	46.82	52.29	21.55
	SD	28.13	17.30	15.70	28.90	27.16	13.59
Replacement	M	34.66	52.15	54.20	31.30	28.98	47.61
	SD	23.26	11.35	30.52	23.71	25.85	9.09
Addition	M	4.34	7.15	3.79	11.52	.00	9.98
	SD	7.69	7.69	9.87	24.03	.00	16.45
Malformation	M	14.20	9.01	14.14	10.27	18.73	20.86
	SD	18.43	7.81	23.13	15.53	17.41	12.29

Errors caused by Omission

The two-way ANOVA test showed no significant main effect for heritage factor, $F(1,43)$ = 1.27, $p = .27$, with a small effect size, $\eta^2 = .03$; there was no significant main effect of language proficiency level, $F(2, 43) = 3.01$, $p = .06$, with a medium effect size, $\eta^2 = .12$; and no significant interaction effect was identified between proficiency level and heritage status, $F(2,43)$ = 1.33, $p = .28$, with a medium effect size, $\eta^2 = .06$. The results indicated that language proficiency level, heritage status, and interaction between level and heritage status were not significantly related to the errors caused by Omission of necessary morphemes (Table 12).

Table 12

ANOVA: Rates of Errors caused by Omission

Source	df	F	η2	p
Heritage status	1	1.27	.03	.27
Proficiency level	2	3.01	.12	.06
Heritage* level	2	1.33	.06	.28
Error	43			

Errors caused by Addition

The two-way ANOVA test showed no significant main effect for heritage factor, F (1,43) = .02, p = .89, with a small effect size, η^2 = .02 ; there was no significant main effect of language proficiency level, F (2, 43) = 1.12, p = .34, with a small effect size, η^2 = .05; and no significant interaction effect was identified between proficiency level and heritage status, F (2,43) = 1.01, p = .37, with a small effect size, η^2 = .05. The results indicated that language proficiency level, heritage status, and interaction between level and heritage status were not significantly related to the errors caused by the Addition of a grammatically incorrect morpheme (Table 13).

Table 13

ANOVA: Rates of Errors caused by Replacement

Source	df	F	η2	p
Heritage status	1	2.92	.06	.10
Proficiency level	2	2.56	1.11	.09
Heritage* level	2	.92	.04	.40
Error	43			

Errors caused by Replacement

The two-way ANOVA test showed no significant main effect for heritage factor, F (1,43) = .02, p = .89, with a small effect size, η_2 = .02 ; there was no significant main effect of language proficiency level, F (2, 43) = 1.12, p = .34, with a small effect size, η_2= .05; and no significant interaction effect was identified between proficiency level and heritage status, F (2,43) = 1.01, p = .37, with a small effect size, η_2 = .05. The results indicated that language proficiency level, heritage status, and interaction between level and heritage status were not significantly related to the errors caused by Replacement with a grammatically incorrect morpheme (Table 14).

Table 14

ANOVA: Rates of Errors caused by Addition

Source	df	F	$\eta2$	p
Heritage status	1	.35	.01	.56
Proficiency level	2	.57	.03	.57
Heritage* level	2	1.73	.08	.19
Error	43			

Errors caused by Malformation

The two-way ANOVA test showed no significant main effect for heritage factor, $F(1,43)$ = .02, p = .89, with a small effect size, $\eta2$ = .02 ; there was no significant main effect of language proficiency level, $F(2, 43)$ = 1.12, p = .34, with a small effect size, $\eta2$= .05; and no significant interaction effect was identified between proficiency level and heritage status, $F(2,43)$ = 1.01, p =.37, with a small effect size, $\eta2$ = .05. The results indicated that language proficiency level, heritage status, and interaction between level and heritage status were not significantly related to the errors caused by Malformation of the morphemes (Table 15).

Table 15

ANOVA: Rates of Errors caused by Malformation

Source	df	F	$\eta2$	p
Heritage status	1	.73	.02	.40
Proficiency level	2	.40	.02	.67
Heritage* level	2	.74	.03	.48
Error	43			

In conclusion, the 2-way ANOVA performed to answer research question 2 revealed no differences between HLLs and NHLLs in the four error sources that caused the errors on their written products.

Additional Statistical Tests

Even though the *two-way* ANOVA revealed no differences between HLLs and NHLLs in the four error sources, as seen in Table 11, the rates of errors caused by Omission is remarkably high among beginning and intermediate HLL groups and error rates caused by Replacement are outstanding and present an increasing pattern as the proficiency level increases among NHLLs as seen in Table 100 and Figure 2 provided below. Due to such noticeably high error rates by Omission and Replacement in addition to the high error rates in case markers in both HLLs and NHLLs observed in the descriptive data of Analysis 1 (can be seen in Figure 3), further tests were conducted in order to determine whether there were significant differences between HLLs and NHLLs in the rates of errors in four case markers (Subject, Topic, Object, and Possessive) caused by Omission and Replacement. The descriptive data obtained from analysis 1 (EA in error rates by morpheme type) and analysis 2 (EA by error source) were further investigated in order examine whether there were significant differences in these errors.
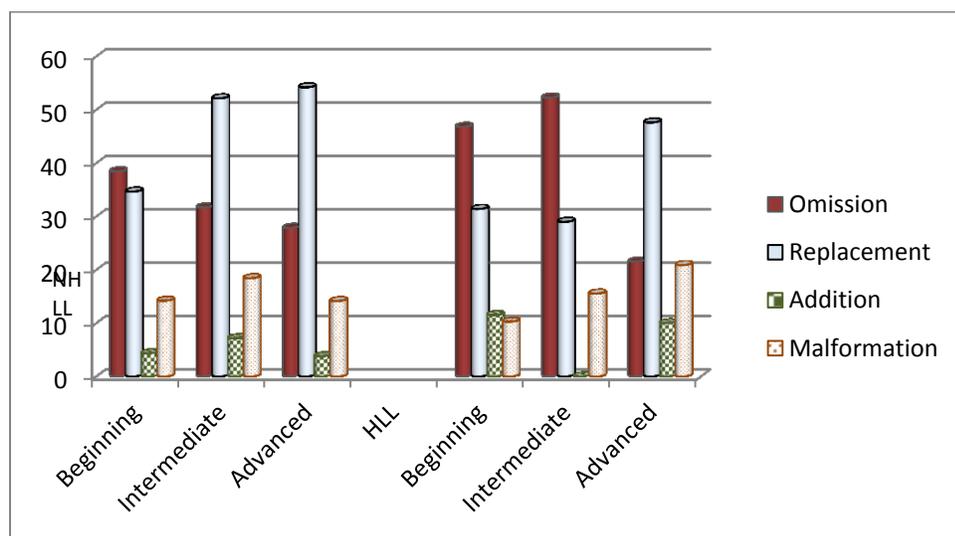

Figure 2 *Error rates by source between NHLLs and HLLs at three proficiency levels*
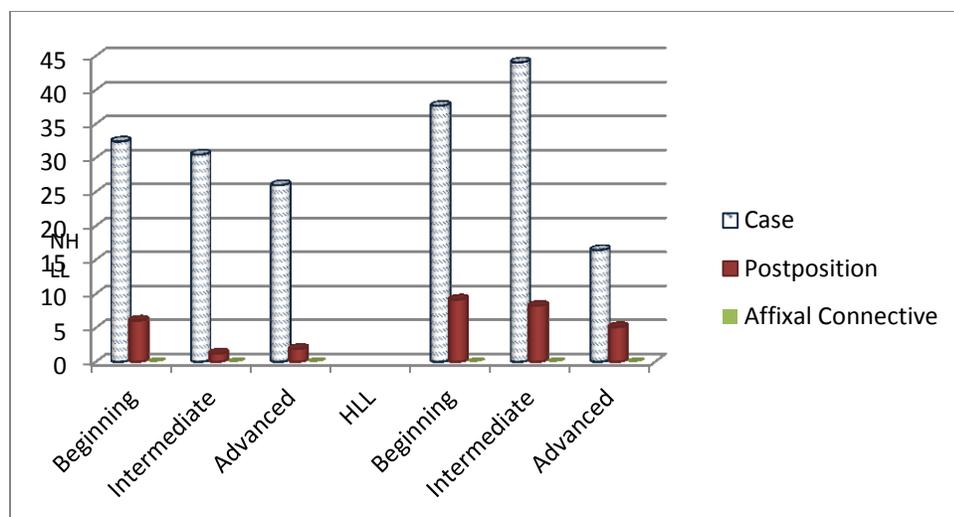
Figure 3 *Comparison error rates in Case markers, Postposition markers and Affixal connective between NHLLs and HLLs at 3 proficiency levels.*

Statistical test set 1

Omission of case markers

Two-way analysis of variance ANOVA was performed to test statistically significant differences between HLLs and NHLLs in the errors in the use of four case markers by omitting a necessary case marker, with heritage status as the focal independent and language proficiency level as the moderator. The means and standard deviations are presented in Table 16.

Table 16

Rates of errors caused by omitting four case markers

Language status		Non-heritage learner (N =29)			Heritage learner (N = 20)		
Error source	Data	Beginner (N = 12)	Intermediate (N = 9)	Advanced (N = 8)	Beginner (N = 6)	Intermediate (N = 7)	Advanced (N = 7)
Subject marker	*M*	3.67	**3.17**	6.24	12.98	**5.08**	2.74
Omission	*SD*	5.78	3.88	6.44	10.90	9.13	4.97
Topic marker	*M*	10.29	11.61	6.93	7.77	.71	3.93
Omission	*SD*	9.77	10.25	11.97	10.02	1.89	3.69
Object marker	*M*	18. 45	**13.85**	12.81	16.92	**37.53**	9.79
Omission	*SD*	19.30	15.51	12.02	13.96	20.18	11.60
Possessive	*M*	.00	1.85	.00	.00	.71	.00
Omission	*SD*	00	5.56	.00	.00	1.89	.00

In the errors in Subject markers caused by Omission, the *two-way* ANOVA showed no significant main effect of heritage factor, $F(1, 43) = .48$, $p = .56$, with a large effect size, $\eta^2 = .19$ and there was no significant main effect of language proficiency level, $F(2, 43) = .53$, $p = .65$, with a large effect size, $\eta^2 = .35$. A significant interaction effect was identified between proficiency level and heritage status, $F(2, 43) = 3.42$, $p < .05$, with a medium effect size, $\eta^2 = .14$. The results indicate that interaction between level and heritage status is significantly related to Subject marker errors caused by Omission. The results are also presented in Table 17.

Table 17

2-way ANOVA: Omission of Subject markers

Source	df	F	η2	p
Heritage status	1	.48	.19	.56
Proficiency level	2	.53	.35	.65
Heritage* level	2	**3.42**	**.14**	**.04**
Error	43			

In the errors in Topic markers caused by Omission, the *two-way* ANOVA showed an insignificant main effect for heritage factor, $F(1, 43) = 4.04$, $p = .18$, with a large effect size, $\eta^2 = .67$. There was no significant effect of language proficiency level, $F(2, 43) = .65$, $p = .60$, with a large effect size, $\eta^2 = .40$; and no significant interaction effect was identified between proficiency level and heritage status, $F(2,43) = 1.06$, $p = .35$, with a small effect size, $\eta^2 = .05$. The results indicate that language proficiency level, heritage status, and interaction between level and heritage status are not significantly related to the Topic errors caused by Omission.

In the errors in Object markers caused by Omission, the *two-way* ANOVA showed no significant main effect for heritage factor, $F(1, 43) = 1.81$, $p = .19$, with a small effect size, $\eta^2 = .04$; and there was no significant effect of language proficiency level, $F(2, 43) = 3.05$, $p = .06$, with a medium effect size, $\eta^2 = .12$. A significant interaction effect was identified between proficiency level and heritage status, $F(2, 43) = 3.46$, $p < .05$, with a medium effect size, $\eta^2 = .14$. The results indicate that interaction between level and heritage status is significantly related to Object error occurrence by Omission. The results are presented in Table 18.

Table 18

2-way ANOVA: Omission of Object markers

Source	df	F	η2	p
Heritage status	1	1.81	.04	.19
Proficiency level	2	3.05	.12	.06
Heritage* level	2	**3.36**	**.14**	**.04**
Error	43			

In the errors in Possessive markers caused by Omission, the *two-way* ANOVA revealed no significant main effect for heritage factor, $F(1,43) = .99$, $p = .42$, with a large effect size, $\eta^2 = .33$; there was no significant effect of language proficiency level, $F(2, 43) = 5.09$, $p = .16$, with a large effect size, $\eta^2 = .84$; and no significant interaction effect was identified between proficiency level and heritage status, $F(2,43) = .27$, $p = .76$, with a trivial effect size, $\eta^2 = .01$. The results indicate that language proficiency level, heritage status, and the interaction between level and heritage status are not significantly related to Possessive marker errors by Omission.

In summary, the *two-way* ANOVAs performed to test statistically significant differences between HLLs and NHLLs in the errors in the four case markers caused by omitting a necessary case marker on their written products revealed significant differences between HLLs and NHLLs in omitting necessary subject and object markers.

Replacement in case markers

A *two-way* analysis of variance was performed to test statistically significant differences between HLLs and NHLLs in the errors in the use of four case markers by replacing a correct case marker with a wrong one in their written products. A *two-way* analysis of variance ANOVA was performed to test statistically significant differences between HLLs and NHLLs in the errors in the use of the four case markers by replacing with a grammatically incorrect morpheme. The means and standard deviations are presented in Table 19.

Table 19

Rates of errors caused by replacing case markers

Language status		Non-heritage learner (N = 29)			Heritage learner (N = 20)		
Error source		Beginner (N = 12)	Intermediate (N = 9)	Advanced (N = 8)	Beginner (N = 6)	Intermediate (N = 7)	Advanced (N = 7)
Subject marker	M	8.80	13.76	11.90	10.67	4.28	9.18
Replacement	SD	11.78	11.79	17.68	13.53	7.15	13.96
Topic marker	M	7.75	8.10	6.13	3.70	7.04	3.93
Replacement	SD	8.96	9.47	9.49	9.07	9.85	3.69
Object marker	M	2.75	**15.38**	1.46	7.41	**.71**	7.62
Replacement	SD	5.14	11.88	2.79	13.46	1.89	12.43
Possessive	M	.00	1.31	9.59	.00	4.29	4.07
Replacement	SD	.00	3.92	17.16	.00	9.32	5.87

In the errors in Subject markers caused by Replacement, the *two-way* ANOVA revealed no significant main effect for heritage factor, $F(1, 42) = 1.07, p = .41$, with a large effect size, $\eta^2 = .35$; there was no significant effect of language proficiency level, $F(2, 42) = .07, p = .93$, with a medium effect size, $\eta^2 = .07$; and no significant interaction effect was identified between proficiency level and heritage status, $F(2,42) = .77, p = .47$, with a small effect

size, $\eta^2 = .04$. The results indicated that language proficiency level, heritage status, and interaction between level and heritage status were not significantly related to the subject marker errors caused by Replacement.

In Topic marker errors by Replacement, the *two-way* ANOVA test showed no significant main effect for heritage factor, $F(1,42) = 7.71$, $p = .11$, with a large effect size, $\eta^2 = .79$; there was no significant effect of language proficiency level, $F(2, 42) = 3.01$, $p = .25$, with a large effect size, $\eta^2 = .75$; and no significant interaction effect was identified between proficiency level and heritage status, $F(2,42) = .12$, $p = .89$, with a small effect size, $\eta^2 = .01$. The results indicate that language proficiency level, heritage status, and interaction between level and heritage status were not significantly related to the Topic errors caused by Replacement.

In Object marker errors caused by Replacement, a *two-way* ANOVA presented no significant main effect for heritage factor, $F(1,43) = .04$, $p = .87$, with a small effect size, $\eta^2 = .02$; there was no significant effect of language proficiency level, $F(2, 43) = .11$, $p = .90$, with a medium effect size, $\eta^2 = .10$; and a significant interaction effect was identified between proficiency level and heritage status, $F(2,43) = 6.67$, $p < .05$, with a large effect size, $\eta^2 = .24$. The results indicate that interaction between level and heritage status is significantly related to Object error occurrence caused by Replacement. The ANOVA table is provided in Table 20.

Table 20

2-way ANOVA: Replacement of Object markers

Source	df	F	η2	p
Heritage	1	.04	.87	.02
Level	2	.11	.90	.10
Heritage* Level	2	6.67	.00	.24
Error	42			

In Possessive marker errors caused by Replacement, a two-way ANOVA test showed no significant main effect for heritage factor, $F(1,43) = .12$, $p = .77$, with a medium effect size, $\eta^2 = .06$; there was no significant effect of language proficiency level, $F(2, 43) = 2.53$, $p = .28$, with a large effect size, $\eta^2 = .72$; and no significant interaction effect was identified between proficiency level and heritage status, $F(2,43) = 1.02$, $p = .37$, with a small effect size, $\eta^2 = .05$. The results indicated that language proficiency level, heritage status, and interaction between level and heritage status were not significantly related to the possessive marker errors caused by Replacement.

In summary, the *two-way* ANOVA that tested differences between HLLs ($N = 20$) and NHLLs ($N = 29$) in the errors in the use of four case markers by replacing a necessary case marker in their writing task revealed that there is a difference between HLLs and NHLLs in replacing correct object markers.

Statistical test set 2

As significant interaction effect of heritage status and proficiency level was found from the *two-way* ANOVA tests in omitting Subject and Object case marker, and in replacing necessary Object marker, a series of 1- way ANOVAs were performed to determine in which proficiency level these error sources are significant between heritage and non-heritage groups.

Omission in Subject case marker

A *one-way* ANOVA revealed significant differences between the groups (heritage and non-heritage) at the beginning level in the Subject errors caused by omission, $F(1, 16) = 5.78$, $p = .03$, with a large effect size, $\eta^2 = .35$, with a higher score by HLL ($M = 12.98$, $SD = 10.90$) than NHLL ($M = 3.67$, $SD = 5.78$); insignificant differences between the groups (heritage and non-heritage) at the intermediate level in the Subject errors caused by omission, $F(1, 14) = .32$, p

= .58, with a large effect size, η^2 = .35, with a higher score by HLL (M = 4.44, SD = 2.72) than

NHLL (M = 1.39, SD = 1.72); and no significant differences between the groups (heritage and

non-heritage) at advanced level in Subject errors caused by omission, F (1, 13) = 1.36, p = .27,

with a higher score

Omission in Object case marker

A *one-way* ANOVA showed that there was no significant difference in the object errors

caused by Omission, F (1, 16) = .03, p = .87, with a large effect size, η^2 = .31, with a higher

score by beginning NHLLs (M = 18.45, SD = 19.30) than HLLs (M = 16.92, SD = 13.96); and

there were no significant differences between the groups (heritage and non-heritage) at advanced

level in Object marker errors caused by Omission, F (1, 13) = .24, p = .63. However, there was a

significant difference between intermediate level of HLLs and NHLLs in Object errors caused by

Omission, F (1, 14) = 7.08, p < .05, with a large effect size, η^2 = .31, with higher score by HLLs

(M = 37.53, SD = 20.18) than NHLLs (M = 13.85, SD = 15.51).

Replacement in Object case marker

A *one-way* ANOVA revealed that there was no significant difference in the Object errors

caused by Replacement, F (1, 15) = 1.08, p = .32, with a large effect size, η^2 = .31, with more

errors by beginning HLLs (M = 7.41, SD= 13.46) than NHLLs (M = 2.75, SD = 5.14).

There was a significant difference between HLLs and NHLLs at intermediate level in

Object errors caused by Replacement, F (1, 14) = 10.31, p < .05, with a large effect size, η^2 = .31,

with more errors by intermediate NHLLs (M = 15.38, SD = 11.88) than HLLs (M = .71, SD =

7.62).

A *one-way* ANOVA revealed no significant differences between the groups (heritage and

non-heritage) at Advanced level in Subject and Object errors caused by Omission, and Object

errors caused by Replacement: F (1, 13) = 1.36, p = .27 in Subject errors caused by Omission, F (1, 13) = .24, p = .63 in Object errors caused by Omission, and F (1, 13) = 1.88, p = .19 in Object errors caused by Replacement.

1-way ANOVA revealed significant differences in omitting necessary Subject and Object markers between HLLs and NHLLs; with higher scores by beginning level of HLL than counterpart NHLLs in Subject marker Omission, and at Intermediate level, higher scores by HLLs than NHLLs in Object marker Omission, and replacing correct Object markers between Intermediate level of HLLs than NHLLs, with higher scores obtained by NHLLs than HLLs. The summary is also given in Table 21.

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Table 21

Summary of the results of 1-way ANOVA in Omission and Replacement as error sources in case markers

Error source and type of case marker	Proficiency level identified to have significant difference	Group that produced more errors
1. Omission in Subject	Beginning	Heritage
2. Omission in Object	Intermediate	Heritage
3. Replacement in Object	Intermediate	Non- Heritage

Research question 3. Research question 3 is: "Are there differences in the ability to identify grammatically correct case and postposition markers and affixal connectives between HLLs and NHLLs?" The hypothesis 3 is that there are differences in the ability to identify grammatically correct use of these morphemes between HLL and NHLL.

To test hypothesis 3, a 2-way ANOVA was conducted with participants' heritage status (HLL vs. NHLL) the focal independent variable and three language proficiency levels (beginning, Intermediate, and Advanced) as the moderator independent variables, and error rates

of 14 types of Korean inflectional morphemes as the dependent variables. The 14 inflectional

morphemes are: Subject, Topic, Object, and Possessive Case markers; Indirect object, Locational,

Directive, Instrumental, Companion, and Temporal postposition particles; and four affixal

connectives which are compatible to "AND," "BUT," "SO," and "WHILE," in its meaning,

respectively. Data of the scores from the GJWC test was utilized to answer the research question

3. The data were analyzed using *two-way* ANOVA. *One-way* ANOVA was performed only to

investigate how much of effect of learner's heritage status is dependent on the proficiency level.

Descriptive reports

While the highest score in Subject marker error was earned by beginning level of HLLs,

the lowest score was obtained by intermediate level of NHLLs. The highest and the lowest scores

in Topic marker were produced by heritage group; the highest score by intermediate HLLs ($M =$

3. 33, $SD = .00$) and the lowest score by beginning level HLLs ($M = .56, SD = 1.36$). While the

errors in Object marker were the most frequently committed by beginning level of HLLs ($M =$

2.78, $SD = 2.51$), no score was recorded by both advanced level of heritage and non-heritage

learners. Similar to the errors in Object marker, in Possessive marker, beginning level of HLLs

produced the highest score ($M = 5.00, SD = 2.79$) and no score was recorded by advanced level

of NHLL.

The highest score in Indirect Object particle error was obtained by the advanced level of

HLLs ($M = 1. 43, SD = 1.78$) and no score was recorded by the advanced level of NHLLs. In

Locative postposition marker, the highest score was obtained by the intermediate level of NHLLs

and the lowest score was found among the advanced level of NHLLs. In Instrument postposition

marker, while no error was committed by the advanced level of NHLLs, beginning level of

HLLs earned highest score ($M = 3.89, SD = 2.51$). The highest score in Companion marker was

earned by beginning level of HLL ($M = 4.44$, $SD = 2.72$) and no score was obtained by the advanced level of HLLs and NHLLs. In Temporal marker, the highest score was obtained by beginning level of HLLs and the lowest score was found among beginning level of NHLLs. The highest score in Directional marker was earned by beginning level of HLLs ($M = 2.22$, $SD = 2.72$) and no score was recorded by the advanced level of NHLLs and the intermediate level of HLLs.

The highest score in "AND" affixal connective error was obtained by the beginning level of HLLs and the lowest score was earned by the intermediate level of HLLs. In "SO" affixal connective, the highest score was obtained by the beginning level of HLLs and no scores were found among the advanced level of heritage and non-heritage learners. The highest score in "BUT" affixal connective error was obtained by the beginning level of NHLLs and the lowest score was earned by the advanced level of NHLLs. In "WHILE" affixal connective, the highest score was obtained by the intermediate level of NHLLs and the lowest score was found among the advanced level of NHLLs.

Overall, while beginning HLLs obtained outstanding scores in nine categories such as Subject, Object, and Possessive case markers, Instrument, Companion, Temporal, Direction postposition markers, and "AND" and "SO," affixal connectives, the advanced level of NHLLs recorded no scores in 7 categories such as Object, and Possessive case markers, Indirect Object, Instrument, Companion, Directional postposition markers, and "SO" affixal connective. While the highest scores were found in "AND" and "WHILE" affixal connectives. The means and standard deviations are presented in Table 22.

Table 22

Error rates in 14 types of morphemes on GJWC test

Language status		Non-heritage learner (N =29)			Heritage learner (N = 20)		
Error rate	Data	Beginner (N = 12)	Intermediate (N = 9)	Advanced (N = 8)	Beginner (N = 6)	Intermediate (N = 7)	Advanced (N = 7)
Subject case	*M*	1.39	1.72	.33	1.05	.95	1.63
	SD	1.39	1.72	2.33	1.61	1.43	1.78
Topic case	*M*	1.11	1.64	1.33	1.72	.00	.00
	SD	3.33	1.42	3.00	2.92	.00	.00
Object case	*M*	.83	1.51	1.00	1.61	.00	.00
	SD	1.39	2.23	3.00	2.46	.48	1.26
Possessive	*M*	2.78	1.30	3.00	1.05	.00	.00
	SD	1.39	1.72	1.67	2.36	.00	.00
Indirect Object	*M*	.28	.96	1.33	1.72	.48	1.26
	SD	.83	2.07	1.67	1.76	.00	.00
Location	*M*	5.28	2.64	6.00	4.10	3.81	1.26
	SD	3.61	2.64	2.00	1.72	.00	.00
Direction	*M*	2.50	1.51	2.00	1.72	.48	1.26
	SD	5.83	2.51	6.33	3.31	3.81	3.00
Instrument	*M*	1.39	1.72	.33	1.05	.95	1.63
	SD	1.39	1.72	2.33	1.61	1.43	1.78
Companion	*M*	1.11	1.64	1.33	1.72	.00	.00
	SD	3.33	1.42	3.00	2.92	.00	.00
Temporal	*M*	.83	1.51	1.00	1.61	.00	.00
	SD	1.39	2.23	3.00	2.46	.48	1.26
AND	*M*	2.78	1.30	3.00	1.05	.00	.00
	SD	1.39	1.72	1.67	2.36	.00	.00

SO	M	.28	.96	1.33	1.72	.48	1.26
	SD	.83	2.07	1.67	1.76	.00	.00
BUT	M	5.28	2.64	6.00	4.10	3.81	1.26
	SD	3.61	2.64	2.00	1.72	.00	.00
WHILE	M	2.50	1.51	2.00	1.72	.48	1.26
	SD	5.83	2.51	6.33	3.31	3.81	3.00
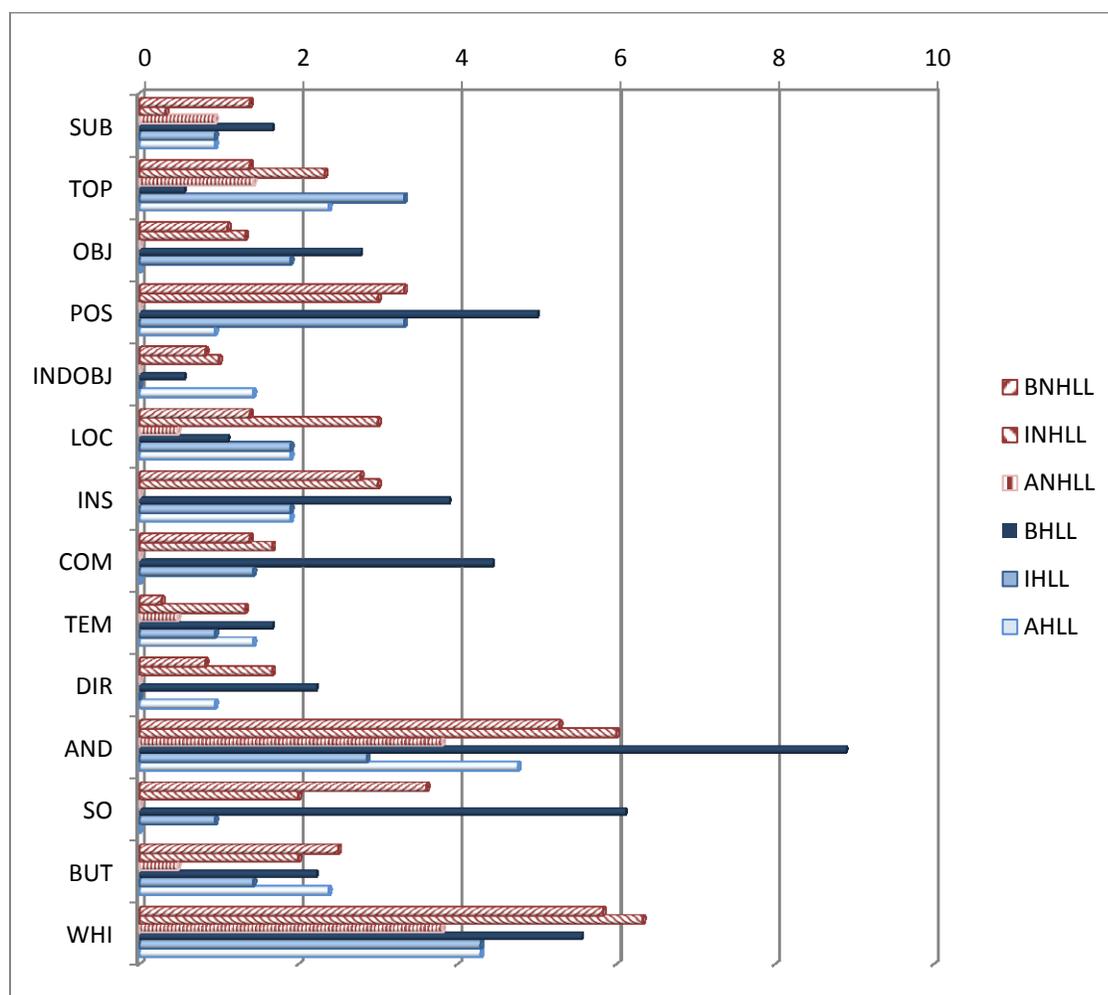
Figure 4 *Comparison of error frequencies in 14 types of errors on GJWC test between HL and NHL at 3 proficiency levels*

Statistical test set 1

A *two-way* ANOVA was performed to test statistically significant differences between HLLs (N = 20) and NHLLs (N = 29) in identifying correct morphemes to complete a grammatically correct sentence.

Subject marker

The main effect of heritage status was insignificant, $F(1, 43) = .42$, $p = .52$, with a trivial effect size, $\eta^2 = .01$; the main effect of proficiency level yielded an F ratio of $F(2, 43) = 1.31$, $p = .28$, with a medium effect size, $\eta^2 = .06$, indicating that proficiency level to error rate in Subject marker was non-significant. There was no significant interaction effect between heritage status and proficiency level, $F(2, 43) = .15$, $p = .86$, with a trivial effect size, $\eta^2 = .01$.

Topic marker

The main effect of heritage status was insignificant, $F(1, 43) = .69$, $p = .41$, with a small effect size, $\eta^2 = .02$. However, the main effect of proficiency level yielded an F ratio of $F(2, 43) = 6.05$, $p < .05$, with a large effect size, $\eta^2 = .22$, indicating that proficiency level to error rate in Topic marker was significant. There was no significant interaction effect between heritage status and proficiency level, $F(2, 43) = 1.85$, $p = .17$, with a medium effect size, $\eta^2 = .08$.

Object marker

The main effect of heritage status was insignificant, $F(1, 43) = 2.59$, $p = .11$, with a medium effect size, $\eta^2 = .06$. The main effect of proficiency level yielded an F ratio of $F(2, 43) = 6.41$, $p < .05$, with a large effect size, $\eta^2 = .23$, indicating that proficiency level to error rate in subject marker was non-significant. However, there was no significant interaction effect between heritage status and proficiency level, $F(2, 43) = 1.10$, $p = .34$, with a medium effect size, $\eta^2 == .05$.

Possessive marker

There was no significant main effect of heritage status, $F(1, 43) = 2.74$ $p = .11$, with a

medium effect size, $\eta^2 = .06$. However, the effect of proficiency was identified significant, $F(2,$

$43) = 13.11$, $p < .05$, with a large effect size, $\eta^2 = .38$. The interaction effect was non-significant,

$F(2, 43) = .44$, $p = .65$, with a small effect size, $\eta^2 = .02$.

Indirect object marker

The main effect of heritage status was insignificant, $F(1, 43) = .02$ $p = .90$, with a trivial

effect size, $\eta^2 < .01$. The effect of proficiency was identified non-significant, $F(2, 43) = .12$, p

$= .88$, with a small effect size, $\eta^2 = .01$. However, there was significant interaction effect, $F(2,$

$43) = 3.24$, $p = .05$, with a medium effect size, $\eta^2 = .13$, indicating that differences in the errors in

Indirect object marker between heritage group and non-heritage group were dependent upon

which level the subjects were at.

Location marker

There was no significant main effect of heritage status, $F(1, 43) = .00$, $p = .98$, with a

trivial effect size, $\eta^2 < .01$; the effect of proficiency was identified non-significant, $F(2, 43) =$

1.60, $p = .21$, with a medium effect size, $\eta^2 = .07$; and the interaction effect was insignificant, F

$(2, 43) = 1.23$, $p = .30$, with a medium effect size, $\eta^2 = .05$.

Instrument marker

There was no significant main effect of heritage status, $F(1, 43) = 2.08$ $p = .16$, with a

medium effect size, $\eta^2 = .05$. The effect of proficiency was identified non-significant, $F(2, 43) =$

9.40, $p < .05$, with a large effect size, $\eta^2 = .30$. Additionally, there was significant interaction, F

$(2, 43) = 4.13$, $p < .05$, with a large effect size, $\eta^2 = .16$, indicating that differences in the errors to

Indirect object marker between heritage group and non-heritage group were dependent upon

which level the subjects were at.

<u>Companion marker</u>

The main effect of heritage status was not significant, $F(1, 43) = 2.73$ $p = .11$, with a medium effect size, $\eta^2 = .06$. However, the effect of proficiency was identified significant, $F(2, 43) = 8.50$, $p < .05$, with a large effect size, $\eta^2 = .28$. Additionally, there was significant interaction effect between heritage and non-heritage groups, $F(2, 43) = 3.57$, $p < .05$, with a large effect size, $\eta^2 = .14$.

<u>Temporal marker</u>

There was no significant main effect of heritage status, $F(1, 43) = 2.17$, $p = .15$, with a medium effect size, $\eta^2 = .05$; the effect of proficiency was identified non-significant, $F(2, 43) = .08$, $p = .93$, with a trivial effect size, $\eta^2 < .01$; and the interaction effect was also insignificant, $F(2, 43) = 1.51$, $p = .23$, with a medium effect size, $\eta^2 = .07$.

<u>Directional marker</u>

There was no significant main effect of heritage status, $F(1, 43) = .18$, $p = .68$, with a trivial effect size, $\eta^2 < .01$. The effect of proficiency was identified non-significant, $F(2, 43) = 1.46$, $p = .24$, with a medium effect size, $\eta^2 = .06$. However, there was significant interaction effect, $F(2, 43) = 3.69$, $p < .05$, with a large effect size, $\eta^2 = .15$, indicating that differences in the errors in directional marker between heritage and non-heritage groups were dependent upon which level the subjects were at.

<u>Affixal connective "AND"</u>

The main effect of heritage status was insignificant, $F(1, 43) = .20$, $p = .66$, with a trivial effect size, $\eta^2 < .01$. The effect of proficiency was not identified significant, $F(2, 43) = 2.63$, $p = .08$, with a medium effect size, $\eta^2 = .11$. However, there was significant interaction effect

between heritage and non-heritage groups, $F (2, 43) = 3.18$, $p = .05$, with a medium effect size, $\eta^2 = .13$.

Affixal connective "SO"

There was no significant main effect of heritage status, $F (1, 43) = .67$ $p = .42$, with a small effect size, $\eta^2 = .02$. However, the effect of proficiency was identified significant, $F (2, 43) = 23.56$, $p < .05$, with a large effect size, $\eta^2 = .52$. Additionally, there was significant interaction effect between heritage and non-heritage groups, $F (2, 43) = 3.32$, $p = .05$, with a medium effect size, $\eta^2 = .13$.

Affixal connective "BUT"

There was no significant main effect of heritage status, $F (1, 43) = .55$, $p = .46$, with a small effect size, $\eta^2 = .01$. The effect of proficiency was not identified significant, $F (2, 43) = 1.35$, $p = .27$, with a medium effect size, $\eta^2 = .06$. There was no significant interaction effect between heritage and non-heritage groups, $F (2, 43) = 2.61$, $p = .09$, with a medium effect size, $\eta^2 = .11$.

Affixal connective "WHILE"

The main effect of heritage status was not significant, $F (1, 43) = .50$, $p = .48$, with a small effect size, $\eta^2 = .01$; the main effect of proficiency level yielded an F ratio of $F (2, 43) = 1.23$, $p = .30$, with a medium effect size, $\eta^2 = .05$, indicating that proficiency level to error rate in subject marker was non-significant; and there was no significant interaction effect between heritage status and proficiency level, $F (2, 43) = .74$, $p = .48$, with a small effect size, $\eta^2 = .03$.

In summary, a series of the *2-way* ANOVA tests showed that there were no main effect of heritage status and no significant interaction effect between heritage status and proficiency level in the error rates in Subject, Locative, and Temporal markers and affixal connectives "BUT"

and "WHILE." There were significant differences in the effect of proficiency level in the error rates in Topic, Object, and Possessive markers. However, as heritage status was the focal effect in the 2-way ANOVA, and the proficiency effect (the moderator variable) was tested only to check significant interaction effect between the two main effects, the proficiency level effect in the differences in the error rates in Topic, Object, and Possessive markers due to were not further tested.

There were significant interaction effects between HLLs and NHLLs in Indirect object, instrument, Companion, and Direction markers and affixal connectives "AND" and "SO," which indicates that any differences found in the errors to these six morphemes between HLL and NHLL were dependent upon which level the subjects were at. There were also significant differences in the effect of proficiency level to the errors in Instrument and Companion markers, and affixal connective "SO." However, as the interaction effect between heritage status and proficiency level was found significant in these categories, the proficiency effect was ignored and instead examined the differences between HLLs and NHLLs at each of the three proficiency levels in the error rates in these six types of morphemes.

Statistical test set 2

As a significant interaction was found from the *two-way* ANOVAs in Indirect object, Instrument, Companion, and Direction markers, and affixal connectives "AND" and "SO," a series of *one-way* ANOVAs was followed in order to see in which proficiency level these errors are different between heritage and non-heritage groups.

Beginning level

A *one-way* ANOVA revealed significant differences between the groups (heritage and non-heritage) at the beginning level in the errors of Companion marker and affixal connective

"AND." There was a significant difference in the error rate in Companion marker, $F(1, 16) =$ 8.60, $p < .05$, with a large effect size, $\eta^2 = .35$, with a higher score by HLLs ($M = 4.44$, $SD = 2.72$) than NHLLs ($M = 1.39$, $SD = 1.72$). There was a significant difference in the error rate in connective "AND," $F(1, 16) = 7.33$, $p < .05$, with a large effect size, $\eta^2 = .31$, with more errors by beginning level of NHLLs ($M = 6.00$, $SD = 4.10$) than HLLs ($M = 2.86$, $SD = 4.88$).

Intermediate level

A *one-way* ANOVA of group difference at the intermediate level yielded significant differences between HLLs and NHLLs at the intermediate level in regarding to the errors of Directional marker with a large effect size, $F(I,15) = 6.18$, $p < .05$, $\eta^2 = .29$, with a higher score by NHLLs ($M = 1.67$, $SD = 1.76$) than HLLs ($M = .00$, $SD = .00$)

Advanced level

A *one-way* ANOVA revealed that there was a significant difference between HLLs and NHLLs in the errors of Instrument marker, $F(I, 12) = 8.00$, $p < .05$, with a large effect size, $\eta^2 = .40$, with a higher score by HLLs ($M = 1.90$, $SD = 1.78$) than NHLLs ($M = .00$, $SD = .00$).

In summary, there were no significant differences in identifying Indirect object marker and connective "SO" between HLLs and NHLLs at all of three proficiency levels. In Instrument marker, the advanced level of HLLs provided more incorrect answers than the advanced level of NHLLs. In Companion marker, beginning level of HLLs gave another answer than beginning level of NHLLs. In Directional marker, intermediate level of NHLLs made more errors than Intermediate level of HLLs. In affixal connective "AND," beginning level of HLLs recorded more errors than beginning level of NHLLs. The summary of the results is seen in Table 23.

Table 23

Summary of the results of 1-way ANOVA in GJWC test

Inflectional Morpheme	Proficiency level identified to have significant difference	Group that produced more errors
1. Indirect object marker	None of the levels	Not available
2. Instrument marker	Advanced level	Heritage group
3. Companion marker	Beginning level	Heritage group
4. Directional marker	Intermediate level	Non-heritage group
5. AND	Beginning level	Heritage group
6. SO	None of the levels	Not available

In conclusion, there were no significant differences found between heritage and non-heritage groups in identifying correct morphemes of Subject, Topic, Object, and Possessive case markers, and Indirect object, Locative, Temporal postposition markers, and "BUT," "SO," and "WHILE" affixal connectives. However, there were differences between heritage group and non-heritage group at certain proficiency levels in identifying four types of inflectional morphemes among 14 morphemes. The morphemes and the proficiency level that presented differences between HLL and NHLL are Instrument marker at advanced level, with a higher score by HLLs, Direction marker at intermediate level, with a higher score by NHLLs and Companion marker and "AND" at beginning level, with higher scores by HLLs.

Summary

To test hypothesis 1, a series of *2-way* ANOVA were conducted with participants' heritage status (HLL vs. NHLL) as the focal independent variable, language proficiency level as the moderator variable, and error rates of 14 types of Korean inflectional morphemes as the dependent variables. Data of error rates by morpheme type from the error analysis (EA) was utilized to answer the research question 1. The results indicated that there were no main effect of heritage status (HLL vs. NHLL) to occurrences of 14 types of errors, and no significant

interaction effect between heritage status and proficiency level either. The proficiency level effect was determined significant only in the Directional marker error.

To test hypothesis 2, a *2-way* ANOVA was conducted with the same main independent variable and moderator variable as in EA by morpheme type. The dependent variables were four error sources - Omission, Replacement, Addition, and Malformation. Data from the EA by error source was utilized to answer the research question 2. There were no differences in the sources that caused errors among the 14 types of morphemes, in general. However, due to the noticeably higher rates of Case marker error from analysis 2 and prominently higher scores in Omission and Replacing from analysis 2, *2-way* ANOVA and *1-way* ANOVA were further conducted to investigate the difference between HLLs and NHLLs in the four Case marker errors caused by Omission and Replacement.

A series of *1-way* ANOVA revealed that there were significant differences in omitting necessary Subject and Object markers between HLLs and NHLLs. In Subject marker error caused by Omission, HLLs obtained higher scores than NHLLs at the beginning level; in Object marker error by Omission, higher scores by HLLs than NHLLs at the intermediate level; and in Object marker error by replacing; higher scores were obtained by NHLLs than HLLs at the intermediate level.

Data from the GJWC test was utilized to answer the research question 3. To test hypothesis 3, a *2-way* ANOVA was conducted with the same focal independent variable and moderator variables as in EA. The dependent variables were same 14 inflectional morphemes as in EA by morpheme type. Whenever a significant interaction effect between heritage status and proficiency level was identified from the *two-way* ANOVA test, a *one-way* ANOVA further was performed to investigate how much of effect of learner's heritage status is dependent on the

proficiency level. There were significant differences between heritage group and non-heritage group at certain proficiency levels in identifying four types of inflectional morphemes among 14 morphemes focused in this study. At the advanced level, HLLs produced higher rates of errors in Instrument marker; at the intermediate level, NHLLs committed higher rates of errors in Directional marker; and at the beginning level, higher scores in Companion marker and "AND" were earned by HLLs.

CHAPTER 5. DISCUSSION AND CONCLUSION

This chapter discusses the findings of the study, followed by conclusions and pedagogical implications. The discussion opens with the summary of the major findings of the study. Second, implications of the study that were drawn based on the research findings are discussed. Third, the conclusions of the study and the pedagogical implications of the study are discussed. Finally, this chapter closes with a discussion of the limitations and suggestions for future research. Before discussing the results, a brief review of the basis for the present study follows to recall information from earlier chapters.

Summary of the previous chapters

It is an unclear and controversial issue as to whether heritage languages (HLs) that learners are exposed to early but are interrupted manifest first language competence or shares more characteristics with development in second/foreign language competence. Despite such unique characteristics in HL, a common misconception about heritage language learners (HLLs) in foreign language classes is that they outperform non-heritage language learners (NHLLs) in overall language skills. While, during the last decade, scholars in SLA and Applied Linguistics have been increasingly interested in many issues in learning HL, an exact understanding of the linguistic competence of HL learners compared to their counterparts is yet to be established.

Even with the increasing interest in the linguistic profiles in HLLs, no one has explored the interlanguage differences and similarities between Korean HLLs and NHLLs of Korean as a foreign language in areas with a comparatively small Korean population. Moreover, few studies have been done to identify and compare types of morphosyntactic errors between Korean HLLs and NHLLs despite the complexity and important roles of Korean inflectional morphemes in the

sentence. Hence, this study carried out a comparison of errors in inflectional morphemes between HLLs and NHLLs in order to provide evidence about differences and similarities in linguistic knowledge between HLLs and NHLLs. A pilot study of error analysis confirmed that the most common and frequent errors are particle-related, such as omission and incorrect use of particles (i.e. markers). Other error types included those related to connectives, delimiters, predicates, and so forth. Based on the results of the pilot error analysis, four types of case markers, six types of postposition markers, and four types of affixal connectives were selected to observe learners' knowledge of these morphemes between HLLs and NHLLs.

The purpose of the study was to investigate the underlying linguistic knowledge of heritage language learners (HLLs) as compared to non- heritage language learners of Korean (NHLLs), and to provide more specialized support for pedagogical methods, upon which comparatively stronger aural interpretive communication skills of HLLs can be capitalized.

Three research questions asked in the study were:

1. Are there differences between English-speaking heritage language learners and non-heritage language learners of Korean in the occurrence and frequency of errors in case and postposition markers and affixal connectives, as demonstrated in their writing?

2. Are there differences in sources that cause errors in case and postposition markers and affixal connectives, as demonstrated by heritage language learners and non-heritage language learners in their writing?

3. Are there differences in the ability to the ability to identify grammatically correct morphemes between heritage language learners and non-heritage language learners?

 "Weak Language as L1 Hypothesis" (WL as L1) (Montrul, 2008a) versus "Weak Language as L2 Hypothesis" (WL as L2) (Schyter, 1993), and the Missing Surface Inflection Hypothesis

(MSIH) (Lardiere & Schwartz, 1997; Prévost & White, 2000) provided the theoretical frameworks for the present study.

In order to understand the linguistic competence of Korean heritage learners, the investigation focused on core parametric elements in Korean at morpho-syntax level in Korean. The factors studied included four case markers, six postpositional markers, and four affixal connectives. Identified were not only the most frequent error types among the inflectional morphemes focused in the current study but also main sources of the errors. The errors sources classified are omission, replacement, addition, and malformation, which were adopted in an attempt to observe whether the sources of errors by HLLs are attributed to different sources than those by NHLLs.

The results of the data analysis of error rates by morpheme type identified in writing samples revealed no significant differences in the use of 14 inflectional morphemes between HLLs and NHLs at all three proficiency levels. The results from the data analysis of the EA by error source exhibited that, broadly, there were no significant differences between HLLs and NHLLs at all three proficiency levels in the four error sources: omission, replacement, addition, and malformation. However, further tests revealed that the errors in subject and object markers caused by omission were significantly higher among HLLs than among NHLLs, and the errors in object markers caused by replacement were significantly higher among NHLLs than among HLLs.

Significant differences were presented in several types of morphemes at certain proficiency levels from the data analysis of the GJWC test, which tested the learners' receptive competence. The data analysis presented no differences in error rates in 10 types of morphemes between HLLs and NHLLs at all three proficiency levels. However, significant differences were

found in the error rates in four types of morphemes between the two groups at certain proficiency levels. HLLs produced higher errors in instrument postposition marker than NHLLs at the advanced level. NHLLs committed more errors in directional marker than HLLs at the intermediate level. Higher numbers of errors were produced in companion postposition marker and "AND" affixal connective by HLLs than by the NHLLs at the beginning level. The analyses of the data in this study led to several findings that are discussed in the following section.

Discussion of the Findings

The initial goal of the project was to determine whether HLLs outperform NHLLs in their linguistic knowledge of Korean inflectional morphemes. While heritage language (HL), or weaker first language (WL), did not present statistically significant differences from L2 in the productive task, the HL and L2 were not totally matching in the underlying morphological knowledge. The findings indicated that the underlying linguistic competence of HLLs is more complicated than this study initially assumed. The findings suggested some implications that will be discussed in-depth in this section.

The implications of findings are: (a) heritage language as L2 in morphological knowledge, (b) indication of impaired morphology in advanced HLLs, and (c) larger variation in linguistic knowledge among HLLs than NHLLs.

Heritage language (HL) as a second language (L2). An error analysis (EA) was conducted to measure the learners' linguistic competence in the productive task. The data analyses show that there are no significant differences between HLLs and NHLLs, at the three proficiency levels, in the errors by morpheme types and their sources, which were identified on the semi-guided but learner-generated writings. The results of the data analysis of EA support the

hypotheses that there are no differences between HLLs and NHLLs in both the error rates in the 14 morphemes focused on in this study nor in the sources that caused these errors.

From the analysis of error rate by morpheme type, the main effect of heritage status (HLLs vs. NHLLs) was not significant in occurrences of errors in all 14 types of inflectional morphemes and an interaction effect between heritage status and language proficiency level was not significant either. A significant difference was found only in the effect of proficiency level in directional marker. However, this is a natural phenomenon because there are three proficiency levels in which the participants were placed as their proficiency advanced. From the analysis of error rate by error source, broadly, there were no significant differences between HLLs and NHLLs at all three proficiency levels in the four error sources - omission, replacement, addition, and malformation. However, further tests of omission and replacement in case markers, due to the prominently high error rates in case markers produced both by HLLs and NHLLs, determined significant differences in omission of subject and object markers and replacement of object marker between HLLs and NHLLs at the beginning and intermediate levels. Taken together, there are no statistically significant differences in error rates on writing products between HLLs and NHLLs with the exceptions in omission and replacement of subject and object markers.

The findings that Korean HLLs do not outperform their counterpart NHLLs in their productive knowledge of Korean inflectional morphemes are consistent with the Weak Language as a second language (WL as L2) hypothesis suggested by Schlyter (1993). In the WL as L2 hypothesis, she argues that children growing up with two languages acquire the weaker language, usually the one that is not shared by the society at large, like a second language. HL development has not been supported at appropriate language development stages, and thus, lexical and

morpho-syntactic developments in HL acquisition tend to lag behind monolingual speakers of

the language. Consequently, HL loses linguistic competence as a strong L1 and becomes a

weaker language. The findings of this study are also in line with other research results where

HLLs present non-native-like competence and use of the language, nonuniform levels of

proficiency, and linguistic gaps that resemble the patterns attested in second language acquisition

(Kondo-Brown 2004; Montrul 2011, 2012; O'Grady et al. 2011; Song et al. 1997).

No indication to support Weak Language as a first language (WL as L1) (Montrul, 2008a)

is provided from the results in the present study. In the WL as L1 hypothesis, Montrul claims

that there is a fundamental difference between HLLs and NHLLs due to advanced exposure to

HL, which is not supported from the results of the data analyses in this study. Although the

findings of the present study are consistent with the WL as L2, some previous studies have

reported that HLLs performed better than NHLLs in various experimental tests. Additionally,

there is a general agreement that the advantage of HLL is a significant native-like phonological

ability even though some degrees of variation in the phonological system among HLLs may exist.

For example, Au et al. (2002) found that heritage speakers have an advantage in phonology and

pronunciation. Other research on different aspects of phonology and different languages also

confirmed Au et al.'s results (Chang et al.,2008; Lukyanchenko & Gor, 2011; Saddah, 2011,

cited in Montrul, 2012). Given the positive study results and practitioners' experiences, HLLs'

phonology system seems comparatively intact and HL as L1 can be supported despite some

exceptional study results (e.g., Godson, 2004).

However, the phonological advantage should not be generalized as a fundamental

difference of HLLs from NHLLs, or L2 learners, considering the fact that morpho-syntactic

systems are built later than phonological systems (e.g., sound discrimination in L1 around 6

months of age, morphology by ages 3-5, and complex syntax at ages 6-10) (Tsimpli, et al., 2004).

As documented, several studies focusing on HLLs' acquisition of key grammatical morphemes

have found HLLs' morphology is not completed (Kim, 2013; Lipski, 1993; Lynch, 1999;

Montrul, 2004, Polinsky, 2006). In a similar vein, the results of the error analyses – no

statistically significant differences in error rates by morpheme type and by error source on

writing products between HLLs and NHLLs – demonstrate that there is no fundamental

difference of Korean HLLs from NHLLs in the Korean morphology observed in their written

product.

HL as L1 is also not supported by the Missing Surface Inflection Hypothesis (MSIH)

(Lardiere 1998; Ladiere & Schwartz, 1997; Prevost & White, 2000), which provided a

theoretical framework for this study. MSIH basically explains the gap between performance and

competence in L2 learners. According to MSIH, the problem in mismatch between production

(speech and writings) and receptive abilities (reading and listening comprehension) in L2

learners is mainly due to mapping of the deep structure (competence) to the surface structure

which is finally produced (performance). The advocates of MSIH argue that L2 leaners do have

implicit knowledge of the functional projections and features in L2 morphological forms, but

they make mistakes due to a lack of realization of the surface morphology (Prévost & White

2000). This phenomenon results from less input in the TL, which leads to comparatively weaker

representations of morphological forms in the mental lexicon which, in turn, have a lower resting

activation in lexical processing and render grammatical processing less automatic (Ellis, 1988).

Such a phenomenon can be explained through the observation that even L2 speakers at advanced

levels tend to make a mistake by not having SV conversion in a question sentence in speech, but

they produce no mistakes in creating the same structure in a writing task. MSIH insists that the

L2 learners' underlying morpho-syntactic structures are correct, and the necessary semantic features are existing and accurate.

If L2 learners present weaker competence in productive abilities as MSIH states, and if the language characteristics of HL are shared by those of L1, as WL as L1 hypothesis states, then there should be fundamental differences in their productive knowledge between NHLLs and HLLs. Therefore, HLLs should outperform the traditional L2 learners in their productive skills such as speaking and writing. In other words, if HLLs' linguistic knowledge (competence) is innate, (i.e., L1) and the only problem is a lack of formal instruction, their progress in learning their HL, especially among those who are in higher proficiency levels, should be more prominent compared to their counterpart NHLLs. However, the data analyses of errors by morpheme type and by its source that reflect the learners' productive ability presents no significant differences between HLLs and NHLLs. Therefore, the linguistic competence of Korean HLLs is not much different from L2.

Compared to monolingual children, heritage language speaking children's HL input is restricted at various degrees and HL output is discontinued, even at an early age. As discussed earlier (in Chapter 2), the general taxonomy of bilingualism is either balanced or unbalanced bilingual development. In unbalanced bilinguals, one of the L1s appears to be weak (Meisel, 2007b). Many scholars of bilingualism find the causes of such unbalanced development at the age of onset of the language acquisition and maturation in the language development (Montrul, 2008a, 2011; Newport, 1990; Polinsky, 2007). However, the age of onset of the language acquisition does not seem to be a major source of the incomplete development in heritage language considering their advanced exposure to the language at birth or very early age. Then,

maturational constraints such as restricted language input and rare chances of the language output can be the main effects of the arrested development of the HL.

Although the exact role of input in the language acquisition is still controversial, it is generally agreed that input quantity of two L1s affects balanced bilingual acquisition. For example, De Hower (2007) mentions, in his survey results, that bilingual children typically experience few problems acquiring the majority language, but in order to successfully acquire the minority language, "one parent only one language strategy" is essential, which means an equal amount of input of two L1s is essential for balanced bilingual acquisition. Quantity of input especially plays a greater role in language acquisition during early years such as around age 10 (Tsimpli et al., 2004). However, in reality the amount of input of two languages of bilingual children differs from that of monolingual children of the HL because bilingual children need to divide their linguistic input for two languages.

While many scholars emphasize the importance of input (Carroll, 2001; Gass, 1997; Krashen, 1982), the quantity of input a bilingual child receives is not the only determinant of balanced bilingualism. According to the survey of the present study, HL acquisition started at an early age (average 4 months) but input was restricted at various degrees. Meisel (2007b) emphasizes that, for a child's language to be native-like competent, the child needs not only to start language acquisition during the sensitive phases of language development but also to be exposed to "the primary linguistic data during the optimal age period" (p. 496). However, mere exposure to the language may not be sufficient for a child to reach a full mastery of the language. In fact, considering evidence that some heritage-language speaking children reach the same developmental milestones as monolingual children, even with significantly reduced input

(Genesee & Nicoladis, 2007), the quantity of input a bilingual child receives is not the only determinant of balanced bilingualism.

Comprehensible input has been generally accepted as an important part for successful language learning in the field of SLA (Carroll, 2001; Gass, 1997; Krashen, 1982). The importance of the role of comprehensible output has also been gradually accepted (Doughty, 2001; Swain, 1985, cited in DeKeyser, 2007). In order to have two languages develop in balance, use of the language in an interaction with native interlocutors of the language is an equally critical factor (Swain, 1985, 1993). Based on her previous findings in a study of competence in grammar in bilingual learners, Swain (1993) emphasizes the significant roles of output practice in language acquisition. It promotes learning processing from semantics to syntax, enables learners to test their hypothesis, and reprocesses learners' earlier output in response to the interlocutor's feedback. Once learners acquire new language knowledge through external input, meaningful practice of the linguistic resources should be followed for language production, ultimately to reach automaticity in using the language (De Bot, 1996).

Despite the early exposure to the HL, the use of the HL tends to seriously drop due to language socialization. In child L1 acquisition, even though there is minor variation depending on an individual child, the evidence from the study of L1 acquisition agrees that children acquire their L1 roughly the same way. For example, a child's first words are often body parts or proper names during the first few months; by 16 months, most children say 50 words; at about 18 months, grammar bursts onto the productive scene, but usually in telegraphic speech. Having mastered the sound system of the language, learned the meanings of words, and learned how to structure sentences, children turn their attention to mastering the ways of using language in social situations at around three or four years of age. At this stage of language development, the

child starts to be aware of how to use language in social situations and understands the non-acceptance of the language which was well accepted during language interaction at home. Consequently, even though the heritage language speaker might have been exposed to the heritage language in his/her childhood, later on the heritage language is voluntarily or involuntarily used less than the socially dominant language (English in America) and used in restricted contexts (home and possibly within a small community).

Moving from the home environment, where the L1 or HL is imperfectly mastered, to an external environment, with a different socially dominant language, impedes the further development of the HL. The amount of use of their HL significantly drops in general once children enter the phase of school instruction and when peer language starts to replace their home language. Later on, if the heritage language does not receive academic support at school during the age of later language development, as is often the case, it hardly has a chance to develop much further and, thus, stays at age-inappropriate levels. By the time these children reach early adulthood, typical outcomes of the heritage language acquisition process are non-native-like competence in the use of the language, non-standardized proficiency levels, and linguistic gaps that resemble the patterns shown in L2 acquisition (Kondo-Brown, 2004; Montrul, 2011; O'Grady et al., 2011; Song, et al. 1997). The crucial role of output practice through interaction with interlocutors in language acquisition becomes clearer in the case of a physically healthy boy who acquired American Sign Language (ASL) from his deaf parents instead of English, despite the parents' ample efforts to expose their son to English input (Bowerman, 2000). This result implies that input may provide perceptive abilities but not enough for language acquisition per se.

Language cannot be acquired solely by being exposed to the language. The major factors that differentiate language acquisition environments between L1 children and HL speaking children are that in HL learning not only input data but also output practice is restricted. Factors of maturational constraints can be found not only in the restricted input but also in the limited use of HL. Likewise, every form and grammar structure of the language that a baby (the learner) hears in his or her input is not simply acquired. However, that the home language gives way to social language replacement during the optimal period of the morphology development brings about a lack of output practice and, thus, may result in the weakness of morphological knowledge among HLLs. For language acquisition to occur, not only should sufficient input be provided but also sufficient opportunities of practice should be offered through interaction with interlocutors speaking the target language.

Indication of impaired morphology in HLLs from the persistence of errors. The results of GJWC do not support hypothesis 3, "*There are differences between HLLs and NHLLs in identifying a correct morpheme to make the sentence grammatically correct*." Despite the researcher's prediction that HLLs would outperform NHLLs in the grammaticality judgment in a word completion (GJWC) test, the results revealed that there were no differences between the two groups in identifying the correct use of 10 of the 14 inflectional morphemes. Instead, HLLs produced more errors in three morpheme items than NHLLs at two proficiency levels - (beginning and advanced levels), while NHLLs produced more errors in only one morpheme, at the intermediate level, as seen in Table 24.

As previously discussed in Chapter 2, the Missing Surface Inflection Hypothesis (MSIH) posits that underlying representations of morphology in L2 speakers' productions are present even while inflections may be absent on the surface (Haznadar & Schwartz, 1997; Lardiere2007;

Prevost & White, 2000; White, 2003). The absence of surface inflection is based on the observation of discrepancy between performance and receptive abilities of L2 learners. According to this hypothesis, L2 learners show weaker competence in a productive task, when compared to the productive and receptive abilities of L1 speakers while their receptive competence remains intact (Prévost & White, 2000). The results of data analysis presented that [advanced HLLs ($M = 1.90$, $SD = 1.78$) produced significantly higher numbers of errors in Instrument postposition marker, as compared to their counterpart NHLLs ($M = .00$, $SD = .00$), F $(1, 12) = 8.00$, $p < .05$, $\eta^2 = .40$, and beginning HLLs ($M = 4.44$, $SD = 2.72$) produced significantly higher numbers of errors in the companion postposition marker, as compared to the corresponding level of NHLLs ($M = 1.39$, $SD = 1.72$), $F (1, 16) = 8.60$, $p < .05$, $\eta^2 = .35$]. These results suggest that the mapping problem in HLLs is more serious and more difficult to correct than what is found in NHLLs. These results also imply that the inflection knowledge in HLLs might be similarly impaired due to lack of functional categories (Meisel, 1997b). Furthermore, while HLLs marked higher scores on the Likert scale in several categories of aural interpretive skills on the self-assessment questionnaire (see Appendix A) – in "conversing in Korean," "listening to Korean music," and "listening comprehension in detail," HLLs' ability to identify grammatically correct morphemes is neither superior to that of NHLLs, nor superior to their own productive skills. Thus, the MSIH was not able to explain HLLs' underlying knowledge of Korean inflectional morphemes. The underlying linguistic competence of HLLs is more complicated than that of adult L2 learners and it is a plausible assumption that the HL is neither L1, nor L2.

Even though the differences between HLLs and NHLLs in the error rates by morpheme and error sources are not statistically significant, differences in the descriptive analysis should be

attended to. The results of the ANOVA show that HLLs' linguistic competence is not significantly different from NHLLs in the error rates by morpheme type. However, advanced-level HLLs (M = 6.18, SD = 4.65) produced a considerably higher rate of errors in the locative marker than did NHLLs at the compatible level (M = 2.15, SD = 2.90). This result conforms to similar findings from previous studies in Korean child L1 development that have been reported. For example, in her findings from several studies, Choi (1991, 1993, &1997) maintains that the location marker is one of the latest acquired inflectional morphemes in Korean child morphological development. Bowerman (1994) also claims that locative morphemes between Korean and English are significantly different among marking inflectional morphemes. This finding also supports the Natural Order originally proposed by Brown (1973). In the Natural Order, which was later refined by Krashen (1982) as the L2 morpheme acquisition hypothesis, Brown suggests that children acquire certain grammatical morphemes in a similar order and thus grammatical morpheme acquisition in first language is predictable. Based on the consistent results of previous studies of Korean child L1 morpheme acquisition and the Natural Order, the higher error in Locative implies that HLLs' morphological knowledge stays at Korean children's morphology development.

Despite no significance between HLLs and NHLLs in the error sources in general, differences in the scores of omission of subject and object markers were found. A further investigation of the data using 1-way ANOVA showed that significant differences between HLLs and NHLLs in error rates by omitting necessary subject markers at the beginning level, [F (1,16) = 5.78$, p$ = .03, with a higher error rate in HLLs (M = 12.98, SD = 10.90) than NHLLs (M = 3.67, SD = 5.78)], and object markers at intermediate level, [F (1,14) = 7.08, p = .02, with a higher error rate in HLLs (M = 37.52, SD = 20.18) than NHLLs (M = 13.85, SD = 15.51)]. The

results are consistent with reports of earlier studies of Korean child language. Choi (1995) reported that this pattern is one of the developmental errors by Korean monolingual children. Clancy (1973) found that Korean children acquire the object and subject markers later than other markers because of the nature of casual input of these markers at the early stages of acquisition. Thus, the findings of marker omission signify that HLLs moved on to build on English before they acquired those grammatical aspects and the incomplete acquisition remains fossilized due to the simplified speech habit during childhood.

The word order in English (SVO) is very strict in both spoken and written forms; hence, a change in word order may cause an incorrect interpretation of the utterance or causes the sentence to be ungrammatical. However, as Korean is much more flexible in word order, the subject or object can be put in either the initial or final position in the sentence when the speaker wants to highlight or emphasize a noun argument (semantically subject or object role). For example, 'Tom-*ul* (object marker) Mary-*ka* (subject marker) *ttaerye-ot-ta* (hit-PAST-DECL)' and 'Tom-*ul* (object marker) *ttaerye-ot-ta* (hit-PAST-DECL) Mary-*ka* (subject marker)' have basically the same meaning as 'Mary-*ka* (subject marker) Tom-*ul* (object marker) *ttaerye-ot-ta* (hit-PAST-DECL)' with an emphasis on a different noun argument. This argument floating phenomenon is possible because each noun argument carries a case marker that indicates its grammatical relation to the verb and its role in the sentence. Therefore, excluding subject and object markers in a Korean sentence may be interpreted as the speaker or writer failing to clarify meaning in the Korean sentence (Jeon, 1995).

The omission of markers in formal speech and in the written form of Korean is considered a grammatical error even though some of case markers are often deleted in informal speech. The grammatical aspect of markers is taught from the beginning of the Korean language

program at the university where the participants learned the language, thus, when the data were collected (at the end of a school year), participants were expected to have mastered the grammatically correct use of the markers observed. Hence, the results, from the GJWC test, of a higher rate of errors in instrument markers among advanced HLLs and a higher error rate in case markers caused by omission among HLLs suggest fossilized errors where HLLs' morphology might be impaired or underwent language attrition.

This finding of vulnerability in heritage language morphology is somewhat consistent with the results of other research studies based on the acquisition of other languages, where the researchers have reported morphology attrition phenomenon in child L1 (Anderson 1999; Dressler, 1991; Schmidt, 1993). For example, progressive reduction in the use of inflectional morphemes has been reported in Boumaa Fijian and Dyirbal by Schmidt (1993) and in Breton by Dressler (1991, cited in Anderson, 1999). Even though it is not focused on a specific HLL population, Dressler also confirms that first language loss, in both children and adults, is usually associated with grammatical patterns. Morphological reduction among heritage language speaking children, even at early ages, was also reported by Anderson (1999). After having a periodical examination of Spanish language samples produced by a young bilingual Puerto Rican Spanish-English speaking child during a 2-yr period (from the ages of 4 years, 7 months to 6 years, 5 months), Anderson found a progressive reduction of morphological and syntactical complexity in Spanish in the child's utterances. The observed errors tended to affect Spanish inflectional morphology (i.e., verb agreement errors, gender agreement errors) while the incidence of syntactic errors, such as incorrect word order in the production of noun phrases, was low.

Selinker and Lamendella (1978) define fossilization as a permanent cessation of interlanguag learning before the learner has attained TL norms at all levels of linguistic structure and in all discourse domains. In SLA theory, a fossilized error is generally defined as observable in verbal and written utterances in persistent non-target-like performance, the systematic use of erroneous forms, structural persistence, and persistent difficulty. Fossilized errors are also known as a learning plateau, cessation of learning, and an inability to fully master TL features. For Selinker (1992), interlanguage fossilization falls into two categories, individual fossilization and group fossilization. The former is the persistence of individual learner's IL development, while the latter is the plateau in the diachronic development of a community language. The individual fossilization denotes inappropriate interlanguage structures that continue to appear regularly (error reappearance) and group fossilization means the plateau in the development of language learners' phonological, grammatical, lexical and pragmatic competence. The errors committed by advanced HLLs are serious because they can result in the cessation of HL development and thus full mastery of the HL will possibly not occur.

The fossilized errors that signify impaired morphology or morphology attrition can be derived from the unique linguistic environments of HLLs where the nature of HL input is exclusively in child language, and formal instruction for the revision of child language data needed for language development is lacking or absent. Language acquisition takes place when a child speaker engages in a verbal action in a rich environment of authentic language. Thus, in theory, a similar immersion experience that HL speaking children initially have should provide them with the appropriate type of input that lead to the acquisition of authentic forms and structures of the HL. However, the source of HL input is limited exclusively to caregivers, such as parents or older siblings.

The language input that the child receives from parents and other family members is generally simplified, often in inaccurate forms. For example, the speech of caregivers is characteristically colloquial, often in exaggerated intonation, slower in tempo, and contains longer pauses. So-called "child-directed" speech does not intentionally neglect grammatical aspects but, in general, is very simplified, repetitive, and semantically adjusted to the child's interest and comprehension level (Cross, 1977). Colloquial input in child language brings forth informal output which often loads ungrammatical phrases and sentences. Furthermore, when parents are not consistently and reliably differentiating between ungrammatical and grammatical sentences in their speeches to their children, the language information is most likely stored in unsystematic forms (Pinker, 1989). Speech practice in an ungrammatical form of the language induces a grammatically deviated form of input. Finally, long-term output, or production which has not received corrective feedback, brings in fossilized errors in the speakers' grammar (Ellis, 1994).

Ungrammatical speech practice could lead to a problem in formal speech in languages where correct use of inflectional morphemes is essential. As an agglutinative language, Korean's inflectional morphemes are very unique when compared to those in other languages. Korean case marking crucially comprises the interaction of syntactic structures, semantics, and pragmatics (Choi, 1995). Since Korean allows for relatively free order of subject and object arguments in a sentence, inflectional morpheme marking plays a key role in avoiding confusions to a reader or listener. In general, the morphology acquisition is completed by ages 4-6, while syntax development continues until ages 6-11, when adult-like syntax is acquired (Lee et al., 2005). However, morphology development in a child whose language includes rich inflectional morphemes (e.g., Japanese, Korean, Turkish, etc.) can be delayed. Studies of Korean child

language development found that Korean children tend to reach full command in using case markers around the age of three-and-a-half, while the correct interpretation of OSV – contracting to normal sentence structure in SOV in Korean–--is not fully developed even after age 4 (Cho, 1988; Han 1993). A study examining children's acquisition of case markers also reported that Korean children do not have full control in using case markers until age three-and-a-half (Kim & Phillips, 1998). For example, the locative marker, one of the markers observed in the present study, was reported to be produced no earlier than at age 4 (Choi, 1995).

Accordingly, the linguistic data of the morphology received around this age tends to be in forms deviant from the standard norms of native adult speakers of the HL, which can be defined as grammatically incorrect. Assuming parents or caregivers corrected the child language to adult norms, young children would not use that information as it is not age-appropriate (Pinker, 1989). Hence, the revision of maternal input should occur later as the child grows. However, once the child's social language (e.g., English in the United States) becomes a primary language from the time of exposure on, the intake (Swain, 1985) of linguistic data of the morphology is rapidly reduced, and the use of the language is extremely limited, and in worst cases, discontinued. Therefore, since the morphology is the linguistic aspect that later concludes the childhood language development, and further support or provision of linguistic data is not sufficient, HLL's morphology development is arrested at the child level.

Lack of both HL use and correction to child language data is a prominent phenomenon especially among Korean immigrant families (Shin, 2005). Until recently, fluency in English has been highly emphasized among Korean immigrant families. Due to the exclusively dominant power of the English language, typical first-generation Korean immigrant parents have urged their children to learn and practice English even at home in their early infancy (ages 2-3), when

the children are still at the stage of acquiring Korean morphology. When these children are sent to daycare centers or preschools, around the ages of 3-5, their experience in English overrides that of Korean (Shin, 2005). Thus, HL morphology is plateaued at the Basic Interpersonal Communicative Skills (BICS) level (Cummins, 1984). In written form, for example, HLLs often use conversational language, and write exactly what they would say-- not what would be correct in the written form. There is a mismatch between heritage language learners' skills for basic social interactions in the target language (i.e., BICS), and the skills for academic learning taught in higher level courses, so-called Cognitive Academic Language Proficiency (CALP) (Cummins, 1984).

Many previous linguistic and neurological studies (Curtiss, 1977; Johnson & Newport, 1989; Lenneberg, 1967; Newport, 1984; Newport & Supalla, 1990) have explained the loss of language learning ability in both L1 and L2 acquisition with the Maturational Hypothesis. According to the Maturational Hypothesis, which predicts that language learning abilities decline with maturation, the optimal period for grammatical acquisition–in general–begins to fade out as early as the ages of 3 or 4, which is considerably earlier than assumed. In a similar vein, under the circumstances where updated input and feedback for the earlier input is not provided at each stage of language development, the linguistic data of the morphology that has been once provided can be impaired through progressive attrition.

Attrition can be defined, among a wide range of definitions, as a change in L1 or restructuring in an individual speaker's grammar (Pavlenko, 2000). Childhood bilingualism may show either a steady state of balanced competence in two languages, or an imbalanced competence. In the latter case, one of the child's languages begins to undergo attrition or early stabilization (Montrul, 2002). Scholars (e.g., Montrul, 2002, 2008a; Polinsky, 2006, 2007) called

attention to the seriousness of early L1 attrition. If child L1 attrition starts before puberty, the attrition is regarded more seriously than adult L1 attrition, because the child is "more susceptible to L1 loss" (Montrul, 2008a, p. 60) than other language-learner groups.

The process in HL acquisition and its loss or attrition is well illustrated by Braine's Discovery Procedures Proposal (Braine, 1971, cited in Bowerman, 1988). According to this proposal, linguistic properties are repeatedly registered in the child's lexicon, and while the registration of linguistic properties in a child is repeated, they are passed along in a series of intermediate memory stores until they reach permanent memory. Finally, even though a general rule is stored in permanent memory, if lexical exceptions exist in the general rule, the general rule "is overridden by information about the syntactic and morphological behavior of individual words" (Braine, 1971, cited in Bowerman, 1988, p. 93). Hence, an inclination to use English over Korean might handicap learning about case markers.

In the present study, the findings of a higher error rate in the advanced HLL group and HLLs omitting necessary case markers more frequently than the advanced NHLLs indicates that HLLs' morphology seems to be fossilized or to have become impaired. Additionally, the finding that HLLs at the intermediate and advanced levels produced a noticeably higher numbers of errors in the locative marker than did NHLLs at the compatible levels implies that HLLs moved on to build on English before they acquire those grammatical aspects, and thus, HLLs' morphological acquisition remains incomplete, as Korean children's morphology. Taken together, reduced and simplified linguistic data during childhood, rare opportunities to revise the child language, and lack of use of HL seem to have induced the progressive attrition among HLLs, which is manifested as fossilized errors in commonly used inflectional morphemes in their HL. As early L1 attrition is considered more severe than adult L1 attrition (Montrul, 2008b),

and fossilized errors are considered to be formed when formal instruction is lacking and corrective feedback is insufficient (Lightbown & Spada, 1990), not only special attention for immediate intervention but also differentiated approaches for HLL and traditional L2 learners from the foreign language instruction are necessary.

Larger variation within HLL group in linguistic competence. A comparison of the means of error scores from the three data analyses between HLLs and NHLLs presents a larger variation in linguistic competence among the HLL group than among the NHLL group. Even though no significant differences were identified in EA and no significant differences in 10 items among 14 in the GJWC, there is a noticeable difference between the HLL group and the NHLL group. Within the NHLL group, the error rates tend to present a decreasing pattern as proficiency levels increase across the three analyses. In contrast, this same decreasing pattern in error rates is unclear among HLLs.

The results from the data analysis of EA by morpheme type indicates that the NHLL group presents a gradually decreasing error-rate pattern in 8 morpheme categories out of a total of 14 morphemes: subject, topic, and object markers, and instrument, temporal, direction post-positional particles and "AND" and "BUT" affixal connectives, as can be seen in Figure 5. In contrast, a decreasing pattern of error rates through three proficiency levels within the HLL group is found only in four types of morphemes out of a total of 14 morpheme types: in indirect object and temporal post-positional particles and "AND" and "BUT" affixal connectives as given in Figure 6.
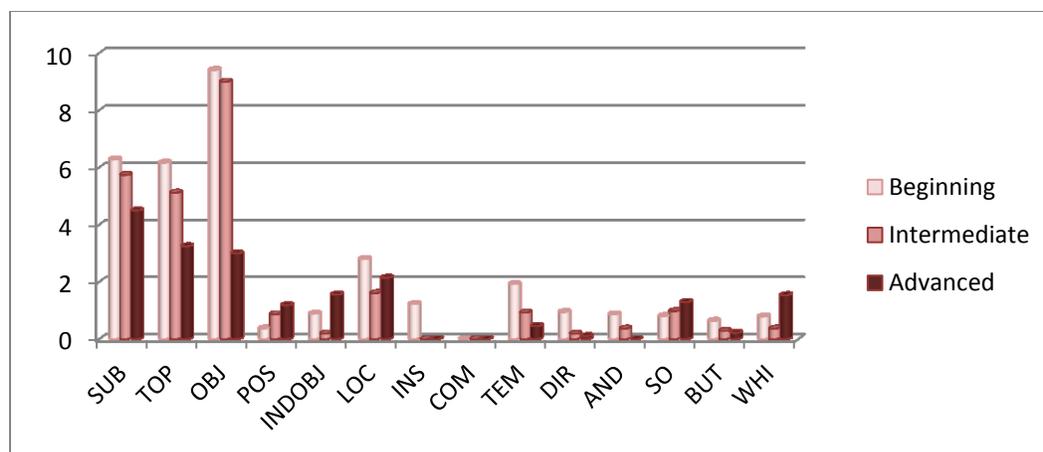
Figure 5 *Patterns in error rates by morpheme type in EA within Non-Heritage group*
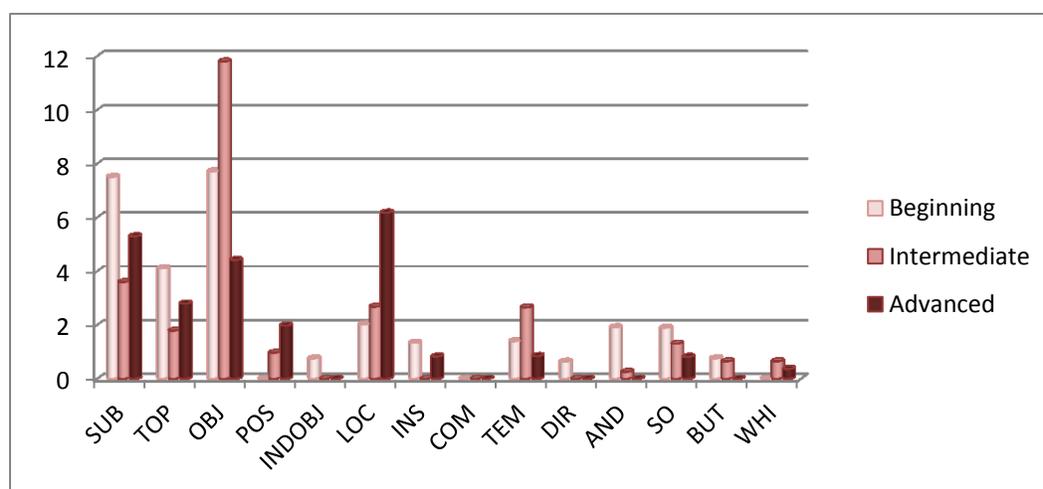
Figure 6 *Patterns in error rates by morpheme type in EA within Heritage group*

The results from the data analysis of GJWC also show that those NHLL groups display a gradually decreasing pattern in error rates in seven categories of morphemes out of a total of 14 morpheme types. The advanced NHLL group produced the lowest error rates in 12 types of morphemes except in two categories the advanced group produced higher errors in subject and temporal markers than those in the intermediate level and beginning level, respectively. In contrast, the decrease patterns of error rates among HLLs through three proficiency levels are found only in four types of morphemes: the advanced HLL group committed the same rate of errors as intermediate in subject and instrument markers, and affixal connective "WHILE". They

produced more errors than either the intermediate or beginner groups, or both groups combined, in seven types of morphemes: topic, indirect object, locative, temporal, direction markers, and affixal connectives "AND" and "BUT." These differences in the patterns of error rate changes within each group are given in Figure 7 and 8.
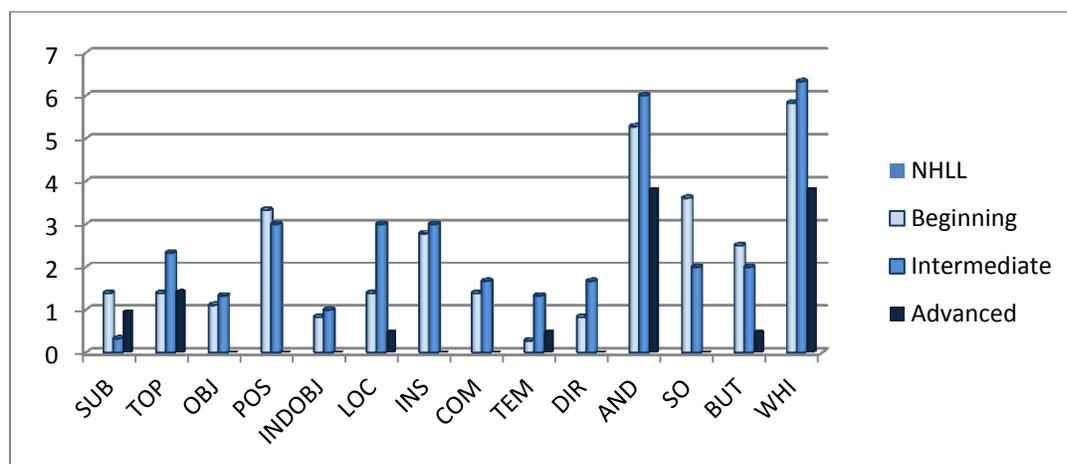
Figure 7 *Patterns in error rates by morpheme type in GJWC within Non-Heritage group*
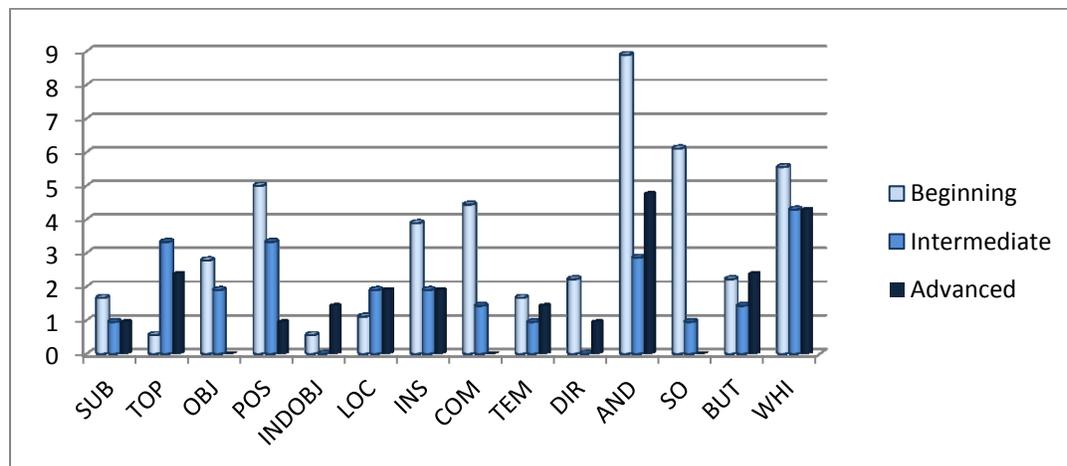
Figure 8 *Patterns in error rates by morpheme type in GJWC within Heritage group*

Overall, while the NHLL group tends to present fewer errors as proficiency levels increase, this tendency of a decreasing error pattern is not clearly present within the HLL group. These results suggest that linguistic variation is larger among HLLs than among NHLLs.

The finding of larger linguistic variation in HLLs is somewhat consistent with the finding of other research studies (Kim 2013; Polinsky, 2008; Polinsky & Kagan, 2007; Valdés, 2001). For example, Polinsky (2008) examined systematicity in HL of American Russian speakers in their morphological knowledge of 45 selected inanimate gender nouns. From the data of this experimental study, she concluded that there is a significant range of variation in the response to the grammaticality judgment tasks among American Russian speakers. Additionally, in her study of word association behaviors of Korean HLLs as compared to those of NHLLs and native Korean speakers, Kim (2013) reported that the heritage learners' responses were idiosyncratic, although HLLs' responses that require sociocultural context were similar to those of native Korean speakers and consistent with a larger vocabulary size due to their authentic sociocultural context. She mentions that HLLs' preferences in word selection are not consistent with those of either native speakers or non-heritage leaners, but varied depending on the subcategories of meaning-based and position-based responses.

The causes of the larger linguistic variation among HLLs can be in a wider range of differences in individually specified linguistic environments, when compared to monolingual speakers, and in the social circumstances in which an individual heritage child or adolescent is situated. The most accepted L1 acquisition theory may be Universal Grammar (UG). Advocates of UG believe that language is wired into a child's brain so a child can master the L1 despite the "poverty-of-stimulus." (Hyams, 1986) In the UG framework, normal children acquire the basic grammar in L1 by ages 3 or 4 with minimal exposure to language input. According to UG, the children understand systematic relations between form and meaning in terms of phonological, morphological, semantic, syntactic, and discourse levels of the language due to the language acquisition device (LAD) (Chomsky, 1995), which enables children to learn language even

before the child is exposed to language-specific input. However, since voluminous research studies have reported syntactic and morphological variations across languages in an attempt to fix such logical problem in UG, a new version of the LAD was proposed (Hyams, 1986; Roeper & Williams, 1987). The so-called parameter setting theory predicts that children have innate capacity to set the correct parameters of the language they learn with minimal exposure to the language input. For example, Spanish infants can set the parameter to the "pro-drop" setting and English infants set the parameter to the "non-pro-drop" setting despite the absence of explicit learning (Hyams, 1986).

More recently, scholars in cognitive linguistics and SLA areas have focused more on the principles and parameters approach in L1 acquisition (Cook, 2010; Haegman, 1991). They view the child's language acquisition as an ability that builds language knowledge by responding to language input. In other words, the child possesses built-in principles and parameters but these linguistic elements are applied differently according to the properties of the lexical items the child learns. Additionally, a child's grammar develops during acquisition but it is largely determined by how the parameters are set on the basis of the input language and by how the parameters interact with the innate principles during the course of acquisition (Cook, 2010). This new approach accommodates a better understanding of the greater variation in linguistic competence observed in HLLs, although either the original UG or parameter setting theory may not fully explain this phenomenon in HLLs.

If the inbuilt principles and parameters are applied differently according to the properties of the lexical items that the child learns (Cook, 2010), rather than input itself, the more critical factor in HL acquisition is how these principles and parameters in the weak L1 are set on the basis of the informal and prominently reduced amount of input. A study examining Korean child

language development reached a similar conclusion that the acquisition of the L1 grammar is accomplished through children's interactions with native interlocutors (Choi, 1997). Even though LAD might be pre-installed, it might not be appropriately and efficiently activated efficiently when the normal natural linguistic environment of L1 acquisition is not available around the child.

Although the direct cause of the observed large linguistic variation may be due to varied use of the HL through interaction with native interlocutors, scarcity of institutional HL education can also be attributed to the larger linguistic variation phenomenon among HLLs. Most heritage speakers of Less Commonly Taught Languages (LCTLs) in the United States are schooled in English and do not receive formal instruction in the heritage language until high school or college. Although many scholars have pointed out the lack of support for LCTLs, the lack of support of "truly foreign languages" (Walton, 1991, p111) is more prominent than principal LCTLs (e.g., Arabic, Chinese, Japanese, Russian).

In general, the LCTLs include all foreign languages other than French, German, and Spanish. Walton (1991) classified this further into three subgroups: the less commonly taught European language group (e.g., Russian, Italian, and Portuguese); the higher-enrollment non-Indo-European language group (e.g., Arabic, Chinese, Japanese); and the lower-enrollment non-Indo-European language group (e.g., Hmong, Korean, Swahili). Walton also defines the third group of languages as "truly foreign languages". Korean, among the "truly foreign languages", has not been noticeable in American foreign language education until recently even though it has quietly come into view with its own traditions and styles of organization (Cho, Cho & Tse, 1997). Consistent with Walton's definition (1991), Korean as a "truly foreign language" is one of the

least visible languages in America, which reflects a weak language power in America. Consequently, the opportunity for holistic input and interaction is greatly decreased.

HL education of adolescents often resorts to familial education or a local Saturday school, depending on the individual's choice. However, the levels of familial support of HLLs are very diverse. For example, two HLLs, who had finished second year of Korean class at different time periods and returned to participate in the present study, expressed their regret about the fact that during their childhood using the Korean language was discouraged in their respective homes. Their parents believed being fluent in English only guarantees their children's success in the United States. Such experiences of adolescent speakers are significant because this developmental stage represents a critical time for identity formation, and language plays a significant role in adolescent identity development (Cho & Krashen 1998; Tse 1998; Tseng and Fuligni 2000, cited in G. Cho, 2000). Therefore, the image of weak power in their HL and scarcity of educational programs press many young HLLs to give up their language and ethnic identity as they move through the educational system.

In addition to the weak image of their HL, a lack of dual-track programs in postsecondary-level education is also challenging in HL education (Rosenthal, 2000). Currently, a majority of American universities, except those in big cities, follow a single-track program where HLLs and NHLLs are mixed in the same classroom. Because HLLs' learning experiences and linguistic profiles are essentially different from those of NHLLs and the single-track programs at colleges focus on traditional L2 learners (i.e., NHLLs), HLLs' problems, such as linguistic knowledge and accuracy, are seldom reflected in the school curriculum and, thus, stay unresolved.

Monolingual children's social milieus that facilitate language development are not dissimilar in general, even though they possess their own individual home language environment and experiences. However, the level of informality built into heritage speaking children and the amount of input they receive is varied. Thus, it becomes more complex when the bilinguals are positioned in an environment where the two languages are not equally valued and used. When monolingual adults learn an additional language, their mistakes or errors arise from their "Interlanguage" system between the L1 and L2 (Selinker, 1972). This intermediary stage (Interlanguage) also exists in child L1 acquisition processing. Children initially begin to acquire their L1 as speakers of their own personal languages rather than as flawed speakers of the adult language (Goldschneider & DeKeyser, 2001).

The interlingual system in adult HLs is certainly more complicated than in either the child L1 or the adult L2. They have two interlingual systems: one interlanguage of an incomplete L2, like HL, and a dominant L1, and the other interlanguage of normal children's intermediary stage between child-like HL and adult-like HL. The language environment of a heritage child tends to be more dynamic, fluid, and complicated than a monolingual English-speaking child. Therefore, variation in linguistic competence can be substantially larger, considering the language environment that an individual heritage child might encounter.

Conclusion

A wide body of research (e.g., De Houwer, 1995, 1998; Meisel, 1990, 1994) focusing on early bilinguals has reported that both languages (e.g., German and French, or English and Swedish) develop in the same fashion as in monolingual acquisition. Quantitative differences do not arise even though the rate of development may be delayed, in few cases quite

significantly. The question in this context, however, is whether the same conclusions are warranted in cases in which one of the languages appears to be significantly weaker than the other, especially when the special focus is on the grammatical development of unbalanced bilingual children. Hence, this study attempted to bring about a clearer picture of adult heritage language learners' (HLLs) linguistic knowledge by analyzing errors revealed on their written products and grammaticality judgment test, compared to their counterpart non-HLLs (NHLLs).

In order to examine the specific linguistic abilities of HLLs as compared to English-speaking learners of Korean, and to identify whether Korean HLLs have advantages over their counterpart NHLLs in linguistic competence, the present study explored the linguistic competence of early bilinguals living in the United States with English as a primary language and Korean as a heritage language, using three measures–a self-assessment survey, an error analysis using learners' writing samples, and a grammar test. The present study provides evidence that Korean as a weak L1 (i.e., HL) is not dissimilar to NHLLs' Korean as an L2. Fossilized errors in impaired morphology are salient among HLLs, especially at the advanced level, and this study shows that the linguistic variation is larger within the HLL group than within the NHLL groups.

This study provides support for the Weak Language (WL) as L2 hypothesis proposed by Schlyter (1993) but provides no evidence of the WL as L1 hypothesis (Montrul, 2008a). From the results of the self-assessment survey, early input in a natural setting seems to be advantageous for HLLs' aural interpretive competence. However, HLLs did not outperform NHLLs through three proficiency levels on the written productive task despite apparently quicker and better response from HLLs. The sources of errors observed in HLLs generally resemble those in NHLLs, even though the main sources of the groups are not the same. Overall,

the results of the data analyses suggest that the weaker language in early bilingualism (i.e.,

Korean as HL), is similar to Korean as a second language, which supports WL as L2 (Schlyter).

However, there are some findings that indicate that HLL's morphological competence does not

totally match that of NHLLs.

From the results of analysis 2, the main sources (omission, replacement, addition, and

malformation) that induce the errors made by HLLs and NHLLs are different. While

significantly higher errors were produced by omitting necessary subject and object markers

among HLLs, significantly higher errors were produced by replacing necessary object markers

among NHLLs. Additionally, a higher rate of errors in locative marker committed by HLLs than

by NHLLs indicates that the HLLs' morphology resembles that of Korean children's

morphological development. However, despite the similarity between adult HLLs' and native

Korean children's morphology, the significantly higher error scores obtained by advanced and

beginning levels of HLLs than by NHLLs at the corresponding levels in the three categories of

morpheme suggest that HLLs' underlying morphology is impaired. Based on the Missing

Surface Inflectional Hypothesis (MSIH) that was provided as the theoretical framework of the

present study, it is plausible to conclude that the HL is not exactly matching either adult L1 or L2

but is far more complicated than assumed.

Even though it was not initially intended to be investigated in this study, the findings

from data analyses 1 and 3 suggested that the linguistic variance is larger within the HLL group

than within the NHLL group. This confirms that the level of input and output is widely varied. It

is considered that this large linguistic variance is due to the fact that, currently, HL education of

young children and adolescents with a heritage background of much Less Commonly Taught

Languages (LCTLs) exclusively resorts to familial support, but institutional education opportunities are extremely restricted (You, 2005).

The HLLs' weak linguistic ability may have resulted from informal input, lack of language output practice, language shift at schooling age, and an absence of feedback for child language data revision. As morphosyntactic features develop later than lexical and semantic aspects, morphology development could be delayed among children whose language includes rich inflectional morphemes. Even though continuing morphology data input and its revision is essential for the child's heritage language development, output practice becomes extremely reduced due to social language (i.e., English) replacement and its dominance in language use. Consequently, the heritage language is not matured sufficiently to form the morphology system in native adults. Moreover, due to the absence of corrective feedback to the grammatically incorrect data, HL morphology development is arrested, and the incorrect forms are then fossilized. Therefore, it is highly likely that progressive attrition starts early among HLLs and finally, as morphology becomes impaired, the heritage language proficiency of HLLs tends to stay at the basic interpersonal communication skill level. The figure 9 illustrates HL acquisition processing in a modified version of the Atkinson–Shiffrin's multi store model of memory (Adapted from Schmidt, 1990).
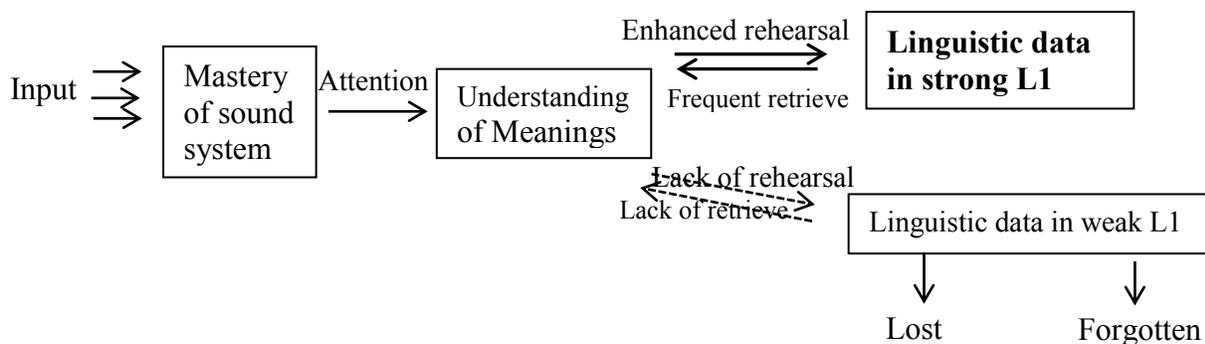
Figure 9 *Weak L1 and strong L1 acquisition processing of Heritage speaking children*

The differences in an individual heritage child's input and use of the input through interactions with native interlocutors of the HL are manifested in larger linguistic variance among HLLs. While a wide range of differences in an individually-specified linguistic environment contributes to the larger linguistic variation among HLLs, social circumstances during childhood or adolescence of an individual HLL also impact linguistic competence. Although the wide-ranging amount of HL input and use of the HL may be the direct sources of linguistic vulnerability and larger linguistic variation in HLLs, the scarcity of institutional HL education is also attributed to this phenomenon.

Such phenomenon is particularly prominent among HLLs of LCTLs (Valdés, 1995). While balanced development is generally found in bilinguals whose languages are commonly taught languages, unbalanced development is usually found in the bilinguals of LCTLs. Especially, the impact of institutional limitations in the programs of the "truly foreign languages" (Walton, 1985, p111) is critical to identity formation and education opportunities of adolescent learners of the heritage languages. Language power strongly influences ethnic identity at this age (You, 2005). Thus, such restricted support for "truly foreign languages" tends to result in a low level of motivation in learning their heritage language.

Though L1 and L2 acquisition have been long studied, many features in the language acquisition are still debatable (e.g., critical period, among several other issues). Accordingly, as an emergent area, HL acquisition is comprised of many unknown properties yet to be explored. The linguistic milieus of HLLs and NHLLs are different: while NHLLs usually lack sufficient opportunities for real-time processing at natural settings and lexical retrieval at normal speed, HLLs seldom have opportunities to use their HL in an obligatory grammatical context unless they do not take the language course at an educational institute. Thus, HLLs are seldom trained

to produce morphologically correct forms of their HL despite the advanced exposure to the language. As a result, attrition can start before puberty, which is regarded to be highly subject to language loss (Montrul, 2010).

The findings of this study bring some insights into significant issues in heritage language education. It is suggested that young heritage speakers of truly foreign languages (i.e., Korean heritage children) be moved to build on their English before they acquire grammatical aspects in the HL and the incomplete acquisition of HL remains fossilized until they receive corrective feedback. Heritage language learning is comprised of two interlingual systems: one in an informal and L2-like HL and dominant L1, and the one that normal children experience – the intermediary stage between the incomplete children level HL and adult level HL. Thus, the interlingual system in HLLs is inevitably more complicated than the interlingual system of L1 or adult L2. Considering the fossilized errors due to insufficient feedback, the larger linguistic variation pattern, and the comparatively stronger aural interpretive abilities among HLLs, special attention for immediate treatment and differentiated approaches and differentiated supports for HLL and traditional L2 learners are critical.

The Pedagogical Implications

Based on the findings of the present study, several pedagogical implications can be drawn. The findings suggest not only special attention for immediate intervention but also differentiated approaches from foreign language instruction are necessary in heritage language education. Thus, the pedagogical implications of these findings could be to provide an instructional environment where the weak linguistic competence of HLLs is improved and comparatively advanced aural interpretive abilities can be put to greater advantage in order to strengthen overall language proficiency. Although the conclusions of the present study may not be generalizable to heritage

languages of balanced bilinguals, these findings suggest that linguistic competence of HLLs of "truly foreign languages" (Walton, 1985, p111) is vulnerable, and thus, it is pressing to provide linguistically accurate input for adult HLLs to be able to revise incomplete or impaired HL morphology. Another crucial point for teaching practices is to provide educational opportunities at institutional dimensions for HLLs from early ages.

The significantly higher error rates in the Instrument marker among advanced HLLs indicate fossilization of incorrect morphological forms. Many researchers (Graham,1981; Higgs & Clifford, 1982; Schumann, 1978; Scovel, 2000, cited in Sims, 1989) in the field of SLA have discussed the causal factors of the fossilized errors as broadly twofold: internal and external. Higgs and Clifford (1982, cited in Sims, 1989) found the causes of fossilized errors in that fossilized errors occur due to learners' prior language experience in an informal setting, which then inhibits the learners progress in formal classroom instruction. Graham (1981, cited in Sims, 1989) suggests that the lack of formal instruction in the TL is one of the major causes for fossilization of incorrect language forms. The author argues that simple contact with the TL could lead the language learner to develop IL as idiosyncratic languages with rules are often wildly different from standards of the language.

The causes of the fossilized errors in SLA mentioned by these scholars do not seem to be dissimilar to those of the HLLs' fossilized errors. The lack of formal instruction and systematic skill a heritage child resorts to while having difficulties in expression can be external causes while simplification of the TL, neglecting accuracy, and ignorance of rule restrictions can be internal factors that cause fossilized errors (Ellis, 1994). As discussed earlier, previous input in child language data and later the lack of formal instruction in HL seem to be the main sources of the fossilized errors in HLLs. Provision of linguistic data to heritage children is not usually

sufficient to reach adult level, the existing input of linguistic data of the morphology is drastically reduced at a certain age when social language replaces home language, and at the same time, output is rarely practiced. The age when the HLLs are the most vastly exposed to the language data is before the language shift occurs, usually prior to preschool age. Thus, the informal and grammatically deviant language data is formed and later presented as fossilized errors in non-age-appropriate utterances and adult HLLs' language tends to remain at the semantic level, or at Basic Interpersonal Communication Skills (BICS) level.

Although conscious attention may not need to be drawn to grammatical input in child L1 acquisition, language cannot be acquired solely by being exposed to the language. Likewise, every form and grammar of the language that a baby (the learner) heard in his input simply is not acquired. As DeKeyser (2007) points out, "learners' consciousness of certain linguistic forms" (P.51) is raised through output-practice because output practice promotes automaticity which strengthens the connection between declarative and procedural knowledge (Swain, 1985). New forms such as grammar, structure and idioms entered the integrated system in stages. Forms are incorporated piece by piece into the larger integrated system of the language until the baby (learner) internalizes the grammar, structure, and idioms (DeKeyser, 2005). In this sense, instructions that involve learners' attention to both form and meaning are necessary in adult HL education in order for adult HLLs to move beyond the BICS language proficiency, to the Cognitive Academic Language Proficiency (CALP) level.

While the trend in teaching language has changed over many decades, since the emergence of communicative language teaching (CLT), currently the majority of scholars and practitioners in SLA and bilingual areas emphasize learner's communicative competence. As its theory is based on the concept that the primary function of language use is communication, the

major goal of CLT is to develop communicative ability (Hymes, 1971). CLT suggests teachers use comprehensible and accessible input in modified language use such as repetition, slower speech rate, and simplifying language. However, considering their comparatively higher aural abilities despite the vulnerable linguistic competence presented as fossilized errors, teaching methodology for HLLs needs to be differentiated from the current one for traditional L2 teaching. In fact, Rosenthal (2000) proposes the need of specialized curricula for HL education because of their relatively strong aural skills but limited reading and writing skills. Additionally, as discussed, though HLLs and NHLLs are not significantly different in morphological knowledge overall, HLLs' fossilized errors in morphology, possibly impaired due to inaccurate language data during childhood that has remained unrevised, require a remedial instruction.

Fossilized errors are formed when formal instruction is lacking and corrective feedback is insufficient (Lightbown & Spada, 1990). Therefore, for remedial instruction to treat fossilized errors, approaches of form-focused instruction with corrective feedback are needed (Long, 1991). Form-focused instruction provides explicit information about correct linguistic data during exposure to input in the form of corrective feedback (Long, 1991) because from feedback, learners can hypothesize and test their language use and, thereby, feedback enables the learners to restructure the language system (Montrul, 2010). DeKeyser (1995) mentions that good practice encourages L2 learners to focus on form and function relations rather than form alone. As a compromising instructional approach between traditional focus-on-formS and focus-on-meaning, focus-on-form emphasizes inducing form while meaning is conveyed. The benefits of focus-on-form are illustrated by comparing it with focus-on-formS by Doughty and Williams (1998) as follows:

> … a focus on form entails a focus on the formal elements of language, whereas
> focus on formS is limited to such a focus … the fundamental assumption of

focus-on-form instruction is that meaning and use must be evident to the learner at the time that attention is drawn to the linguistic apparatus needed to get the meaning across (p. 4).

Grammar teaching has been ignored since the 1970s, as many researchers insisted that conscious learning of grammar forms cannot be transformed into automatic linguistic competence. For example, Ellis (1997) points out problems in the traditional approach to grammar teaching: learnability and the psycho-affective issue. According to Ellis, teaching target grammar structures that learners are not developmentally ready to learn hinders the learners identifying the structures and comprehending their meanings. Furthermore, when learners make mistakes upon a teacher's request to produce the targeted structures that are still difficult for them, the degree of the "psycho-affective block" (p. 150) rises. Traditional instruction places a heavy emphasis on mechanical drill activities, which do not involve learners' comprehension of the stimulus in order for them to formulate a correct response in the TL, but require learners to produce output immediately after discrete-point grammar instruction. In a word, traditional grammar instruction focuses on forms rather than on meaning of the TL.

The concept of grammar teaching has been extended and large research studies have proven that attention is a key factor in language learning. In fact, it has been proven by many researchers (Carroll & Swain, 1993; DeKeyser, 1995; N. Ellis, 1993; Nagata, 1993; Robinson, 2003) that the role of explicit grammatical explanation or rule presentation is beneficial in second language acquisition. Similar results of the positive role of explicit grammar instruction in the Korean and Spanish HL classrooms have been consistently reported in many research studies (Potowski, 2007; Song, et al., 1997). For example, after conducting an experimental study utilizing the grammaticality judgment task and an elicited written production task, Montrul (2010) concludes that explicit instruction, along with negative evidence and feedback in the

classroom benefit HLLs. Potowski (2007) also makes a suggestion that learners in a dual immersion context may benefit from form-focused grammar instruction. Although conscious attention has not been drawn to grammatical input in child HL acquisition, instructions that involve learners' attention to both form and meaning are necessary in adult HL education for adult HLLs to move beyond the semantics level proficiency to the syntactic level.

The needs of foreign language (FL) learners are well reflected in the current standards of FL teaching, emphasizing learners' competence in communicative and interactive language skills (Adair-Hauck, & Donato, 2002). However, the communicative approach or implicit instruction does not support HLLs' language learning process appropriately because HLLs generally present comparatively higher listening comprehension and advanced in basic communicative skills (Rosenthal, 2000). Under the current FL education circumstances (i.e., dual-track programs), instructional techniques in the Processing Input (PI) Model (VanPatten, 1996) and PACE Model (Adair-Hauck, & Donato, 2002) benefit both FLLs and HLLs.

The goals of the two models embrace the standards of current FL teaching in that the main instructional objective of both PI and PACE is to integrate grammar instruction or focus on form with the current standards of FL teaching/learning that emphasize communicative and interactive language competence (Donato & Adair-Hauck, 1992). The major instructional goal of these models is to provide leaners with opportunities to focus on the language system of the TL in order to draw learners' attention to grammatical form while not losing focusing on meaning (VanPattern, 1996; Donato & Adair-Hauck, 1994). Figure 10 illustrates the differences in grammar teaching approaches in traditional teaching, current standards of FL teaching, and the PI and PACE models.

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┌─────────────────────────────────────────────────────────────────────────┐
│                    Traditional grammar teaching                           │
│  ┌──────────────┐        ┌────────────────┐        ┌──────────────┐      │
│  │ Explicit Form│  ══▷   │ Pattern drill of│  ══▷   │ Production   │      │
│  │ teaching     │        │ FormS          │        │              │      │
│  └──────────────┘        └────────────────┘        └──────────────┘      │
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┌─────────────────────────────────────────────────────────────────────────┐
│                      Current standards of FL                              │
│  ┌──────────────┐        ┌────────────────┐        ┌──────────────┐      │
│  │ Learner's    │  ══▷   │ Implicit teaching│ ══▷   │ Functional   │      │
│  │ attention    │        │ of Form        │        │ Tasks        │      │
│  │ to Meaning   │        │                │        │              │      │
│  └──────────────┘        └────────────────┘        └──────────────┘      │
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┌─────────────────────────────────────────────────────────────────────────┐
│                            PI/PACE                                         │
│  ┌──────────────────┐   ┌────────┐   ┌──────────────────┐                │
│  │ Learner's        │   │ Tasks /│   │ Learner's        │                │
│  │ attention to     │   │ Product│   │ attention to     │                │
│  │ Form             │   │        │   │ Meaning          │                │
│  └──────────────────┘   └────────┘   └──────────────────┘                │
└─────────────────────────────────────────────────────────────────────────┘
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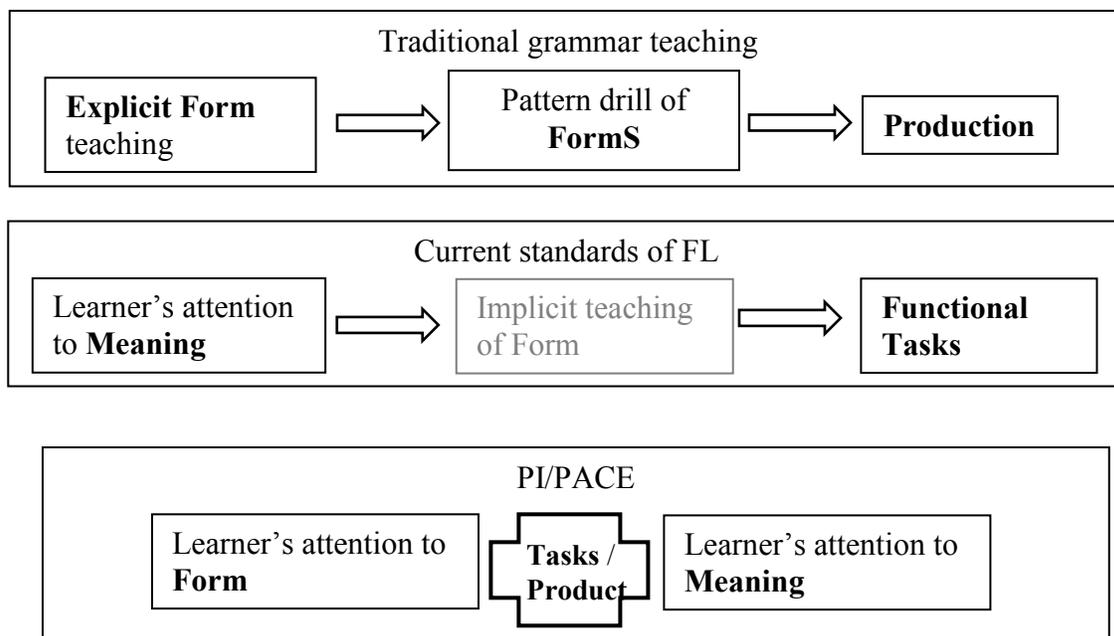
Figure 10 *Comparison in instructional approach in traditional FL teaching, current FL teaching, and teaching in PI / PACE*

Specific instruction strategies in focus-on-form have been suggested by VanPattern (1993, 1996) in his Processing Input (PI) model. The instructional techniques, based on PI model, consist of three key components: an explicit explanation of grammar that is not paradigmatic, information on processing strategies, and structured input tasks and activities. Among the three elements, two types of structured input activities are referential and affective. The goal of these activities is set for learners to be able to extract the meaning of the sentence or utterance from the targeted grammatical form. During these activities, there is a right or a wrong answer, which allows the teacher or researcher to determine whether or not learners are attending to the targeted grammatical form for the meaning that it encodes. Research related to Processing Input has found that PI is superior to traditional instruction for interpretation tasks (Benati,2001, 2005; VanPatten, 1993, 1993b; Wong, 2004).

The PACE model consists of four parts: "Presentation phase. Attention phase, Co-construction phase and Extension activities phase" (Donato & Adair-Hauck, 1994, p. 266). Teachers adopting the teaching techniques in the PACE are supposed to design story-based activities as well as critical strategies for learners' to negotiate the meaning of the stories. The learners are encouraged to discuss any symbolic or cultural nuances of the story as well. These instructional techniques in PACE are especially beneficial for HLLs as they have higher socio-cultural knowledge compared to traditional FLLs (Rosenthal, 2000) and, at the same time, learners' linguistic accuracy can be promoted by attracting learners' attention.

Form-focused grammar instruction is beneficial especially for HLLs in that under this approach learners' attention is drawn to the grammatical form of language features that they are already able to use communicatively. The input to which heritage speakers are exposed is not only quantitatively but also qualitatively (Sorace, 2003) different, assuming that heritage speakers generally receive simplified input appropriate for children. Incomplete acquisition by heritage speakers is most likely due to reduced input and limited use of the heritage language. Therefore, form-focused instruction of grammar can improve the weak linguistic competence of HLLs and comparatively advanced aural interpretive abilities can be put to greater advantage in order to strengthen overall language proficiency at the same time.

While the current curriculum of foreign language programs can be not advantageous for HLLs, a lack of educational opportunities of HLs limits the amount and quality of input and output practice for HLLs. Most heritage speakers of LCTLs in the United States are schooled in English and do not receive formal instruction in their heritage language until high school or college. You (2005) argues that linguistic minority children have oftentimes been unnoticed with indifference in school curriculum, isolated from the main stream, and merged into main groups

to learn the official language. Much research (Fishman, 1991; Krashen, 1997; McCarty, 2003) argues that languages other than English in the United States are disappearing rapidly across generations. Thus, minority children might lose an opportunity to benefit academically, socially, and culturally from bilingualism. HL education needs to be included in the early levels of institutional system so that HL learning motivation and language identity among linguistic minority adolescents can be promoted.

Additionally, dual-track programs, which focus on the needs of HLLs and NHLLs separately, are still scarce in America, except in several big universities despite fundamentally different HLLs' linguistic profiles and academic needs from those of NHLLs. Challenges in a single-track foreign language program have been pointed out by some scholars (Carreira, 2003; Carreira & Kagan, 2011; Potowski, 2007; Valdés, 1995, 2001). On one hand, as HLLs tend to show quicker responses to teacher's verbal questions during class than their peer NHLLs, NHLLs and teachers often believe that HLLs have advantages in learning their HL. On the other hand, the presence of HLLs may even intimidate beginner FL learners (Rosenthal, 2000). Moreover, as the curriculum of single-track foreign language focuses on the needs and characteristics of L2 learners, and as the strengths of NHLLs are weaknesses of HLLs, school curricula often fails in resolving HLLs' problems in linguistic knowledge and accuracy (Carreira, 2003; Carreira & Kagan, 2011; Potowski, 2007; Valdés, 1995, 2001). In classroom practice, as a result, the larger linguistic variance in HLLs also causes difficulties for HL teachers of a mixed-group in finding the median proficiency level of the class, which is necessary for classroom teaching preparations. Because HLLs' learning experiences and linguistic profiles are different from those of NHLLs, the curriculum in dual-track programs that separate HLLs and NHLLs can

better focus on the need and problems of each of the language groups and thus promote better learning outcomes for both groups.

In conclusion, despite HLLs' unique characteristics and a wide-range of spectrum of language competence, the issues and needs of this group of learners are not appropriately reflected in the curriculum in most American foreign language programs, due to apparent advantages (e.g., a quick aural response, comparatively better socio-cultural knowledge) and learning settings in a mixed program with NHLLs. Especially, heritage speakers of LCTLs, who are raised in the areas where the population of the minor language speakers is small, have extremely restricted opportunities of interaction with native peer interlocutors and rare opportunities to have institutional education at an optimal age for language development. Due to such restricted input and output practice, the language proficiency of adult HLLs remains at the BICS level and linguistic knowledge lacks accuracy. Thus, adult HLLs' speech and writings do not exhibit age appropriate level, often marked as child language.

Scholars in heritage language areas argue that there is a scarcity of pedagogical methods appropriate for developing heritage language learners' literacy skills accordingly to their comprehension levels (Kondo-Brown, 1997; Potowski, 2002). HL can play a critical role because it can link L1 and L2 acquisition due to its unique characteristics. Thus, it is urgent that teachers and applied linguists examine their research and practice and frame heritage language programs not only to improve language education programs at the primary and secondary levels, but also to recognize the linguistic diversity and build on the linguistic resources of the heritage population. This study brings opportunities for practitioners and researchers to raise awareness of problems in the underlying linguistic knowledge of HLLs and thus seek ways to promote overall language skills and furthermore capitalize advanced aural skills.

Limitations of the Study

Several limitations in sample size, sampling, and selection of instruments became apparent during or after the process of data analysis.

The small sample size is the first and most concerning issue of the present study. This study could be improved with the participation of more students, and thus increase the possibility of more data to be investigated. The researcher's initial effort was to recruit participants from Korean programs at some other universities where the size of the Korean-American population is similar to that in the research location, and where the materials and curriculum are similar to those of the Korean program at the University of Kansas. Due to the lack of response from those programs, however, the research study was conducted only with the students who were currently taking or had exited the program at KU within the previous two semesters. Even though the underlying motivation of the study was to raise more attention to HLLs of much Less Commonly Taught Languages (LCTLs) at an area where the population speaking the TL is small, it was a concern that the small size of the HLLs population could be problematic in generalizing the results of the study. In order to understand a more precise linguistic knowledge and to generalize the findings, a further study with larger populations of both groups should be pursued.

The issue in sampling may be on the same line as the issue of sample size. Non-randomized sampling could be a problem in increasing the research power of this study. As the current research study was designed based on quantitative research, the lack of probability sampling is an obvious limitation in my research. Such non-probability sampling may prevent making broader generalizations about the population of interest from the data collected. However, it should be noted that this study was primarily concerned with the population whose heritage language background is one of the much LCTLs. As the term LCTL itself suggests, this group of

learners is generally of a small size. Yet it is as important for scholars and researchers to consider the participating learners who are in a unique situation as to address the majority of the population.

Even though the type of writing is meaningful by itself in terms of the naturalness of the writing, the error analysis (EA) of writing samples might not have provided a full reflection of an individual learner's linguistic knowledge. The collection of the writing samples followed Corder's (1967) suggestion that good materials to examine learners' errors should be writing samples from non-laboratory settings. However, while coding errors on writing samples collected for the present study it was observed that the learners tended to use a less complicated element when there were two possible expressions. In other words, when the learners confronted some elements with which they were not confident, but which could be replaced by another one, they avoided using the one with which they were less confident. Thus, the results of no errors in the affixal connectives on writing samples but the high error rates of the same categories of morpheme in the grammaticality judgment in a word completion (GJWC) test can imply that EA using learner-generated writing samples may not reflect the actual linguistic competence of the learners due to learners' avoidance strategy. One of the ways this study could be improved was by the use of the GJWC test to supplement the EA.

Considering such learners' freedom in writing, GJWC may provide more information about the true competence of the learners than the EA. The GJWC test was conducted as a follow up test based on the researcher's experience that the learner-generated writing samples involve much of learners' control and strategies. In the GJWC test, the learners were to choose their best answer to make the sentence grammatically correct. Thus, the GJWC may be a more accurate and efficient instrument to explore learners' underlying linguistic competence in the knowledge

of the morphemes observed in the present study. However, since the GJWC is a multiple choice test, a follow up GJWC test of the same participants could confirm if the errors identified in the current study are consistent and not a result of random selection.

Suggestions for Future Research

The present study has brought up many questions in need of further investigation. First, more information on the errors exhibited on various types of writing samples will help to establish a greater degree of accuracy of the findings from the data analysis as different types of written materials may produce a different types or distribution of errors. Furthermore, learners' production of errors is often inconsistent (Corder, 1974). Thus, further error analysis using various types of writing samples such as essays on written tests, writing samples from class activities, or even students' e-mails to instructors will provide more abundant information about the details of underlying linguistic knowledge of the learners.

Further multifaceted research studies such as an experimental study, a longitudinal study, or a survey might be better able to explore what actually occurs before receiving formal instruction and is occurring during the instruction in heritage language acquisition /learning for more specified instructional provision. For example, a follow up short-essay type of survey that asks for the rationale of the selected but incorrect expressions will provide valuable information to determine whether the errors are truly fossilized or are developmental errors. A research study on differential error types in HLLs' written and oral production will also explore the gap in error types and the degree of errors between the two productive tasks in HLLs. A longitudinal study that compares the academic achievements of HLLs and NHLLs according to academic year is also necessary. Such a longitudinal study in a comparison of morphological knowledge between

HLLs and NHLLs will enable exploring whether the linguistic competence of HLLs presents a fundamental difference from their counterpart peers while the language proficiency improves. A replication of this study is suggested as well, preferably by a research team, and on a larger scale if possible, for more cumulative data-based evidence.

In addition, a qualitative research study is necessary for a better understanding of HLLs' perceptions of learning their HL. Individual face-to-face, in-depth interviews are needed to have a deeper understanding of, not only an individual HLL's experiences before and during taking their heritage language course at FL classroom settings, but also their attitudes towards and perspectives on studying their heritage language. The interviews will allow teachers to prepare for more customized curricula and classroom activities that maximize the learning outcomes for HLLs. These interviews will also provide good reviews of what grammatical features in Korean create difficulties among learners, the sources of the errors, as well as the degree of difficulty in learning these grammatical features.

The need for grammar instruction for heritage language learners has been suggested in this chapter based on previous research results and the researcher's experience. However, in order to establish whether, and to what extent, grammar instruction is efficient for teaching HLL groups, further work needs to be done. Experimental studies examining the instructional effects of some teaching approaches for improving grammatical knowledge and language accuracy, especially, will be of practical help for the teachers of HLL groups.

Further research is required about whether and how alternative types of language classes that have been acknowledged for their efficiency, such as immersion, dual track, and blending education, can be equally appropriated for Korean language education in America. In the same vein, research comparing the learning outcomes of single-track programs and dual-track

programs would be of greater assistance in developing curriculum. Even though the current institutional circumstances do not allow separate programs for NHLLs/FLLs and HLLs, the current program could be adjusted accordingly if the outcomes of dual-track programs are positive for both traditional foreign language learners and heritage language learners.

Brecht and Ingold (2002) emphasized the urgent need to improve foreign language education programs at the primary and secondary levels, to recognize the nation's linguistic diversity, and to build on the linguistic resources of the heritage communities in order to solve the problem of the nation's linguistic needs. Although several suggestions for future studies are provided, the field of heritage language learning/teaching, particularly the heritage language teaching of LCTLs, is still in its emergent stage and thus, considerable more work still needs to be done to determine the needs of heritage language learners and pedagogical approaches to heritage language teaching.

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APPENDICES

Appendix A – Language Background and Self-Assessment Questionnaire

Appendix B – Grammaticality Judgment in a Word Completion test

Appendix C – Collecting error data using Systematic Analysis of Language Transcripts (SALT)

Appendix A. Language Background and Self-Assessment Questionnaire

The following survey is part of a research project on the prior Korean language experience of learners. Your answers to the following questions will help us to better understand your Korean use out of the classroom and self-assessment about your linguistic competence. Please check the response that is most appropriate for your experience. The questionnaire will not be graded. Your answer will be kept confidential and will not affect anyone's opinion of you. Thank you for taking the survey. Your time and participation are greatly appreciated.

Section I [Background questionnaire]

• Name _____ • Email _____

• Gender (circle one) Male   Female   • Age _____

• Your current university _____

• Year in school: ☐ Freshman ☐Sophomore ☐Junior ☐Senior ☐ Graduate ☐Unclassified student

• Major (if any) _____

• Amount of formal Korean instruction that you have received through today _____

• Length of study of Korean as a foreign language at a university or other school organization

(e.g., Saturday School/KU undergraduate course   Fall 2009 – Spring 2010)

 Please list them: _____(school) _____(period)

_____(school) _____(period)

_____(school) _____(period)

_____(school) _____(period)

Section II

[Language and life experiences beyond the Korean classroom/setting]

1. Where were you born? Country? State? City? _____

If you were born outside the U.S., how old were you when you moved to the U.S? _____

2. What is your native language? _____

3. What are your parents' native language?   Parent 1_____Parent 2_____

4. What language or languages are spoken at home (childhood home/parents/family)

   English_____   Korean _____   Other (s):_____ (please identify)

5. At what age did you come in contact with the Korean language? _____

6. Do (or did) you use Korean to talk with your parents or one of your parents?

     (circle one)   Yes   Sometimes   No

7. Do (or did) you use Korean to talk with your sibling(s)?

     (circle one)   Yes   Sometimes   No

8. Do you use Korean from time to time in your ordinary life?

     (circle one)   Yes   Sometimes   No

9. How would you rate your relative use of Korean compared to the use of English (or other languages) in your day-to-day life? Please estimate the percentage of the time you spend speaking each language on a daily basis.

   Korean _____%   English _____%   Other _____%

Section III [Self-assessment questionnaire]

The purpose of this part of survey is to know how you perceive your language abilities in speaking, listening, writing, and reading. There isn't a right or wrong answer.

<u>Directions</u>

In this section, you will find statements that consider both your Korean and English language proficiencies in the areas of speaking, listening, writing, and reading. For each statement, please circle the number that identifies how *you* evaluate your own speaking, listening, writing, and reading abilities in both Korean and English.

• Please use the following scale to identify your language circle on the number according to the following 1-5 scale in the box.

1. Poor 2. Relatively poor 3. Average 4. Good 5. Very good

i. When speaking in _____, my proficiency is:
            (Korean/English)
     Korean (1 2 3 4 5)   English (1 2 3 4 5)

ii. When listening to _____, my proficiency is:
            (Korean/English)
     Korean (1 2 3 4 5)   English (1 2 3 4 5)

iii. When writing in _____, my proficiency is:
            (Korean/English)
     Korean (1 2 3 4 5)   English (1 2 3 4 5)

iv. When reading in_____, my proficiency is:
            (Korean/English)
     Korean (1 2 3 4 5)   English (1 2 3 4 5)

v. When speaking Korean with Korean speakers, my proficiency is:
       1   2   3   4   5

vi. When I listen Korean pop music, my understanding of the lyrics is:
       1   2   3   4   5

vii. When writing messages in Korean, my proficiency is:
       1   2   3   4   5

viii. When reading Korean newspapers/magazine/novels, my understanding is:
      1   2   3   4   5

ix. When speaking Korean, my pronunciation is:
      1   2   3   4   5

x. When speaking Korean, my fluency is:
      1   2   3   4   5

xi. When listening to Korean speakers, my overall understanding is:
      1   2   3   4   5

xii. When listening to Korean speakers, my detailed understanding is:
      1   2   3   4   5

xiii. When writing in Korean, my written expression is about a given topic is:
      1   2   3   4   5

xiv. When writing in Korean, the accuracy of my grammar is:
      1   2   3   4   5

xv. When reading the writing of my Korean course classmates, my understanding is:
      1   2   3   4   5

xvi. When reading my textbook for the Korean course, my understanding is:
      1   2   3   4   5

xvii. When reading my textbook for the Korean course, I think my reading rate is:
      1   2   3   4   5

xviii. When reading my Korean textbooks compared to reading my English textbook(s), my reading rate is:
      1   2   3   4   5

Appendix B. Grammaticality Judgment in a Word Completion Test

Name _____

For each item, read the sentence and choose one answer among the four choices to fill in the blank. Select only one answer that you think is the best answer to make the sentence grammatically correct.

<u>Examples</u>

Let's examine the following sentences.

1) 저는 미국 친구_____ 한국어를 가르쳐 줘요.
① 께   ② 를   ③ 한테   ④ 에

2) 어제 백화점에 _____(가다) 사람이 아주 많았어요.
① 갔는데   ② 갔지만   ③ 가서   ④갔고

Answer:
   1) ③
   2) ①

_____YOUR TASK BEGINS NOW! _____

Following each sentence you will see four word choices. Please choose ONE answer that you think best fits in the blank to <u>make the sentence grammatically correct</u>. You will have 20 minutes to answer these 30 questions. If you have any questions, please come forward and QUIETLY ask me for assistance.

1. 저_____ KU 에 다녀요.
① 은   ② 에게   ③ 는   ④ 를

2. 저_____ 전공은 수학이에요.
① 에   ② 의   ③ 로   ④ 한테

3. 어머니_____ 한국에 계세요.
① 는   ② 의   ③ 하고   ④ 께서는

4. 민지는 KU_____ 한국어 수업을 들어요.
① 에서　　　　　② 에　　　　　③ 를　　　　　④ 으로

5. 한국어 수업 시간에는 한국말_____ 이야기해야 돼요.
① 에는　　　　　② 으로　　　　　③을　　　　　④ 로

6. 집에서 학교_____ 걸어서 15 분 걸려요.
① 에　　　　　② 부터　　　　　③ 까지　　　　　④하고

7. 봄 방학에 한국으로 _____ (여행가다) 너무 재미있었어요.
① 여행갔지만　　② 여행갔는데　　③ 여행가고　　④ 여행가면

8. 오늘 스티브는 민지_____ 학교 앞 식당에서 저녁을 먹었어요.
① 는　　　　　② 에　　　　　③ 를　　　　　④ 하고

9. 민지는 비빔밥을 _____ (시키다) 스티브는 육개장을 시켰어요.
① 시키지만　　② 시키거나　　③시키고　　④ 시키면

10. 한국 식당에서는 민지가 음식 값_____ 냈어요.
① 은　　　　　② 으로　　　　　③ 을　　　　　④ 를

11. 이번 주말이 민지 룸메이트_____ 생일이에요.
① 으로　　　　②가　　　　　③의　　　　　④ 께

12. 이번 토요일에 민지 집_____ 파티를 할 거예요.
① 이　　　　　② 에서　　　　　③ 에　　　　　④ 으로

13. 저는 친구한테서 좋은 생일 선물_____ 받았어요.
① 를　　　　　② 에게　　　　　③을　　　　　④ 로

14. 지금 살고 있는 아파트는 아주 _____(불편하다) 비싸요.
① 불편하지만　　② 불편하고　　③불편해서　　④ 불편했는데

15. 저는 피곤하면 _____(샤워하다) 일찍 자요.
① 샤워하고　　② 샤워하지만　　③ 샤워해서　　④ 샤워하는데

16. 이번 주말에는 시간이_____(없다) 다음 주말에 만날까요?
① 없고　　　　② 없지만　　　③ 없어서　　　④ 없는데

17. 민지는 이번 여름 방학에 서울_____ 가요.

① 을   ② 에   ③ 이   ④ 으로

18. 미국에서 한국까지 비행기_____ 11 시간 걸려요.
① 으로   ② 에   ③ 는   ④ 로

19. 서울은 한국 사람들_____ 많이 사는 곳이에요.
① 도   ② 까지   ③ 이   ④ 께서

20. 저는 부모님_____ 자주 편지를 보내요.
① 한테   ② 께   ③ 이   ④하고

21. 지난 해 어머니 생신에 아버지_____ 어머니께 꽃을 선물하셨어요.
① 께   ② 가   ③ 께서   ④ 로

22. 오늘 아침에 공부하러 도서관_____ 갔어요.
① 에   ② 에서   ③ 로   ④ 한테

23. 오늘은_____ (늦다) 택시를 탔어요.
① 늦지만   ② 늦어서   ③ 늦고   ④ 늦었는데

24. _____(춥다) 문 좀 닫아 주실래요?
① 춥고   ② 춥지만   ③ 추워서   ④ 추운데

25. 여름에는 날씨가 더워서 _____(싫다) 수영할 수 있어서 좋아요.
① 싫고   ② 싫지만   ③ 싫어서   ④ 싫었는데

26. 지난 토요일 저녁_____ 친구를 만나서 영화를 봤어요.
① 부터   ② 에게   ③ 까지   ④ 에

27. 주말에는 보통 친구를 _____ (만나다) 숙제를 해요.
① 만나고   ② 만났지만   ③ 만나면서   ④ 만났는데

28. 지난 주말에는 한국 음식이 먹고 _____(싶다) 한국 식당에 갔어요.
① 싶고   ② 싶지만   ③ 싶어서   ④ 싶은데

29. 어제는 가족들_____백화점에 갔어요.
① 에   ② 을   ③ 에게   ④ 하고

30. 스티브는 날씨가 아주 _____(덥다) 그냥 집에 있었어요.
① 덥고   ② 덥지만   ③ 더워서   ④ 더운데

Appendix C. Collecting Error Data Using Systematic Analysis of Language Transcripts (SALT)

1. After transcribing a writing product, the following steps were necessary to let the program recognize the error types to be analyzed:

   "Setup" →"Analysis Settings"→ 'Error Codes" → Type the error codes in brackets under [E=] with its title
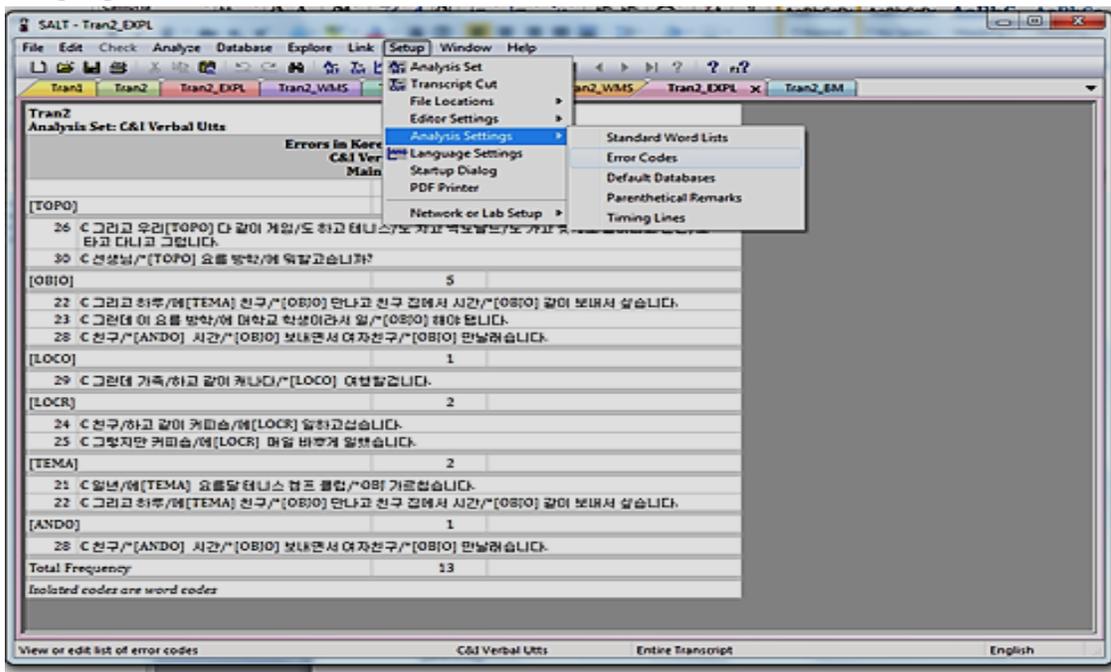
2. In order to find the numbers of all morphemes used in the writing sample, the following steps were taken:

   "Analyze" → "Word and Morpheme Summary"→ "Number of Bound Morphemes"

Tran1
Analysis Set: C&I Verbal Utts

WORD AND MORPHEME SUMMARY				
	Child		Examiner	
	Analysis Set	Total Utterances	Analysis Set	Total Utterances
MLU in Words	5.36	5.36	---	---
MLU in Morphemes	6.93	6.93	---	---
Brown's Stage	Post V	Post V	---	---
Expected Age Range (months)	41 - --	41 - --	---	---
Number Different Words	230	230	0	0
Number Total Words	316	316	0	0
Type Token Ratio	0.73	0.73	---	---
50 Utterances				
Number Different Words	208	208	---	---
Number Total Words	265	265	---	---
Type Token Ratio	0.78	0.78	---	---
Number of Bound Morphemes	93	93	0	0
Number of Maze Words	0	0	0	0
Number of Omitted Words	0	0	0	0
Number Omitted Bound Morph	14	14	0	0

3. In order to identify all errors on the writing sample, the succeeding steps should have been followed:

"Setup"→ "Analysis Settings" →"Error Codes (Under [E=])" →"OK"→ "Explore" →"Word and Code List" → Type title and past the error codes in brackets again & change "Code type for isolated codes" into "*Word codes"→ "OK"

4. In order to observe all error occurrences by each code in one table:

"Explore" →"Change" →"Utterance Base" under *Total utterances and "Include into Entire List"→ "Words and Codes"

* A sample table that indicates all the error codes set with error occurrences of each category

5. In order to obtain the number of total utterances, the next steps were followed:

"Explore"→ "Utterance Base" into *Total utterances → "Include" into Entire List "Words and Codes" → "List" (instead of Word and Codes)

6. In order to calculate the total number of bound morphemes focused on in the writing sample, the following steps were taken:

1) "Analysis"→ "Bound Morpheme Table" →"OK"

2) Summing up all the numbers under "Number Occurred" & "Number omitted"